Evaluation Before Acquisition: a hospital approach to technology decision making.

Maurice McGregor M.D., McGill University Health Centre, Montréal, Québec

Fifteen years ago Canada had a reasonably well functioning healthcare system of which its citizens were reasonably proud. Today, although much of the system still functions well, there is a high level of dissatisfaction amongst both those who use it and those who work in it. Patients are dissatisfied because of the difficulty experienced by many in accessing the system, while health workers suffer frustration and stress when they are unable to give good service in a timely fashion. Let us first ask how this came about, and then review one approach to ameliorating the situation, namely an increase in the use of health technology assessment (HTA) in Canada’s hospitals.

While there are many problems with our healthcare system, the biggest is the gap that exists between its constantly increasing costs, and the amount that our governments, are prepared to pay. Hard to identify and quantitate, this gap is nevertheless the ultimate cause of the long waiting times and stressed healthcare workers, and is becoming the principal stimulus for the expansion of private, for-profit private healthcare services “to cure the situation”.

So it is important to ask, not why health costs are high, but why they keep increasing? Yes, we are wasteful, but do we waste more each year? Are health workers paid disproportionately more each year? The answer to all these questions is clearly no, it is just that the health system, and the hospital in particular, does more each year.

To those who work in the system this may be obvious, but for those who do not, it is harder to understand. This is because from outside, our hospitals look the same. But behind those unchanging walls they are constantly evolving. Each year they use new, usually costly diagnostic procedures, CATS, PETS, new operations, new therapeutic tests, and new drugs, and because the new technologies are constantly being improved and made safer, their use is constantly expanding. For example, as surgery gets safer we can now implant artificial hips and knees in older and frailer patients than before, and since new devices now last longer they can be placed in increasingly youthful patients. As a result, these procedures have increased by 87% since 10 years ago, but in spite of this many patients still have to wait their turn for a year or more.

New and improved technology also prompts us to try to detect diseases earlier while there is a better chance to cure them. So, increasingly we subject whole populations to screening for cancers and other diseases. Both the costs of treating the diseases detected, and the

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Dr. Cameron C. Gray (1916-2007)

Robert Hyland, MD, FRCPC, FACP, Editor

The following is the tribute to Cam that I had the honour of presenting at the OLA reception at the recent Better Breathing meeting.

I am honoured to speak about Dr. Cameron Gray, but especially so today. I’m very sorry to tell you that Dr. Gray passed away yesterday, at age 91, but he has left us with a tremendous legacy. Those who have had the privilege of spending time with Cam will recognize that he always had a twinkle in his eye and a joke at the tip of his tongue, not always a politically correct one either!

Cam faced his share of adversity in the latter years of his life. His wife, Helen, died after an extended illness and he was her devoted husband to the end. As well, there was the death of his son, Cam Jr., and his own loss of sight in one eye - but he was always cheerful and optimistic. At Belmont House, where he lived in recent years, he will be sorely missed. His outgoing personality brought a smile to the face of all those who crossed his path. In fact, my late father-in-law was one of his collaborators at Belmont House. The boys, five in all, had drinks before dinner once a week and Cam, as the ringleader, could always lift their spirits.

Some of you may not be aware that Cam was recently inducted into the University of Toronto Sports Hall of Fame for his prowess on the football field. I recently learned that he was offered a contract to play for the Ottawa Roughriders of the Canadian Football League. Fortunately for us all, he chose to study Medicine and graduated in 1939. He started his career as a Respirologist in 1948, and practiced for over 30 years at the Toronto General Hospital focusing exclusively on lung disease. Cam was the bridge between the old time TB doctors and the modern General Respirologists. He was beloved by his patients as a kind, caring physician, by his peers as a knowledgeable and courteous colleague, and by his students as an outstanding teacher.

His work with the Ontario Thoracic Society began with the Ontario Tuberculosis Association, which became the Ontario Lung Association. The Ontario Thoracic Society formed in 1961 and in 1969 he was its first Medical Director. In 1971 he became the Executive Vice President of the Ontario Lung Association for the next nine years. His dedication and support of research and education in respiratory disease led to the founding of the Dr. Cameron C. Gray Fellowship in Pulmonary Medicine. Even in his later years, he was known to be in regular touch with the Lung Association staff, always providing his enthusiastic support to the cause. He would personally thank every donor to the fund and he made sure he met every recipient of this award.

The presentation of the Cam Gray award was one of the highlights of his life in recent years and he was very much looking forward to being here tonight.

Cam was a gentleman physician and truly one of Respirology’s great statesmen. He will be missed.

The feature article in this addition of the Ontario Thoracic Reviews is a synopsis of the plenary address at Better Breathing 2007 by Dr. Maurice McGregor. Those of us who were privileged to hear him speak were impressed by his insightful analysis of the major cause for escalating health care costs and also the pragmatic solution that he has initiated at McGill. I believe all our readers will find his article stimulating and thought provoking.
Profile of a Researcher

Felix Ratjen, MD, PhD, Head, Division of Respiratory Medicine, The Hospital for Sick Children; Professor of Pediatrics, University of Toronto

Felix Ratjen is a pediatric Respirologist with a long-standing interest in clinical research. He obtained his medical training at the Johann Wolfgang Goethe University in Frankfurt, Germany with interim rotations in the Division of Cardiology and Respiratory Medicine at the Hospital for Sick Children in Toronto and at Maimonides Medical Center in New York. He performed his first double blind placebo controlled trial on mucolytic therapy in CF patients as a medical student in Frankfurt, which also constituted his medical thesis. After completion of his MD, he conducted a two-year research fellowship at the Division of Pediatric Pulmonology at the Children’s Hospital in Boston, where he worked on validation of techniques to measure pulmonary function in infants in collaboration with Mary Ellen Wohl, Ann Stark and Jere Mead. Subsequently, he returned to Germany to complete his pediatric and pediatric respirology training at the Children’s Hospital of the University of Essen. He remained at this institution leading the Respiratory group and was appointed deputy Chief of the Department of Pediatrics in 1998 and Professor of Pediatrics in 2001. He has assumed the position of chief executive of the scientific board of the German CF foundation in 2002-05 and was actively involved in activities of the European Respiratory Society activities including pediatric Task Forces on bronchoscopy, bronchoalveolar lavage, nitric oxide and interstitial lung diseases. In April 2005, Felix Ratjen moved to Canada to become the Head of the Division of Respiratory Medicine at the Hospital for Sick Children. He is a member of the editorial board of Pediatric Pulmonology and the Journal of Cystic Fibrosis and associate editor of the American Journal of Respiratory and Critical Care Medicine.

Felix Ratjen’s research is clinically oriented and covers many aspects of pediatric respiratory diseases such as the development and validation of tests to objectively assess lung function in infants and young children, techniques to study airway inflammation in chronic respiratory diseases, genetic factors influencing the course of lung disease as well as treatment modalities which potentially affect lung function and airway inflammation. A special focus of his research has been and still is Cystic Fibrosis. He is involved on a number of clinical studies on early intervention strategies to prevent lung damage in CF patients. He has developed eradication strategies to treat early Pseudomonas infection in CF patients and is still leading a multinational study on eradication of Pseudomonas with inhaled antibiotics (ELITE study) in Europe. He is co-principal investigator with Larry Lands for Canada for the first collaborative study funded by the United States Cystic Fibrosis Foundation in both the U.S. and Canada on the effect of azithromycin treatment in CF patients without Pseudomonas infection. He is also co-heading a collaborative multi-center study on treatment of Aspergillus Fumigatus in CF patients with Shawn Aaron from Ottawa with planned recruitment at CF centers in both Canada and Australia. A special interest over the last years has been to understand the role of nitric oxide deficiency in cystic fibrosis and how it can be influenced by therapeutic interventions. In a series of study with Hartmut Grasemann, who joined him at Sickkids from Germany, they found a link between low NO production, low pulmonary function as well as P. aeruginosa infection in CF patients. In a pilot study they could show that inhalation with L-arginine, the substrate on NO synthase, not only increases airway NO production but also pulmonary function in CF patients. Currently, a multi-dose trial is under way to further assess this potential new therapeutic intervention.

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considerable costs of investigating the false positives produced by screening fall mostly on hospital budgets. The availability of these new technologies has also created the expectation that we can now treat everything. A few years ago we often told patients that we were sorry, but there was nothing more that could be done for them.

Now there is nothing that we can’t do anything for, whether it is uncontrolled obesity, a third course of chemotherapy for advanced cancer, the insertion of an implantable cardiac defibrillator for heart failure, or when all else has been done, the provision of good palliative care. The benefit of these procedures is variable, but they all cost money, which again usually comes from the hospitals’ budgets. The problem is that these new technologies may improve the quality of life and prolong its duration but they very rarely save money. We all die eventually, and whatever we die of will usually cost money. Our interventions can only delay this cost, they cannot prevent it. Since the longer we live, the more health resources we consume, for budgetary purposes it would be best if we all died suddenly while young. Our gain from these technologies is in length of life and in quality-of-life, but unfortunately these items cannot be counted at budget time, when it is the costs that counts.

Another problem is that no one knows the total cost of our increasing use of new appliances, procedures, and tests. We know that the cost of prescribed drugs, one of the few categories that is directly measured, is increasing by approximately 11% per year. What happens when the costs of expansion of technology exceed the budget that governments allocate to health services. The only thing that can happen, since institutions must balance their budgets, is that they cut back on other cost items such as beds, nurses, orderlies and plant maintenance, with the result that their capacity and their quality diminish. This may not be intuitively obvious, but consider the following metaphor.

You run a home in which all costs are under control except one, say the electricity bill, and this goes up by 10% each year. So each year because you cannot cut electricity use, you have to make economies elsewhere to balance your budget. One year you cut vacations. Another year you cancel sports club memberships, then movies, books, home maintenance etc. With each economy you successfully balance your annual budget, but you reduce your quality of life. And of course each cut that you make only gives you a temporary respite.

This is no new perception. In 1994 David Eddy1 estimated that if by some miracle the USA could cut doctors fees by 20%, the cost of all drugs and supplies by 50%, and eliminate the costs of health administration, construction and research, this would buy a balanced health budget for only five years. For permanent control the rate of technology acquisition would have to be controlled as well.

In Canada this was most vividly illustrated during the five-years (1994-99) when health expenditure per citizen, in constant dollars, actually fell each year. However, during this period we did not stop acquiring and using more technologies and drugs each year. How did we pay for these activities? We paid for them by cutting back on the infrastructure of the healthcare system. In hospitals, where most of these activities take place, from 1990 to 1997 the average per capita spending rate fell by 2.2%. In the town I live in, we closed seven hospitals and cut back the number of beds in each of those that survived. We induced doctors to retire early and we cut medical student enrollment. Not surprisingly, emergency rooms got fuller and waiting times got longer.

There is clearly no simple solution to this problem. The technology explosion is not over. So the gap between increasing costs and willingness to pay will not disappear. But there is one intervention that can soften its impact on health care, and that is to make a greater effort to spend whatever budget is available to us in such a way as to get the maximum health benefit. This requires that we first scientifically and objectively estimate the health benefits and the costs of any technology we contemplate using, and then decide in a fair and transparent way, whether it will give us better value for money than the other items that compete for our budget. One approach to this process is through the use of Health Technology Assessment (HTA).
Evaluation Before Acquisition...

is a two-stage process. First there must be collection and synthesis of the evidence. This is an objective and scientific process. Next, in the light of this evidence, recommendations must be arrived at that are consistent with the institution’s mission and values. This is a subjective and value-based process.

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Complete reports are available at www.mcgill.ca/tau/

Stakeholders are representatives of the disciplines most affected by the decisions that will be taken. Their participation provides clinical expertise and promotes buy-in. The committee’s role is to develop policy advice based on the evidence, using a process that is as fair and transparent as possible. TAU conclusions are no more than recommendations. The hospitals existing decision making process remains in place. However, in addition to being sent to the administration, the recommendations, their reasons, and the supporting evidence, are posted on the Web. As a result of this process almost all recommendations made by the TAU are rapidly accepted and incorporated into hospital policy. Reports are updated as necessary (see table 1).

Over the past 5 1/2 years the unit has produced 29 reports, 27 of which contain policy recommendations. Of these, seven recommended outright acquisition of the technology concerned, on grounds of good evidence, cost effectiveness, and a relatively low budget impact. Eleven advocated rejection of a technology, on grounds of inadequate evidence of benefit, or costs that were excessive in relation to the benefits to be expected, and in nine reports acquisition of the technology was accepted, but extremely tight limits were set on its use.

An example of the latter type of decision is the recommendation that the hospital should not authorize the routine use of drug eluting coronary stents. This recommendation was based on two things, the limited clinical benefits anticipated in relation to the substantial costs, and the fact that because of short follow-up safety was not yet proven. When this report was submitted (June 2003) the use of medicated stents was becoming almost universal. Its adoption saved the institution approximately $3 million per year. Also, longer follow-up now shows us, it saved patients from the recently documented long-term complications.

We tentatively conclude from these experiences that by developing HTA’s within the hospitals it is possible to develop timely and relevant policy advice that can rapidly be incorporated into hospital policy. Extension of decision making along these lines in Canadian hospitals might substantially improve decisions on the acquisition and use of technologies while bringing some control to the burgeoning growth of health technologies, and slowing the rate of increase of the cost of our healthcare system.

REFERENCES
OTS - Thanks for Your Support!

The Lung Association would like to thank the Ontario Thoracic Society for providing the leadership and ongoing support that is so essential to our organization and the advancement of respiratory health. Year after year, OTS members provide The Lung Association with advice and direction to shape respiratory health programs both within the organization and beyond. To illustrate the impact of this support, I am pleased to share the following message written by Nancy Garvey, Asthma Program Coordinator with the Ontario Ministry of Health and Long Term Care.

Over the past four years, OTS members have demonstrated leadership by their participation in Ontario’s Asthma Plan of Action projects and programs, helping to contribute to the evidence and support the best in clinical practice related to asthma. It all began with participation in the working groups that formed the recommendations that became the Asthma Plan of Action, an integrated strategy of thirteen initiatives including prevention, health promotion, management and treatment and research and surveillance related to asthma. Dr. Gerard Cox and the original OTS’ Provider Education Committee supported early development of the initiatives with the Provider Education for Primary Care Providers Project and the design of the asthma care map for primary care. Dr. Susan Tarlo helped fill a gap with the review of occupational asthma education materials for bakeries, auto/plastics/foam industries and healthcare industries (These and other materials are available through the OLA Asthma Action Helpline 1-800-668-7682). Dr. Diane Lougheed played a key role in the development and evaluation of the Provider Education program along with Dr. Joe Reisman and other OTS members. Diane is also the lead investigator in the evaluation of the Emergency Department Asthma Care Program (EDACP), led by the Ontario Hospital Association (OHA). Dr. Malcolm Sears offered invaluable insight into the design and implementation of the pilot project for EDACP as a member of the Steering Committee. The OHA is planning for the rollout of EDACP for adults this Fall which may provide OTS members other opportunities for leadership by supporting implementation.

Other recent OTS participants include Dr. Chris Allen, sharing his experience with the Hamilton-originated psychiatry mentorship model with the Primary Care Asthma Program (PCAP), aiming to develop a similar model of support for family physicians with the management of asthma and the use of spirometry in primary care settings. Dr. Roger Goldstein, Dr. Gordon Guyatt and Dr. Rick Hodder are leading a COPD Demonstration Project in three of the current twelve PCAP sites. Dr. Nigel Paterson is lending his expertise to the implementation of PCAP in the London area, and is a “chronic disease management advocate” in his role with the local LHIN.

Dr. Chris Lisckai and his team have joined the PCAP group after successfully demonstrating the effectiveness of a similar program in the Windsor area, funded by the Primary Health Care Transition Fund. Family practitioner members Dr. Alan Kaplan and Dr. Tony D’Uzzo have represented primary care physicians as “asthma advocates” for a number of APA initiatives that have been more successful because of their leadership contributions…. and many of the OTS members referred to have participated in more than one program.

Family Health Teams also provide opportunities to implement PCAP which we hope will include a mentorship link with local specialists as the programs are developed. Interest and excitement abounds as contributions to the e-health record beginning in primary care are being recognized by the Ministry of Health and Long-Term Care (MOHLTC). And there are many opportunities for research focusing on evaluation of the initiatives and effectiveness of interventions.

The Asthma Plan of Action projects and programs include a number of innovative approaches to guideline dissemination and implementation that are being recognized...
OTS Honorary Life Membership Awards

Congratulations to Dr. Ronald Wigle who has been awarded the 2006 Honorary Life Membership of the Ontario Thoracic Society. Dr. Wigle was presented with the award on Friday, February 2, 2007 at the OTS Annual General Meeting.

Dr. Ronald Wigle was the founding member of the Division of Respirology in Kingston. He established the Intensive Care Unit at KGH, and was an active intensivist. The recipient of numerous clinical teaching awards, he is renowned for his dedication to training general and specialist physicians. His astute clinical judgement, professionalism, empathy and wit have earned him the admiration and respect of those most fortunate to be his students and colleagues. He is also an outstanding administrator, having served on over 170 hospital, university and provincial committees, including terms as President of the Ontario Thoracic Society from 1977-78, the Board of Directors of both the OTS and CTS, OTS Research Committee and OLA Task Force on Asthma. The OTS is pleased to award Dr. Wigle this Honorary Life Membership in appreciation of his enormous contribution to improving lung health in Ontario.

Congratulations to Dr. Noe Zamel who has been awarded the 2007 Honorary Life Membership of the Ontario Thoracic Society. Dr. Zamel was presented with the award on Friday, February 2, 2007 at the OTS Annual General Meeting.

Dr. Noe Zamel has played a major role in respiratory medicine in Ontario for over 30 years. He developed the pulmonary function laboratories at the UHN and Mount Sinai Hospitals and played a significant role in developing high standards for quality pulmonary function testing. His research has ranged from physiology to genetics to non-invasive markers of inflammation, mainly in the area of asthma and airway disease. He has traveled as far as Tristan Dacuna in pursuit of his research. He has trained numerous Canadian as well as international physicians in pulmonary function and in research. He has shown marked innovation in his research and has been generous in his support of his colleagues in Respirology in Ontario. The OTS is pleased to award Dr. Zamel this Honorary Life Membership in appreciation of his enormous contribution to improving lung health in Ontario.

Thank You... Continued from page 4

by the Canadian Thoracic Society¹, Ontario’s MOHLTC/OMA Guideline Advisory Committee, CIHR’s Institute for Public and Population Health² and the World Health Organization’s Global Initiative for Asthma’ Guideline Dissemination Committee³. The ultimate benefit being improved health outcomes for both children and adults with asthma. With ongoing funding, though limited, and interest from organizations like the Public Health Agency of Canada in Dr. Teresa To’s asthma surveillance work, another APA initiative, ongoing collaboration with the OTS should continue to be a mutually beneficial experience.

NANCY GARVEY

REFERENCES
4. Personal correspondence, Dr. Wan Tan, Chair, GINA Guidelines Dissemination Committee, April 13, 2007.

Cameron C. Gray Fellowship Recipient 2007-2008

Congratulations to this year’s recipient of the Cameron C. Gray Fellowship Award, Dr. Reshma Amin, from the University of Toronto. Dr. Amin is currently in her second year of Pediatric Respiratory Medicine at the University of Toronto where she is Chief Fellow.

Dr. Amin obtained a Bachelor of Science in 1998 from the University of Western Ontario and a Doctor of Medicine in 2002 from the University of Toronto. She completed her Pediatric Medicine in 2006 at the University of Toronto – Hospital for Sick Children.

During her CC Gray Fellowship year, Dr. Amin plans to continue her training in two clinical areas of Respirology: Cystic Fibrosis and Lung Transplantation.

Dr. Amin will be an excellent ambassador for this fellowship, having the ability to make a special contribution to the field of Respiratory Medicine as did Dr. Gray, in whose honour this prestigious award was established.

This annual award is available due to the ongoing support of the Ontario Lung Association, private donations, Ontario Thoracic Society members, friends, family members and patients of Dr. Cameron C. Gray.

This award was established in 1982 and has funded 22 respiratory residents. For further information on this award, please contact the Ontario Thoracic Society.

RESHMA AMIN