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Disease Management Partnerships: Creating Health Solutions

Proceedings of a Special Symposium of the 4th Annual *Canadian Therapeutics Congress*

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ABSTRACT

A symposium at the fourth annual *Canadian Therapeutics Congress* in Halifax, Nova Scotia, on May 27, 2007, discussed the ability of multi-stakeholder partnerships to create new and better ways to manage chronic disease; particularly, to achieve cost efficiency and better health outcomes for the ever-increasing number of patients dealing with chronic disease.

The presentations included the experiences of three innovative programs under way in Nova Scotia, Alberta and Ontario, as well as the viewpoints of representatives from both the pharmaceutical industry and government. The symposium revealed that innovative partnerships are providing some encouraging signs of progress in this vital area.

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Jack Watters, MD
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SUMMARY OF PRESENTATIONS

DISEASE MANAGEMENT PARTNERSHIPS: CREATING HEALTH SOLUTIONS

Advances in medicine, scientific knowledge and, as a result, in general health and life expectancy, have been remarkable in recent decades. But, our medical system was created in an era when its major role was to deal with acute care issues – trauma, infections and infectious disease. Success in those areas, with huge resulting benefits to patient health, has meant that we now have an ageing population with more and more chronic disease, not acute illnesses, as their major healthcare challenge.

This is not a trivial issue. Illness and disability resulting from chronic diseases – such as diabetes, cardiovascular disease and chronic obstructive pulmonary disease (COPD) – generate costs in Canada of an estimated $80 billion each year. Although many of the risk factors for these diseases are modifiable (i.e., smoking, lack of exercise, poor eating habits, etc.), funding for education and preventive programs in Canada has historically been lacking. As well, when acute illness occurs among people with chronic diseases, there are critical care gaps and inefficiencies to address the underlying chronic causes of the acute illness and ensure appropriate disease management and follow up.

Adjustments by the healthcare system to address this challenge may include multi-stakeholder partnerships for disease management. This symposium sought to learn about the experiences of three innovative partnerships in different regions of Canada; as well as, to get the perspective of both the pharmaceutical industry and government – two key players in any such partnership efforts.

The three case study presentations indicated there is some reason for optimism that these types of programs can be beneficial. While differing in their geography, mandate, patient populations and specific approaches, the three studies illustrated some common criteria for success. There was agreement that disease management programs should include processes to identify patients at risk for developing chronic disease and stratify them according to their risk of disease. They should also incorporate appropriate information systems to coordinate patient data, motivate patients to become actively involved in their own care and foster cooperation among stakeholders, as well as among all the healthcare professionals involved in the patient’s care. It was also demonstrated that there are great opportunities to redefine roles of healthcare professionals in the management of such patients to ensure optimum use of finite healthcare resources, both financial and human. The use of modern information technology, such as electronic patient health records to prevent duplication and ensure consistency of knowledge and actions by different practitioners was also noted as a particularly important tool.

Chronic disease management programs, such as those described at this symposium, have the potential to improve patient outcomes and quality of life, while reducing costs to the healthcare system by augmenting efficiency in care delivery. They are investments that contribute to ensuring the sustainability of our healthcare system and demonstrate the disadvantage of looking at individual components of healthcare delivery in isolation. Rather, it is vital to raise the productivity of the system as a whole by ensuring that the different parts work more efficiently together.

The industry and government spokespersons taking part in the symposium shared these goals without diminishing the task at hand in achieving them. There was recognition, however, that both industry and governments have important roles to play as partners with healthcare professionals in moving forward with these necessary changes in our approach to chronic disease management. The session was sponsored by an educational grant from Pfizer Canada Inc.

Brendan Carr
Capital District Health Authority

With the growing burden of cardiovascular disease in Canada, health programs are becoming increasingly more focused on prevention and health promotion at the community level. This was the impetus for the ANCHOR study – *A Novel Approach to Cardiovascular Health by Optimizing Risk*. Dr. Brendan Carr, a principal investigator of the ANCHOR study, described it as a collaborative research initiative with a goal toward improving the risk of cardiovascular disease in a primary care adult population. The study's primary objectives are to improve the management of patients' global cardiovascular risk within the primary care setting, and to increase patient compliance with pharmaceutical and lifestyle interventions aimed at decreasing global cardiovascular risk. To ensure the success of the project, public and private stakeholders were solicited at the program's conceptualisation, including the Nova Scotia Department of Health, the District Health Authorities of Cape Breton and Halifax, the QEII foundation, the Heart and Stroke Foundation, and Pfizer Canada. Designed as a case-controlled study with a one-year intervention phase, ANCHOR will recruit 1,500 participants (750 in each of two sites in Cape Breton and Halifax), as well as 400 participants in a third Cape Breton practice as a comparison cohort. In addition to measuring individual health risk and objective parameters such as BMI, blood pressure, lipids, and glucose, the study will assess patients' readiness and motivation for change, as well as their perceived barriers and confidence for change.

ANCHOR is also exploring whether differing funding dynamics will affect the study's effectiveness or collaboration efforts among the partners. The Halifax practice is based on an alternate funding model, while the Cape Breton site is a fee-for-service model. Drug and service utilization will also be monitored throughout the study, looking at specific categories of drugs, such as lipid-lowering and diabetes medications.

On entering the study, patients undergo a health risk assessment to determine their risk of developing cardiovascular disease, and are categorized as low, moderate or high risk, according to the Framingham criteria. The ANCHOR team, which includes a practice-based physician lead, a nurse coordinator, a dietician, and consultants within each of the practices, helps patients to identify specific goals and to connect with programs in their community in order to achieve these goals. Dr. Carr stressed that the aim is to find risk factors that the patient is really interested in improving, and that they should be prepared to take action. "It is important that their goals are specific and simple, so that they can be achieved reasonably and maintained over a long period of time."

With 775 patients enrolled so far, the ANCHOR study currently includes more females than males, and more high- and moderate-risk patients than low-risk patients. According to Dr. Carr, these demographics are entirely representative of the population of Nova Scotia. At the six-month health risk assessment, 66% of patients were found to have metabolic syndrome – a finding that was not entirely surprising to the ANCHOR investigators, but one which was not expected to be as profound as it was.

The six-month assessment also revealed that 10 patients had a latent condition, such as hypertension or diabetes, which had not been identified at their initial assessment. Of the 234 patients who had reached the six-month assessment, 81 were found to have a pre-existing disease. Dr. Carr stressed that, while it is still possible for these patients to reduce their overall cardiovascular risk, by definition, they will always be identified as high risk. For the remaining 153 patients who have the ability to change their risk categories, the impact of the ANCHOR program has been promising; 43 have reduced their risk category from either high to medium risk or from medium to low risk, and 54 have reduced their risk score overall.

Dr. Carr attributes much of the success of the ANCHOR program to its organization, which includes an operating committee, a steering committee, and a number of working groups, including a communications working group, a health economics working group, and a scientific advisory group. Several working groups have representation from the broad range of stakeholders who have been involved since ANCHOR's inception, including government representatives, community health, and Pfizer. With the cooperation of these various groups, Dr. Carr is confident that the ANCHOR program will identify an approach to modeling, and to performing a health economic evaluation, that will meet everyone's needs in terms of understanding the data and understanding how it can impact the system.

Richard Lewanczuk
University of Alberta

As one of the largest integrated health regions in Canada, Capital Health in Edmonton, Alberta serves a population base of about 1.6 million and strives to reach all individuals with, or at risk for, a chronic disease – not just those who show up at the clinics. Using the example of diabetes, Dr. Richard Lewanczuk, Professor of Medicine at the University of Alberta, described the chronic disease management program at Capital Health in Edmonton, where he serves as the Regional Medical Director for Chronic Disease Management. With a large focus on primary care, the priority at Capital Health is on community-based care and resources. Patient self management, planned follow up and interventions, and evidence-based medicine are incorporated to target the right treatment to the right person at the right time. Capital Health targets a number of chronic diseases using Wagner's model of chronic disease management. According to Dr. Lewanczuk, 80% to 90% of care can be provided at the community level, while only 10% to 20% require access to more specialized services.

Primary care networks were set up by agreement with the government, the Alberta medical association and the nine health regions in Alberta. In return for semi-capitation based funding, the networks agreed to provide ongoing access to care for medically complex patients and to follow the principles of chronic disease management. Through this system, the role of the specialists also evolved, to where they were now able to focus their attentions on complex and atypical patients. In the case of diabetes, specialists will generally not see new patients until the primary care team has had six months to control the disease. There has also been a move toward less reliance on physicians and more involvement with other healthcare professionals, such as dieticians, pharmacists, and nurses, to address all the patient's healthcare needs, not just the needs associated with one disease. Community supports are also provided through organizations such as the YMCA, Weight Watchers, and the Running Room. Community healthcare councils have also become involved, through their commitments to actions such as building more walking trails or recreation facilities in the community.

Capital Health is also experiencing a region-wide move toward electronic medical records, which will likely involve the entire primary care network as well as specialties. By sharing patient information, such as allergies, medications and medical conditions, healthcare professionals can flag people at risk for certain conditions, and generate reminders and alerts to patients and other providers.

Dr. Lewanczuk stressed that Capital Health is working toward a system that deals with healthcare, not illness care, for patients. There is an emphasis on personal responsibility for health on the part of patients, as well as on staying healthy, with the supports to achieve this – not just an expectation. In just a few short years, Capital Health has already begun to see the benefits of this new infrastructure in their diabetes program. More than two and a half times the national average of people have reached their goals for haemoglobin A1C levels and for blood pressure. In addition to these types of endpoints, patient-reported outcomes are being introduced to detect improvements in quality of life and to proactively identify people at risk. They are also beginning to track economic indicators to determine the cost of providing care, so that resources can be shifted appropriately.

Dr. Lewanczuk concluded by sharing the lessons learned from the Capital Health program. Clear organizational vision and commitment on the part of the senior executive, as well as dedicated planning resources and funding are needed to move forward. Champions, physician champions in particular, are critical to the implementation of chronic disease management.

Andrew Pipe
University of Ottawa

The realization by a group of physicians at the University of Ottawa Heart Institute that they were failing to address the needs for cardiovascular disease prevention in their particular region sparked the creation of the Champlain Cardiovascular Disease Prevention Network. Their vision was to develop an integrated and coordinated program to lower the incidence and risk of cardiovascular disease at the population level. In the early days of the program, the group recognized an opportunity to collaborate with colleagues in a variety of other chronic disease areas. By addressing cardiovascular disease risk factors, it was understood that modifiable risk factors for many other chronic diseases would also be addressed.

Home to nearly 1.2 million people, the Champlain region of eastern Ontario encompasses several communities with higher than normal levels of cardiovascular disease. Dr. Andrew Pipe, Chair of the Champlain Cardiovascular Disease Prevention Network, described the region as a “microcosm of our country”, with a variety of urban settings, smaller agricultural communities, and “remote” communities, as well as three or four distinct aboriginal communities. With the reorganization of chronic disease prevention in Ontario and Canada, the Network saw an opportunity to develop an array of strategic partnerships with various institutions and individuals in the community, as well as other sectors, such as municipal governments, the education sector, tourism and economic development organizations, the environmental community, and urban planners. The idea was not only to identify and manage the risk factors for cardiovascular disease, but also to influence and engage those who could transform the social and physical environment that would support healthy lifestyles and behaviours.

In establishing priorities for the program, the Network recognized that, in order to have an impact, they had to have reach, which could only be achieved through effective programs. Six areas of priority were identified: 1) primary care, 2) specialty care, 3) hospitals, 4) schools, 5) workplaces, and 6) communities. State-of-the-art initiatives are currently being implemented in these six key areas. One such initiative described by Dr. Pipe is an evidenced-based, best practice, smoking cessation program introduced into all hospitals in the Champlain region. Starting with one hospital, every single patient admitted is identified as either a smoker or a non-smoker, and smokers are offered strategic treatment and follow up. The program has resulted in a 15% increase in smoking cessation rates over one year. As a result, the program has been successfully implemented in 17 hospitals in the Champlain region, and has been replicated in British Columbia, New Brunswick, and 20 other hospitals in Ontario.

Dr. Pipe attributes much of the program’s success to the Network’s emphasis on true collaboration, which has resulted in significant partnerships among the public health units, and the various institutions and departments. Through these collaborations, the Network has managed to amass the most complete data set relating to cardiovascular disease in the Champlain region; information that had not been previously available. To achieve continued success with the program, Dr. Pipe stressed the need to overcome the four “I”s: ignorance, indifference, intransigence, and inertia. Looking toward the future, he sees further opportunities to enhance effectiveness and improve outcomes, indicating that there are very distinct synergies and efficiencies that still need to be achieved.

Jack Watters
Pfizer Inc.
Following the presentation of the three chronic disease management programs, the symposium turned to hearing the opinion of the pharmaceutical industry and of government. Dr. Jack Watters, Vice President of International External Medical Affairs for Pfizer, provided the industry perspective.

He started by outlining the six qualities he believes are necessary for a successful disease management program: 1) it must focus on long-term health, 2) adequate investment must be in place, 3) true outcomes must be measured, 4) it must be personalized or as specific as possible for the patient, 5) care from different sources must be coordinated, and 6) patients must have real incentives.

In looking at the three programs that were presented, he found that while they all were quite similar, their differences are most telling. For example, all involve a variety of partners, connect primary with specialized care and have specific and measurable goals, but each project did these things in different ways depending on a variety of circumstances. There can thus be general models for such programs, but all will have to be customized in a variety of ways.

Another element he cited as essential for such programs is sustainability – in financing, in the program itself and in the achievement of results for patients. While the idea of pilot programs had been criticized by earlier speakers, he noted that, in effect, any program is a pilot in the sense that if it is successful it will, and should be, replicated elsewhere. He agreed that it can be risky to start a program purely as a pilot because such funding can be transient, but he emphasized that "it is always important to be open to many different sources of funding."

Dr. Watters discussed his experiences with a pilot program set up in Haringey, UK – an underprivileged, multicultural area of north London where few patients are registered with a general practitioner. With high rates of cardiovascular morbidity, patients typically enter the system through hospital emergency departments. Pfizer developed a partnership with the primary care trust (the financially independent organization that manages primary care for the area) to develop a pilot program involving 300 patients who would have regular visits with a care manager. Six months into the program an incredible improvement in health behaviours was seen. Patients were taking their medication more regularly, entering into smoking cessation programs, and seeking dietary advice. As further testimony to its success, the chief executive of the primary care trust has now moved to another city and has asked Pfizer to replicate the program there. Pfizer has also been involved in other such programs in other countries, including the United States and Italy, as well as programs in Africa to increase access to medicines.

"I believe in partnership and social responsibility," he concluded. "Ultimately we all share a common goal – which is for improved health outcomes for the patient. I believe that care management is the way to achieve this goal."

Frank Lussing
Nova Scotia Department of Health
Frank Lussing, Executive Director of Physician and Pharmaceutical Services in the Nova Scotia Department of Health, provided a government perspective on the issue of chronic disease management. A self-described "non-government person", Mr. Lussing spent most of his 30 years in healthcare running hospitals in Ontario; but, is currently responsible for coordinating policy development, with respect to physician payments and funding, in Nova Scotia.

In his regular discussions with physician groups, Mr. Lussing repeatedly cautions that the healthcare systems will soon outstrip the capacity of government to pay. This offers a very compelling reason to pursue disease management concepts. He also addressed a growing complaint among family doctors that their practices are morphing into chronic disease practices, where they are devoting a disproportionate amount of time to patients with chronic illness and less time to patients who require preventive care and attention. Adding to the challenge is the shortage of family doctors. With fewer physicians interested in pursuing family medicine, collaborations between primary care and other health disciplines is becoming increasingly difficult.

Mr. Lussing also cited the lack of technology as an obstacle to the development of effective disease management systems. Without the appropriate technology, it is difficult to determine what value, if any, is being added to the care process. Locating patients who require these services and determining which interventions are effective also require a certain level of technology, which again highlights the importance of funding to advance disease management issues.

The Nova Scotia government is currently embarking on a journey with doctors that will increasingly move away from the fee-for-service structure, which Mr. Lussing described as "not really focused on outcomes-oriented, relationship-type care." He believes that fee codes, by definition, may hinder creative solutions in chronic disease management strategies, and hopes for a shift toward performance-based contracts, pooled funding, and funding envelops.

Mr. Lussing concluded by proposing that incentive-type funding has the potential to induce desired behaviours. More importantly, incentive-type funding forces the development of infrastructure and technology to measure the extent to which rewards should be offered. This, in and of itself, he said, will create a database that will be immensely helpful as practitioners work with one another to determine which strategies and efforts work best. By rewarding and recognizing these efforts, the rest of the field will be motivated to fall in line.

FULL PRESENTATIONS

ANCHOR Project in Heart Health

Brendan Carr, MD, MBA; Capital District Health Authority; Halifax, Nova Scotia

Introduction

I would like to begin by recognizing our partners, who have helped to conceptualize and support the ANCHOR project. When we conceptualized the project, we actually went to these people and solicited their involvement as partners because we felt that, for the project to be successful and to have an impact, we needed people to be actively engaged in the process. These partners include the Nova Scotia Department of Health and Department of Health Promotion Protection, the District Health Authorities of Cape Breton and Halifax, the QEII foundation, the Heart and Stroke Foundation, and Pfizer Canada. In addition to funding the ANCHOR project, Pfizer participated in all levels of its organization, from conceptualization to supporting the research model, and also served as a member of the operating committee.

The ANCHOR project is a controlled before and after intervention study focusing on global cardiovascular risk within a primary care practice. With the increasing prevalence of cardiovascular disease in Canada and the growing number of risk factors, cardiovascular health programs are universally moving toward a more upstream approach to cardiovascular risk, with a focus not only on tertiary care, but also on prevention and health promotion at the community level. At the same time, primary care reform has been promoting strategies to develop community-based teams that can effectively go beyond good medical care. This led to the creation of ANCHOR, which is examining how we can impact global risk for cardiovascular disease and enhance disease management within a primary care setting.

Disease management programs typically focus on a population of need. Occasionally, this may be a geographic population, but is more commonly a disease population. In the case of the cardiovascular metabolic disease population, disease management programs typically support the practice team to deliver better care, with an emphasis on prevention of disease or exacerbations of chronic disease states. This is often achieved with the use of evidence-based guidelines and patient empowerment strategies, such as self-management programs to help patients become more proficient in managing their own disease states. These strategies are also supported by a strong evaluation component that examines both the clinical standards and the humanistic, or behavioural, aspects of what makes people adhere, or not adhere, to recommendations regarding their particular disease states.

Components of chronic disease management programs usually include a population identification process, based on evidence-based guidelines, which work within the setting of collaborative models. There are also self-management components, as well as the development of outcome measures and evaluations, as well as routine reporting to inform the process.

Objectives of the ANCHOR Program

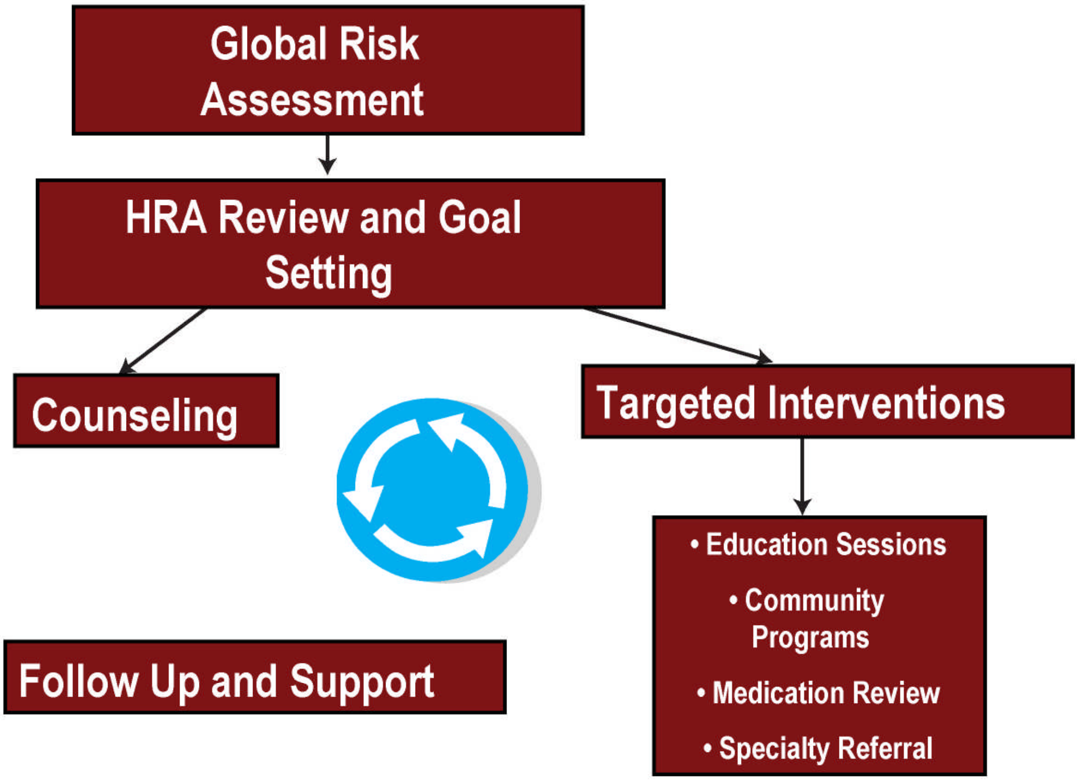
ANCHOR is a novel approach to comprehensive disease management within a primary care setting. The primary objectives are to improve the management of global cardiovascular risk of patients within the primary care setting and to look at increasing patient compliance with lifestyle and pharmaceutical interventions aimed at decreasing global cardiovascular risk.

Study Design

Designed as a controlled before and after study with a one-year intervention phase, ANCHOR will recruit 1,500 participants, 750 in each of two sites in Sydney and Halifax (http://www.anchorproject.ca). Current enrolment has recently passed the halfway mark. A comparison cohort will also be established in a third, unrelated primary care practice. Pre- and post-measurements will focus on individual health risk, objective parameters such as blood pressure, lipids, glucose etc., the individual's readiness for change, their motivation to change and perceived barriers, and their confidence for change. Drug and service utilization will also be monitored to support the economic analysis.

Of the two participating sites, the Halifax practice is based on an alternate funding model, while the Sydney site is a fee-for-service model. The ANCHOR program will explore whether the practice's funding dynamic impacts the effectiveness of the study or the ability to collaborate. The intervention incorporates a health risk assessment, individualized review of the risk assessment, patient-driven goal setting, a standardized follow-up regimen (targeted to the patient's goals), access to community-based education exercise and self management programs, and periodic review with the family doctor in the practice (Figure 1).

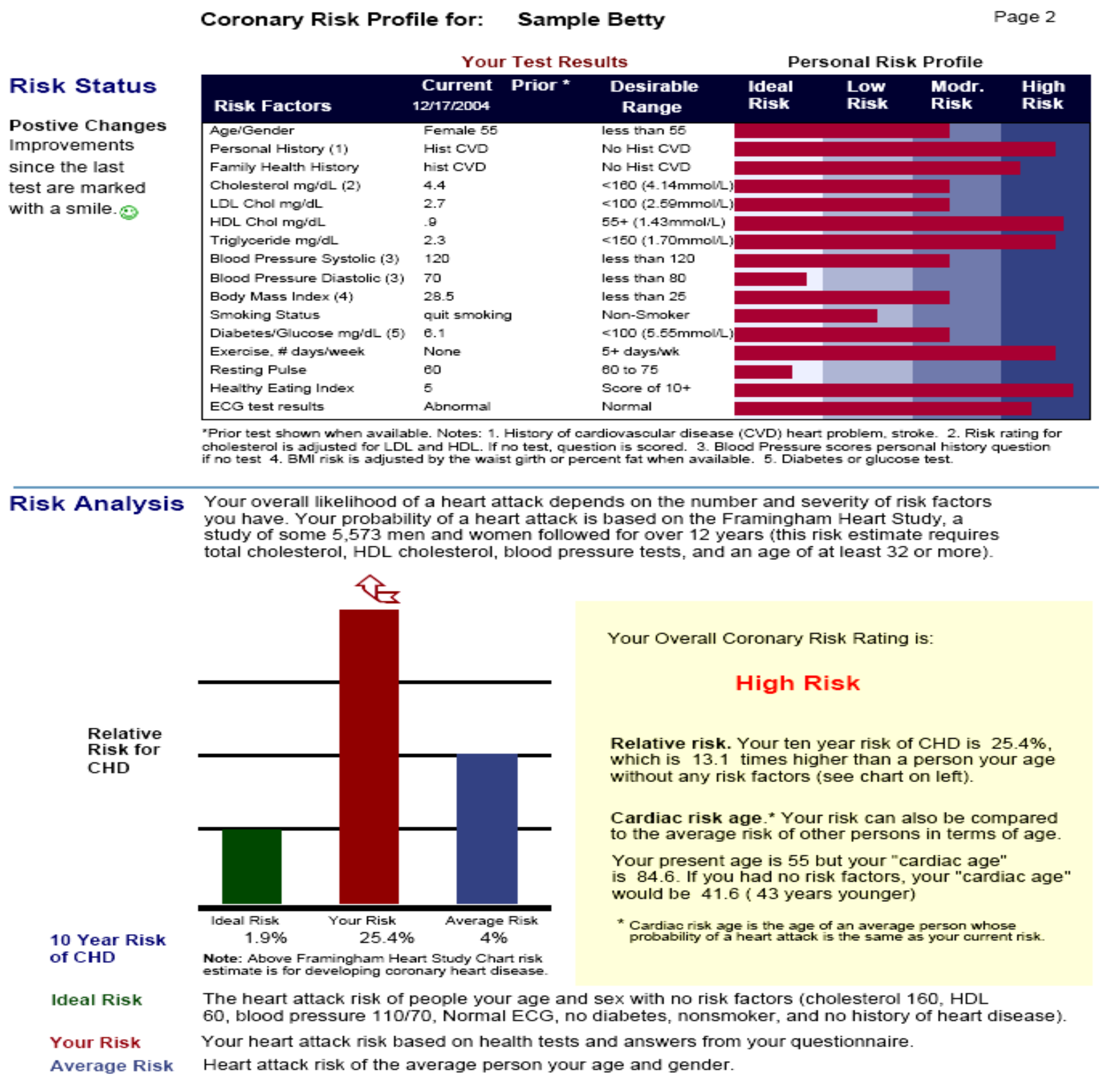
FIG. 1 The ANCHOR Model



Individuals undertake a global health risk assessment (HRA) after consenting to the study. The risk assessment review process helps the patient to understand what constitutes their personal risk for cardiovascular disease. This is really the entry point into examining the things that create risk for the patient, what they can change, and what they would like to do to try to diminish that risk. A standardized counselling approach was developed with one of the principal investigators, psychologist Dr. Michael Vallis. Depending on which risk factors are identified, there are target interventions, including education sessions, community programs, medication review, and specialty referral. As a result, this is not your typical randomized control study; but rather, a community-applied research study where, although there's a standard methodology, the pathway that any individual patient takes varies depending on their risk and which factors they want to change.

The health risk assessment being used in the ANCHOR program is based on a Framingham score, which identifies an individual's 10-year risk for having some kind of coronary event (Wilson PW, et al. *Circulation* 1998;97:1837-47). Patients are categorized as low risk if they have a less than 10% risk, moderate risk if they have a 10% to 20% risk, and high risk if they have a greater than 20% 10-year risk of a coronary event. It is important to note that a patient with pre-existing diabetes or any atherosclerotic disease is, by default, categorized as high risk according to the Framingham's study. Therefore, no amount of management or manipulation of risk factors can alter this diagnosis, and the patient will always remain in the high risk category. This does not mean that the patient's risk cannot be modified, or that the disease state cannot be managed. It simply means that, in terms of the primary end point of change in risk category, these patients will remain in the high risk category by default. Figure 2 shows the kind of information that the patient would receive when they review their HRA. Their risk factors are identified, and their risk is compared with that of the "ideal" or average-risk, age-matched population.

FIG. 2 Sample Coronary Risk Profile



Coronary Risk Profile for: Sample Betty

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Risk Status

Postive Changes
Improvements
since the last
test are marked
with a smile. ☺

Your Test Results — Personal Risk Profile

Risk Factors	Current 12/17/2004	Prior *	Desirable Range	Ideal Risk	Low Risk	Modr. Risk	High Risk
Age/Gender	Female 55		less than 55	■	■	■	
Personal History (1)	Hist CVD		No Hist CVD	■	■	■	■
Family Health History	hist CVD		No Hist CVD	■	■	■	■
Cholesterol mg/dL (2)	4.4		<160 (4.14mmol/L)	■	■	■	
LDL Chol mg/dL	2.7		<100 (2.59mmol/L)	■	■	■	
HDL Chol mg/dL	.9		55+ (1.43mmol/L)	■	■	■	■
Triglyceride mg/dL	2.3		<150 (1.70mmol/L)	■	■	■	■
Blood Pressure Systolic (3)	120		less than 120	■	■	■	
Blood Pressure Diastolic (3)	70		less than 80	■			
Body Mass Index (4)	28.5		less than 25	■	■	■	
Smoking Status	quit smoking		Non-Smoker	■	■		
Diabetes/Glucose mg/dL (5)	6.1		<100 (5.55mmol/L)	■	■	■	
Exercise, # days/week	None		5+ days/wk	■	■	■	■
Resting Pulse	60		60 to 75	■			
Healthy Eating Index	5		Score of 10+	■	■	■	■
ECG test results	Abnormal		Normal	■	■	■	■

*Prior test shown when available. Notes: 1. History of cardiovascular disease (CVD) heart problem, stroke. 2. Risk rating for cholesterol is adjusted for LDL and HDL. If no test, question is scored. 3. Blood Pressure scores personal history question if no test 4. BMI risk is adjusted by the waist girth or percent fat when available. 5. Diabetes or glucose test.

Risk Analysis Your overall likelihood of a heart attack depends on the number and severity of risk factors you have. Your probability of a heart attack is based on the Framingham Heart Study, a study of some 5,573 men and women followed for over 12 years (this risk estimate requires total cholesterol, HDL cholesterol, blood pressure tests, and an age of at least 32 or more).

Note: Above Framingham Heart Study Chart risk estimate is for developing coronary heart disease.

Your Overall Coronary Risk Rating is:

High Risk

Relative risk. Your ten year risk of CHD is 25.4%, which is 13.1 times higher than a person your age without any risk factors (see chart on left).

Cardiac risk age.* Your risk can also be compared to the average risk of other persons in terms of age.

Your present age is 55 but your "cardiac age" is 84.6. If you had no risk factors, your "cardiac age" would be 41.6 (43 years younger)

* Cardiac risk age is the age of an average person whose probability of a heart attack is the same as your current risk.

Ideal Risk	The heart attack risk of people your age and sex with no risk factors (cholesterol 160, HDL 60, blood pressure 110/70, Normal ECG, no diabetes, nonsmoker, and no history of heart disease).
Your Risk	Your heart attack risk based on health tests and answers from your questionnaire.
Average Risk	Heart attack risk of the average person your age and gender.

The behavioural intervention assesses the patient's degree of change for two or three self-selected risk factors, which is identified along a continuum, beginning with pre-contemplation. For example, if smoking is identified as a risk factor that the patient wants to do something about, they are asked to identify where they are in terms of thinking about quitting smoking. If they are in pre-contemplation, which means "I might think about it next week", then all bets are off. Instead, the aim of the study is to find risk factors that the patient is really interested in doing something about, and they should be prepared to take some action. If the individual isn't ready to take action, the focus of the intervention is on motivating them to change and understanding what barriers are promoting the status quo. If the individual is prepared to take action, the intervention moves on to determine what would be appropriate, realistic and sustainable goals. After talking through the patient's motivation/strength of motivation and perceived barriers/strength of barriers, the care team helps to identify some specific goals. For example, if the patient decides that they want to increase their volume of exercise, it is not sufficient to say, "I'm going to exercise more". It has to be specific to them and realistic in the context of their day to day life. How are they going to exercise more? What specifically will they do? How often and how much? They also ensure that the identified goal can be maintained over a long period of time; in this way, changes that result are more likely to be sustained once the patient completes the ANCHOR program. Once reasonable, specific, and sustainable goals have been established, the team plays a coordination function by connecting the patient with existing community-based programs or education modules offered on site.

The ANCHOR team is comprised of a practice-based physician lead, a nurse coordinator, a dietician, and consultants within each of the practices. The team is also supported by the investigators and the project managers, and psychologist Dr. Michael Vallis participates in bi-weekly conference calls with the team members to discuss how they can better develop their skills to support behavioural interventions. Some of the investigators meet with the practices on a monthly basis and talk about other aspects of collaboration, such as specific medical concerns or management questions.

Early Results

Currently, 775 patients have been enrolled in the ANCHOR study. Table 1 shows how those patients fall into the low-, moderate- and high-risk categories, by gender. So far, more females than males have been enrolled, and there are more people with high and moderate risk than low risk, which is entirely concordant with the inherent risk of the population of Nova Scotia. Of the 776 patients enrolled to date, 206 (26.5%) are high risk by default because of a pre-existing disease state. Diabetes is the single most prevalent disease in this group, followed by coronary artery disease and other cardiovascular diseases (Table 2). The six-month mark of the study was recently surpassed, which is when the patients undergo their second HRA. For the 234 patients who have reached the six-month assessment, 81 (34.6%) have a pre-existing disease that puts them into the high-risk category by default (Table 3).

TABLE 1 Patients by Risk Category (Baseline n=776; Males n=265; Females n=511)

	Low (<10%)	**Moderate (10-20%)**	**High (>20%)**
Females	27.8% (n=142)	37.4% (n=191)	34.8% (n=178)
Males	14.3% (n=38)	22.6% (n=60)	63.0% (n=167)
Combined	23.2% (n=180)	32.3% (n=251)	44.5% (n=345)

TABLE 2 Patients with Established Disease (Baseline n=776; Males n=265; Females n=511)

Disease	**Gender**	**% of participants by gender**
Diabetes	Female	17.6% (n=90)
	Male	17.0% (n=45)
	Total	**17.4% (n=135)**
Congestive heart failure	Female	0.6% (n=3)
	Male	1.1% (n=3)
	Total	**0.8% (n=6)**
Stroke	Female	0.8% (n=4)
	Male	3.0% (n=8)
	Total	**1.5% (n=12)**
Transient ischemic attack	Female	3.9% (n=20)
	Male	3.0% (n=8)
	Total	**3.6% (n=28)**
Coronary heart disease	Female	6.3% (n=32)
	Male	14.7% (n=39)
	Total	**9.1% (n=71)**

TABLE 3 Patients with Established Disease at the Six-month Health Risk Assessment (n=234)

	# of Patients
Diabetes	55
Coronary heart disease	27
Stroke	5
Transient ischemic attack	14
Congestive heart failure	3
Number of patients with 2 diseases	**17**
Number of patients with 3 diseases	**6**
Total patients	***81***

Therefore, there are currently only 153 patients without a pre-existing condition and could arguably change their risk category. At six months, 43 of these 153 patients had reduced their risk category from either high to medium risk or medium to low risk (Figure 3), and 54 had reduced their overall risk score. The number of people with low risk has increased, arguably because some of these people are spilling down to the next level, moving from high and moderate risk to low risk. This is illustrated in Figure 4. Of the 81 patients at moderate risk, 16 have gone down to low risk, 55 have remained at moderate risk, and 10 have moved to the high-risk category. Of the 68 patients in the high-risk cohort, nine have gone down to low risk, 18 have gone down to moderate risk, and 41 have remained at high risk. Of the four patients in the low-risk category, one has gone up to moderate risk and three have remained in the low-risk category. While this is the type of analysis that will be conducted upon completion of the study, it should be stressed that, at this stage, these results do not achieve statistical significance.

FIG. 3 ANCHOR Patients: Original Risk with Six-month Follow-up (n=234)

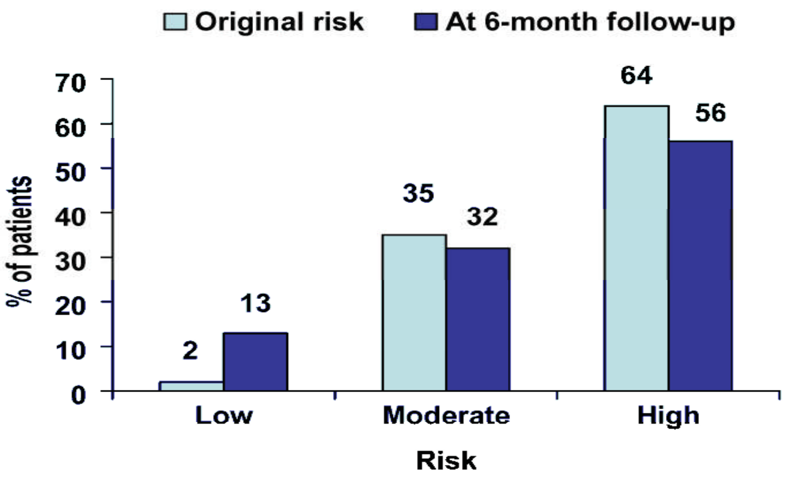
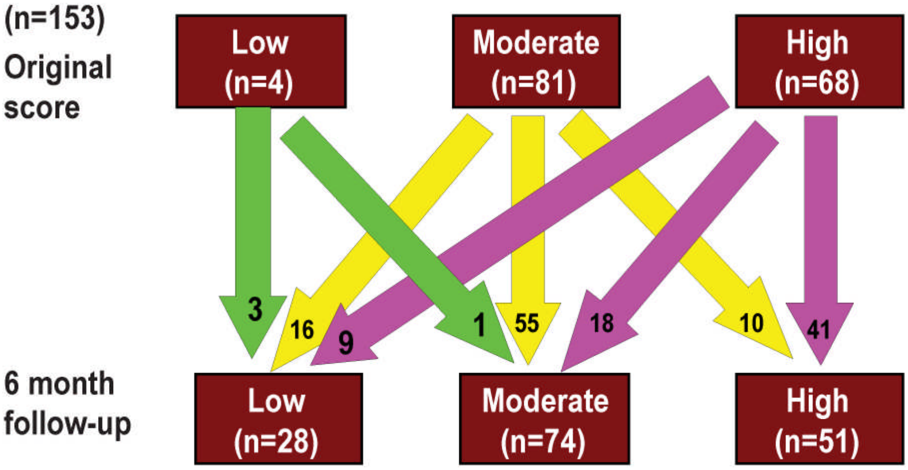


FIG. 4 ANCHOR Patients: Change in Risk Categorization



Of special note are the 10 patients who have moved from medium to high risk at the six month re-assessment. A closer look at this cohort reveals that their migration is related to the diagnosis of a latent disease such as hypertension or diabetes during the six-month interval rather than to deterioration in their personal risk factors. This demonstrates the utility of an approach like ANCHOR to support improved disease management as well as risk factor modification.

In addition to risk category, the ANCHOR study is assessing some specific measures, such as weight, BMI, systolic and diastolic blood pressure, and total cholesterol. The six-month values for the group that is currently enrolled are provided in Table 4.

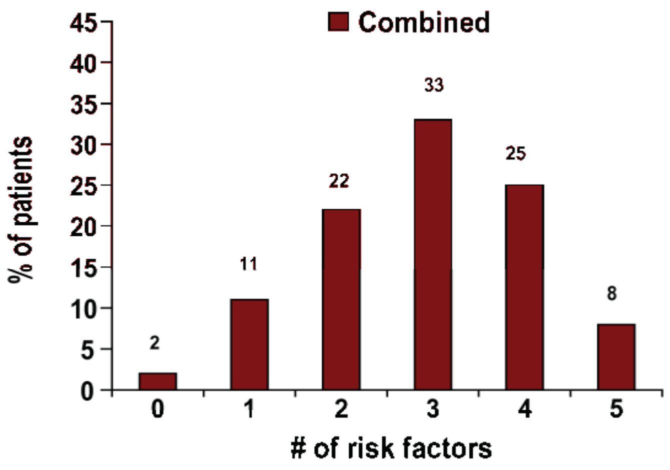
TABLE 4 Patients with Six-month Health Risk Assessment Follow-up (n=234)

Measurement	Number improved	Number worsened	Number remaining the same	Average change
Weight (kg)	143	59	32	-1.67 kg
BMI	158	65	11	-0.89
Systolic BP	116	109	9	+0.58
Diastolic BP	106	111	17	-0.41
Total cholesterol	88	144	2	+0.21
HDL cholesterol	157	68	9	+0.11
LDL cholesterol	98	133	3	+0.13

Data based on health risk assessment at start compared with six-month follow-up assessment

While there is no significance to these numbers, they are shown to provide a sense of the types of analysis that will be examined throughout the course of the study. One thing that did not come as a surprise, but which wasn't anticipated to be as profound, was that 33% of the cohort has three risk factors for metabolic syndrome, 25% have four risk factors, and 8% have five risk factors, so that 66% of the cohort has metabolic syndrome (Figure 5).

FIG. 5 ANCHOR: Incidence of Metabolic Syndrome at Six Months



We had no idea we were going to be dealing with this sort of prevalence, so this is something that is relatively important within a family practice population. While there are multiple definitions for metabolic syndrome, the definition chosen for the ANCHOR study was the presence of three or more of the following risk factors: waist girth, HDL, blood pressure, fasting blood glucose, triglycerides, and HDL (Table 5) (Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. *JAMA* 2001;285:2486-97).

TABLE 5 Individual Metabolic Syndrome Risk Factors (n=776)

	Combined	
Waist girth	75.6%	n=587
BP	69.7%	n=541
Triglycerides	45.7%	n=355
Fasting blood glucose	56.7%	n=440
HDL	44.7%	n=347

The ANCHOR team will be analyzing drug utilization throughout the study, looking at specific categories of drugs (Figure 6). Figures 7 and 8 show the utilization of lipid-lowering and diabetes medications, respectively, stratified by high, moderate and low risk. As the study achieves more power, these categories will be further broken down to capture behavioural information. For example, for those within the high-risk category who are taking lipid-lowering medications, where are they vis-à-vis their motivation and what they have identified as their risk factors? By stratifying them according to their initial risk category, we can determine the percentage of patients who were on lipid-lowering drugs, hypertension drugs, diabetes medications, etc, at the start of the study versus at six months (Table 6). In looking at Table 6, it is important to note that there is no power or significance to these numbers, yet. For example, while 75% of the low-risk patients were on lipid-lowering agents at the study outset, there were only four people in this category.

FIG. 6 Analysis of Drug Utilization at Six Months

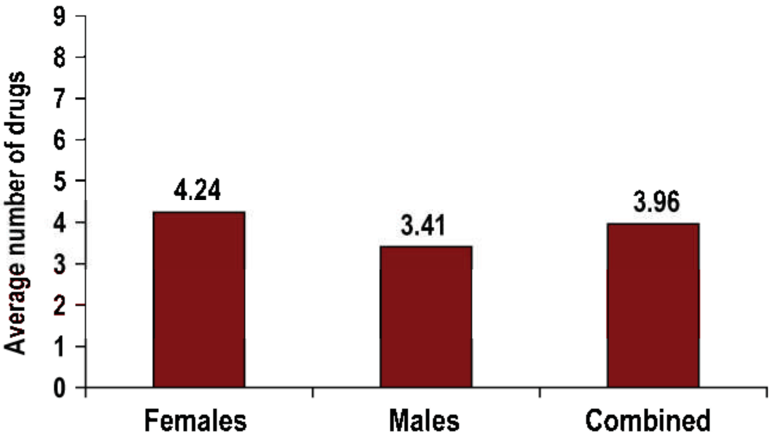


FIG. 7 Lipid-lowering Drug Use at Six Months

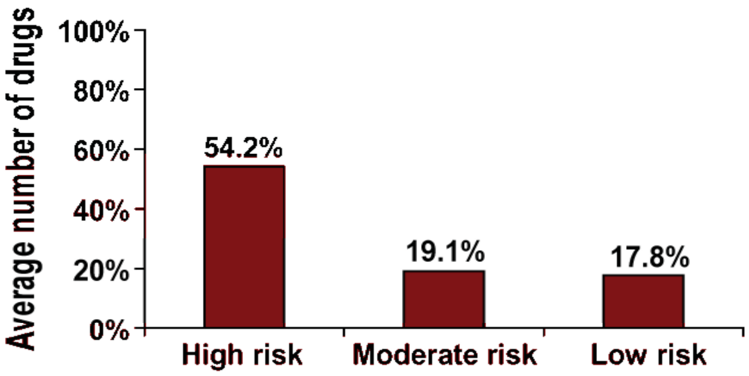


FIG. 8 Analysis of Diabetes Drug Utilization at Six Months

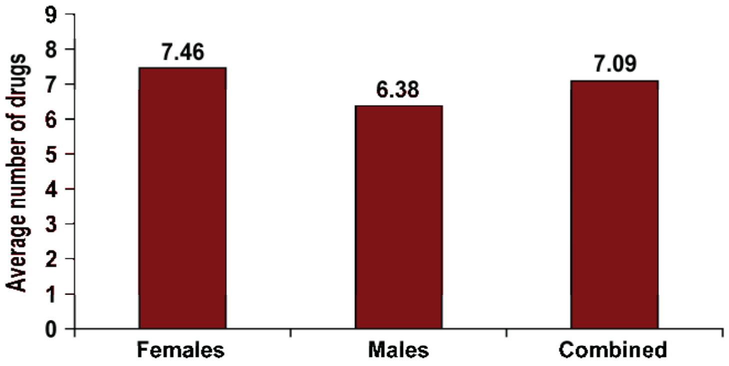
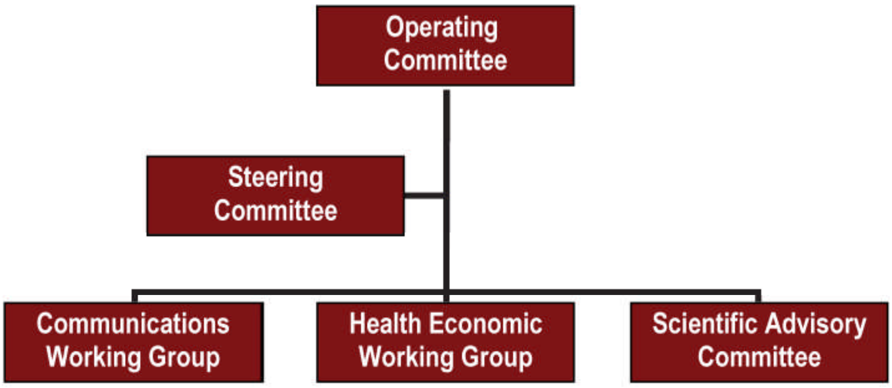


FIG. 9 Organization of the ANCHOR Project



Organization of the ANCHOR Project

The organization of the ANCHOR project is illustrated in Figure 9, and has contributed to some of the success of the ANCHOR program. The program has an operating committee, a steering committee, and a number of working groups, including a communications working group, a health economics working group, and a scientific advisory group. The operating committee meets monthly, and consists of the principal investigators, the project manager, and a medical and research specialist from Pfizer Canada. From the outset, Pfizer has participated fully in the development of this project as well as sharing the burden of solving many of the challenges in executing the study. As well, you will note there is no implication for proprietary medication anywhere in the study. I'm not just trying to plug Pfizer, but I think that they have brought valuable resources to the table beyond the funding for the project. We have been able to use some of the expertise of their scientific community for everything from figuring out how to power the study, to how to build the comparison groups in order to get good comparative data. In my opinion, this is an example of a very positive collaboration between the industry sector, health authorities, and researchers that ultimately benefits patients and gives us better knowledge about effective strategies to improve cardiovascular risk and manage disease.

The steering committee includes the members of the operating committee, as well as representatives from each of the partner organizations. One of the first things we did was to involve our steering committee in the formulation of the intervention. We asked them questions about how we should approach certain aspects of the behavioural intervention, how best to integrate with other community programs and services and what data should be gathered. Our steering committee contributed to many aspects of the study, such as examining people's motivation and readiness to change, as well as some of the health economic details identified in the study. I think that this has really contributed a lot to our success and allowed the partners to feel ownership for the study. When the steering committee was first assembled, we discussed the fact that we wanted them there because they could advise us on the study. However, we were also very upfront from day 1 that the point of the study was to try to inform policy. Now, obviously, we are open to whatever the results of the study may be, but we have been very clear from the outset that the reason for undertaking this research was to determine whether there are elements of this type of model that actually have value and can deliver some benefit to our health care system. Therefore, we wanted our partners there because we wanted their input; but of equal importance, we wanted them to be part of this so that they would feel ownership over the results. This would offer the best opportunity possible for the results to inform policy at multiple levels, including at the department of health, within our health authorities, and within our community practices.

The health economics working group is another example of something that is novel to the ANCHOR study. There is a representative from the university, a representative from the department of health, a senior health economist from the department of health, the governmental affairs manager from Pfizer, a principal investigator, and the project manager. Bringing these people together was not an easy task, and some of these roles have traditionally postured against each other (have not readily gotten together to collaborate). The ANCHOR study has created an opportunity for all sectors to come together. Through this program, we can identify an approach to modelling and to performing the health economic evaluation that is credible and will meet all of our needs in terms of understanding the data and understanding how it can impact the system. We think that this is a very good approach, and we are certain that whatever data we find, there will be acceptance of the data and the analysis.

Challenges and Lessons of the ANCHOR Project

There have been some challenges and lessons learned through the ANCHOR program. The engagement of the fee-for-services medical practice was not a big challenge, but we had to work our way through issues such as space for the study staff. Developing the health risk assessment technology into a tool that could be used to support a research project took a lot of work. Because community-applied research is very different from a randomized, controlled trial, this required a leap of faith on Pfizer's part. Because of the lack of control around every variable, they really had to try to trust that we were doing something worthwhile. The importance of the champions in each of the partner organizations, the value of teambuilding and learning skills to support the behavioural change, goes beyond different people all looking after the same patient. We have really learned that with collaboration you have to learn to work differently together. Finally, linking to existing community programs services is critical.

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Chronic Disease Management: A Region-Wide, Integrated Approach

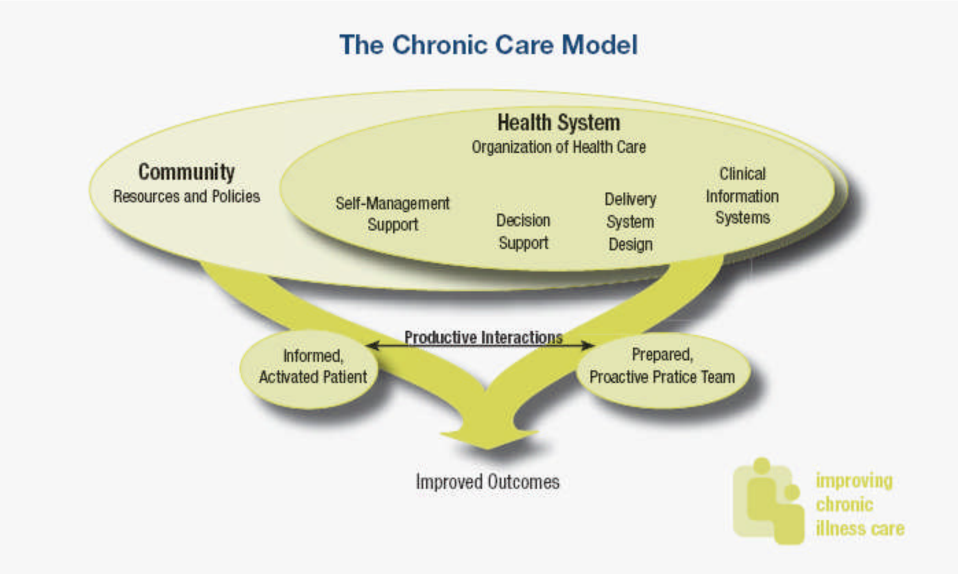
Richard Lewanczuk, MD, PhD; Regional Medical Director; Chronic Disease Management

Introduction

I'm going to talk about the chronic disease management program at Capital Health in Edmonton, Alberta (*www.capitalhealth.ca*). Although I will be speaking about the management of all chronic diseases, the focus will be on diabetes, because that is the one we have the most experience with. As one of the largest integrated health regions in Canada, with a population base of about 1.1 million and a referral base of 1.6 million, Capital Health has 29,000 health staff, 2,400 physicians, 13 hospitals, and 13 community health centres/clinics. The main philosophy of Capital Health is that we are responsible for every individual who has, or who is at risk of developing, a chronic disease, not just those who show up at the clinics or those who are adherent or compliant with treatment. A lot of our efforts are targeted toward finding the outliers – or the lost children if you like.

According to the principles of Capital Health Edmonton, we are responsible for the health of everybody in the population. As you heard from Dr. Carr, our focus is at the primary care level, and the primary care team is central to provision of care for patients. The priority is on community-based care and community resources. We emphasize patient self management, planned follow up and interventions with our patients, and evidence-based medicine targeting the right treatment to the right person at the right time (or as it is sometimes termed now, "rightsiting"); and then using appropriate tools to track outcomes and help alter delivery of care.

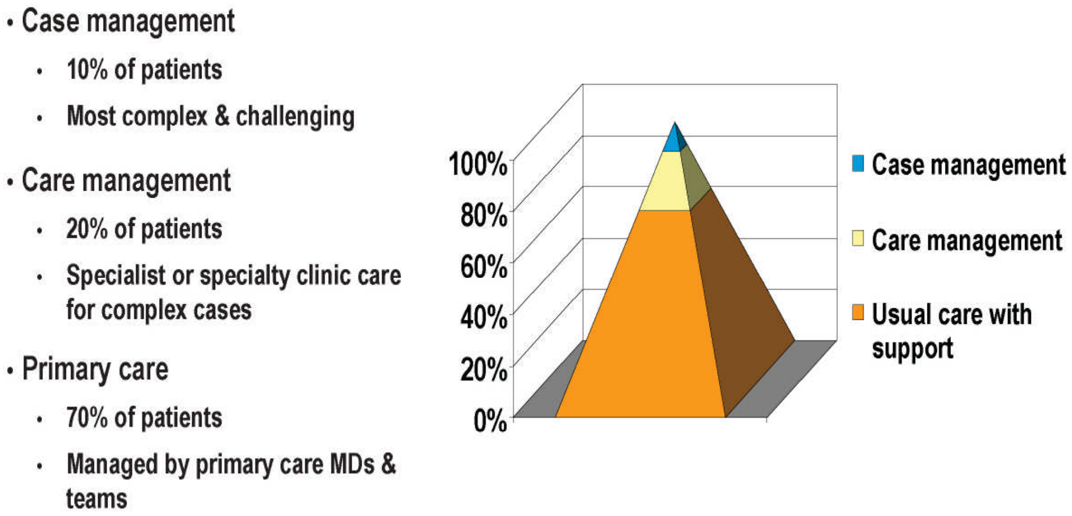
FIG. 1



The Chronic Care Model

Capital Health targets a number of particular chronic diseases, including diabetes; obesity; asthma; COPD; heart failure; cardiovascular risk, such as coronary artery disease, hypertension, and dyslipidemia; and chronic renal disease, among others. We use the chronic care model, or Wagner's model of chronic disease management (Figure 1), which looks at setting up the system to provide support to informed patients, utilizing community resources, and adjusting the system to lead to that state (Wagner EH. *Eff Clin Pract* 1998;1:2-4). We also use a pyramidal model of care (Figure 2), recognizing that most care (anywhere from 80% to 90%) in chronic disease can be provided at the community level. A slightly smaller percentage of patients, 10% to 20%, need access to more specialized services, and a very small number may need very specialized case management.

FIG. 2 Emphasis on Primary/Community Care

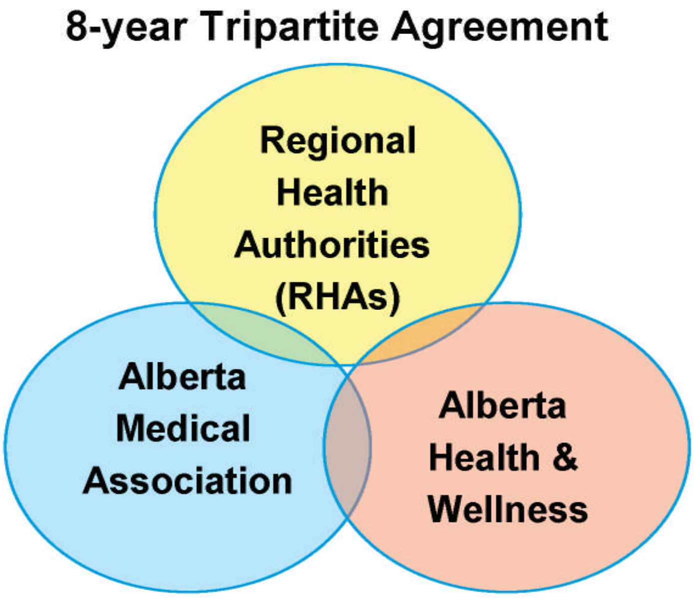


- Case management
  - 10% of patients
  - Most complex & challenging
- Care management
  - 20% of patients
  - Specialist or specialty clinic care for complex cases
- Primary care
  - 70% of patients
  - Managed by primary care MDs & teams

When we went about re-engineering our system to adapt to this model and address these philosophies, we first had to have an overall philosophical shift in our healthcare organization to really emphasize primary community care. Historically, within a health region, we have allowed the family doctors to do whatever it is they do and instead focus our efforts on what goes on inside hospitals to control the acute care system. In moving to the Chronic Care model, we had to switch our focus to support primary care physicians and bring them into the fold. We also had to emphasize patient self-management, so that patients were no longer passive recipients of acute care interventions but were actually empowered and enabled to manage their own conditions.

The program was started about three years ago using diabetes as the prototype. To achieve a region-wide diabetes program, we started with a centralized access point, so that there was one contact point to access all diabetes services, whether it is a physician accessing services, or a patient or a patient's family accessing services. We needed to triage people according to their level of need to determine which patients needed to see a specialist and who could be managed at the community level. We also needed to ensure that we planned our interventions and that there was ongoing follow-up, so that we did not just intervene once and then forget about people. Finally, we needed to evaluate what we were doing. In order to do this and to provide care at the primary care level, we needed a new primary care structure. In Alberta, this takes the form of primary care networks, which are groups of physicians, typically 60 to 100 physicians, who agree to provide a certain bundle of services in response to a form of a capitation model. In Ontario, this would be analogous to the family health teams. To enable coordination of care, we needed to implement and redesign our existing information systems and identify needs for region-wide support services, such as behavioural change programs and smoking cessation programs. Findings from the diabetes model were then applied to other disease areas. The emergency departments and the acute care facilities were also incorporated, so that we merged the two separate universes: acute care and chronic care.

FIG. 3 Primary Care Networks



In setting up primary care in Alberta and in our region, the model shown in Figure 3 was adopted. Primary care networks (*www.primarycareinitiative.ab.ca*) were set up by agreement with the government, the Alberta medical association and the nine health regions in Alberta. Within these primary care networks, in return for capitation-based funding, the networks agreed to provide ongoing 24/7 access to care to look after medically complex patients and to follow the principles of chronic disease management. Despite the emphasis on primary care and treating patients in the community, specialists are also incorporated into the system. Through this system, the role of the specialists has changed, so that they now actually function as specialists, seeing complex patients, atypical patients, and patients who do not respond as we believe they should. In fact, with diabetes, we are now at the point where the specialists themselves will not see new patients until the primary care team has had a six-month attempt to get them under control. Of course, there are escape criteria and caveats, but the specialists themselves started off by saying, "we need to see every single patient with diabetes", regardless of the fact that if every specialist worked every day, all day long they still would only be able to see 3.6% of patients with diabetes in our region. They then evolved to say, "we only need to see people with haemoglobin A1Cs greater than 8%." Now, they have reached a comfort level where they are actually saying, "we don't even need to see anybody until the primary care team has seen them for six months; then, if they can't get things under control, we will see the patients."

We have a very robust information system, which is really necessary for the delivery of chronic disease management. We are very fortunate in our region to have what is known as an "enterprise-wide master person index", meaning that we have identified almost every single person in our region, and recorded their demographics electronically. We also have an electronic health record that tracks a variety of information on patients, including all of their lab values, diagnostic imaging, and encounters with the acute care system. For chronic disease, we also have an electronic medical record, which allows us to electronically record very detailed information on patients. We are actually moving toward a region-wide electronic medical record, which hopefully will involve all of primary care and all of the specialties in acute care services.

What Does This Mean for Our Patients?

We are working toward a system where we deal with healthcare, not illness care, for patients. There is an emphasis on personal responsibility for health on the part of patients, as well as on staying healthy, with the supports to achieve this – not just an expectation. The healthcare team works with the patients to be proactive in maintaining health, ensuring that routine interventions are kept up to date. We also use community supports to help our patients. We engage organizations such as the YMCA, Weight Watchers, and the Running Room to maintain the health of our patients. We have community healthcare councils, which will do things like commit to build more walking trails or a recreation facility in their community to help patients manage and prevent chronic diseases. We are introducing patient portals, so that patients can access their health information and information on their diseases, and we provide links to help them manage their diseases. There is also a move toward less reliance on physicians and incorporating other healthcare professionals, such as dieticians, pharmacists, nurses, mental health workers, mental health counsellors, and kinesiologists, or whomever the primary care network thinks will help in the delivery of care. Again, we want to address all the patient's healthcare needs, not just the needs associated with one disease.

Our introduction of electronic records has also helped patients; as they no longer have to repeat their medical history every time they encounter a new health professional. It provides increased safety by listing things like allergies, medical conditions and problems, which are shared among healthcare professionals. We are able to flag people at risk for certain conditions, and we can generate reminders and alerts to patients and their providers. There is also real-time access to patient information.

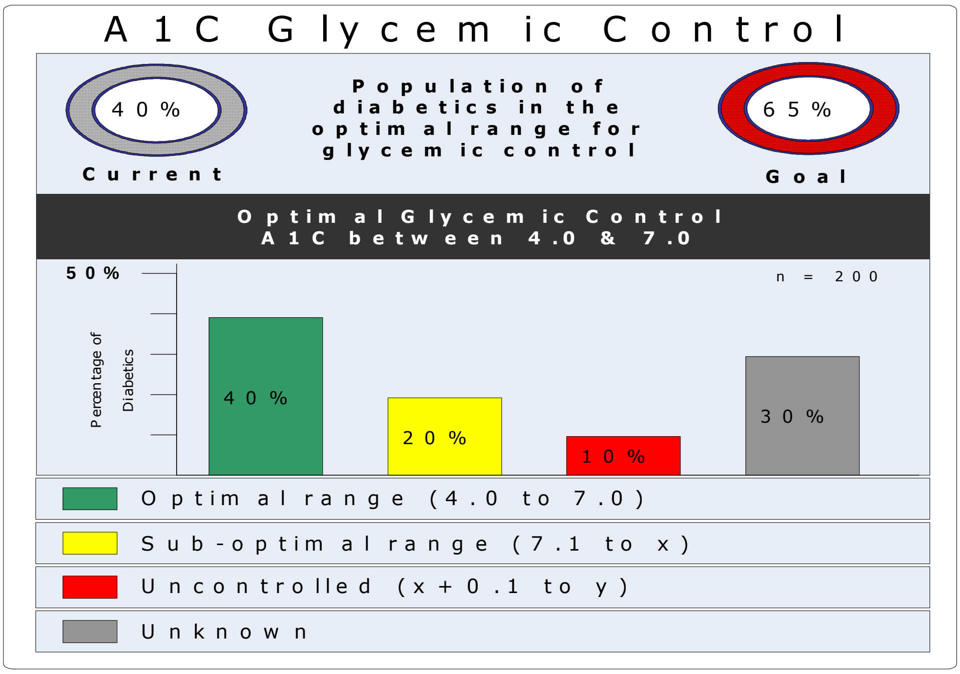
In using information to design and modify our system, being able to handle information is important, so we have a very involved evaluation framework. Not only do we look at things like haemoglobin A1C level or the proportion of people who are at their blood pressure targets, which is a very simplistic, albeit necessary, part of an evaluation; but, we also look within our system to determine who is ready for change, the drivers for change, and what sort of strategies are being used for integration. What are the actual outcomes that we are getting, both in terms of soft outcomes and hard outcomes? To provide a more concrete example within diabetes: typically, if you look at an HMO in the United States that has introduced a chronic disease management system, they will immediately jump ahead and ask, "What proportion of your patients are at such and such a target haemoglobin A1C level?", or "What's the average haemoglobin A1C level?", for us, this is a late indicator. We are actually much more interested in whether the primary care network has a chronic disease management committee. If they do, then it is a success and they receive a checkmark. If they have a committee, do they have a registry function that allows them to identify people with diabetes, heart failure or COPD? If they do, they receive a checkmark, because you cannot really implement any form of chronic disease management unless you know who your patients are. Once the registry function is available, are care maps and algorithms available? Are the patients being put on the algorithms? Are the procedures mandated by the algorithms actually being carried out? Only once all of these steps are achieved are we interested in the intermediate outcomes such as average haemoglobin A1C levels or the proportion of patients achieving their target haemoglobin A1C. After that, we are interested in the soft endpoints, such as emergency visits and hospitalizations, and ultimately the hard endpoints, such as premature cardiovascular disease, dialysis, or blindness.

CDM Outcomes and Key Performance Indicators

In the interest of time, I cut out our results, but we are up to the intermediate endpoints, and we have had very good success with our diabetes program. For example, we have achieved over two and a half times the national average of people reaching their goals for haemoglobin A1C levels and for blood pressure. We are actually a bit below the lipid targets, but this tells us that this is something we need to concentrate on. On June 6, the government released provincial data on both soft endpoints and hard endpoints: incidences of cardiovascular disease, hospitalization, and emergency room visits and the data are promising (*www.achord.ca/projects/ADSSAtlas2007.htm*). We are now achieving the benefits of putting this infrastructure into place. However, in addition to these sorts of endpoints, we are also looking at patient-reported outcomes. It does not matter whether the haemoglobin A1C level is 6.5% or 7.5%, or the ejection fraction is 35% versus 45%. What we really want to know is whether the patient actually feels better. Have we made a difference in how people are feeling and in their daily lives? We are therefore introducing patient-reported outcomes to determine whether we have made a difference in this area. It also helps us to proactively identify people at risk. If people have a decreased functional status or if they score high on a depression scale, it tells us that those people are probably going to be using the system pretty soon if they have a chronic disease and that we need to intervene early. We are also beginning to track economic indicators to determine the cost of providing care. Are there areas where we can cut back, perhaps, and shift resources? One of the things we discovered is that a family physician achieves exactly the same outcomes in treating a standard patient with diabetes as does a specialist. Therefore, why should a specialist treat the standard diabetes patient, when it is far more expensive and resource intensive? We have been able to show that a family doctor can do just as good a job, which allows us to use specialists where they should be used, in the more complicated patients. It allows us to look at the cost of care for certain groups of patients and shift resources appropriately.

We also use a quality framework for part of our evaluation system, and use quality domains to determine whether we are providing timely and appropriate access and efficiencies. In terms of key performance indicators, we provide our practitioners with dashboard indicators of various diseases to determine where they are at. Figure 4 is an example of a dashboard indicator for diabetes. Yes, we are interested in how many people reach their target haemoglobin A1C levels, how many have suboptimal levels, and how many people are uncontrolled; but, we are more interested in how many people have an unknown status within an individual practice, clinic, or primary care network. Because once we know who everyone is, then we can intervene much more effectively.

FIG. 4 Example of a Dashboard Indicator



You will also note that our existing goal for achievement of targets is not 100%. There is often an expectation that 100% of people should reach goal levels, yet we know from the best clinical trials for blood pressure or diabetes that only roughly 50% of people are able to achieve their targets. One of the most effective interventions in diabetes was the Steno 2 study, which showed a 50% reduction in cardiovascular events, yet only 20% of people met their haemoglobin A1C targets (Pedersen O, et al. *Metabolism* 2003;52:19-23.).Therefore, we wanted to make sure that we were being realistic in our expectations.

Yet another framework that we are introducing is that we are assessing people's functional status within any individual disease. People have multiple chronic diseases, and we examine the status of people within each disease. For example, they may have complications if they have diabetes, but they may only have mild COPD. A composite measurement is used to determine their status within multiple chronic diseases and within various chronic disease domains (i.e., their clinical status, their functional status, or their social functioning). We are then able to come up with a composite chronic disease score, which we then tie to things like resource utilization and costs, which also helps us understand our population.

Unique Attributes of the Capital Health CDM Program

One unique attribute of our system is that we consider ourselves responsible for everyone in the population. We involve primary care very much in our system, and we also involve the specialists. We have a heavy emphasis on information technology, and we have very robust electronic records. We integrate between, not just within, the typical medical areas of chronic disease, but we integrate with medical health, with our public health officials, with palliative care, and with others as well. One of our chronic disease programs is obesity, which tends to be unique among chronic disease management programs, and we involve the acute care sector.

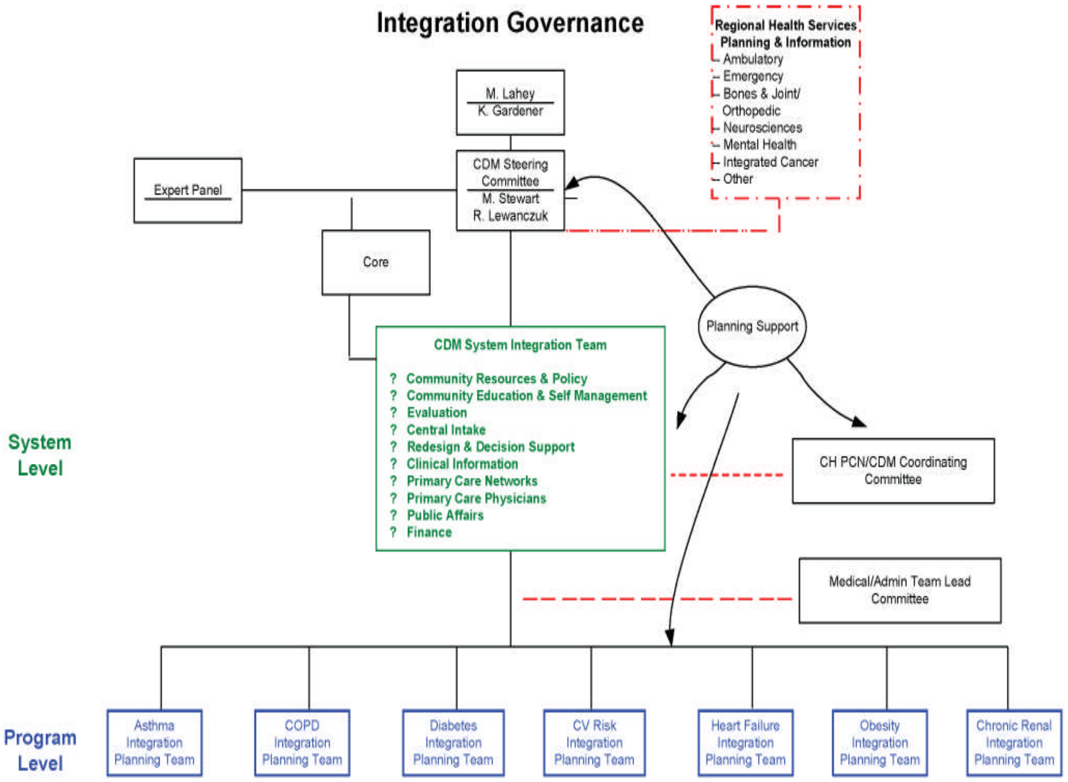
Key Stakeholders and Internal Governance Structure

Internally, our partners include everybody who functions within healthcare within our region. What about other stakeholders in the partnership? First of all, has other partner involvement been a key success factor? Absolutely! Our governance structure is organized along diseases to provide specialty care in the infrastructure, but an overarching steering committee looks after all of our chronic disease and some core committees are charged with day-to-day operations (Figure 5).

We have very loose links to government. In Alberta, the government has not been as involved in chronic disease as other provinces; but, we have benefited from their involvement because they have allowed the structure to develop around primary care networks and the network funding model, which is really important in providing chronic disease management. We have multiple stakeholders, and one of the questions we were asked to address is, "What are the pros and cons of working with a multi-stakeholder partnership?" One thing that comes to mind is that I probably spent about 29 hours a day in meetings with various stakeholders, so there are a lot of meetings, and communication is necessary between stakeholders. With respect to sources of funding, a unique feature of our region is that we do not do pilot projects – we either do it or we don't. Therefore, we make sure our funding is from operational funding, so that when the pilot project ends, our funding does not end. If we decide to do something, the funding is built right into an operational budget. We may still have staged or segmental implementation to see how things work, and work out the bugs, but we do not depend on one-time funding.

Our information is communicated through a variety of strategies. We actually involve our public affairs department to help communicate with practitioners through newsletters and websites, and we have a steering committee with multiple stakeholders. We do not really have conflicts of interest in our system. We do have some industry partnerships, but they are very explicit, with terms and conditions. We also involve as many other stakeholders as we possibly can.

FIG. 5 Integration Planning Structure



Conclusions

One obstacle to implementation has been that nowhere in Canada has there been true vertical integration, all the way from public health to the sub-specialists within a chronic disease, nor has there been true horizontal integration among multiple chronic diseases. It is hard to find people with expertise in chronic disease management in Canada. Organizationally, we needed to convince our executive and various stakeholders that this was a good thing to do, and we needed to be inclusive yet nimble in order to react quickly and make decisions. We needed a small core committee, but we also needed the opportunity to make sure that everyone was informed. Our finance people, of course, always want to know the return on investment - are we making a difference financially? Perhaps our biggest challenge is that change management is a big aspect of introducing a whole new system.

What lessons have we learned? We need a clear organizational vision and commitment on the part of senior executive to move forward. We need to dedicate planning resources and funding to move forward as well. We need buy-in from our physicians, and we need champions in all areas; in particular, physician champions have been critical to implementing chronic disease management. People often want things to change overnight, but they do not change overnight, so we have to manage expectations. We look for early successes and low-hanging fruit to breed success and give positive reinforcement. Again, resources are really needed for change management.

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Developing an Integrated System of Excellence in Cardiovascular Disease Prevention

Andrew Pipe, CM, MD; Chair, Champlain CVD Prevention Network; Director, Minto Prevention & Rehabilitation Centre; University of Ottawa Heart Institute

Introduction

In the course of this conversation, I'm going to discuss some of the elements of the Champlain Cardiovascular Disease Prevention Network (*www.ccpnetwork.ca*). First of all, let me be quite clear in disclosing the support that I have received in the past few years for a variety of educational and research activities – from Pfizer, Merck-Frosst/Schering, and Bristol Myers-Squibb – and also in acknowledging the support that has been afforded to several of our undertakings by the following provincial and federal funding agencies – Smoke Free Ontario, The Change Foundation, the Canadian Tobacco Control Research Initiative, and the Heart & Stroke Foundation of Canada.

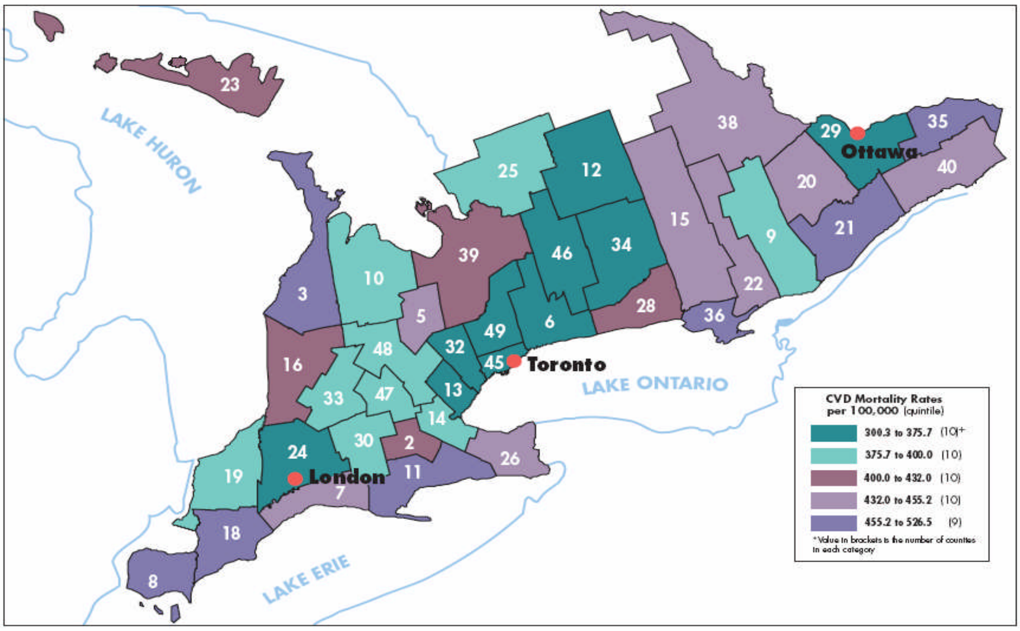
The Champlain Cardiovascular Disease Prevention Network's genesis occurred when a group of us at the University of Ottawa Heart Institute recognized that, in many respects, we were failing to address the needs for cardiovascular disease prevention in our region. We were all very proud to be part of a highly recognized centre of tertiary and quaternary care, but the fact that one could go 30 minutes in either direction from our institution and see communities with significantly elevated levels of risk factors and disease did not portend well for the future, and was recognized as a significant challenge. One of our fundamental assumptions was that we did not want to – and here I echo Dr. Lewanczuk's comments – develop an array of other pilot projects. Monique Bégin, I believe, once observed that 'Canada is a nation of pilot projects', and as we did some initial inventory work in the Champlain region, we discovered to our dismay an abundance of projects designed to address issues relating to cardiovascular disease, which were under-funded, had a very short time period and thereafter 'flamed out', and ostensibly making no difference whatsoever on the prevalence or incidence of cardiovascular disease within our region.

We began to develop a concept of an integrated, coordinated program that would ultimately produce a population-level impact in terms of reducing both the incidence and prevalence of cardiovascular disease and the associated risk factors. (CCPN Planning Team. *Proposed Champlain Cardiovascular Disease Prevention Strategy and Phased Action Plan 2006 – 2010*. July 2005). En passant, we recognized it would also be possible to engage in a variety of coordinated, cooperative programs with our colleagues working in a variety of other chronic disease areas; because, of course, as you address cardiovascular disease risk factors, you also address the modifiable risk factors for many other chronic diseases, with perhaps the exception of mental health.

The Champlain region of eastern Ontario is identified in Figure 1. You will notice from these data that although Ottawa-Carleton itself has relatively low rates of cardiovascular disease mortality, it is an island surrounded by a sea of communities which have much higher than normal levels of risk factors for and prevalence of cardiovascular disease. Figure 2 further describes the Champlain district of Ontario, which in a sense is a microcosm of our country, with a population of 1.2 million, 20% of which is francophone. There are also distinct aboriginal communities; a variety of urban settings ranging from Ottawa-Carleton to manufacturing and resource-dependent communities such as Cornwall and Pembroke; a variety of smaller resource or agricultural service-based communities; and in the upper Ottawa valley, a variety of small communities which could be described as isolated. There are 17 hospitals in our particular region, and three and a half public health units are represented within our region as well.

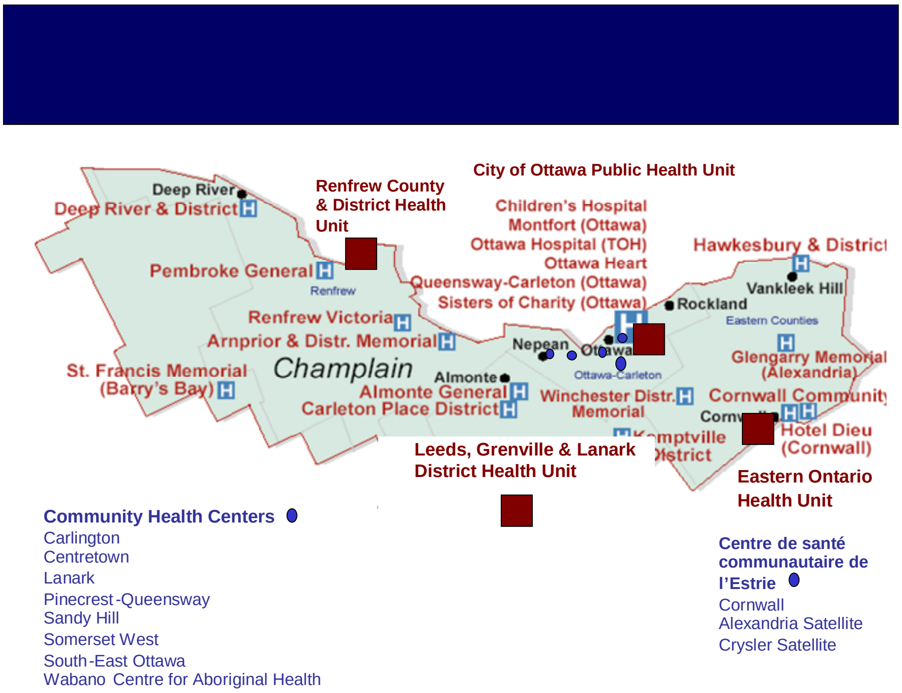
We wished to focus on chronic disease prevention and management, with a priority placed on cardiovascular disease, recognizing that the context of our communities was changing. Indeed, in the context of our province, the emergence of the local health integration network, an entity analogous to the regional health authorities in other settings, offered some unique advantages and opportunities, notwithstanding that these particular entities, at that point, did not have resources that would permit them to be able to support initiatives at the regional level, in contrast to the resources available in Edmonton for example or other regions in the country.

FIG. 1 Champlain is Home to Several Cardiovascular Disease Hot Spots



Age / sex-adjusted cardiovascular disease mortality rates per 100,000 population aged 20 years and over by county in Ontario. April 1st, 2005 Local Health Integration Network

FIG. 2 The Champlain District of Ontario – “A Microcosm of Canada”



At the same time, both in Ontario and in Canada, approaches to chronic disease prevention were being reorganized and redesigned under the aegis of the public health ministries or the ministries responsible for public health. We therefore saw a timely opportunity to develop an array of strategic partnerships with a range of institutions, agencies, disciplines and organizations present in our communities, which would permit common planning and coordination activities. In the past, there has been very little coordinated activity in our region between and among the various 'players'. Hospitals have not necessarily shared or integrated common programs, there has been little attempt to integrate disease prevention efforts within the primary care community, and contiguous public health units may not have harmonized their efforts.

Our region is relatively small (from Ottawa we can reach its borders within almost 90 minutes). We recognized, because it is geographically circumscribed, that we had a unique opportunity to improve the health of our population while developing the capacity to research novel approaches to chronic disease prevention and management. We noted the unique opportunities for collaboration and began to explore how we might involve and engage others, including municipal governments, the education sector, tourism and economic development organizations, the environmental community and urban planners. We sought not only to think about ways in which we could address the identification and management of risk factors, but also to think about ways in which we might begin to influence and engage those who could transform the social and physical environment, so as to make them more conducive to the expression of healthy lifestyles and behaviours.

As shown in Figure 3, we sought to involve in our collaborative individuals, organizations, entities and institutions drawn from these particular segments or areas of our communities. Figure 4 provides an initial list of many of our partners, and identifies in a more orthodox way some of those organizations, whose activities vary immensely.

FIG. 3 An Integrated Approach to Cardiovascular Disease Prevention

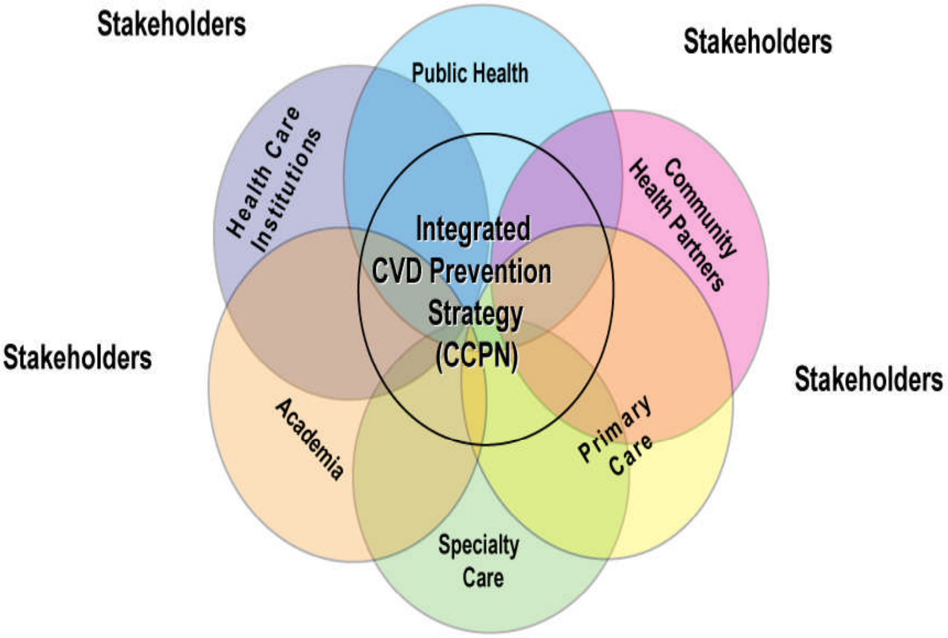


FIG. 4 Developing the CCPN: An Integrated Planning Process

Through a careful process of planning, we identified six particular areas of priority: 1) to build the capacity to collaborate; 2) to address ways in which we might specifically focus on health disparities; 3) to facilitate knowledge translation; 4) to engage ourselves in sophisticated approaches to enhance public knowledge about some of these issues in particular sectors; 5) to create a sentinel population so that we might effectively monitor what it is that we were doing; and 6) to begin to try to review and address some of the public policies which exist in our region that may or may not be conducive to cardiovascular disease management or health.

At the same time, we recognized that we needed, based on these priorities, to develop priority initiatives, and these are the six initiatives which are now being implemented in our particular region:

1. Using a practice facilitation model, a primary care outreach facilitation network seeks to transform professional practice at the level of the primary care unit - be it a family health group, a family health team or a solo practitioner - to improve their abilities to identify and appropriately manage risk factors.
2. We are now introducing into every hospital in the Champlain region an evidence-based, best-practice smoking cessation program for all patients who are smokers admitted to those hospitals. (This program, "The Ottawa Model", is now being replicated in selected hospitals in British Columbia and in New Brunswick, as well as in 20 other hospitals in Ontario).
3. We are introducing a program to ensure that all patients discharged from area hospitals with cardiac diagnoses are monitored to verify that their management is consistent with best practice.
4. We are developing a region-wide public health education strategy, which is not going to attempt to "print a better pamphlet" or "design a better poster"; rather, it is intended to apply an array of sophisticated marketing and communication techniques, using both conventional and alternate forms of communication.
5. Our epidemiologist colleagues are establishing a sentinel population. At the same time, using data drawn where possible from other samples, we are striving to know more about the cardiovascular disease and chronic disease health of our region.
6. In the months ahead, we will be unveiling, or beginning to unveil, a healthy schools initiative. There are a small number of school boards in our particular region and we feel we have a unique opportunity in this respect.

Indicators of Success

Ultimately, the impact on our population's health will be measured by the standard metrics, but also by evaluating the degree to which both professional and institutional practice has been transformed, the degree to which increased cost effectiveness can be demonstrated, by assessing changes in the social and physical environments, and the degree to which some elements of the program might have an opportunity to be replicated in other parts of the province or in Canada.

Lessons Learned from the Champlain Project

To this point in the relatively short life of the Champlain project, we have learned that 'programs can be managed but people can be led'. We have been very fortunate to be able to incorporate into our planning and into the initial phases of our administration dynamic individuals drawn from various sectors in our community who are leaders - champions who can involve themselves in the processes that may lead to substantial change. We recognized also that local data drive decisions. It was important to understand the nuance and the nature of public policy and other forms of policies, as they would ultimately influence what we were able to do. We needed to not be afraid to reach for the top. There was absolutely no reason why one could not aspire to be the very best in any particular area of endeavour.

At the outset, we undertook to uncover or unearth the most complete data set as it related to cardiovascular disease in the Champlain network. We looked at surveys, and we approached friends in Statistics Canada and other organizations who were able to view cardiovascular disease in different ways. The degree to which we were able to mine these data allowed us to develop an understanding of our region that had not been previously possible.

We completed an inventory of programs and services in our region, which was quite illuminating, if not at times depressing, because of the degree to which an array of dis-coordinated, short-lived, often woefully under-funded, and in many respects, frequently ineffective programs had been developed, delivered, and then died out. This was very educational because it made us see in a sort of a serendipitous fashion just what kind of resources had been applied in the past - an approach that clearly was not appropriate for the future.

By and large, the city of Ottawa is an island of upper middle-class, well-educated, high-tech or government workers, with low risks of cardiovascular diseases or adverse health behaviours. The current daily smoking rate in Ottawa-Carleton is 10.8% (Statistics Canada, *Health Indicator,* November 2003), arguably one of the lowest in the country. However, as noted previously, if you travel 30 minutes in either direction from our institution, you are among communities with levels of cardiovascular risk factors that are among the highest in the province and in the country (Table 1).

TABLE 1 Champlain Chronic Disease Risk Factor Profile

Area	Hyper-tension	Diabetes	Over-weight (BMI>25)	Obesity (BMI>30)	Smoke	Physical Inactivity	< 5 serv. F & V
Canada	**14.4**	**4.6**	**33.3**	**14.8**	**23.0**	**47.3**	**55.2**
Ontario	**14.7**	**4.6**	**33.3**	**14.8**	**22.1**	**47.3**	**55.3**
Champlain	**14.0**	**6.0**	**36.6**	**14.3**	**21.2**	**43.9**	**54.8**
Eastern Ontario	*17.1*	*5.4*	*40.9*	*18.8*	*31.6*	48.7	55.6
Renfrew County	*16.9*	*5.5*	36.6	*18.4*	*27.5*	47.0	58.1
LG&L	*15.5*	*5.1*	35.6	*18.1*	*27.2*	46.0	57.2
City of Ottawa	12.3	4.6	35.6	12.8	19.7	42.4	54.1

Developing the Champlain Cardiovascular Disease Prevention Network Model

Initially, we went to considerable effort to develop logic models that might inform and influence our planning and, ultimately, the projects which we decided would be priorities. We looked at where we were at the present, where we wanted to be, and mechanisms and strategies that would allow us to get there (Figure 4). We began to develop, with our partners, various objectives and key actions. Throughout, we established processes to allow us to monitor our effectiveness.

We also took great pains to develop as much intelligence as possible regarding the emerging management and evaluation strategies of our provincial government so that we might replicate the provincial management and evaluation strategies in our programs. This was to ensure congruency between what we would be doing at the local level, what might be occurring in the future at the provincial level, and what might ultimately be occurring at the LHIN (Local Health Integration Network) (*www.health.gov.on.ca/transformation/lhin/lhin_mn.html*) level as various levels of government begin to coordinate evaluation activities.

Policy can be spelled with a big “P” or a little “p”. The big “P” is political policy. Then there are the little “p” policies, the policies that are local or community-based that reflect the aspirations or the perceptions of municipal or township governments. There are the organizational policies that are found in institutions big and small, such as hospitals or voluntary health associations. Then there are the practice policies, which guide particular professional practices in the various institutions and settings in which those individuals are to be found. Understanding these policies and seeking to influence them, can be instrumental in changing institutional, professional, and community behaviours.

By way of example, we had the good fortune to have experienced a recent province-wide ban on smoking in public places and hospitals, which allowed us to develop organizational policies at the hospital level, facilitating the introduction of our hospital-based smoking cessation programs. The first such policy change in our own institution allowed us to ensure that every admitted patient would have their smoking status identified and would be offered sensitive supportive treatment and sophisticated follow-up - with a resulting absolute increase in cessation rates of 15% in the course of one year. As a consequence, we were able to begin to introduce that program consistently to every one of the 17 hospitals in our region using the same metrics, the same documents, the same care maps, the same measurements, and the same computerized system of follow up. Institutional and practice policies changed significantly in these settings.

We recognized that if we were to have impact, we also had to have reach, and if we were going to have reach, it had to be with programs that were effective. Returning to the example of our hospital-based smoking cessation program, this program is now being implemented in all 17 Champlain hospitals. Similarly, our “get with the guidelines” program (primary care facilitation program) will hopefully achieve penetration into all of the professional settings in our region over the next two to three years.

The Path Forward

We have developed a strategic plan and priority initiatives and have a governance model. We have people, organizations, and institutions who have signed on to become participants in the collaborative, who have made commitments of resources in either cash or kind. We have a business plan and a business case which are now on the desks of leaders in various levels of government. We are also modelling our expectations and our priority initiatives are emerging. Every day we receive overtures from other members of the chronic disease community in our region asking if they might join our collaborative because they see an opportunity to address some of their issues using the partnerships and processes that we have developed.

One of the keys to our success with this particular program has been the degree to which we have emphasized to individuals that this must be true collaboration. This is not people riding in on a white horse with flags flying from the heart institute or another tertiary care setting. This is a collaborative program involving people from across the region that wish to transform what is going on in our area; therefore, we need visionaries and champions. We need to be able to share leadership and accountability, and to have the appropriate planning processes - processes that are action oriented. For the first time in our region, we have developed a very significant partnership between and among the public health units, and the various institutions and departments in our area. We want people who are prepared to take risks. We want people who are prepared to be creative and innovative, and we want people who are prepared to join this process for the long run.

We also do not want to let the pursuit of perfection get in the way of "pretty damn good." There is a tendency, particularly on the part of my colleagues in the medical profession, to constantly say, "yes, but we're only going to get 'X' or that's not possibly going to do 100% of 'Y'". It is very important that we develop perspectives that are not inhibited by a vain pursuit for perfection, and I echo some of Dr. Lewanczuk's comments in that respect as well.

Obstacles and Opportunities

To achieve continued success with the program, we need to overcome the four "I"s: ignorance, indifference, intransigence, and inertia. Ignorance can be dealt with, because all of us respond to data and ultimately to evidence. Indifference is a little bit harder to shake, for there are many people who are quite content to do the same old thing. Intransigence can be really problematic in that there are those who refuse to acknowledge the ineffectiveness of what has been done and have no incentive to change. Finally, there is that form of inertia that is just a by-product of the development and operation of any large system or organization.

One of the principal obstacles that relates to ignorance, however, is that we have a 'gerbil-powered' medical information system in Ontario. We have three or four different medical record systems in our region - systems that do not talk to each other. It is deeply depressing to see what exists in Ontario in terms of information systems (or lack thereof) as applied to processes that could contribute to enhanced public health.

What are the opportunities? In our particular region, we continue to see that we might enhance effectiveness and improve outcomes, and there are very distinct synergies and efficiencies to be accomplished.

Conclusions

In Canada, many of us meet ourselves coming through the same doorway. We have been involved in so many taskforces, reports and project groups, and if you go back through the cardiovascular community you see all of the charters and documents that have talked about the bold way forward. I do not necessarily want to be a part of creating yet the latest, perfect document that points the way ahead. In the remaining years in my career, I want to see us apply some of the lessons and approaches which we have all agreed on in the past.

It has been absolutely striking for us that our phone rings every two or three weeks and somebody asks us to join their coalition. While we are very interested in cooperating, we are so busy trying to get our ducks in a row in our own particular region that we really cannot afford to become sidetracked. We want to be focused. It is very important to engage political commitment early. I grow tired of the rhetoric that I have been hearing for almost three decades from politicians about the need for preventative intervention. That rhetoric needs to be met by a realistic commitment of resources. We have to become political in the best, most thoughtful, but most forceful, way to ensure that the transformation in our systems, that politicians constantly tell us are needed, actually take place.

We have tried to begin by doing a few things very, very well. At the same time, we are seeking closer ties with the LHIN, which presently is in the process of its own metamorphosis. We also recognize that we need to not only think 'outside the box' but that in some cases we need to build entirely new boxes. This can be challenging in professional communities which are historically conservative in their outlook.

I want to thank you for the opportunity to discuss this initiative with you and with my colleagues from Halifax and Edmonton. I want to acknowledge the support of Pfizer Canada, who have been invaluable in terms of their assistance to, and their participation in some of the projects that are unfolding within our program. We are only too willing to provide any further assistance or information you might like in the future…"Cooperate, Coordinate, Collaborate" has become one of our fundamental credos!

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Commentary from an Industry Perspective

Jack Watters, MD; Vice President, International External Medical Affairs; Pfizer

Introduction

Thank you very much everyone for coming. When my colleague phoned me and said, "I've got a proposition to make: It's Sunday evening; it's 6:00 to 8:00 pm, it's Memorial Day weekend in the United States", I said "yes". He said "it's in Nova Scotia". I said "ah-ha"! Then he said, "and it's about disease management", and I said, "you've persuaded me".

There are six qualities, I believe, to a successful program: 1) you have to look at long-term health in chronic conditions; 2) you have to make sure your investment is in place; 3) you have to measure outcomes, not just outputs but true outcomes; 4) it has to be personalized or specific, as we heard from the project here; 5) care coordination is essential; and 6) I would put to you that true, real incentives for the patients have to be built into every one of the programs.

As for the three programs that we heard about this evening, they all had a tremendous amount of similarity; yet, it was in the differences that I found the greatest interest. Everyone had several partners, which I think is terribly important, because no single person or no single organization can do this alone. I also thought that the stretch across primary care, but also looking into specialized care, was very interesting – identifying the population of need. I believe that the fact that the programs were goal oriented – that you actually are setting up your organization, your structure, and your patients to succeed – is essential.

Sustainability was talked about, which is of course important in any undertaking – the sustainability of financing, the sustainability of the program, and the sustainability of achievement. With respect to outreach to patients, I would like to say just a little bit about my experience with a program in the United Kingdom. Before I do that, I hesitate to talk about pilot projects because they have really gotten a bad rap this evening; however, while Canada may be the nation of pilot programs, I believe that everything we do, if it is intended to be adopted further, whether by another province or another country, is in its own sense a pilot. Proving success in that first step opens up the pathway to success. I was particularly interested in the fact that Alberta does not do pilot programs, and that they make sure that everything is funded from their operational budget - I support that. Alberta, however, must be the only place in the world where the operational budget does not vary from year to year and where they are never asked to make any cuts or balance the budget based on changes over the years. I do not believe that this is necessarily the case; however, I think that funding can come from many different sources. While I take your point about the transient nature sometimes of pilot funding, I think it is always important to be open to many different sources of funding.

The aspect that really appealed to me about the Champlain program was this incredible diversity, both geographic and social, in a very small area. We, at Pfizer, set up a program in the United Kingdom, albeit a pilot. We went to a primary care trust, which are financially/fiscally independent organizations that manage primary care, in the north of London in an area called Haringey (*http://www.pfizerhealthsolutions.com/ourprojects/projectsinternational_teamhealth.asp*). I do not know if any of you have ever been to Haringey, but it is an incredibly underprivileged, socially challenged area, and any given general practice will probably have about 27 languages to deal with as there is an enormous amount of immigration from Arab countries, from Turkey, Cypress, and the Afro-Caribbean subcontinent. Now, while everyone in the United Kingdom is supposed to be registered with a general practitioner, one member of a family in Haringey may be registered with a general practitioner, or none may be registered. There was an enormous amount of cardiovascular morbidity, and the way that patients were becoming patients was that, when something happened, they presented to the hospital accident and emergency department. It was an emergency but, in many cases, could have been prevented. So we went into partnership with the Haringey primary care trust to develop a pilot program involving 300 patients. Of all the three programs I heard about this evening, our program was in fact closest to the ANCHOR project. We had 20 care managers and 300 patients, and the program was carried out for six months. The paper has been submitted for publication so I cannot really talk about the results. While cardiovascular outcomes cannot be observed after six months, we did observe an incredible improvement in healthy behaviours. Patients wanted to be in the program because they had a care manager who was calling them and seeing them regularly. They may not necessarily see the general practitioner as frequently, but they were seeing this case manager very regularly who was following up with them. They had this partnership, and they felt cared for. The results were that they were taking their medication more regularly, and they were entering into other programs that were being offered, such as smoking cessation and dietary advice programs. Recognizing that this is a small group of patients, but given that it is a totally unreached group of patients in a socially deprived area, I believe that, pilot or no pilot, the general improvement seen in this program is an enormous step forward and an enormous success.

The chief executive of the primary care trust moved from Haringey to Birmingham. Parts of Birmingham are fairly underprivileged as well. As a result of the success in Haringey, he asked us to develop the program in Birmingham - and I believe that that is a testament itself (*http://www.pfizerhealthsolutions.com/ourprojects/projectsinternational_birmingham.asp*). Pfizer also has a partnership program in the most underprivileged part of Italy, the Puglia region, which is the heel of Italy (*http://www.pfizerhealthsolutions.com/ourprojects/projectsinternational_leonardo.asp*).We developed a program there with the regional government. It is a 1,500 patient pilot program. We are hoping to achieve success in similar interventions that will go further.

One anecdote about Haringey I would like to share is that, when we approached them about a partnership, they did quite a bit of research about Pfizer. They wanted to know about us, they wanted to know what we made, and what we did. They were particularly interested in our record of corporate and social responsibility, and wanted to know about our record in terms of HIV and accessibility of medicines in Africa - and I mention this because it is an area in which I have been very much involved. I believe in partnership and social responsibility, and ultimately we all share a common goal, which is for improved health outcomes for the patient. I believe that care management is the way to achieve this goal.

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Commentary from a Government Perspective

Frank Lussing, DHA, CHE; Executive Director; Physician and Pharmaceutical Services; Nova Scotia Department of Health

Introduction

I bring a government perspective, and do not see myself as a government person, per sé. In fact, my career in government is all of a year and a half old. I have spent most of my 30 plus years in healthcare on the ground, running hospitals in Ontario among other things. I am currently the head of a branch that is responsible for coordinating policy development with respect to physician payments, funding, enablers, etc. There are some fairly compelling environmental things going on, which I think make it absolutely necessary for us to really make disease management work. My hat is off to the three presenters for the efforts they have made. What I see, though, is that we do not have a lot of time to lose.

I meet with physician groups on a fairly regular basis, typically through Doctors Nova Scotia, which is the Medical Society for Nova Scotia, and with whom we will be negotiating for a new Master Agreement. Among the points that I repeatedly make to these physician groups, based on what the CFO in our Department of Health in Nova Scotia is telling us, is that in 14 or 15 years, the fiscal demands of the healthcare system will outstrip the capacity of government to pay. This leaves no fiscal room for anything else. So there are some very compelling reasons for pursuing the disease management concepts and capacities.

I will just list half a dozen or so to give further context to my remarks. First of all, there are huge health human resources (HHR) challenges out there, not just in Nova Scotia, but throughout Canada. I think I have a sense of what makes physicians tick, for the most part, and I certainly have a sense of their issues since I hear them most every day. In primary care, particularly, it seems that a perfect storm is emerging. Many family doctors are describing their practices as morphing into chronic disease practices, where they need to give more and more time to people with chronic illness. This leaves less and less time for patients who need preventative care and attention. Unfortunately, the fee-for-service environment does not really reward the kind of behaviour that you would prefer to have in dealing with chronic disease patients. The fee-for-service system is very much oriented towards episodic, or volume based, care. It is not really focused on outcomes-oriented, relationship-based, type care. So when I asked the question earlier about the fee-for-service environment and the extent to whether or not it enabled or supported chronic disease management, I was not surprised to hear, because we know this to be true in Nova Scotia, that the fee-for-service system, in some respects, inhibits and prevents us from moving as aggressively forward into disease management and chronic disease management as we would like to.

In addition, we seem to be facing a shortage, depending on how you define the healthcare model, of family doctors. There are a variety of reasons for this. There are fewer of them who are interested in pursuing true family medicine as a chosen field of endeavour. Those who are graduating have different expectations of what the typical workday looks like. There are a number of them who are telling us they are interested in “boutique type” medicine, whether it is hospital, palliative, or geriatric care, chronic disease management, part time work, emergency work, etc. I think that this raises a number of issues for how we engage, as productively as possible, primary care physicians in the future. Obviously, the challenge is to have them collaborate effectively with other health disciplines, so Dr. Carr’s remarks about the need to find ways to enable health service providers to work collaboratively - truly collaborative and inter-professionally - is going to be a major challenge for us.

Technology is lacking, and it is rather interesting to see the extent to which Alberta has been able to make inroads in this area. A number of us elsewhere continue to be frustrated by the lack of our IT capacity and the extent to which it is really hindering our ability to develop disease management systems. At the end of the day, you must have a sense of what value you are adding to the care process. If you cannot measure what you are doing, there is not much point. You know intuitively and from the literature that there are half a dozen or more chronic disease states that lend themselves very well to organized efforts, but we need to have a sense of where those people are, what kind of interventions are proving to be effective, and to what extent different practices can learn from one another. This raises the potential of using funding as a lever for advancing disease management issues.

So we are embarking on a journey with doctors in Nova Scotia that will hopefully see us increasingly move away from the fee-for-service structure. I hearken back to an earlier comment regarding efforts necessary to try to develop fee codes to reflect the emerging realities for us. That is a struggle. We do not know how much effort to place on fee code enhancement or on creating fee codes that do not currently exist, or, alternatively, to what extent we should really improve our ability to help physicians manage their own practices using performance-based contracts. I suspect most provinces are in the same situation. My personal bias is leaning toward the latter. I think that the fee code world, by definition, may hinder really creative solutions in chronic disease management strategies. So we will hopefully be able to shift thinking more towards performance-based contracts, pooled funding, and funding envelopes, which, by the way, may also be necessary to be able to engage other allied professionals in group practices unless we can find ways of leveraging fee schedules to allow for nurse practitioners, dieticians, and pharmacists, for example, to be paid within a group practice environment. I think it may be better, in fact, to pursue the notion of global or envelop funding and base that funding to some extent on potential or actual evidence of performance, that is, performance contracts. I know it is possible; I think it may not be possible in the short run.

In addition, and I did not hear any of the speakers reference this at all, I wonder whether there is not also a place for incentive-type funding. The United Kingdom has entered into this world in a big way. My sense is that incentives are a great way of inducing the kind of behaviour you are looking for. More importantly, it forces one to develop the infrastructure and the technology to enable one to evaluate the things which one wants to reward. This, in and of itself, will create a database that will be immensely helpful as practitioners work with one another to see what strategies and efforts work best. So by recognizing and rewarding it, you are motivating the rest of the field to fall in line.