

CARDIAC SERVICES BC STRATEGIC PLAN

Cardiac Services BC

A program of the Provincial Health Services Authority

Updated October 2007



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A program of the Provincial Health Services Authority

October 1, 2007

Cardiovascular disease is the leading cause of death in British Columbia. The diagnosis and treatment of patients with cardiovascular risk factors and disease consumes more resources than any other disease. Although improvements in diagnosis, treatment, and lifestyle have reduced the mortality rate of ischemic heart disease, the number of people with cardiovascular disease continues to climb; age is a risk factor for heart disease and the population is aging.

Cardiac Services BC was created within PHSA as part of the transfer of adult tertiary cardiac funds from the Ministry of Health. Cardiac Services BC is the funding body to the health authorities for specific adult tertiary cardiac procedures and programs, with a mandate which includes planning, co-ordinating, and evaluating cardiac care across the spectrum of cardiovascular disease for the province. This exciting mandate encompasses primary prevention, diagnosis and treatment of cardiovascular disease, as well as secondary prevention, rehabilitation and education.

There are challenges to achieving this mandate. Cardiac sciences, rooted in evidence-based medicine and research, have made enormous strides in the diagnosis and treatment of heart disease and the pace of innovation is expected to continue. However, these advances—necessary to the health of British Columbians—have been matched by an attendant increase in technology costs, presenting a significant challenge to those charged with providing services to British Columbians within available resources. Consequently, providing the best in cardiac services is, in part, finding a balance between the burgeoning demand for services to an aging population and the supply of resources—human, capital and consumables—available to meet that demand.

To meet this and other challenges, cardiac services has adopted four strategic directions to guide its work over the next five years. Cardiac Services BC will work to:

- Improve access.
- Enhance the quality and effectiveness of cardiac services.
- Build system capacity.
- Develop, maintain and strengthen partnerships and collaborations.

These strategic directions will be met through a combination of short- and long-term goals and action items.

Cardiac Services BC will expand the BC Cardiac Registry and enhance capacity for standardized data collection in several cardiac services areas. Information from the BC Cardiac Registry is used for administrative, clinical and research purposes. The capacity for appropriate linkages with other databases will be maximized, as linked datasets are a critical component of understanding the trends and outcomes related to tertiary cardiac care. Reports from the BC Cardiac Registry will be made available to stakeholders to assist in planning, evaluation, coordination, and funding decisions.

To help address clinical cardiac issues and planning future services the Provincial Advisory Panel on Cardiac Health will develop regular reports by sub-specialty. These reports will address projected

volumes, capacity, human resources and technology to form the basis for planning, coordination and funding.

The following strategic plan, which expands on many of these points, was a collaborative effort and I would like to thank all those who participated. This includes the members of the Provincial Advisory Panel on Cardiac Health and their sub-committees, and health authority cardiac representatives. I am convinced that with teamwork and planning we can take cardiovascular care in British Columbia to a higher level of quality and satisfaction for patients and families.

Kori Kingsbury
Provincial Executive Director (Interim)
Cardiac Services BC

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Cardiac Services BC – Who We Are and What We Do

Vision

To facilitate leadership and innovation in the delivery, research and teaching of cardiac services for the Province of British Columbia.

Cardiac Services BC was created to improve the planning, coordination and evaluation of cardiac services in British Columbia. Currently, Cardiac Services BC is the funding body to the health authorities providing services in the areas of angioplasty, cardiovascular surgery, lead extractions, electrophysiology and implantable cardioverter defibrillators. Cardiac Services BC also supports the BC Cardiac Registry, the Provincial Advisory Panel on Cardiac Health, and five site-specific cardiac surgery co-ordinators.

Mission

To improve the access and quality of cardiac care for British Columbians.

Cardiac Services BC will focus on:

- Planning
- Coordination
- Evaluation
- Funding (open-heart surgery, angioplasty, electrophysiology)

Cardiovascular disease has been shown to depend on many factors, from genetic predisposition to modifiable risk factors, including hypertension, lipid disorders, diabetes, obesity, smoking, and a lack of exercise. Although these risk factors are well known to the medical community and the public, there has been little coordination in the approach to their reduction.

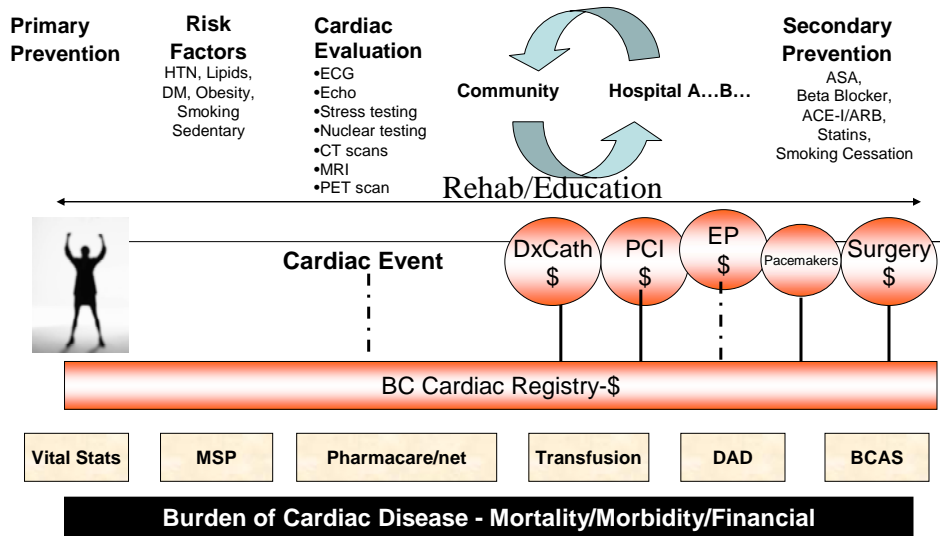
One method of reducing risks for cardiovascular disease is to adhere to evidence-based clinical guidelines for identifying those at risk, and to provide appropriate treatment. Numerous clinical guidelines have been circulated by interest groups and disease specific societies, but their acceptance and adoption by the medical community outside the hospital settings is limited.

Consequently, it is the intent of Cardiac Services BC to support appropriate clinical guidelines and explore methods for improving their adoption. These guidelines will apply across the spectrum of cardiac disease, from primary prevention to assessing signs/symptoms of cardiac disease to the diagnosis and treatment of acute coronary syndromes and heart failure through the application of appropriate therapies such as percutaneous coronary interventions, electrophysiology, and open-heart surgery.

The following graphic describes the range and scope of cardiac services envisioned for the future. These services will have an influential role that crosses the spectrum of cardiac disease, from primary prevention, through diagnosis and treatment to rehabilitation and education.

Exhibit 1: Continuum of Cardiac Services

PHSA CARDIAC SERVICES
 Planning, Coordination, Evaluation, Funding (\$)



Cardiac Services BC is responsible for meeting British Columbia’s need for adult tertiary cardiac services, including cardiovascular surgery, angioplasty, lead extractions, electrophysiology and implantable cardioverter defibrillators. Cardiac Services BC will take the lead across the spectrum of cardiovascular disease-related services in British Columbia, from primary prevention to appropriate diagnosis, treatment and follow-up.

Cardiac Services BC is expected to fulfill a co-ordination role for British Columbians by assisting in understanding service needs across all regions of the province, as well as assuming a guiding role in advocating and justifying funding to support cardiac services/programs. Cardiac Services BC will also be responsible for providing direction and provincial leadership in:

- Setting provincial standards for access to cardiac services.
- Standardizing practice protocols and improving the consistency of care.
- Reviewing provincial purchasing of major cardiac supplies.
- Recommending future initiatives for cardiac services within the province.
- Collecting and analyzing data to ensure the quality of cardiac services within the province.
- Allocating resources within cardiac services to best meet patient needs.

Values

Cardiac Services BC believes that all patients in British Columbia should have equal access to quality cardiac services.

Cardiac Services BC strives to ensure the delivery of efficient and effective care based on proven technology and evidence-based clinical practices.

Cardiac Services BC aims to be an advocate for cardiac health in British Columbia.

In addition, Cardiac Services BC is responsible for funding and managing the BC Cardiac Registry. The registry contains more than 10 years of high-quality cardiac catheterization and adult open heart surgery data, and consisting of a complex database with data entry and report generation interfaces located at a number of sites and clinical offices.

The primary roles of the BC Cardiac Registry include:

- Collecting information on/for all open heart surgery, angiography, angioplasty, and pacemaker procedures performed in the province.
- Generating medical reports for open heart surgeries.
- Collecting and reporting wait list data.
- Reporting administrative and *ad hoc* clinical activity.
- Providing data and analysis expertise to support.
 - Quality assurance for surgeons
 - Research and outcomes analysis

A goal for the BC Cardiac Registry is to expand data collection upstream to include acute coronary syndrome (heart attack) patients.

How we connect with other parts of the BC health system and the PHSA

A number of key organizations support cardiac services as it strives to meet its strategic goals and objectives. These key partners are both internal (within the PHSA) and external, including, but not limited to:

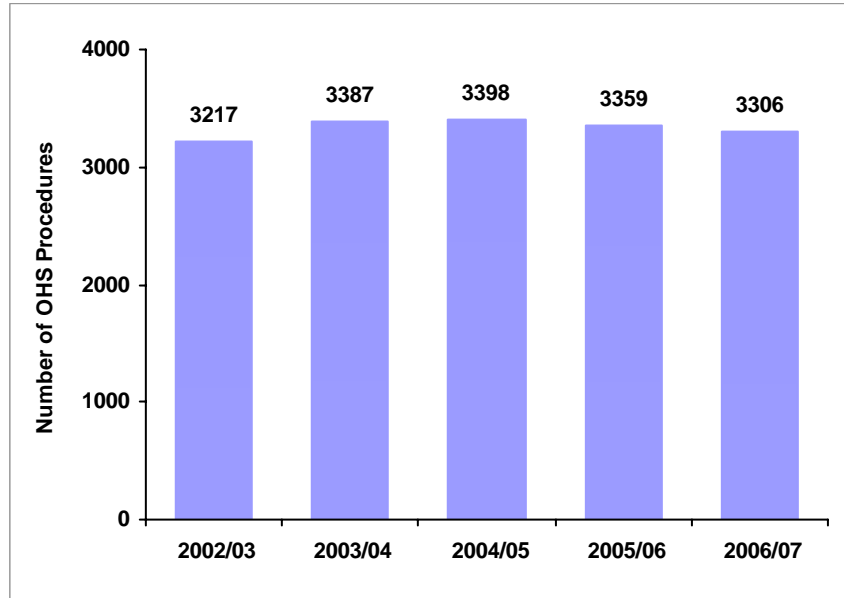
- Health authorities
- Ministry of Health
- University of British Columbia
- Simon Fraser University
- BC Provincial Renal Agency
- BC Transplant Society
- Heart and Stroke Foundation of British Columbia/Canada
- Healthy Heart Society
- British Columbia Medical Association
- Health Canada
- Canadian Heart Research Centre
- Canadian Institute of Health Research
- Canadian Cardiovascular Society
- BC Institute of Technology

Who we serve

Open Heart Surgery

Open heart surgery is performed in four hospitals in British Columbia, including Royal Columbian in New Westminster, Royal Jubilee in Victoria, Vancouver General and St. Paul's in Vancouver. In fiscal year 2006/07, 3,306 open-heart surgeries were performed in British Columbia.

Exhibit 2: Open Heart Surgery 2002/03 – 2006/07

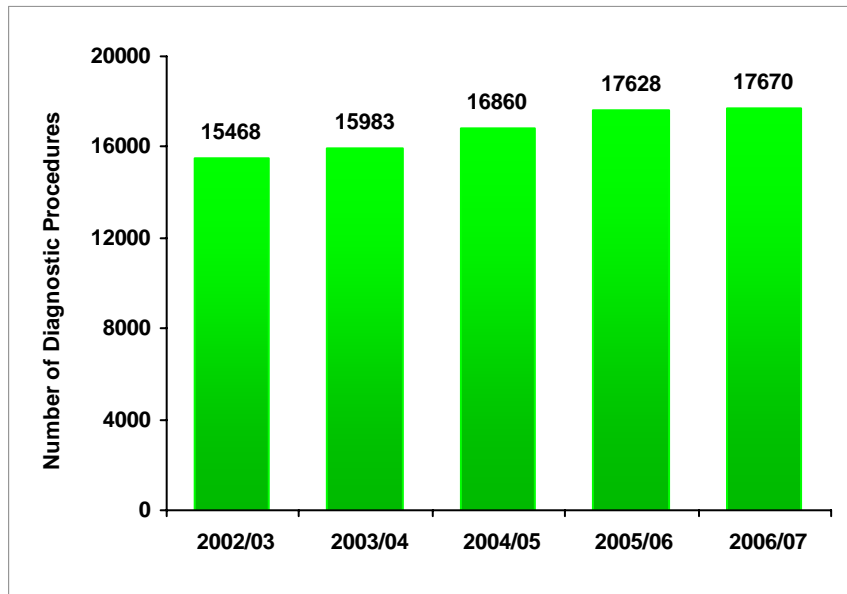


Included in these totals are coronary artery bypass graft (CABG), valve procedures, combined CABG and valve procedures, aortic procedures, congenital heart procedures, and other open-heart surgery procedures. The above figures include procedures performed for out-of-province patients.

Diagnostic Heart Catheterizations & Percutaneous Coronary Interventions

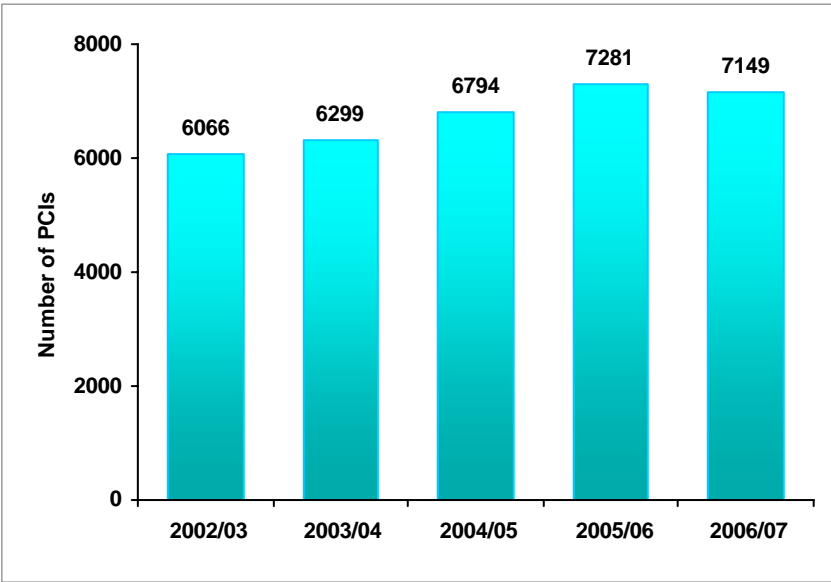
Heart catheterizations (“angiograms”) are an important diagnostic test to determine if there are blockages in the hear arteries. These are performed in six hospitals in British Columbia, including Royal Columbian, Royal Jubilee, Vancouver General and St. Paul’s, Kelowna General and Lions Gate Hospital in North Vancouver. For the fiscal year of 2006/07, 17,670 angiograms were performed in British Columbia.

Exhibit 3: Diagnostic Catheterizations 2002/03 – 2006/07 (source: BC Cardiac Registry)



Percutaneous coronary interventions (PCIs) are performed in four hospitals in British Columbia, including Royal Columbian, Royal Jubilee, Vancouver General and St. Paul’s. PCI includes procedures include balloon angioplasty and other interventions. For the fiscal year of 2006/07, 7,149 PCIs were performed in British Columbia.

Exhibit 4: Percutaneous Coronary Interventions 2002/03 – 2006/07

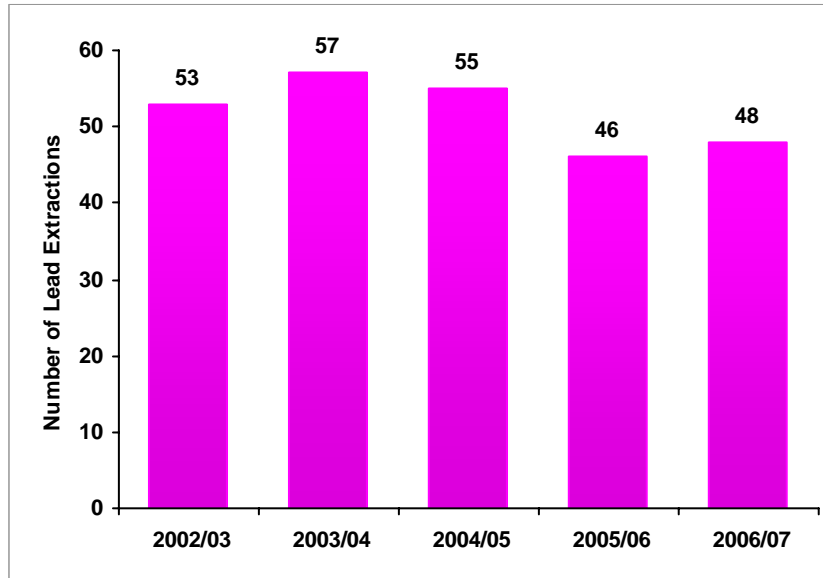


These totals include interventional cases and *ad hoc* cases—cases where both diagnostic angiography and revascularization take place in the same episode. The above figures include procedures performed for out-of-province patients.

Lead Extractions

A “lead” is a flexible wire connecting a pacemaker or implantable cardioverter defibrillator generator (battery) to the heart muscle¹. “Lead extraction” is the removal of one or more leads, due to lead damage, infection or other complications. Lead extraction procedures are performed at two hospitals in British Columbia: Royal Jubilee and St. Paul’s.

Exhibit 5: Lead Extractions 2002/03 – 2006/07

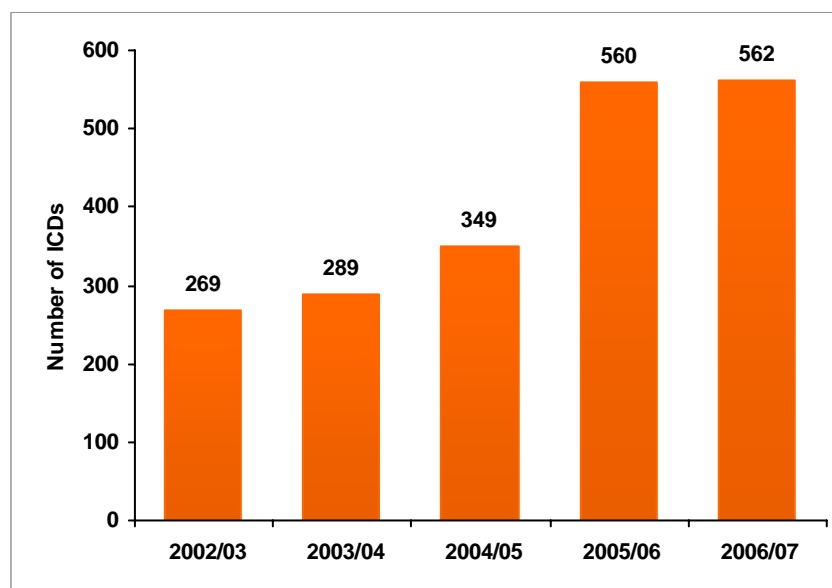


¹ <http://www.londoncardiac.ca/pages/leadx.htm>

Implantable Cardioverter Defibrillators

An implantable cardioverter defibrillator (ICD) is a small electronic device capable of monitoring heart rhythms installed inside the chest wall to prevent sudden death from cardiac arrest due to life threatening abnormally fast heart rhythms (tachycardia). When a heart beats normally, the device remains inactive. If the heart develops a life-threatening tachycardia, the ICD delivers electrical "shock(s)" to the heart to terminate the abnormal rhythm and return the heart rhythm to normal². There were 562 ICDs implanted in 2006/07, an increase of more than 100% percent from 2000/01.

Exhibit 6: Implantable Cardioverter Defibrillators 2002/03 – 2006/07



Looking Forward: Opportunities and Pressures

The following sections examine opportunities and pressures—external and internal—that will affect cardiac services in the future. This discussion provides a framework for reviewing Cardiac Services BC's strategic directions that aim to enhance the quality and accessibility of patient care in collaboration with other cardiac service providers.

The changing reality of cardiac services delivery requires significant planning and co-ordination among all cardiac service organizations. As a provincial program, Cardiac Services BC has an opportunity to lead the provincial planning and collaboration process on behalf of cardiac services to ensure that future needs are met with high quality care.

² http://www.medicinenet.com/Implantable_Cardiac_Defibrillator/page1.htm

External influences

External influences, or influences outside the control of Cardiac Services BC, can significantly affect service delivery. The following examples are taken from a review of cardiac documents and from information provided by Cardiac Services BC' stakeholders.

Demographics and changes in disease presentation

Cardiovascular disease prevalence increases with age and the proportion of elderly in the population is increasing. Consequently, the province will require more cardiac resources.

Factors

- Increasing co-morbidities in older populations, as well as changes in anatomic complexity, will result in an increased need for cardiac services.
- The prevalence of risk factors—specifically obesity and diabetes—is increasing. This will influence the incidence of disease. Cardiovascular risk factors are influenced by ‘upstream’ factors such as income, employment, education, working conditions, housing, social supports, community characteristics and features of the physical environment.
- Even though mortality from ischemic heart disease declined from 1990 to 1998³, more patients are presenting with heart failure and a prognosis matching the most malignant cancers.

The table below (Exhibit 7) indicates the percentage growth in population by age group from 2004 to 2010. Note the growth in population in both genders over age 50 which is the age group most prone to cardiac disease.

Exhibit 7: Percent Growth in Population by Age Group from 2004 to 2010

Age Group		Interior	Fraser	Vancouver Coastal	Vancouver Island	Northern	BC
Females	F20-49	3.2%	6.9%	-0.8%	0.1%	2.6%	2.9%
	F50-64	20.0%	27.9%	20.7%	20.1%	27.1%	23.3%
	F65-74	10.7%	23.0%	15.7%	15.2%	24.6%	17.3%
	F75+	14.8%	17.0%	4.1%	3.4%	28.6%	10.8%
Males	M20-49	4.1%	6.5%	0.3%	1.4%	1.2%	3.3%
	M50-64	17.9%	25.6%	17.6%	17.1%	22.3%	20.6%
	M65-74	2.9%	26.3%	11.7%	10.2%	25.1%	14.7%
	M75+	19.1%	27.0%	15.6%	11.2%	30.9%	19.1%
Total Population Growth		9.2%	13.9%	6.1%	7.2%	10.2%	9.7%

³ Heart and Stroke Foundation, 2000

Quality and Safety

Factors

- The Canadian Cardiovascular Society has made recommendations for the treatment of ST-elevation myocardial infarction, which to be implemented will require coordination between health authorities and the BC Ambulance Service, as well as coordinated data gathering for measurement purposes.
- The Patient Safety Task Force is in the process of implementing the IHI Patient Safety initiative. One of the initiatives is Acute Myocardial Infarction (AMI) which correlates closely with the above.
- To adopt, and implement the guidelines and the AMI Toolkit will require coordination, and measurement to ensure quality improvement

Patient roles, expectations and responsibilities

Factors

- Patients are well informed via the media, internet, family/friends and the medical community and expect the latest forms of treatment to include medication, procedures and devices. To fund and ensure appropriate adoption of new therapies requires the ability to stay abreast of new advances in cardiac medicine, perform cost/benefit analysis, education of patients and providers as well as the typical increased funding requirement.
- Patients require education and incentives to participate in primary prevention of cardiac disease and associated risk factors. Also, to adhere to secondary prevention known to be beneficial such as post MI medication regimes.
- As patients become more informed they demand access to information and exhibit privacy concerns regarding information held in such databases as the BC Cardiac Registry, as such, adherence to the FOIPPA and Protection of Privacy are paramount.

Information and Communication Technology

Factors

- The BC Cardiac Registry is unique in that it not only functions as a data repository for research, policy development, and quality improvement but also has the capability to move clinical information to stakeholders. There is the opportunity to participate in the development of e-health.

Knowledge translation

Factors

- As new treatments and technology present themselves and garner considerable attention, there is the challenge and opportunity to ensure that we continue to adhere to tried and true therapeutic interventions. An example of this is secondary prevention post myocardial infarction. There is ample clinical evidence of the benefits of post-MI medications but unfortunately the use of the medications is very low. There is an opportunity for Cardiac Services BC to participate in data gathering to identify the size of the problem as well as to participate with stakeholders in education and incentives to improve medication use which in the long run saves lives, reduces hospital admissions and cost.

Changes in technology, scientific advancements and prioritization of services

There is a pressing need in British Columbia for an organization to take the lead in assessing, evaluating and recommending technology and pharmaceuticals for cardiac services, including participating in province-wide purchasing in order to decrease cost and increase adherence to provincial standards. Cardiac Services BC can fulfill this key role, which will support the delivery of more cost-efficient and effective cardiac services by participating in planning/coordination for an equitable distribution of services to cardiac organizations based on the anticipated incidence and prevalence of cardiac disease in their target populations.

Factors

- Evidence-based treatments/technologies are abundant in cardiac care. However, the rapid development and introduction of technology/pharmaceuticals affects treatment plans and costs associated with treating cardiac disease. The challenge is how to adopt and apply these treatments/techniques within the available resources. Examples include:
 - ❖ Advances in coronary stents, including drug eluting stents
 - ❖ Advances in electrophysiology, including complex ablation/mapping therapy
 - ❖ Advances in diagnostic procedure such as CT scans and MRI for cardiac purposes
 - ❖ Less invasive modes of heart valve surgery including percutaneous or trans apical procedures
- Service prioritization—ensuring the right patient gets the right service at the right time (diagnosis or therapy), when (how long is the waiting time) and where (local vs. distant centralized service)—has become necessary in light of constrained resources.
- There has been a shortfall in health care in general in investing in information technology and systems, and in analytic capacity. This is particularly true in cardiac care, which is highly dependent on accurate data and analysis to track processes and outcomes.

Health Funding

It is estimated that cardiac disease consumes one sixth of the total health-care budget in British Columbia. There is a need to ensure efficiency and effectiveness for the dollars spent.

Factors

- The ability to case cost cardiac procedures is compromised as only two hospitals have case costing systems

Health System Evolution in B.C.

As the health authorities mature in management and service provision there may be a tendency to provide services to their population within their own jurisdiction i.e. “closer to home.” It will be important to ensure communication between Health Authorities regarding their cardiac plans to ensure that program

volumes are appropriate to maintain quality and economies of scale for limited resources both human and physical.

Factors

- Each health authority is developing plans for cardiac services.

Federal Political Environment

The recent court ruling in Quebec regarding private clinics may lead to the proliferation of private cardiac services, most likely in the diagnostic arena. There could be increased access to diagnostic cardiac CT scans and cardiac MRI. This may lead to the identification of more cardiac disease and pressure on the public system to respond to treatment.

In December, 2005 a federal/provincial and territorial initiative was announced to address how long Canadians wait for health services. For the first time ever, there will be common goals for the provision of medical treatments and screening services. Included in the announcement were benchmarks for the recommended maximum wait time for coronary artery bypass surgery.

Factors

- Increasing need for accurate data regarding wait times
- Potential for increased funding to address wait times issue

Human resources

Addressing the increasing shortage of cardiac service professionals in the province is an issue that requires integrated planning. Cardiac Services BC can work with the health authorities and educational institutions to evaluate immediate and longer-term requirements for cardiac service delivery, and plan strategies to fill the shortages.

Factors

- Recruiting, retaining and training of cardiac specialists, as well as lack of appropriately skilled nursing support and cardiovascular technologists to meet the demand for services.
- The province's already limited numbers of nurses, physicians and technologists are aging and will be exiting the workforce.
- There is a trend toward the conversion of open heart cases to PCI which could have long term effects on surgical training programs and ancillary service providers.
- The sub-specialty of electrophysiology is widening its scope and will require more human resources.

Policy issues

The risk factors and resulting prevalence of cardiac disease across British Columbia is much better understood now than in the past. As a provincial program, Cardiac Services BC can take the lead in

promoting an even more thorough understanding of the changes occurring in cardiac disease, and can advocate for policy initiatives that will better support the transformation of service delivery.

Factors

- Public expectations about service availability.
- End of life decisions as public expectations increase with each wave of new technology.

System capacity and access to service

In order to provide more equitable cardiac services across the province, the entire health system needs to be able to respond to changes in cardiac service delivery, including changes in cardiac technology. By promoting high quality, accessible care, Cardiac Services BC will be able to identify and recommend solutions that will begin to rectify access problems to cardiac services. The service can act as an advocate, promoting systemic change in working towards higher quality service for all British Columbians.

Factors

- Lack of funding source to balance supply and demand for cardiac services in British Columbia.
- Lack of a coordinated plan for divert patients to areas where care is available (e.g. to areas where capacity exists or to the first available cardiac surgeon/interventional cardiologist).
- To achieve the federal benchmarks for coronary artery bypass surgery increased capacity will be required
- Wait times for access to diagnostic catheterization, PCI and electrophysiology will need to be developed

Research

The BC Cardiac Registry contains a wealth of clinical data on cardiac patients over the span of 14 years that allows for outcome measurement.

Factors

- Researchers have difficulty accessing the data.
- There is not a source of data to measure outcomes of acute coronary syndromes in a timely fashion.
- Electrophysiology data is not centrally gathered.

Inter-provincial and international service levels

The available information on the delivery of health care is constantly expanding. Patients and providers are aware of the services that can be obtained in neighbouring provinces and states and demand those services. Cardiac Services BC is in a position to collaborate with other provinces in setting standards for population rates of service, as well as to evaluate population rates for service in comparison to other countries. The service can use that information to assist decision-making.

Factors

- Patients and providers see and hear of services available in other geographical jurisdictions and have a similar expectation for service.

Internal influences

Internal influences include trends and influences that are contained within Cardiac Services BC. Internal influences provide a starting point for identifying future strategies based on the internal strengths and weaknesses of an organization. The following internal influences are examples that have been compiled based on a review of cardiac documents and as a result of information provided by Cardiac Services BC's stakeholders.

Funding

Cardiac resources are limited and must be used efficiently and productively in light of the increasing number and complexity of cardiac cases in the province. Cardiac Services BC, in partnership with the health authorities, has the opportunity to better outline the resources required for cardiac procedures. In turn, Cardiac Services BC will provide more accurate information to funding bodies to ensure that adequate resources are being spent on increasingly complex cardiac services.

Factors

- The present per-case funding for cardiac services may not reflect current clinical practice.
- Obtaining funding levels for new technologies and treatments is challenging. Treatment advances for cardiac care continuously result in new procedures, new medications, and new technology, all of which are increasingly costly.

Capacity and access to services

As the population ages and more individuals are afflicted with cardiac disease, it is increasingly important for stakeholders to understand the relationship of the delivery of cardiac services to the capacity of the health-care system. With the support of the BC Cardiac Registry, Cardiac Services BC will be in a position to fully understand the level of service delivery in each health authority and will be able to provide accurate information as part of a business case for increased resources. Cardiac Services BC can act on behalf of cardiac service organizations to advocate for increased system capacity as part of an improvement in the delivery of cardiac services.

Factors

- There are marked differences in the distribution of, and access to care among regions in British Columbia, even though the make up of the population (and expected demand for services) is similar.
- There is only limited capacity in the system (i.e. space, resources, people) to treat people which limits the ability to realize the benefits of new treatments and technologies.
- Infrastructure shortfalls in facilities can limit the ability to deliver the number of expected cases, resulting in longer than expected wait-times for cardiac procedures.

Prevention/diagnosis/treatment across the spectrum of cardiac disease

Cardiac Services BC will work in collaboration with the Guidelines and Protocols Committee of the BC Medical Association/Medical Services Plan to develop guidelines. The service will also work with the Ministry of Health's chronic disease management initiative to improve access to decision-making data and innovative ways to improve guideline acceptance and penetration.

Factors

- Lack of coordination for developing clinical guidelines across the spectrum of cardiac disease.
- A perception by governing bodies that there is a lack of accountability for adherence to clinical guidelines, complicated by a lack of consistent and accepted methods for measuring adherence.

Our Strategic Directions

The following strategic directions have been identified based on information taken from cardiac documents and through consultation with Cardiac Services BC's stakeholders.

Improve access

Providing timely access to cardiac services and reducing the number of patients on the cardiac waitlist is a priority in BC. Access problems are especially acute with specialist physicians. As the population grows and cardiac disease presentations change, improving accessibility to cardiac services becomes even more critical. The difference in access between rural and urban communities also needs to be addressed.

Strategic Goals

Cardiac Services BC will work to enhance and equalize accessibility throughout the province by developing and implementing plans that will ultimately:

- Establish appropriate levels, rates and standards for cardiac services based on population demographics.
- Evaluate access and future requirements for electrophysiology services.
- Develop and implement a wait list management system for coronary artery bypass surgery in alignment with the federal benchmarks and provincial targets.
- Monitor and improve regional consistency in delivering cardiac services, possibly through the creation of networks.
- Improve provincial access to the range of services currently offered from diagnostic through to interventional/surgical services.

Enhance the quality and effectiveness of Cardiac Services

Creating easier access to cardiac services is only one part of the challenge Cardiac Services BC faces as it develops its strategic directions for the future. Another key area for attention is the quality and effectiveness of the services delivered.

Strategic Goals

To support quality improvement initiatives in BC, Cardiac Services BC will strive to:

- Expand the BC Cardiac Registry into a comprehensive cardiovascular disease database.

- Develop indicators/standards/guidelines to demonstrate improvements in provincial access to services and quality.
- Provide an annual cardiac surgery quality assessment.
- Develop a model for cardiac catheterization quality assessment.
- Engage stakeholders providing heart attack care including health authorities, providers and the BC Ambulance Service to promote evidence based practices.
- Develop and disseminate critical pathway guidelines, best practice guidelines and other resources to support the delivery of quality and consistent care across the province.
- Develop a system to monitor the penetration of cardiovascular guidelines.
- Develop guidelines and policies associated with end-of-life decision-making.

Build system capacity

Resources for cardiac services are limited and must be used in the most efficient and effective manner. The speed at which new technologies and drugs are available for practitioners is unique to the cardiac field and there is a need to coordinate technology and drug assessments. Furthermore, significant planning is required to successfully introduce new treatments.

Strategic Goals

To support building system capacity, Cardiac Services BC will:

- Provide clarity on funding levels to the health authorities and advocate for appropriate funding levels based on case costing and population rates for specific services.
- Evaluate and report on the provision of cardiac rehabilitation and secondary prevention services in the province to determine future requirements.
- Create a Stakeholders Task Force to determine indications for the use of CT technology in the diagnosis of coronary artery disease.
- Forecast and plan for future trends in disease manifestation and diagnostic and therapeutic strategies.
- Coordinate technology and drug assessments and recommend specific treatments for cardiac services based on a systematic evaluation process.
- Plan and advocate for system supports (e.g. space, professionals, IM/IT, other) that will ensure the efficiency and effectiveness of cardiac treatments.

Develop, maintain and strengthen partnerships and collaboration

Until now, no coordinating body has been responsible for cardiac services across the spectrum of cardiac disease. This spectrum includes:

- Developing primary prevention guidelines.

- Assessing cardiac signs and symptoms appropriately.
- Diagnosing and treating acute symptoms.
- Following up treated patients appropriately.
- Coordinating research.
- Educating patients

Numerous organizations are involved in many different aspects of this spectrum of services.

Strategic Goals

Cardiac Services BC is in a position to provide coordination and direction by:

- Seeking and developing further partnerships with:
 - Industry (pharmaceutical and cardiovascular device industry)
 - Ministry of Health
 - Health authorities
 - University of British Columbia
 - Simon Fraser University
 - BC Institute of Technology
 - BC Provincial Renal Agency
 - BC Transplant Society
 - Heart and Stroke Foundation of British Columbia/Canada
 - Healthy Heart Society
 - British Columbia Medical Association
 - Health Canada
 - Canadian Heart Research Centre
 - Canadian Institute of Health Research
 - Canadian Cardiovascular Society

and others, to build a system that is responsive to the growing burden of cardiovascular disease in British Columbia.

Short- and Long-Term Strategies

Cardiac Services BC recognizes the importance and urgency of improving the cardiac care available to British Columbians. As a result, Cardiac Services BC will address the following preliminary short-term strategies in the next one to two years. Longer-term strategies will be addressed over the next two to four years.

Exhibit 14: Short- and Long-Term Cardiac Services BC Strategies

	Improving Accessibility	Enhancing Quality and Effectiveness of Service	Building System Capacity	Developing/ Strengthening Partnerships and Collaboration
Short-Term Strategies	<ul style="list-style-type: none"> • Establish appropriate levels, rates, and standards for cardiac services based on population demographics. • Evaluate access to electrophysiology and future requirements. • Develop and implement a wait list management system for CABG. 	<ul style="list-style-type: none"> • Expand the BCCR into a comprehensive cardiovascular disease database • Develop indicators/standards/ guidelines to demonstrate improvements in provincial access to services and quality. • Annual cardiac surgery quality assessment • Develop a model for cardiac catheterization quality assessment • Engage stakeholders providing heart attack care to promote evidence based practices 	<ul style="list-style-type: none"> • Provide clarity on funding levels to the health authorities and advocate for appropriate funding levels based on case-costing and population rates for specific services • Evaluate and report on the provision of cardiac rehabilitation and secondary prevention in the province to determine future requirements • Create a Stakeholders Task Force to determine indications for the use of CT technology in the diagnosis of coronary artery disease 	<ul style="list-style-type: none"> • Further seek and develop partnerships • Modify the strategic plan based on reliable and comprehensive data in collaboration with the health authorities and Ministry of Health.
Long-Term Strategies	<ul style="list-style-type: none"> • Monitor and improve regional consistency in the delivery of cardiac services • Improve access to the range of services currently offered from diagnostic through interventional /surgical services 	<ul style="list-style-type: none"> • Develop and disseminate critical pathway guidelines, best practice guidelines and other resources to support the delivery of quality and consistent care across the province • Participate in developing a system to monitor the penetration of cardiovascular guidelines • Develop guidelines and policies associated with “end of life” decision making 	<ul style="list-style-type: none"> • Forecasting and planning for future trends in disease manifestation and diagnostic and therapeutic strategies • Co-coordinating technology and drug assessments and recommending specific treatments for cardiac services based on a systematic evaluation process • Planning and advocating for system supports (space, professionals, IM/IT other) that will ensure the efficiency and effectiveness of cardiac treatments 	

Strategic Action Items

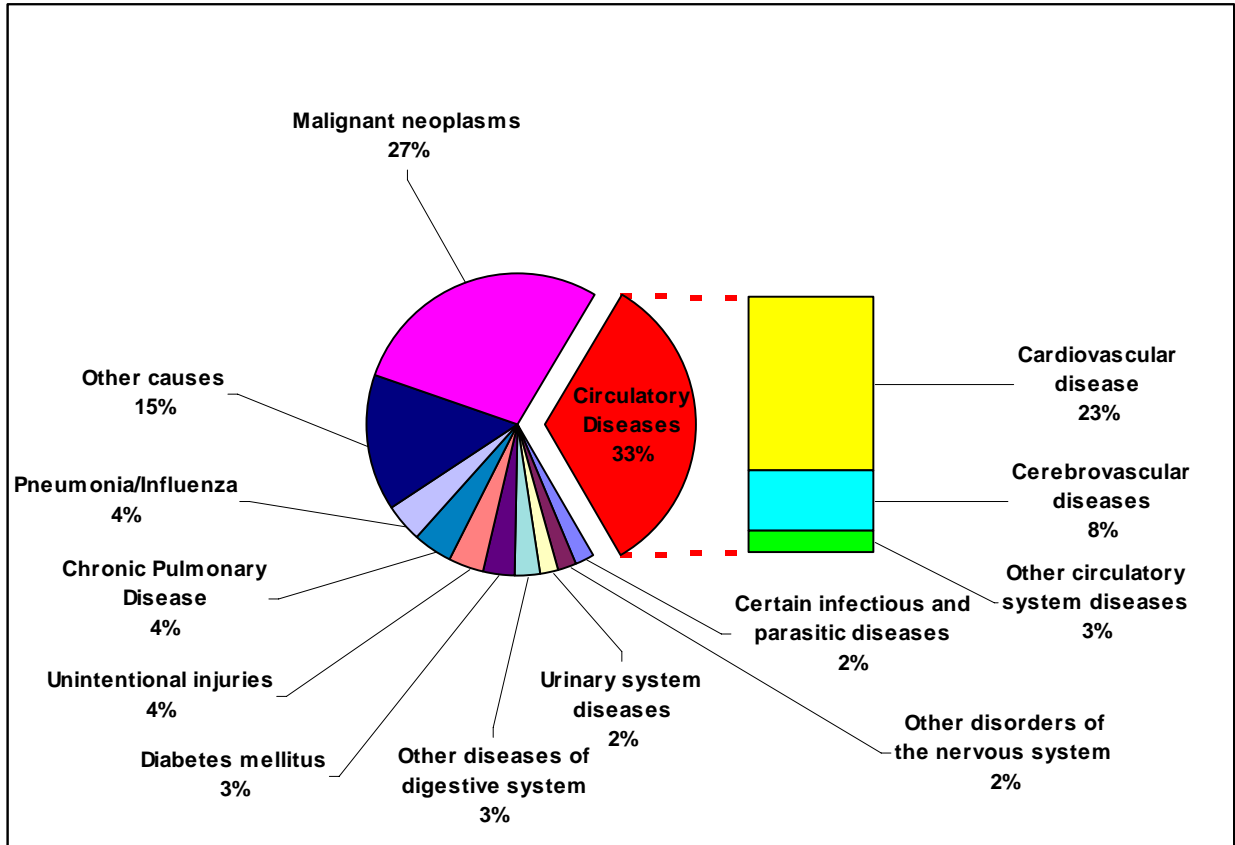
Goal:	Establish appropriate levels, rates, and standards for cardiac services based on population demographics.
Action Item:	Determine rates/100,000 pop >age 20 for open heart, dx cath, PCI, EP, by health authority and compare to other provinces.
Action Item:	Review the reports of the PAPCH subcommittees and develop target rates and present to Liaison Committee.
Goal:	Evaluate access to electrophysiology and future requirements
Action Item:	Determine present sites of service across the spectrum.
Action Item:	Determine present cases/population and projections.
Action Item:	Present report to PAPCH, Liaison Committee.
Goal:	Develop and implement a wait list management system for CABG in alignment with federal benchmarks and provincial targets.
Action Item:	Prepare a business case to determine required resources.
Action Item:	Determine capability/capacity to reduce backlog of CABG cases.
Action Item:	Implement a new priority system for elective cases based on the Ontario Urgency Rating Score.
Action Item:	Redevelopment of BC Cardiac Registry (BCCR) to provide data for wait list management and timely reports in conjunction with the Provincial Surgical Services Project.
Action Item:	Implementation of an active wait list management process.
Goal:	Expand the BCCR into a comprehensive cardiovascular disease database.
Action Item:	Implement electrophysiology module.
Action Item:	Complete annual indicator report.
Action Item:	Import consistent minimal data sets from facilities on heart attack care.
Action Item:	Complete BCCR redevelopment plan.
Goal:	Develop indicators/standards/guidelines to demonstrate improvements in provincial access to services and quality.
Action Item:	Initiate pilot sites for the implementation of a provincial STEMI guideline.
Goal:	Annual cardiac surgery quality assessment.
Action Item:	Complete the annual provincial cardiac surgery quality assessment.
Goal:	Develop a model for cardiac catheterization quality assessment.
Action Item:	Pilot data gathering and analysis at one site.

Goal:	Engage stakeholders to promote evidence based practices for treatment of heart attacks.
Action Item:	Increase the number of sites using the practice guidelines and reporting data to the BCCR.
Goal:	Provide clarity on funding levels to health authorities and advocate for appropriate funding levels based on case-costing and population rates for specific services.
Action Item:	Continue to refine case costing report.
Action Item:	Refine reports and data require for life support.
Goal:	Evaluate and report on the provision of cardiac rehabilitation and secondary prevention in the province to determine future requirements.
Action Item:	Determine membership of the PAPCH sub-committee on rehab/prevention.
Action Item:	PAPCH sub-committee on rehab/prevention to prepare report.
Goal:	Create a stakeholders' task force to determine indications for the use of CT technology in the diagnosis of coronary artery disease.
Action Item:	Literature search on sensitivity, specificity and risk.
Action Item:	Involve BC Medical Association and PAPCH to review literature and determine indications for use.
Goal:	Further seek and develop partnerships.
Action Item:	Participate with Heart and Stroke Foundation on a provincial stroke strategy.
Action Item:	Participate with the Guidelines and Protocols Committee in the preparation of a cardiac risk assessment guideline.
Action Item:	Regular quarterly meeting of the Cardiac Liaison Committee.
Action Item:	Engage stakeholders in preparation of revascularization site options and recommendation.
Action Item:	Engage the health authorities in the potential for province-wide purchasing of devices such as drug-eluting stents and/or ICD's.

APPENDIX A

TWELVE LEADING CAUSES OF DEATH 2004

Source: BC Vital Statistics 2004 Annual Report



APPENDIX B GLOSSARY

Ablation	The irreversible damaging or destroying the critical anatomic substrate which is allowing the propagation of an arrhythmia (irregular heart beat).
Age Standardized Rates	Represents what the crude rate would be if the population under study had the age distribution of the standard population. It is the weighted average of age-specific rates applied to a standard distribution of age
Angiography (see coronary angiography)	
Angioplasty (or percutaneous transluminal coronary angioplasty - PTCA)	An invasive technique performed under X-ray guidance that helps to improve blood circulation for patients with hardening of the arteries and chest pain; a catheter is inserted through the blood vessels to the affected areas and a balloon at the end of the catheter is inflated/deflated several times to flatten the plaque build-up so blood can flow more freely.
Acute Myocardial Infarction (AMI)	A heart attack, occurring when a blood clot completely blocks one of the coronary arteries that provide oxygen-rich blood to the heart.
Coronary Angiography	The X-ray visualization of the internal anatomy of the heart and blood vessels after a dye is injected into the coronary arteries.
Congestive Heart Failure (CHF)	A condition where the heart pumps inefficiently due to conditions that affects the heart or lungs; may cause fluid back up in the lungs and/or legs adversely affecting the heart muscle.
Electrophysiology	Electrophysiology involves examinations and procedures on the electrical conduction system of the heart.
Incidence	A rate that describes the proportion of new cases of a given condition over a specific period of time.
Implantable Cardioverter Defibrillator (ICD)	A small electronic device installed inside the chest to prevent sudden death from cardiac arrest due to life threatening abnormally fast heart rhythms (tachycardias). The ICD is capable of monitoring the heart rhythm. When the heart is beating normally, the device remains inactive. If the heart develops a life-threatening tachycardia, the ICD delivers an electrical "shock(s)" to the heart to terminate the abnormal rhythm and return the heart rhythm to normal
Ischemic Heart Disease	A term applied specifically to symptomatic narrowing of the coronary arteries by atherosclerotic changes; characterized by a decreased blood supply to the heart causing anginal pain.

Lead Extraction	A lead is a flexible wire that connects the pacemaker or implantable cardioverter defibrillator generator (battery) to the heart muscle. A lead extraction is the removal of one or more leads, due to lead damage, infection or other complications.
Prevalence	The proportion of people in a population who have a particular condition at a given point in time.
Percutaneous Coronary Intervention (PCI)	Percutaneous coronary intervention (PCI), traditionally known as <i>percutaneous transluminal coronary angioplasty</i> (PTCA)
Primary Prevention	Modification of risk factors and/or behaviours that are thought to contribute to a particular disease, so that the disease may be prevented.
Secondary Prevention	The modification or prevention of risk factors or behaviours for people who already exhibit a given disease.

Abbreviations used in the document

AMI	Acute Myocardial Infarction
CABG	Coronary artery bypass graft
CHF	Congestive Heart Failure
DM	Diabetes
Dx	Diagnosis
EP	Electrophysiology
HT	Hypertension or high blood pressure
ICD	Implantable Cardioverter Defibrillator
PCI	Percutaneous Coronary Intervention
Rx	Treatment
SCA	Selective coronary angiography or diagnostic coronary angiography