BRITISH COLUMBIA
Ministry of Health

# eHealth Strategic Framework

**British Columbia eHealth Steering Committee**

**November 2005**

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# Message from the Chair of the BC Health Leadership Council

*...eHealth represents a major step in transforming the health care system...*

The health system across the country is experiencing some of the most difficult challenges facing governments in Canada today. British Columbia, though fortunate in many ways, is not immune.

eHealth represents a major step in transforming the health care system into a robust and streamlined continuum of care, supported by a seamless web of health information. It is also a powerful tool to allow providers to apply the highest standards and best practices to improve the quality and safety of health services for British Columbians.

There is a high level of expectation from the government that the health sector will maximize the return on investment. The Premier's Technology Council continues to watch our progress carefully. In addition, Canada Health Infoway has clearly signaled that it will invest in those provinces and territories that are working as a coordinated system, and are able to make coherent planning, procurement and implementation decisions.

The eHealth Steering Committee, tasked with accelerating eHealth systems in British Columbia, has set out an ambitious plan for the Province. The more challenging task of realizing the plan is now upon us.

All levels of health leadership recognize the enormous service delivery imperatives already underway. We also believe, however, that eHealth will not only modernize the way we serve the public, but it will also bring a significant and much needed improvement to the fundamental infrastructure of the health system that will benefit generations to come. Therefore, we must pursue the eHealth goal with full commitment and an utmost sense of urgency, and rebalance other priorities where necessary.

There are many challenges but also tremendous opportunities ahead. I trust that together with our national, provincial and territorial partners, we will advance our eHealth goal to meet the health needs of British Columbians.

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*Collaboration between the health authorities and the Ministry is fundamental to the eHealth initiative.*

# Message from the Chair of the eHealth Steering Committee

On behalf of the eHealth Steering Committee, I am pleased to present the eHealth Strategic Framework for British Columbia. This document describes the strategic vision for eHealth and outlines the tangible deliverables and benefits expected over the next three years.

Clinical and management decisions should be made based on credible information. eHealth is the means of delivering such information as: longitudinal patient records, clinical assessment tools and best practices information to clinicians; authoritative general information about health and health services to the public; and sound management information to health administrators; when and where each is needed.

The British Columbia eHealth initiative is not happening in isolation. eHealth is recognized nationally and internationally as an essential part of the infrastructure for a more efficient and effective health care delivery system.

The federal, provincial and territorial governments, through strategic investment by Canada Health Infoway, are fostering and accelerating the development and adoption of eHealth information systems across the country.

British Columbia is one of the first collaborators with Canada Health Infoway. The province's eHealth approach and architecture conform to the Canada Health Infoway blueprint for pan-Canadian eHealth.

As we move forward with the eHealth initiative, it is important to recognize that the benefits of eHealth will not be fully achieved just by making the technology available. It must be accompanied by changes to business practices, and mechanisms to encourage and support practitioners as they adopt the new technology.

Collaboration between the health authorities and the Ministry is fundamental to the eHealth initiative. Our mandate has an aggressive timeline and funds are limited. Therefore, we must mobilize all possible resources in the most effective way. Participants will be both leaders and collaborators in developing and implementing the various projects, which comprise provincial eHealth.

Members of the Committee are committed to guiding and implementing these projects and to achieving their intended results.

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Assistant Deputy Minister
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*British Columbia has taken an important step in the right direction...*

# Message from Canada Health Infoway

Canada Health Infoway invests with provinces and territories across the country in Electronic Health Record initiatives which provide healthcare professionals with relevant and accurate patient information, enabling them to make the best possible decisions about treatment and diagnosis.

Infoway's efforts, and those of its partners in the provinces and territories, will help improve the accessibility, productivity and quality of the healthcare system across Canada. The progress underway in British Columbia will contribute to Infoway's goal of ensuring that 50% of the Canadian population benefits from an Electronic Health Record by the end of 2009.

Infoway has partnered with British Columbia on several initiatives. One of the most notable is the Fraser Health Authority shared diagnostic imaging project, which allows 12 hospitals to electronically capture and share patient X-Rays, MRIs and CT-scans. This project is one of the biggest of its kind in Canada and will result in improved patient care, increased radiologist productivity and long-term cost savings through reduced storage requirements and electronic sharing of information.

*BC has already implemented some winning projects...*

Many of the conditions for success in the Fraser Health Authority diagnostic imaging project have been echoed in BC's eHealth Strategic Framework - elements such as strategic vision, determination, detailed planning, stakeholder engagement and change management. The Framework sets forth a comprehensive and ambitious roadmap designed to help transform the health care system.

British Columbia has taken an important step in the right direction by outlining the plans that will drive Electronic Health Record development in the province. BC has already implemented some winning projects and should certainly build on these successes as it faces the challenges of broader implementation that lie ahead.

We wish BC continued success as it translates its vision and plans into action over the coming years. As BC moves ahead, other provinces and territories may benefit from the experience it has gained and lessons learned.

Infoway looks forward to continued collaboration with BC as we jointly determine which projects we will work on together, in line with our mutual priorities.

Original signed by,

Richard Alvarez
President and Chief Executive Officer
Canada Health Infoway

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# Executive Summary

*...an integrated set of telecommunication technologies, accurate and timely information, and related process enhancements...*

The eHealth Strategic Framework is a directional document that describes British Columbia's long-term vision for eHealth, with a strong focus on tangible benefits and deliverables for the next three years. It also describes the leadership and governance structure, centered on the eHealth Steering Committee, that will help ensure the timely completion of eHealth initiatives.

**A concise definition of eHealth:** *an integrated set of telecommunication technologies, accurate and timely information, and related process enhancements that together enable the efficient delivery of health care services, and incorporate the Electronic Health Record (EHR) and Telehealth.*

This document fulfills one of the key objectives of the eHealth Steering Committee (eHSC) – to define a strategic plan for eHealth in British Columbia, including a clear vision of what the initial systems will look like over the next three years, what needs to be done to realize that vision, and the role of the eHSC in ensuring the successful implementation of eHealth.

## The Challenge

British Columbia's health system has helped give our province the highest life expectancy levels in Canada, and superior ratings on a number of key public health and medical system performance indicators.

British Columbia has invested more than $3 billion in new funding for health care over the past four years and health care spending has nearly doubled in the past decade.

However, key socio- and macro-economic pressures are currently combining to threaten the sustainability of our publicly funded health care system. These pressures are:

- **A growing and aging population** as the first baby boomers enter their early sixties, foreshadowing a steadily growing demand on health care e.g. from chronic diseases;
- **A shortage of health care professionals** that threatens to limit the supply of and extend wait lists for some health care services;
- **Emerging threats to public health** like SARS and avian flu that require a pan-Canadian health surveillance system to provide critical information to support a rapid and effective response;
- **Equivalent services expected in both urban and remote locations** where citizens are increasingly expecting the same consistent and equitable health care access across remote regions as in densely populated urban centres;

*...eHealth is vital to an effective, sustainable health system...*

- **New treatments and technologies** whose higher costs strain health care budgets; and
- **Silos of care** that fail to provide patients and providers with timely and seamless access to the information they require, causing delays and needless duplication.

## The Response

There is agreement across Canada that eHealth is vital to an effective, sustainable health system that will stand up to future challenges.

The British Columbia Premier's Technology Council as well as Kirby, Mazankowski, Romanow, and others are united in recommending that governments invest in eHealth. Nationally, Canada Health Infoway has been created to fund, coordinate and work with the provinces and territories to implement interoperable Electronic Health Record (EHR) systems and Telehealth solutions across the country, using compatible standards and communication technologies on a pan-Canadian basis.

The Ministry of Health, in conjunction with the health care leadership in British Columbia, has established the eHealth Steering Committee to accelerate the development and implementation of eHealth systems for the Province.

## The Vision for eHealth

eHealth supports a citizen/patient-centric health environment with integrated services to efficiently deliver high-quality and coordinated health care. eHealth will be key to transforming and enabling the sustainability of British Columbia's health care system. It encompasses:

- **A provincial EHR to facilitate the seamless, secure and timely sharing of accurate health information.** Both the provincial and federal governments are committed to the development of an EHR system, with a substantial part of the new federal and provincial health funding targeted at improving health data and EHR capabilities.
- **Telehealth to enable broader, more equitable access to information and services** using communications and information technology to deliver health and health care services, information and related education, in circumstances where participants are geographically separated.
- **Transformation of clinical practices.** Combining information and communication technology with health care processes will help

transform clinical and business practices, and will lead to new and innovative ways of delivering health care across the Province.

*eHealth will support public health and personal decision making...*

- **More effective service across the continuum of care.** eHealth will help break down the silos or barriers that inhibit consistent care for those with physical disabilities, mental health challenges, or at-risk children and families.
- **Public health and self-managed care.** eHealth will support public health and personal decision making, empowering individuals to actively participate in the management of their own health throughout their lives.
- **Improved health care planning and stewardship**, based on reliable, accurate and consistent information across the Province.

Successful implementation of eHealth also requires:

- fundamental cultural and business process changes in terms of the way health care is delivered across the Province, including the re-engineering of workflows to improve efficiency and effectiveness;
- clinical practice and process reform to enhance delivery of health care, and provide more integrated and timely access to health information; and
- an underlying commitment to the long-term, collaborative and integrated gathering, thinking about, using, and sharing of clinical and management information.

The eHealth vision aligns with the vision and fundamental goals stated in the Service Plan of the Ministry of Health, and with the Infoway eHealth investment strategy (Appendix B).

## The Strategy

The key strategic elements required to implement and realize British Columbia's vision for eHealth are to: establish strong governance and leadership; foster collaboration and joint procurement; leverage available financial resources; safeguard privacy and security; build on British Columbia's existing health information technology foundation; and implement eHealth in phases.

*The mission of the eHSC is to accelerate the development and implementation of eHealth...*

### 1. Establish Strong Governance and Leadership

Collaborative leadership is provided through the eHealth Steering Committee, a partnership between the Ministry of Health, the health authorities and the care provider community. The eHSC includes members from the executive of each of the six health authorities, physician representatives, and several members drawn from the Ministry executive. The mission of the eHSC is to accelerate the development and implementation of eHealth systems in British Columbia, and demonstrate substantial progress and material achievements over the next three years, while ensuring proper attention to sound fiscal management.

The eHSC reports to the BC Health Leadership Council, which is comprised of the health authority Chief Executive Officers and members of the Ministry's senior executive. The Council is chaired by the Deputy Minister of Health.

One of the key deliverables outlined in the eHSC Terms of Reference (see Appendix A) is this document — the eHealth Strategic Framework for British Columbia. Other eHSC deliverables include a communication plan for eHealth initiatives, and the successful delivery of and reporting on the individual deliverables identified for each of the eHealth projects within this framework.

The eHSC Terms of Reference provides a detailed description of the scope of activities, roles and functions of the eHSC. Governance for individual eHealth projects and the overall implementation strategy are addressed in Part Three of the framework.

### 2. Foster Collaboration and Joint Procurement

Collaboration between the health authorities and the Ministry is fundamental to the eHealth initiative. It is imperative to mobilize all possible resources in the most effective way. Participants in developing and implementing the various eHealth projects will be leaders in some cases and collaborators in others.

Individual health care providers are critical to the delivery of eHealth and are essential partners in improving health outcomes for British Columbians. eHealth implementation can only be successful if a wide spectrum of health care providers are engaged participants, and their knowledge and expertise is reflected early in the implementation of eHealth projects.

Wherever appropriate, joint procurement of system components will be undertaken to ensure that maximum interoperability can be achieved among eHealth projects, and maximum benefit can be derived from the health system's purchasing power.

### 3. *Leverage Available Financial Resources*

*...focusing on core clinical and foundational systems over the next three years...*

Both provincial and federal resources, including funds from Canada Health Infoway, are available to support the development of eHealth in British Columbia.

The assembly and control of the various funding allocations needs to be coordinated, integrated and optimized so as to ensure maximum financial support for the timely implementation of eHealth across the Province.

### 4. *Safeguard Privacy and Security*

Adherence to all applicable legislation protecting personal privacy is a mandatory part of any new procedural or systems development project. In addition, to provide basic system security and protect against unlawful access or malicious tampering, every effort must be made to ensure that access is absolutely restricted to only those having a clear right and need to access personal health information or to access the systems within which such information resides.

### 5. *Build on British Columbia's Existing Foundation*

British Columbia's approach to implementing eHealth is, where possible, to build on and adapt, over time, its existing technology infrastructure, systems and data repositories. This is accomplished through the adoption of common infrastructure standards, and the collaborative development of new standards, when they are required to accommodate eHealth.

### 6. *Implement in Phases*

Implement the eHealth strategy in three phases over the next ten years:

**Phase 1 – Access to priority clinical information:** by focusing on core clinical and foundational systems over the next three years, enable provider access to priority clinical information, such as pharmacy and laboratory related information.

**Phase 2 – Enhance capabilities and provide knowledge-based tools:** to facilitate clinical decision support and integration, as well as Telehealth integration.

**Phase 3 – Integrate systems throughout the continuum of care:** to enable complex health team decision support; mobile, wireless system support; and integrated community support.

*Patients have access to safer, higher-quality services...*

The immediate priority over the next three years is to give health care providers timely access to clinical information such as medication profiles and diagnostic test results.

## Resources

British Columbia is investing considerable resources to realize its eHealth vision. The Ministry of Health, the health authorities and the provider community, under the leadership of the eHealth Steering Committee, are committed to moving forward with a coordinated and visionary approach to implementing eHealth in British Columbia.

Infoway's current notional eHealth allocation for BC is $120 million to fiscal 2008/09. Along with the health authority allocations, the Ministry expects to contribute approximately $30 million to eHealth initiatives over the period 2005/06 to 2008/09.

## Key Benefits

The key benefits achieved through a comprehensive eHealth strategy are:

- improved health care quality, safety and outcomes;
- increased service efficiency, productivity and cost effectiveness; and
- enhanced service availability and satisfaction for citizens, patients and providers.

With the adoption of eHealth, British Columbia will be a province where:

- The general public have improved access to a broad range of health information and are in a more informed position to stay healthy or actively help manage their own care, particularly in the case of chronic diseases.
- Patients have access to safer, higher-quality services enabled through the timely availability of their health information.
- Care providers have the correct and necessary information required to make appropriate and timely clinical decisions concerning patient care.
- The health system as a whole has improved access to more comprehensive information that enables better informed health service planning and results in increased efficiencies.

## Transforming Clinical and Business Practices

*The leadership is aligned, resources are committed, and the benefits... make the implementation of paramount importance.*

Clinical and foundational eHealth projects are further described in Part Three of the framework, and involve or impact:

- Primary/Physician Care (family physician and specialist care)
- Acute/Hospital Care (surgical, emergency, tertiary and quaternary care)
- Home and Community Care (residential and home care)
- Population and Public Health (health surveillance, immunization)
- Laboratory (testing and results)
- Pharmacy (medication profiles and prescribing)
- Diagnostic Imaging (diagnostic testing and assessments)
- Telehealth (services over distance, especially in rural and remote areas)

The benefits of eHealth will be realized through patient or citizen engagement with one or more of these eight components. A number of critical foundational elements or components will facilitate the efficient delivery of eHealth by supplying the basic building blocks or fundamental communication linkages required by the system (connectivity, security, registries, etc.).

## In Conclusion

The time is right to fully commit to and move forward with the provincial eHealth strategy. The leadership is aligned, resources are committed, and the benefits to the overall health system in British Columbia make the implementation of paramount importance.

The implementation of eHealth enables significant progress towards improved continuity and coordination of care, early detection of disease and illness, and better information on health care needs and outcomes. Progress in these fundamental areas will move British Columbia closer towards having a health system that is sustainable, affordable, publicly funded and delivers excellent quality health care to its citizens.

A broad spectrum of eHealth projects are being implemented in British Columbia with the common goal of having an integrated, interoperable eHealth system that spans and supports the entire continuum of care across all of the many settings and locations where health care is provided and accessed.

Over the next three years, key clinical and foundational projects will be implemented. The implementation of these eHealth projects will enhance current care processes and, more importantly, will transform clinical and business practices enabling improved quality of care.

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# Introduction

*...a high-level plan to develop and implement eHealth in British Columbia.*

## Purpose of Document

The eHealth Strategic Framework is a directional document that presents a high-level plan to develop and implement eHealth in British Columbia. It describes British Columbia's long-term vision for eHealth with a strong focus on the tangible benefits and deliverables that will be achieved over the next three years. The framework also describes the leadership and governance structure that has been put in place to guide the implementation, and help ensure the timely completion of eHealth deliverables and realization of the associated benefits for British Columbians.

The document presents the eHealth Strategic Framework in three parts:

- **Part One: eHealth – Enabling a Sustainable Health Care System**
- **Part Two: Benefits of eHealth**
- **Part Three: Implementation Strategy**

This document is presented by the eHealth Steering Committee (eHSC) and fulfills one of its key objectives – to define a strategic plan for eHealth in British Columbia, including a clear vision of what the initial eHealth systems will look like over the next three years, what needs to be done to realize that vision, and the role of the eHSC in ensuring the successful implementation of eHealth[1].

## Definition of eHealth

In British Columbia, eHealth is defined as –

An integrated set of information and communication technologies, together with related health delivery process enhancements, that:

- *enables the efficient delivery of health care services over the full continuum of care through the provision of integrated, interoperable health information systems, tools and processes;*
- *transforms the health sector decision-making culture into one that is firmly supported by accurate, timely and relevant information in a manner that protects individual privacy, respects clinical practice requirements and sustains the long-term viability of the health care system; and*
- *encompasses the interoperable Electronic Health Record (EHR) and Telehealth.*



[1]British Columbia Electronic Health Steering Committee, "Terms of Reference", January 2005

*Health information needs to be centred on and organized around citizens and individual patients...*

The diagram below shows the key components of health care that will be connected through eHealth, and will lead to the transformation of health service delivery across the continuum of care in British Columbia. Reliance on an interoperable Electronic Health Record will be one of the most critical features of eHealth, facilitating the timely communication of reliable patient health information across the whole spectrum of care delivery.

As illustrated in Figure 1 below, citizens (i.e. the public) and patients are the focal point of health care delivery. Health information needs to be centred on and organized around citizens and individual patients, rather than the places where the services are delivered (hospitals, clinics, individual medical practices, etc.). eHealth will support and enable a more effective, integrated and coordinated approach to communication and information transfer across the various components within the continuum of health care.

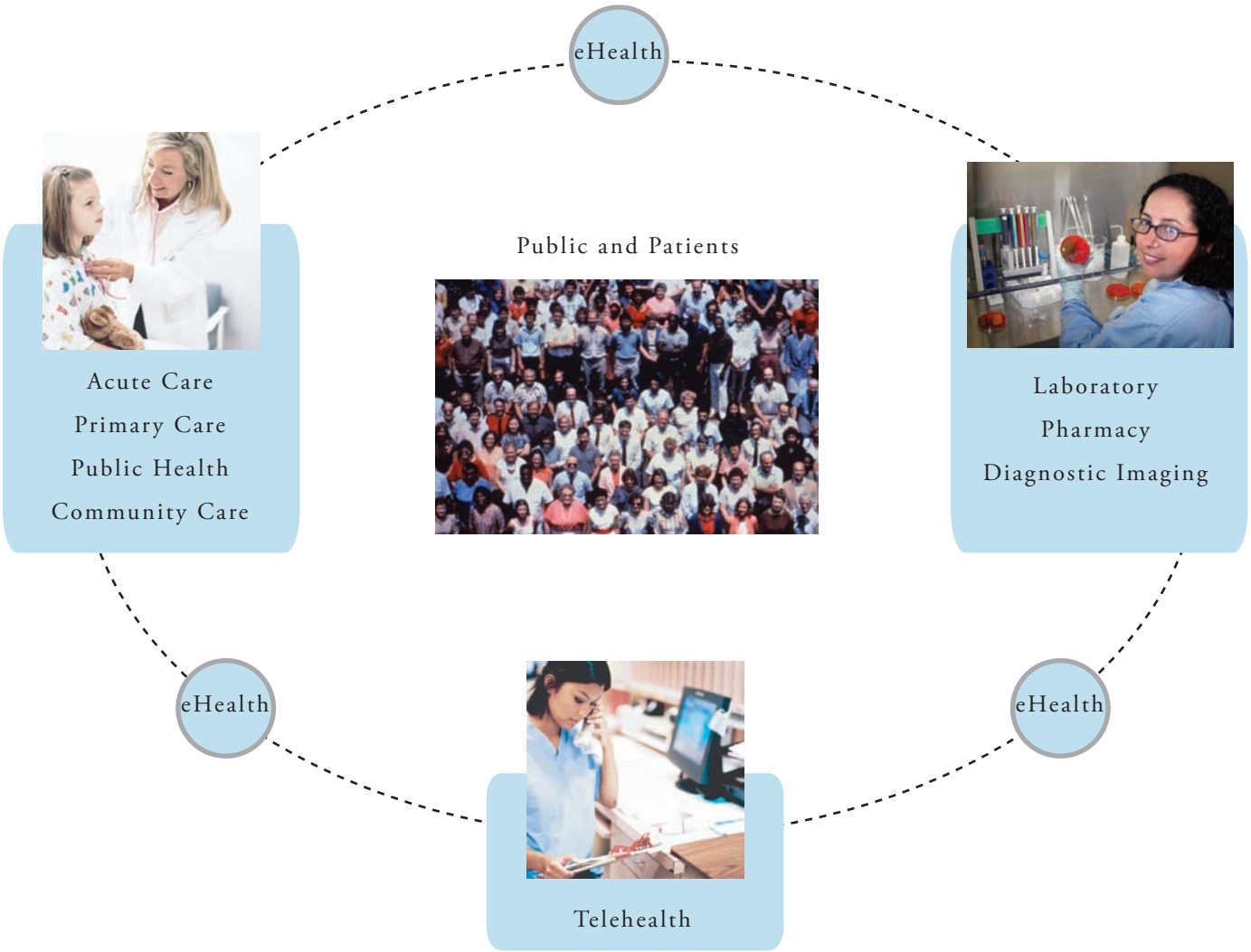



***Figure 1***

# Part One: eHealth – Enabling a Sustainable Health Care System

*...health care spending has nearly doubled in the last decade.*

This section summarizes the key challenges in health care service delivery, and describes the government's eHealth related response to these challenges. It articulates British Columbia's eHealth vision and strategies for implementing eHealth in the Province.

## 1.1 The Challenge – A Threat to the Sustainability of our Health Care System

British Columbia's health system is a source of pride in our province, and we have much to be proud of. Compared to the rest of Canada, we enjoy:

- The highest life expectancy for both males and females;
- Above average disability-free life expectancy rates;
- The second lowest infant mortality rate;
- The second lowest percentage of low birth weight babies;
- The lowest percentage of people reporting obese body weight;
- The lowest rate of daily smokers;
- The highest self-reported level of physical activity;
- Below average mortality for acute myocardial infarction (AMI); and
- Above average patient satisfaction rates for a variety of health care services[2].

**Key Facts**

- **by 2023, British Columbia's senior population will almost double**
- **health spending per capita on seniors is 5 to 6 times what is spent on those under 65**
- **compared to 1990/91, an 80-year-old is twice as likely to get a knee replaced and eight times as likely to have angioplasty surgery**
- **British Columbia laboratory costs have increased by 35% over the last five years**

British Columbia has invested more than $3 billion in new funding for health care over the past four years, and health care spending has nearly doubled in the last decade.



[2] "Foundations for Directional Planning, Section 2: BC Health System Performance - National and International Comparisons", page 111, Ministry of Health Planning

*A growing and aging population...*

However, key socio- and macro-economic pressures are currently combining to threaten the sustainability of our publicly funded health care system. These pressures are:

- **A growing and aging population –** British Columbia's population is increasing, individual life expectancy is lengthening and the first "baby boomers" are now entering their early sixties, foreshadowing a steadily growing demand on health care, particularly as the number of people who suffer with chronic diseases increases.

- **Shortage of health care professionals –** A worldwide shortage of health care professionals is increasing competition for skilled nurses and doctors, and threatens to limit British Columbia's supply of, and extend wait lists for, some health care services.

- **Emerging threats to public health –** The outbreak of SARS in 2003, along with avian flu in Asia and in the British Columbia Lower Mainland during 2004, heightened the awareness of the need for a pan-Canadian health surveillance system to rapidly collect, share, and analyze health information critical for managing emerging threats to public health, such as communicable diseases.

### *Challenges for Public Health*

**A resident may seek treatment for a serious communicable disease or an adverse drug reaction. Although accurately diagnosed, public health officials may not have sufficient information to determine the extent of the problem and what remedial action is required.**

- **Equivalent services expected in both urban and remote locations –** Geographically dispersed populations are increasingly expecting the same consistent and equitable health care access across remote regions as in densely populated urban centres.

- **New treatments and technologies –** They hold great promise in treating disease, but put growing pressure on health funding. Ever more expensive drugs and other medical interventions strain health care budgets. British Columbia health spending now accounts for nearly 44% of all government operating expenditures, and that percentage is projected to increase significantly over the next few years.

- **Silos of care –** An inability to support an increasingly mobile population, securely share information across health services, and give patients and providers the timely access to information they require is causing delays, needless duplication, increasing costs and may be putting patients at risk.

### *Challenges in Rural or Remote Locations*

**Rural residents typically see a family doctor in a nearby town. In complex or relatively urgent cases, the doctor may have to refer the patient to a specialist in a larger city. This may be expensive and time consuming with time away from family and work. This less than ideal care may cause added costs and risks to the patient.**

### *Challenges in Urban Centres*

**A resident may fall ill when the family physician's office is closed, even in a major city, and may seek diagnosis and treatment at a hospital emergency department. The patient may have to provide a full set of personal details, lab tests may be duplicated, and adverse drug interactions suffered. The results of the care delivered may or may not reach the family physician's file.**

The challenges facing the health system are daunting and have a potential compounding effect between them. For example, seniors typically require more care per capita and are no longer part of the workforce. Therefore, having an increasing percentage of the total population as seniors will increase the demand for care, while constraining the traditional tax base used to fund that demand.

*British Columbians expect improved efficiency, along with a clear, client-focus...*

The public has witnessed a profound transformation in how services are delivered in other sectors such as financial, communications and hospitality services. Information management and technology have helped these sectors achieve substantial increases in productivity over the last few decades. If the forecast pressures on the health care system are to be successfully managed, it is essential that proven innovations be adopted and similar improvements in effectiveness, efficiency and productivity be achieved within the health sector. British Columbians expect improved efficiency, along with a clear, client-focus in the delivery of health care services – we have the highest expectations of our health system in Canada[3].

### *Challenges Away from Home*

**A resident away from home may need to visit a health practitioner. A full set of personal details, the history of the health issue, general health background, as well as details of medications, allergies, etc., would be required before treatment. Even then, lab tests may be duplicated, and drug allergies or adverse interactions may be suffered. The results of the care, may or may not reach the family physician's file.**

## 1.2 The Response – Investing in eHealth and Innovation to Ensure Sustainability

The First Ministers of Canada are united in making the sustainability of Canada's health care system the top priority in Canada. Collectively, they have committed to investing billions of dollars in health care, and the recent ten-year First Ministers' Health Accord, signed by federal, provincial and territorial leaders, provides more certainty around federal funding for health care.

However, the First Ministers and numerous reports on health care indicate that increased funding alone will not be sufficient to address the future challenge.

The British Columbia Premier's Technology Council[4] as well as Kirby, Mazankowski, Romanow, and others are united in recommending that government invest in and implement eHealth. There is broad consensus that increased funding, a fundamental transformation of the health care system and the use of enabling technologies and innovative service delivery models are all required to meet the needs of the future and create a sustainable citizen-centric health care system. These reports share a conviction that eHealth is a key to enabling this sustainable future.



[3]Health Care in Canada (HCIC) 2001 survey

[4]The Premier's Technology Council 2002, 2004 and 2005 reports

Nationally, Canada Health Infoway (Infoway) has been created to fund, coordinate and work with the provinces to implement interoperable Electronic Health Record and Telehealth solutions across the country. Infoway is an independent, not-for-profit corporation and partnership of federal, provincial, and territorial governments. The Infoway mission is to foster and accelerate the development and adoption of eHealth information systems with compatible standards and communication technologies, on a pan-Canadian basis, with tangible benefits to Canadians.

*An integrated, interoperable eHealth system in which health care information is accessible, when and where it is needed...*

In British Columbia, the Ministry of Health 2005/06 – 2007/08 Service Plan[5] articulates the goals, objectives and strategies that the Ministry and its partners are undertaking to redesign and reform the health system. eHealth will enable this transformation and is a key component of the Ministry's redesign initiatives. The Ministry, in conjunction with the health care leadership in British Columbia, has established the eHealth Steering Committee and charged it with a mission to "Accelerate the development and implementation of Electronic Health Systems for British Columbia."

## 1.3 Vision for eHealth

The vision for eHealth in British Columbia can be summarized as follows:

> *An integrated, interoperable eHealth system in which health care information is accessible, when and where it is needed, to support personal health, health care decision making and health system sustainability.*

eHealth supports a public and patient-centric health environment with integrated services to efficiently deliver high-quality and coordinated health services. eHealth will be key to transforming and enabling the sustainability of British Columbia's health care system. It encompasses:

- **Electronic Health Record systems to facilitate the seamless, secure and timely sharing of accurate health information** – A provincial EHR will provide the capability to securely and electronically link health information to support clinical and management decision making, and help enable a more seamless, integrated continuum of care. An EHR can support patients with safer, higher quality care, reduce duplication of assessments and diagnostic tests, and increase the speed and efficiency of the health care system. Both the provincial



[5]See www.bcbudget.gov.bc.ca/sp/hs/

*...targeted at improving health data and furthering the development of EHR capabilities.*

and federal governments are committed to the development of an EHR system, with a substantial part of the new federal and provincial health funding targeted at improving health data and furthering the development of EHR capabilities.

- **Telehealth to enable access to information and services –** Telehealth uses communications and information technology to deliver health and health care services, information and related education, in circumstances where participants are geographically separated. It will enable providers and patients to overcome barriers of distance, time and transportation infrastructure and, in so doing, will help address issues of access and socio-economic disparity.

- **Transformation of clinical practices –** Combining information and communication technology with health care processes will enable the transformation of clinical and business practices and will lead to new and innovative ways of delivering health services across the Province. The transformation will weave eHealth information into the fabric of health care service delivery and will instill the use of this information in the culture of future health care service providers.

- **Facilitation of service across the continuum of care –** eHealth will facilitate information sharing and services across the continuum of care. It will break down the barriers or silos that are inhibiting consistent care for the most vulnerable segments of society, such as those with physical disabilities, mental health challenges or at-risk children and families. eHealth will help ensure that individuals do not "fall through the cracks."

- **Support public health and self-managed care** – eHealth will support public health and personal decision making, empowering individuals to actively participate in the management of their own health care throughout their lives, especially in the case of those with chronic diseases.

- **Improved health care planning and stewardship** – eHealth will enable improved health care planning and will help facilitate system monitoring and reporting – based on reliable, accurate and consistent information across the Province – required within the Province's accountability and stewardship model.

*Facilitate fundamental cultural and business process changes in the way health services are delivered...*

To be fully effective, the implementation of eHealth will also need to:

- Facilitate fundamental cultural and business process changes in the way health services are delivered across the Province, including the re-engineering of workflows to improve efficiency and effectiveness;

- Collaborate with and engage the provider community in clinical practice and process reform with the objective of enhanced delivery of health care, and more integrated and timely access to health information; and

- Build an underlying commitment to a long-term, collaborative and integrated way of gathering, thinking about, using, and sharing clinical and management information.

The eHealth vision aligns with the vision and fundamental goals of the provincial health system as stated in the Service Plan of the Ministry of Health. The eHealth vision also aligns with the Canada Health Infoway eHealth investment strategy, which is outlined in Appendix B.

*...ultimate success depends on strong leadership, effective collaboration and well-managed implementation.*

## 1.4 Strategy to Realize British Columbia's eHealth Vision

The key strategies designed to implement and realize British Columbia's vision for eHealth are to: establish strong governance and leadership; foster collaboration and joint procurement; leverage available financial resources; fully safeguard privacy and security; build on British Columbia's existing health information technology foundation; and implement eHealth in incremental phases. These strategies are each described in more detail below.

### 1.4.1 Establish Strong Governance and Leadership

The eHealth strategy is ambitious and involves many diverse participants. Its ultimate success depends on strong leadership, effective collaboration and well-managed implementation. That leadership is provided through the eHealth Steering Committee, which was established in accordance with the recommendation of the Premier's Technology Council.

The structure of the eHSC provides a foundation for collaborative success. It includes members from the executive of each of the six health authorities, physician representatives, and several members drawn from the Ministry executive. The mission of the eHSC is to accelerate the development and implementation of eHealth systems in British Columbia, and demonstrate substantial progress and material achievements over the next three years, while ensuring proper attention to sound fiscal management.

The eHSC provides direction and leadership for all eHealth initiatives that have a provincial focus, and/or require the involvement of multiple stakeholders from across the Province or at a national level. This necessitates a major investment of both time and effort from the many stakeholders. The eHSC has the authority to steer the delivery of eHealth in British Columbia, and provide solid leadership in all matters critical to the cost-effective, practical and timely implementation of eHealth.

The eHSC reports to the BC Health Leadership Council, which is comprised of the health authority CEOs and members of the Ministry's senior executive, and is chaired by the Deputy Minister of Health. Figure 2 illustrates the reporting structure of the eHSC and its relationship to six critical coordinating groups, which function as its key subcommittees.

The eHSC, through its members, is responsible for communicating with and engaging other key stakeholders such as Canada Health Infoway, practitioner communities, the BC Medical Association's Information Technology Liaison Committee, the NetWork BC initiative, and the Privacy Commissioner, as well as health and technology private sector partners.

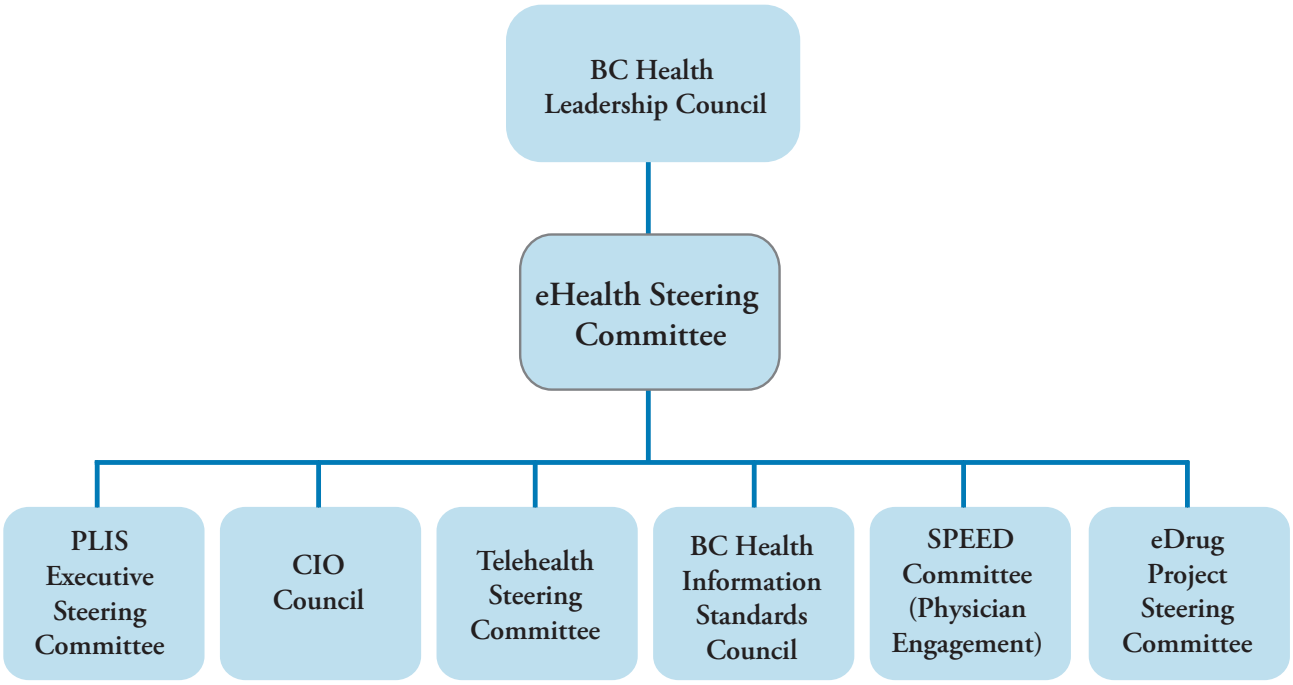



*Figure 2*

One of the key deliverables outlined in the eHSC Terms of Reference is this document — the eHealth Strategic Framework for British Columbia. Other eHSC deliverables include:

- a communications plan for eHealth initiatives, and
- the successful delivery of and reporting on the projects within this framework.

The implementation plan outlined in Part Three of this document describes key deliverables associated with each eHealth project. The eHealth Strategic Framework commits the partnership to achieving these deliverables over the three years of its mandate, and laying the foundation necessary for attaining the longer-term vision for eHealth in subsequent years.

The eHSC Terms of Reference (see Appendix A) provides a detailed description of the scope of activities, roles and functions of the eHSC. Governance for individual eHealth projects and the overall implementation strategy are addressed in Part Three of this document.

*...eHealth systems development must be coordinated...*

### 1.4.2 Foster Collaboration and Joint Procurement

Collaboration between the health authorities and the Ministry is fundamental to the eHealth initiative. eHealth has an aggressive timeline, and resources are limited. Therefore, it is imperative to mobilize resources in the most effective way. In developing and implementing the various projects, which comprise provincial eHealth, participants will be leaders in some cases and collaborators in others.

Individual health care providers are essential to the design and adoption of eHealth and are vital partners in improving health outcomes for British Columbians. As health professionals, they are intimately familiar with the challenges facing their specific service delivery components and the overall health care system. They are also aware of the opportunities for progressive change that these challenges can afford. eHealth implementation can only be successful if a wide spectrum of health care providers are engaged, and their knowledge and expertise is reflected early in the implementation of eHealth projects.

Wherever appropriate, joint procurement of system components will be undertaken to ensure that maximum interoperability can be achieved among eHealth projects, and maximum benefit can be derived from the health system's purchasing power. Implementation of eHealth is, to a large extent, predicated on a consistent approach across health service provider communities, health authorities and the Province as a whole.

The implementation of stand-alone systems, or any systems which are unable to communicate efficiently with the others, could seriously threaten the success of the entire initiative. eHealth systems development must be coordinated to ensure that duplication of effort is reduced to a minimum and interoperability is maximized.

### 1.4.3 Leverage Available Financial Resources

Implementing eHealth for the Province requires the immediate investment of substantial human and financial resources. The efficiencies generated throughout the system will be realized over a longer period of time.

In a recent document setting out Canada Health Infoway's 10-year investment strategy, Booz Allen Hamilton[6] estimated that the acquisition cost over that period, for a Pan-Canadian EHR, would be approximately $10 billion. This is made up of: $1.4 billion for Physician Practice Systems, $3.9



[6]Canada Health Infoway's 10-Year Investment Strategy: Pan-Canadian Electronic Health Record. Booz Allen Hamilton, March 2005. Available at http://www.canadahealthinfoway.com/home.php?lang=en

billion for Inpatient Systems, $1.8 billion for a Long-term Care System, $0.05 billion for the Home Health extension, and $2.9 billion for Infostructure costs.

*...annual savings from EHR implementation would exceed the annual costs by 2011...*

Booz Allen Hamilton also estimated that as a result of implementing a Pan-Canadian EHR, the following savings would be achieved over 20 years:

- $3.6 billion from the reduction of duplicate and unnecessary radiological tests;
- $10.4 billion from the reduction of duplicate and unnecessary laboratory tests; and
- $48.3 billion from reduced ambulatory, hospital and long-term care adverse drug reactions.

Booz Allen Hamilton suggests that annual savings from EHR implementation would exceed the annual costs by 2011, and the breakeven point would be reached in 2015.

There are two main sources of funding available to support the development of eHealth in British Columbia: external sources such as Canada Health Infoway and federal health funding for which technology applications may qualify; and internal sources through the Ministry of Health, including funds supporting the health authorities.

Canada Health Infoway makes strategic investments in the provinces and territories to implement interoperable Electronic Health Record and Telehealth solutions across the country. Over 5 years, BC is expected to acquire in the order of $120 million in further funding from Infoway.

The assembly and control of all of these funding allotments needs to be coordinated, integrated and optimized so as to ensure appropriate financial support for the timely implementation of eHealth across the Province. This extends to the individual project level, where there can be opportunities for leveraging untapped funding sources and ensuring maximum interoperability, cost-sharing and partnering.

### 1.4.4 Safeguard Privacy and Security

Every eHealth project must place the utmost importance on the protection of personal health information as a key project priority, and must comply with provincial government requirements to protect personal information and

*...eHealth projects must align with the BC eHealth Conceptual System Architecture...*

secure technology systems. This is required by the legislation under which the health system operates, standard system operating procedures, and common principles of sound government management.

Adherence to all applicable Acts and Regulations protecting personal privacy is a mandatory part of any new procedural or systems development project. In addition, for system security and protection against unlawful access or malicious tampering, every effort must be made to ensure access is absolutely restricted to only those having a clear right and need to access personal health information or to access the systems within which such information resides. The transmission of information also has to be fully safeguarded from accidental or intentional interception and unauthorized users.

Trust in government processes and projects cannot be assumed, but must be earned through demonstrated actions and follow-through on commitments. Such trust can be seriously undermined, if individual privacy, confidentiality and system security are not strictly safeguarded. Public and provider trust is fundamental to realizing the eHealth vision of health information being accessible, when and where it is needed, to support personal health, health care decision making and health system sustainability.

### 1.4.5 Build on British Columbia's Existing Foundation

Over the last few years, the Province's health information technology foundation has benefited from a number of successes, including the regional consolidation of health computer systems. Recognizing this, British Columbia's approach to implementing eHealth is to, where possible, build on and adapt, over time, its existing technology infrastructure, systems and data repositories. This is being accomplished through the adoption of common technical infrastructure standards, and the collaborative development of new standards, when they are required to accommodate eHealth.

The eHealth system requires province-wide collaboration to develop and deploy a common infrastructure, while at the same time, allowing each health authority the flexibility to deliver specific services in a way that best suits its own circumstances. The British Columbia health leadership has identified key health priorities, established through annual service planning. All eHealth initiatives must align with and enable these priorities.

More specifically, eHealth projects must align with the BC eHealth Conceptual System Architecture document, completed in April 2005. The conceptual architecture describes how the components of the eHealth system

fit together and properly align with the Infoway EHR "blueprint" in order to deliver the desired services. Adherence to all system standards approved by the BC Health Information Standards Council and the interoperability requirements established by Infoway (as part of their conditions for project funding) is critical.

*...focus on implementing core clinical and foundational systems over the next three years...*

### 1.4.6 Implement in Phases

British Columbia will realize its eHealth vision by implementing its strategy in three phases over the next ten years. The three phases are:

**Phase 1 – Access to priority clinical information:** focus on implementing core clinical and foundational systems over the next three years to enable provider access to priority clinical information, such as pharmacy and laboratory related information.

**Phase 2 – Enhance capabilities and provide knowledge-based tools:** to facilitate clinical decision support and integration as well as Telehealth expansion.

**Phase 3 – Integrate systems throughout the continuum of care:** to enable complex health team decision support; mobile, wireless system support; and integrated community support.

The immediate priority – over the next three years – is to give health care providers timely access to clinical information such as medication profiles and diagnostic test results. This will be implemented through discrete, defined projects with tangible timelines and deliverables. These early projects can be grouped into two main categories — clinical projects, and foundational projects (including health planning), all essentially focusing on making clinical information accessible, when and where it is required.

- Clinical projects, such as the Provincial Lab Information Solution, the Provincial Surgical Services Project (PSSP) - Registry, and the Provincial Diagnostic Imaging – Archive and Viewer, will have a direct positive impact on the quality of service available to patients and the public, and will enhance access to more complete information and a wider range of resources for health care providers.

*By focusing on the complete patient view, better decisions can be made regarding the required health services.*

- Foundational projects, such as the Provincial Client Identity Management - EMPI Project, the Physician Connectivity Project, and the Provider Registry - Health Authority Uptake Project serve as important basic building blocks required to support the cost-effective implementation of clinical projects. These projects assist in the linkage and quality of communications between disparate systems, and ensure appropriate access to and transmission of highly sensitive health information. Foundational projects address provincial infrastructure, system security, protection of privacy and authorized data access for clinical decision support, research, and basic health system management purposes.

  Health planning projects are a subset of foundational projects specifically intended to support health system planning and decision making. The Aggregated Health Information Project is an example of such a decision support initiative.

  The Ministry of Health and the health authorities need to have sound knowledge of their operations. They need to be able to report accurately and effectively using key data for strategic decision making, operational planning and responding to routine information requests.

  Through the development and implementation of specific eHealth projects, targeted at improved data collection and management, a more patient-centric view can be taken in the analysis of data. By focusing on the complete patient view, better decisions can be made regarding the required health services.

The above briefly outlines the phased implementation approach to realizing eHealth in British Columbia.

Further details are provided later in Part Three – Implementation Strategy.

## 1.5 In Conclusion

*Realizing the benefits and attaining the vision for eHealth requires the ongoing engagement of all key stakeholders...*

British Columbia is investing considerable resources to realize its eHealth vision. The Ministry of Health, the health authorities and the provider community, under the leadership of the eHealth Steering Committee, are committed to moving forward with a coordinated and visionary approach to implementing eHealth in British Columbia.

The long-term provincial vision for eHealth and the priorities for the next three years are established and have been described in the first part of this strategic framework. The next section of this document describes, in detail, the benefits targeted through the implementation of this comprehensive eHealth strategy. Realizing the benefits and attaining the vision for eHealth requires the ongoing engagement of all key stakeholders as well as a focused commitment by stakeholders to align their individual plans with overall provincial eHealth priorities.

eHealth is critical to enabling the transformation of the health system, required to address the impending challenges and achieve a sustainable health system for future generations of British Columbians.

*Improved health care quality, safety and outcomes...*

# Part Two: Benefits of eHealth

A modern and effective health system needs accurate, relevant and accessible information. Timely information is vital for improving care for patients, improving the performance of the health system and improving the health of British Columbians. In the final analysis, the value of moving forward with eHealth is how well eHealth enhances the delivery of health services to individual British Columbians.

## 2.1 Key Benefits

The key benefits achieved through a comprehensive eHealth strategy are:

- Improved health care quality, safety and outcomes;
- Increased service efficiency, productivity and cost effectiveness; and
- Enhanced service availability and satisfaction for citizens, patients and providers.

These benefits may be expressed in quantitative or qualitative terms. Canada Health Infoway's 10-Year Investment Strategy (March 2005), points to both quantifiable financial and significant qualitative benefits to be realized through eHealth initiatives. The most compelling benefits are improvements in the quality of care, patient safety and clinical outcomes.

eHealth can significantly and positively change the way health services are delivered in British Columbia. The key benefits outlined above will be demonstrated by:

- Citizens having improved access to a broad range of health information, placing them in a more informed position to stay healthy or actively help manage their own care;
- Patients having access to safer, higher-quality health services enabled through the timely availability of their personal medical information and best-practice information to their care providers;
- Care providers having the necessary, accurate information required to make appropriate and timely clinical decisions concerning patient care and public health protection; and

- The health system as a whole having improved access to more comprehensive information, which will enable more informed health service planning and will result in increased efficiencies.

*...more informed health service planning and... increased efficiencies.*

A more complete list of the benefits that will be realized by the public/ patients, care providers, as well as the overall health system through the implementation of eHealth is outlined below in Figure 3:

| For the Public and Patients | For the Care Providers | For the Overall Health System |
|---|---|---|
| • Improved care outcomes | • Improved care outcomes | • Improved care outcomes |
| • Proper care more easily and quickly available | • Better access to clinical information | • Care coordination improved across continuum |
| • Support for improved public health protection and self-care | • Timelier sharing of information with other providers | • Need for travel reduced |
| • Health information travels with the patient | • Less duplication of laboratory tests | • Fewer medication conflicts with consequent care costs |
| • Prescriptions are easier to fill | • Easier coordination of care interventions with other care providers | • Costly test duplication reduced |
| • Less risk of medication conflicts | • Automated laboratory test/prescription ordering | • Better population health and protection |
| • Fewer duplicated laboratory tests | • Clinical information support tools available | • More effective health planning |
| • Better access to basic health information | • Greater practice efficiency | • Health system more cost effective and sustainable |

***Figure 3***

*...components of health care delivery...will be strengthened and interconnected through eHealth.*

## 2.2 eHealth — Enabling the Transformation of Clinical and Business Practices

This section examines in more detail the tangible benefits that will be realized as a result of completing the clinical and foundational eHealth projects described in Part Three – Implementation Strategy.

In addition to considering the projects and their benefits from the perspective of clinical and foundational supports, eHealth projects and benefits can also be examined from the perspective of the commonly encountered health service components or operations that they involve or impact.

These eHealth components include:

1. Primary/Physician Care (family physician and specialist care)
2. Acute/Hospital Care (surgical, emergency, tertiary and quaternary care)
3. Home and Community Care (residential and home care)
4. Population and Public Health (health surveillance, immunization)
5. Laboratory (testing and results)
6. Pharmacy (medication profiles and prescribing)
7. Diagnostic Imaging (diagnostic testing and assessments)
8. Telehealth (services over distance, especially in rural and remote areas)

Figure 4 on the next page highlights the key components of health care delivery (shown in the form of major pillars) that will be strengthened and interconnected through eHealth. They will be the focus of the overall transformation of health service delivery across the continuum of care. The benefits of eHealth will be realized through patient or citizen engagement with one or more of these eight components. Also shown in the diagram are foundational elements that will help facilitate the efficient delivery of eHealth.

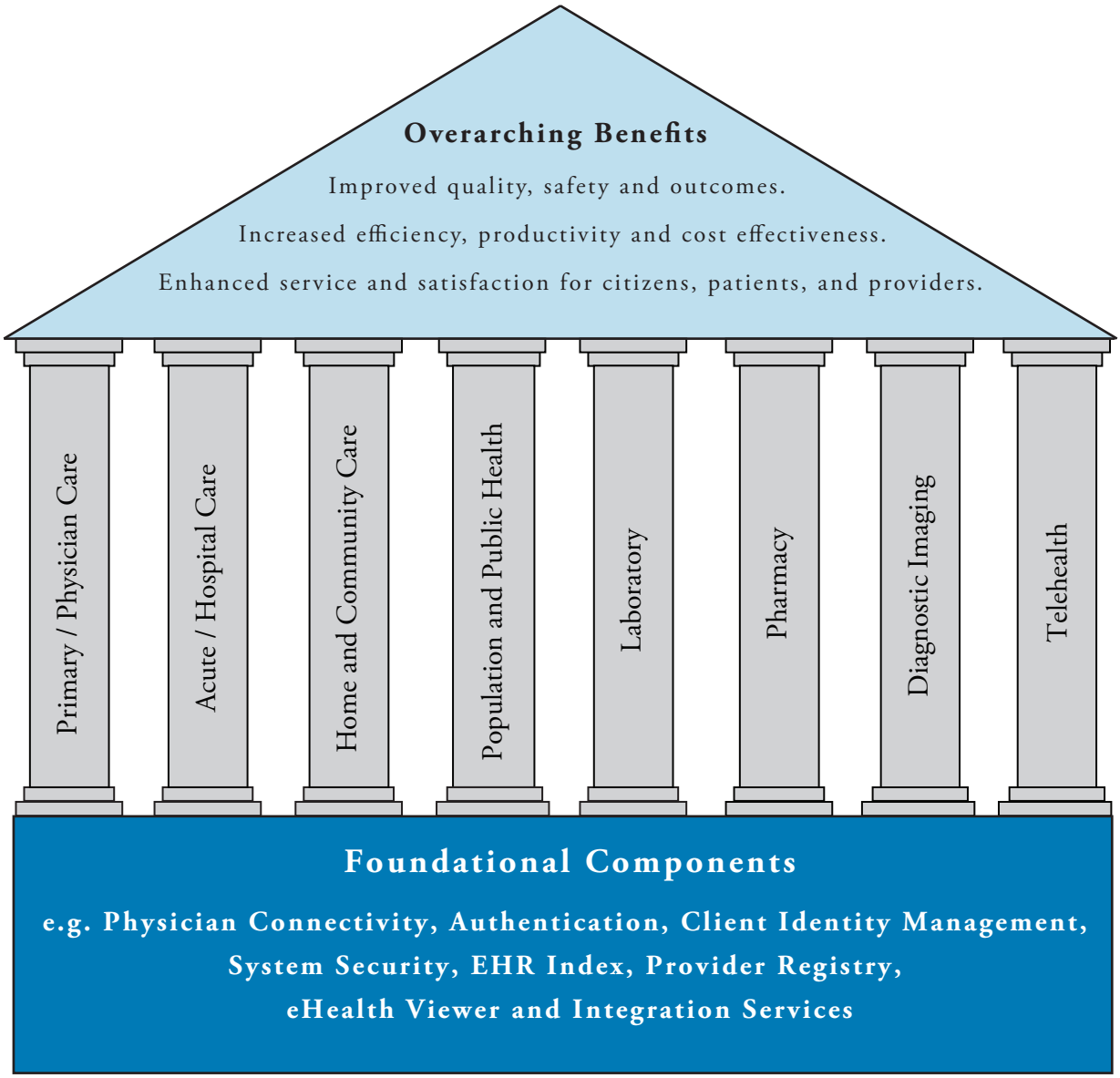



***Figure 4***

The eight pillar components, and their relationships to eHealth, are examined in this section. A brief summary describing the basic nature of each component is provided. Each component is examined through: a general description of functions; an overview of the current state; the ten-year vision or longer-term target state; the deliverables/benefits to be realized over the next three years; and a list of the related eHealth projects that are planned or underway which will contribute to enhancing that particular component (some eHealth projects support or impact more than one component).

*...most physician offices rely heavily on paper-based records...*

## 2.2.1 Primary/Physician Care

### *Description/Scope*

Primary care is the foundation of Canada's health care system. For most British Columbians, it is the first and most frequent point of contact with the health care system. It may include, for example, a checkup by the family doctor, care by a midwife or nurse practitioner, or a visit to a physiotherapist.

Primary care is the component where most new health problems are identified and addressed, and where patients and providers work together to prevent and/or manage chronic problems. In British Columbia, the most common place to receive primary care is the family doctor's office.

The basic goal of primary care is to keep people healthier and living longer, by preventing serious illness and injury through education and the timely treatment of short-term or episodic problems. Primary care is supportive of patients managing their chronic health illnesses appropriately, so they don't needlessly develop into medical crises.

### *Current State*

In British Columbia, most physician offices rely heavily on paper-based records, along with paper, fax and telephone-based communications. About 9% of family physicians are equipped with electronic medical record systems (EMRs), which are often not integrated with other clinical systems.

Almost all primary care physicians use computerized billing systems, and many have scheduling software. However, scheduling of patient visits, follow-ups, and treatment strategies are rarely supported by comprehensive electronic systems. About 20% use the clinical decision support, patient recall, practice analysis and patient disease management tools, but very few have made the transition to more comprehensive EMRs.

Currently, in primary care the ability to access and share health information is rather inconsistent. Care providers often spend precious time looking for important patient information or repeating clinical activities such as lab testing and record keeping. Patients experience duplication in the tests that are performed and the questions they are asked, leading to a relatively poor experience for many patients, from an information sharing perspective. The inability of providers to effectively share and access health information leads to difficulties in providing consistent and coordinated patient care. In addition, patient preferences for care at end of life may not be known, leading to some patients being treated more aggressively than perhaps desired.

### *Target State (in 10 years)*

*The full patient record or a suitable subset will be easily transmitted to authorized care providers in other locations...*

Improved information management and technology can help primary health care to improve patient health outcomes and patient safety by equipping primary health care providers with better tools and information for clinical decision support, and by allowing a gradual transition to technology assisted practice.

Within ten years of eHealth implementation, the majority of patient health information is expected to be maintained in a standardized, shareable, electronic form. This will include medication histories, immunization records, laboratory test results, and other relevant patient information. The full patient record or a suitable subset will be easily transmitted to authorized care providers in other locations, and the results of specialist consultations will be electronically transmitted back to the primary care physician.

Management of care for patients with chronic disease will be supported by comprehensive electronic records. Providers and patients will be prompted by system messages and flags to initiate regular tests and planned visits, based on clinical best practices and evidence-based guidelines. Physicians will schedule diagnostic tests and receive results electronically. Abnormal results will be automatically flagged for attention.

Pharmaceuticals will be prescribed electronically, recorded in the patient's electronic record and transmitted to the pharmacy of the patient's choice. Prescriptions from other sources, such as medical clinics or emergency departments, will be automatically added to the patient's record, with any possible drug interactions and allergies flagged immediately.

End-of-life care will also be supported by electronic records. Patient preferences and expectations for care, if provided, will be known and communicated across care settings.

Clinical decision support will be available to providers through EHR systems for better decision making at the point of patient care and support of practice-level analysis (e.g. identifying the physician's patients with diabetes and showing how they can be provided with optimum care). Health planners will have access to improved aggregated data to support evidence-based decisions.

*The clinical team will have immediate access to current and complete patient health information, with less duplication in data collection...*

### *Deliverables/Benefits (in 3 years)*

- The integration of Electronic Medical Record, Electronic Medical Summary and chronic disease management functionalities will enable automated information sharing and facilitate improved patient outcomes.
- Most full service family physicians will be using computer assisted order entry for prescriptions and diagnostic testing requisitions.
- PharmaNet and laboratory results will be handled by systems that contain embedded "intelligence" to flag duplicate orders. Lab test ordering and results distribution will be automated.
- Access to reliable, relevant patient information will support processes associated with patient referral, on-call and emergency intervention.
- The clinical team will have immediate access to current and complete patient health information, with less duplication in data collection and data entry.
- Electronic discharge summaries will be available and electronically transmitted from the hospital to the family physician's office within 24 hours of discharge.
- There will be better coordination and consistency in patient care, especially when care involves multiple providers.
- Patients will no longer be subjected to unnecessary/duplicated tests and questions about their health condition.
- Any patient preferences for care and treatment at end-of-life will be known and can be acted upon.

### *Related eHealth Projects*

- Electronic Medical Record (EMR) Standards
- Electronic Medical Summary (eMS) Rollout
- Chronic Disease Management - Integration
- Provincial eDrug Project

- Immunization Data and Physician Office Strategy
- Physician Connectivity
- Interoperable Electronic Health Record (iEHR) - Viewer
- Electronic Health Record - Index and Integration Services
- Provider Engagement
- Provincial Lab Information Solution

*In most cases, hospitals do not have coordinated systems for receiving electronic patient information from outside the hospital...*

## 2.2.2 Acute/Hospital Care

### *Description/Scope*

Acute care is a level of care in which a patient is treated for a brief but usually severe episode of illness, for conditions that are the result of serious disease or trauma, and during recovery from surgery. Acute care is generally provided in a hospital by a variety of clinical personnel using highly technical equipment, pharmaceuticals, and other medical supplies.

Most acute care hospitals across the Province include emergency services, surgical programs, medical treatment programs, laboratory services, diagnostic imaging and outpatient clinics. Each hospital may also have its own specialty programs, depending on the needs of the population it serves (e.g. maternity, pediatrics, psychiatry). Referral hospitals offer more specialized services such as tertiary trauma care, cardiology, neurosciences, oncology or thoracic surgery.

### *Current State*

There are many different activities and functions carried out in the acute care hospital setting. The extent to which these activities are supported by electronic systems varies from hospital to hospital and from activity to activity. For example:

- Admitting records in larger hospitals are generally maintained in electronic form.
- Key elements of the patient record in hospitals remain exclusively paper-based.
- In most cases, hospitals do not have coordinated systems for receiving electronic patient information from outside the hospital or for communicating patient information to care providers outside the hospital.

*Patient data can be accessed by physicians across secure transmission networks...*

- Patient records from the family physician are generally not available.
- Patient discharge summaries are often dictated and then transcribed onto paper.
- Diagnostic imaging results may or may not be in a digital format, and may or may not be accessible off-site.
- Laboratory test results are generally maintained on paper and may or may not be available electronically.
- Information on hospital infectious disease control is limited.
- Patient prescription history is available electronically via PharmaNet in the emergency department, but is not available in other areas of the hospital.
- Patient information about preferences for care and treatment at end-of-life and about their substitute decision makers may not be known.

Currently, there is a Surgical Wait List Registry web site that explains wait times and allows access to data on wait times by surgical category, by hospital and by physician. It is intended to assist the patient and their health care provider in exploring options for receiving surgery on a more timely basis. A wait list is an access-monitoring tool used by physicians and hospitals to track patients waiting for specialized health care such as heart surgery or technical tests (e.g. an angiogram).

### *Target State (in 10 years)*

All key patient health records are directly entered into interconnected electronic systems and are immediately available to authorized clinicians. Mechanisms are established within the electronic systems to ensure information is positively identified as belonging to the individual patient, through a rigorous authentication process. Once a clinician has achieved positive identification of the patient, no repetitive gathering of personal information would be necessary. Patient data can be accessed by physicians across secure transmission networks, anywhere in the Province. Diagnostic images are automatically available to clinicians, immediately after they are taken. Emergency departments have similar access to patient records at the time of presentation.

A patient priority assessment system is being put in place for all major types of surgery, so that a comprehensive, consistent surgical wait list is created for the Province as a whole, and for each of the provincial health authorities. The surgical wait list covers the entire Province, contains reliable

information, and is kept current. Processes are in place to ensure that: only patients requiring surgery are on the list; patients are removed from the list when surgery has been completed or is no longer required; and the wait list is available to clinicians, their patients and the public at an appropriate level of detail.

*Infectious disease control will be enhanced by the availability of real-time data on outbreaks...*

Infectious disease control will be enhanced by the availability of real-time data on outbreaks, and hospitals will be able to move more decisively to better control the local spread of communicable diseases.

### *Deliverables/Benefits (in 3 years)*

- There will be a common method and a single point of access for eHealth information across the system.
- There will be an increased ability to integrate, identify and locate patient health information, regardless of where the information is collected and maintained.
- Standard assessment tools will be implemented for those awaiting surgery or other procedures. This will enable a more accurate wait list registry.

### *Related eHealth Projects*

- Provincial Surgical Services Project (PSSP) - Registry
- Provincial Diagnostic Imaging – Archive and Viewer
- Provincial Lab Information Solution
- Interoperable Electronic Health Record (iEHR) - Viewer
- Electronic Health Record - Index and Integration Services
- Electronic Medical Record (EMR) Standards

## 2.2.3 Home and Community Care

### *Description/Scope*

Home and community care services provide a range of health care and support services for eligible residents who have acute, chronic, palliative or rehabilitative health care needs. These services are designed to complement

*The record can be immediately accessed when clients move from one location of care to another.*

and supplement, but not replace, the efforts of individuals to care for themselves with the assistance of family, friends and community.

In-home services include home care, rehabilitation, home support and palliative care. Community-based services include adult day programs, meal programs, as well as assisted living, residential care services and hospice care. Case management services are provided in both the home and community.

### *Current State*

Home care and community care operate on a longer timescale than most primary and acute care functions. Many of the difficulties and inefficiencies in home and community care arise as patient conditions change and they need to move from one level of care to a higher or (in rare cases) a lower level of care.

Recipients of home and community care are periodically assessed to determine their needs, often at the request of the client or their family. Most assessments are performed in person and the results are recorded on paper; some part of the data may then be entered into an electronic system. Clinical assessments are often performed with little reference to previous assessments, and as a consequence, multiple assessments frequently result in the repetitive collection of the same information. A lack of consistent data on patients makes it difficult to plan for emerging needs.

### *Target State (in 10 years)*

The electronic health record for community care clients includes the most recent needs assessment. The record can be immediately accessed when clients move from one location of care to another.

Case managers and the most involved physician are automatically notified of substantial changes in a client's condition or location, and the possible need for re-assessment. Authorized care providers can quickly amend the needs assessment, and the change is automatically transmitted to the client's other care providers.

Client assessment tools are easy to use, highly portable and promote a high degree of consistency. The continuing care record is accessible by care providers in the acute care environment, facilitating better continuity and coordination of care. Long-term care EHRs contain relevant sections for end-of-life instructions provided by clients.

### *Deliverables/Benefits (in 3 years)*

- There will be improved clinical assessment tools to help determine the urgency and priority of service delivery.
- There will be improved consistency and coordination of care between care providers as a result of shared electronic access to patient clinical information.
- The data from the InterRAI assessment tool will support decision making and performance monitoring.
- Implementation of the InterRAI will generate changes in clinical practice that will facilitate emerging best practices.

*British Columbia employs a "population health approach" to increase and promote the health and wellbeing of individuals and communities...*

### *Related eHealth Projects*

- InterRAI Implementation – Home Care and Residential

## 2.2.4 Population and Public Health

### *Description/Scope*

British Columbia employs a "population health approach" to increase and promote the health and wellbeing of individuals and communities, prevent illness and, overall, reduce inequities in population health status. Health Canada defines the population health approach as one "that aims to improve the health of the entire population and to reduce health inequities among population groups."

A population health approach is sensitive to the determinants of health — the factors or conditions that affect health status (e.g. income and social status, education and literacy, employment/working conditions, social and physical environments)— and includes processes and multiple strategies that:

- focus on the health of a population;
- address the determinants of health and their interactions;
- base decisions on evidence;
- increase upstream investments; and
- support collaboration across sectors and jurisdictional levels.

*...more reliable public health information will be available to the public and care providers, when and where they require it.*

Public health is "the science and art of promoting health, preventing disease, prolonging life and improving quality of life through the organized efforts of society." Public health is largely synonymous with the population health approach. It includes health surveillance as an integral part of disease prevention and control, and uses its information products to evaluate, develop and guide health policy and programs. Public health requires the timely sharing of information among health authorities and laboratories.

### *Current State*

There are some distinctive services in place providing different types of health information and support to both patients and the public. Some examples include the BC NurseLine, BC HealthGuide Program, Public Health Information System, BC Tobacco Facts, and the Health and Seniors Information Line.

The current electronic systems in public health are not designed to easily pass information/data from one program area to another or pass it from one system to another. This results in duplication, loss of critical information, higher costs, and missed opportunities for timely intervention and prevention.

A British Columbia Public Health Information Project is well underway, which will enhance the Province's ability to perform communicable disease surveillance and deliver public health protection services, including immunization registration. Key objectives of the project are to determine how to significantly enhance the current capabilities of public health information support, ensure the alignment of system requirements with the concurrent work being performed as part of the pan-Canadian logical design and architecture project, and identify public health components of the EHR (which have not yet been defined).

### *Target State (in 10 years)*

Within ten years, more reliable public health information will be available to the public and care providers, when and where they require it. British Columbians will be able to access their essential personal health information and other health-related information to assist them in making decisions to improve their health and wellbeing, and to adopt a healthier lifestyle. Complete immunization records will be available to parents for their children, capturing all immunizations administered, no matter where in the Province the vaccination was given. Public web sites will be developed, continuously updated and expanded to ensure that essential information is provided to citizens.

Public health workers will have an integrated system that operates in an easy-to-use, consistent manner. Service providers will be able to utilize the same data for the same cases, without having to duplicate their collection work. Authorized service providers will be able to share clinical information among themselves, about a patient. Public health issues and communicable diseases will be quickly identified and managed to mitigate risk to the general public. A health surveillance system will provide information on risk factors, treatment, health service utilization and outcomes to assist in the development and evaluation of policies and programs aimed at the prevention and control of infectious and communicable diseases. Aggregated data will be easily accessed by the Ministry for reports on statistics and trends to support health planning and decision making.

*...timely recognition of infectious disease outbreaks, which can facilitate prompt patient treatment and containment of the outbreak.*

### *Deliverables/Benefits (in 3 years)*

- Public and health care providers will have access to current, reliable health information.
- Health information will be available in different formats, including face-to-face, by telephone and electronically.
- There will be an improved ability to collect standardized health information across the Province in a timely fashion, and enable improved clinical decision making and service planning.
- There will be timely recognition of infectious disease outbreaks, which can facilitate prompt patient treatment and containment of the outbreak.
- There will be more complete childhood immunization records and less risk of duplication.
- There will be better public health reporting and risk assessment to improve the timeliness and effectiveness of interventions.

### *Related eHealth Projects*

- Health Surveillance – BC Implementation of Pan-Canadian Solution
- Immunization Data and Physician Office Strategy
- BC NurseLine Initiative

*...the availability of a patient's laboratory results at the point-of-care is not consistent across the Province.*

## 2.2.5 Laboratory

### *Description/Scope*

In 2002/03, there were 37 million tests performed in BC's medical labs - 22 million in the Province's public laboratories and 15 million in private labs. As of 2004, there were 151 labs and 155 specimen collection stations in BC[7]. Laboratory services are currently provided in a variety of settings including: physician offices, privately operated labs, hospitals and specialized public sector labs.

The Provincial Laboratory Coordinating Office (PLCO) was created in 2003 by the provincial government, and given the mandate and responsibility to recommend reforms that would improve the organization and delivery of medical lab services in BC. The PLCO's present IM/IT initiative is the Provincial Lab Information Solution (PLIS), which focuses on the technology solution and related procurement that will enable IT integration across health authorities and the lab community.

### *Current State*

British Columbia has diversity in its public and private lab systems across the Province, with very few being integrated closely with each other. There is somewhat less diversity within individual health authorities.

Lab services are supported by a wide variety of information systems, many of which are not connected or available to most care providers. As a result, the availability of a patient's laboratory results at the point-of-care is not consistent across the Province. Some labs provide electronic distribution of lab test results to the ordering and copied physicians. However, there is very little ability for a clinician to access a patient's lab test history electronically or determine whether a patient's lab test has already been ordered by another physician. This can lead to potential duplication of testing, as well as delayed patient diagnosis and treatment.

### *Target State (in 10 years)*

The goal of the PLCO, working in partnership with the health authorities and other organizations, is to create a high-quality, patient-centred, accountable, affordable and sustainable laboratory solution. It is anticipated that clinicians will be provided access to patient laboratory information at the point-of-care anywhere in British Columbia. Health authorities will have timely access to reportable, communicable disease test results from all public and private laboratories.



[7] See http:www.plco.ca/services2.html

### *Deliverables/Benefits (in 3 years)*

- Immediate physician access to laboratory results, enabling more timely and effective clinical decision making.
- Clinician access to historical laboratory test results across the Province, reducing needless duplication.
- Improved efficiency of laboratory test ordering and results distributions.
- Integration of private and health authority public laboratories into the Provincial Laboratory Information Solution.
- Enhanced continuity and consistency of care between care providers, in terms of sharing lab results.
- Direct link of the Provincial Public Health Laboratory communicable disease information into the integrated Public Health Information System.

*...access to historical laboratory test results across the Province, reducing needless duplication.*

### *Related eHealth Projects*

- Provincial Lab Information Solution

## 2.2.6 Pharmacy

### *Description/Scope*

PharmaNet is a province-wide network linking all pharmacies into a central system. This system provides data and services to support drug dispensing, drug monitoring and claims processing. Areas with access to PharmaNet currently include emergency departments, hospital admitting, medical practice offices, the College of Pharmacists, and the College of Physicians and Surgeons. Key benefits of a provincial pharmacy network include:

- Prevention of inappropriate therapies by enabling drug interaction and dosage range checking;
- Prevention of over consumption of prescription drugs by unintended duplication or fraud;

*Enabling wider access to medication drug profiles by physicians in different settings...*

- Promotion of cost effective usage of drugs and other therapeutic alternatives;
- Improvement in standards of practice by offering comprehensive drug information and complete patient medication information; and
- Streamlined claims payments by offering immediate adjudication for pharmacies and the public.

### *Current State*

PharmaNet is a secure system that increases drug safety by linking pharmacies throughout British Columbia. It provides up-to-the-minute information about all prescription medications dispensed to individual patients anywhere across the Province, so that the pharmacist can quickly identify potentially harmful medication interactions.

The Ministry of Health first developed a strategy for medical practice access to PharmaNet in 1999. The strategy resulted in PharmaNet access being piloted by over one hundred practices. The Ministry is committed to increasing access to PharmaNet drug profiles by physicians, including hospital and physician dispensed medication in the profile, and developing ePrescription capabilities, including decision support tools.

### *Target State (in 10 years)*

There are two major components of the Electronic Health Record drug strategy that, once implemented, fulfill the goal of the complete management and provision of drug information to support clinician decision making. These are:

1. Implementation of EHR Drug Profiles, which focuses on the expansion of the PharmaNet program:
   - Enabling wider access to medication drug profiles by physicians in different settings (acute care, community, etc.).
   - Expanding PharmaNet to include drug information not currently captured (e.g. inpatient drugs, physician dispensed medications).

2. Implementation of electronic prescriptions and decision support in British Columbia:
   - Linking prescribing practice to evidence-based clinical guidelines.
   - Providing drug cost information at the point of prescribing to encourage physicians to prescribe the lower cost medications.

### *Deliverables/Benefits (in 3 years)*

*Physicians able to make better clinical decisions...*

- More physicians have access to PharmaNet patient medication histories.
- Patient medication histories become more complete by including drugs dispensed in a wider range of settings (such as hospitals, clinics, and physician offices).
- Physicians able to make better clinical decisions by knowing the patient's complete medication and related treatment history.
- Development of a strategy and initial implementation of ePrescribing capability for PharmaNet. BC has set the target to have 50% of prescriptions electronic by 2008.

### *Related eHealth Projects*

- Provincial eDrug Project

## 2.2.7 Diagnostic Imaging

### *Description/Scope*

Diagnostic images and their interpretation are of high clinical value. However, their availability is constrained by the high capital and operating cost associated with imaging modalities and by the scarcity of the highly skilled health professionals (radiologists, technologists and diagnostic imaging (DI) administrators) who support diagnostic imaging services. It is therefore essential that British Columbia makes the best use of what information technology can afford by extracting the most clinical value possible from its imaging services.

*...available to clinicians regardless of the care delivery or clinical practice setting.*

### *Current State*

In recent years there has been significant investment in Diagnostic Imaging information technology within British Columbia. Since the health system restructuring in December 2001, all health authorities have been working towards a uniform DI capability that will cover their entire region. The health authorities have made varying degrees of progress towards the end state vision. Progress has been dependant on the number, variety and age of preexisting DI IM/IT investments, and the relative priority of other region-wide IM/IT initiatives.

### *Target State (in 10 years)*

The goal is to have all diagnostic images stored in "filmless" digital form, and for them to be available to clinicians regardless of the care delivery or clinical practice setting. The access to and management of images will be part of an integrated capability that supports all aspects of diagnostic imaging service delivery, including workflow support (patient registration, scheduling, transcription, etc.). It will be integrated with the rest of a hospital's clinical services and overall information flow. There is also recognition that future digital imaging capability needs to encompass all clinical specialties with information stored and used as a digital image, video or other non-text format (e.g. dermatology, endoscopy).

### *Deliverables/Benefits (in 3 years)*

- All health authority DI reports and some private clinic reports will be available online.
- All health authority DI reports will be located in the provincial archive.
- There will be more timely and effective clinical decision making due to improved provider access to diagnostic images and results through a common viewer.
- There will be an improved ability for care providers to share patient information with each other.
- There will be improved access to DI results, leading to decreased duplication in testing.

### *Related eHealth Projects*

- Provincial Diagnostic Imaging – Archive and Viewer

## 2.2.8 Telehealth

*A major focus of Telehealth is improving access to health services in remote and rural parts of the Province...*

### *Description/Scope*

Telehealth is the use of communications and information technology to deliver health and health care services, information and education, where the participants are geographically separated. It helps to overcome barriers of geography, transportation infrastructure, time, and socio-economic disparity. Telehealth facilitates clinical consultation, continuing professional education, health promotion, and health care management. Both broad and low bandwidth (telephone) infrastructure and technology are used in the provision of Telehealth services. A major focus of Telehealth is improving access to health services in remote and rural parts of the Province, and improving health care service delivery to First Nations.

Telehealth is an encompassing term for various electronically enabled communications and information-transfer services. Teleconsultation is the most common Telehealth service, and includes a voice-voice or voice-video link between a patient and/or primary care provider and a specialist. This kind of Telehealth service is typically transmitted from facility to facility or from a caller's home to an advice nurse by telephone.

Another service, home Telehealth, involves a patient or family member using an electronic link to transmit specific health data collected with monitoring devices located in the home, back to an office or facility where the health care provider can monitor the data. Based on the transmitted information, the patient or family member may be directed to make a specific intervention, such as altering a medication dose. Telehealth is also used to provide education to health care providers, especially in geographically remote locations.

### *Current State*

British Columbia is one of the most connected provinces in Canada with more than 74 percent of households having an Internet connection and over half of those being high-speed or broadband connections[8]. However, despite this high rate of connectivity, there is still a "digital divide" (delineated by geography, income, education level, literacy, age and



[8]See http:www.network.gov.bc.ca/

*One area where the linkage and integration between Telehealth and the EHR is most apparent is in diagnostic imaging.*

ethnicity) that determines who is online in British Columbia and who is not. At present, high-speed broadband is not available in 151 of the 366 provincial communities being tracked for broadband access. Seventy-six of these remote communities are First Nations or communities in proximity to First Nations. The provincial NetWork BC project is leveraging the telecommunications purchase by the public sector to bring services to these communities.

Telehealth is primarily provided in two ways in British Columbia - through the BC HealthGuide program, or through the use of communications technologies alongside diagnostic medical equipment. In this second case, the technology is used to collect, organize and share information for patient assessment, diagnosis and treatment.

The BC HealthGuide program is a provincial self-care service that provides health information and advice to British Columbians. It has four components:

- A nurse call-line, where individuals call toll-free to speak to a registered nurse (available 24 hours-per-day, everyday) or a pharmacist (available 5 pm to 9 am, everyday);
- An online data base of over 3,000 common health topics, tests, and procedures;
- A handbook offering useful advice on over 190 common health concerns; and
- A series of one-page fact sheets on health and safety. The health advice service is available for those who are deaf or hearing impaired, and, in addition, translation services are available in 130 languages.

A significant amount of the Telehealth activity in British Columbia uses two-way, live video conferencing technology for clinical, education, and administrative interactions. This type of Telehealth capability is currently present in over 60 communities throughout the Province.

One area where the linkage and integration between Telehealth and the EHR is most apparent is in diagnostic imaging. The transmission of live echocardiogram and ultrasound images for interpretation, along with store-and-forward transfer of digital images for review and assessment, are Telehealth activities currently underway in many of the health authorities.

Another initiative that has been implemented is the retinopathy screening program for people with diabetes from First Nations. This project has been made possible through the collaborative efforts of a number of organizations across the Province.

*Reduced numbers of patients needing to travel to access health services...*

### *Target State (in 10 years)*

The longer-term goal of NetWork BC is to create the next generation provincial public sector network. This network will provide faster network speeds; unlimited bandwidth with no additional costs; farther network reach into all corners of the Province; and the ability to rethink and redesign the way services are delivered. Affordable high-speed Internet is expected to improve quality of life for the people in these communities by providing better access to up-to-date health information and more timely access to health services and treatments, as well as better access to education and business opportunities.

### *Deliverables/Benefits (in 3 years)*

- By the end of 2006, 119 of the remaining 151 communities will have broadband access and the remaining 32 communities will be connected through the work of other providers.
- The NetWork BC initiative will increase the capacity of health authorities and communities to offer Telehealth services and increase the health system's capacity to provide a wider range of patient care to communities.
- Individuals suffering from chronic diseases, such as asthma or diabetes, will be better able to manage their conditions by accessing accurate medical information and treatment through reliable medical sources, including the BC HealthGuide.
- A Telehealth Strategic Plan will outline strategies to increase the clinical use of Telehealth by 25% across the Province.
- Telehealth personnel and equipment will be used more efficiently.
- There will be a reduced number of patients needing to travel to access health services, which reduces the related risks and burden associated with patient travel.
- There will be an increased ability for rural care providers to access timely specialist consultation.

*...access to safer, higher-quality services enabled through the timely availability of their health information.*

### *Related eHealth Projects*

- Telehealth Strategic Plan
- Telehealth Video and Conference Scheduling System
- BC NurseLine Initiative

## 2.3 Summary of the Benefits of eHealth

In three years, British Columbia will have made significant progress towards implementing efficiencies in the Province and supporting the transformation of care delivery across the entire spectrum of health services. The general public, patients, health care providers and the health system will experience benefits through the integration of information, technology and services.

The diagram on the following page depicts the integration of information, technology and health services visualized as part of the eHealth initiative (see figure 5).

### *With the adoption of eHealth, British Columbia will be a province where:*

1. The general public have improved access to a broad range of health information and are in a more informed position to stay healthy or actively help manage their own care. For example:

- An individual who has diabetes contacts the BC NurseLine to speak with a nurse and a pharmacist to obtain guidance in order to self-manage their chronic condition.
- Citizens in British Columbia receive timely advanced notification about a West Nile Virus outbreak in a neighbouring province, and are instructed by public health officials on the signs and symptoms to watch for and how to protect themselves from contracting the disease.

2. Patients have access to safer, higher-quality services enabled through the timely availability of their health information. For example:

- A patient is sent to see a specialist about a worsening medical condition. The specialist can electronically access pertinent clinical information such as the patient's hospital records, as well as previous

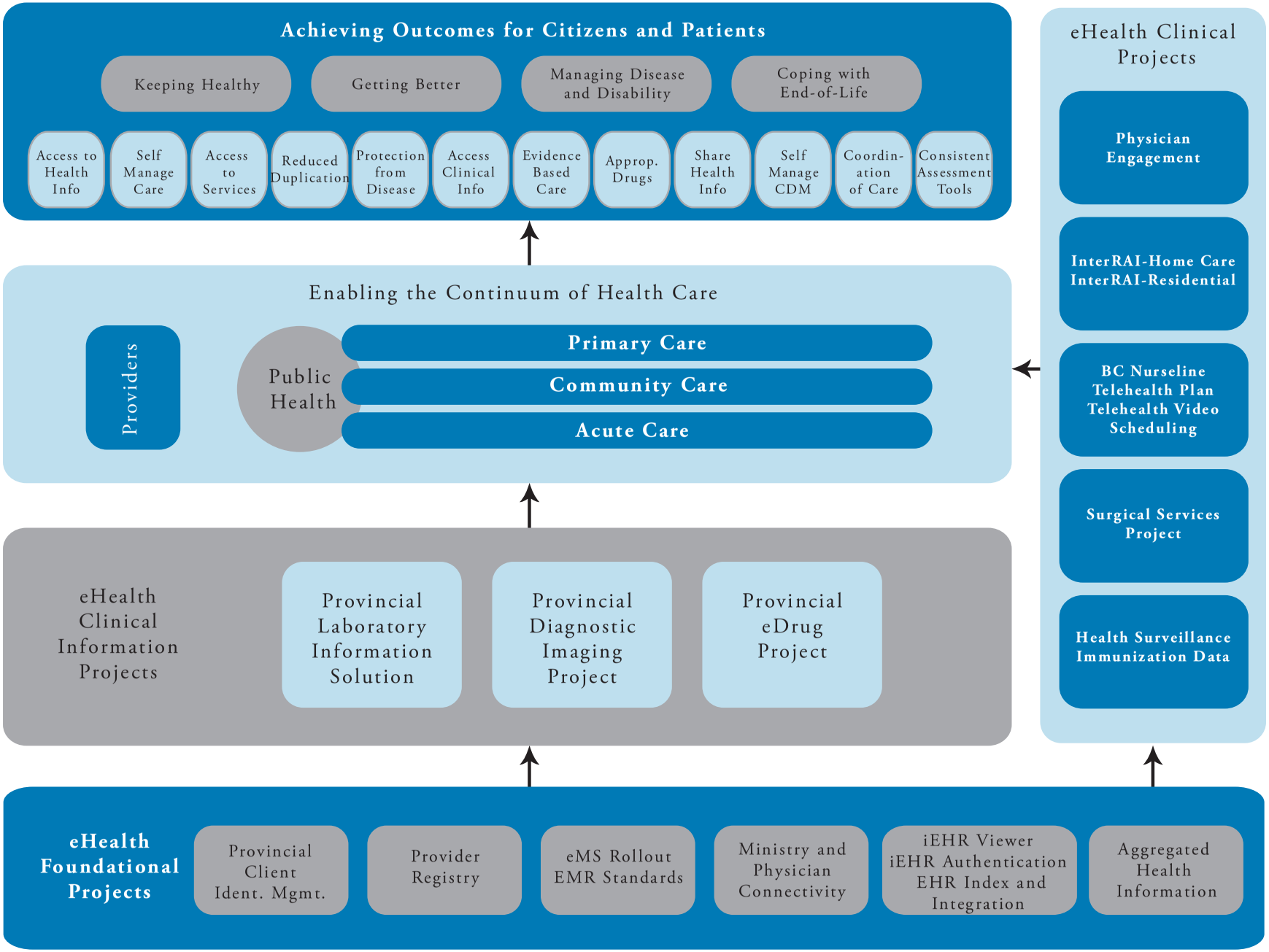

Achieving Outcomes for Citizens and Patients
Keeping Healthy
Getting Better
Managing Disease and Disability
Coping with End-of-Life
Access to Health Info
Self Manage Care
Access to Services
Reduced Duplication
Protection from Disease
Access Clinical Info
Evidence Based Care
Approp. Drugs
Share Health Info
Self Manage CDM
Coordin-ation of Care
Consistent Assessment Tools
Enabling the Continuum of Health Care
Providers
Public Health
Primary Care
Community Care
Acute Care
eHealth Clinical Information Projects
Provincial Laboratory Information Solution
Provincial Diagnostic Imaging Project
Provincial eDrug Project
eHealth Foundational Projects
Provincial Client Ident. Mgmt.
Provider Registry
eMS Rollout EMR Standards
Ministry and Physician Connectivity
iEHR Viewer iEHR Authentication EHR Index and Integration
Aggregated Health Information
eHealth Clinical Projects
Physician Engagement
InterRAI-Home Care InterRAI-Residential
BC Nurseline Telehealth Plan Telehealth Video Scheduling
Surgical Services Project
Health Surveillance Immunization Data

*Figure 5*

*Care providers have the correct and necessary information required to make appropriate and timely clinical decisions concerning patient care.*

lab and diagnostic imaging results. This patient will not have to experience unnecessary duplication in the provision of personal health information or diagnostic testing.

- A patient is discharged following a short stay in hospital. As a result of the expansion of PharmaNet into the hospital environment and physician offices, the patient is confident that prescribed medications are safe and compatible with the medications their physician had previously prescribed. This patient is aware that the surgeon and the pharmacist had to access the PharmaNet system when initiating the new prescription, and were notified about all the past and current medications that had been prescribed.

3. Care providers have the correct and necessary information required to make appropriate and timely clinical decisions concerning patient care. For example:

- A patient is brought by ambulance to a local emergency department in critical condition. The patient is unconscious and unable to provide details about her past medical history. The emergency physician has secure and immediate electronic access at the point-of-care to this patient's previous drug information, laboratory results, and diagnostic images, which assists the physician in quickly diagnosing the clinical condition and providing effective, timely treatment.
- A primary care physician in northern British Columbia is concerned about the worsening symptoms one of his patients is experiencing. Through the use of Telehealth technology, the physician is able to immediately initiate a consultation with the appropriate specialist, who is located some distance away at a tertiary hospital. The physician receives timely expert advice to guide clinical care for this patient, and the patient does not have to endure long distance travel to obtain proper care.

4. The health system as a whole has improved access to more comprehensive information that enables better informed public health protection and overall health service planning, which results in increased efficiencies. For example:

*...better informed public health protection and overall health service planning...*

- Improved quality of data assists the Ministry and health authorities to make more informed decisions concerning the overall operation of the health system. Most health service planning decisions depend on access to aggregated health information, such as the number of hospital admissions related to specific conditions or the incidence of reportable diseases in a specific geographic area. Through the review and analysis of this data, decisions can be made regarding the overall need for new or expanded health programs.

It is difficult to quantify these benefits at this stage in the development of eHealth solutions. Booz Allen Hamilton, in a report for Canada Health Infoway in March 2005, estimated that full implementation of a pan-Canadian Electronic Health Record would, once fully matured, produce a savings of approximately $6 billion annually. These savings are based on projected reductions in adverse medical events and lower levels of duplicate diagnostic tests resulting from more accurate, complete and accessible patient information. The report did not attempt to quantify the benefits of improved efficiency and productivity of caregivers and medical support personnel, although it assumed they might also be substantial. Booz Allen Hamilton estimates the total acquisition cost of a national EHR to be in the range of $8 to $16 billion.

This section of the framework has provided an overview as well as some specific examples of the key components of the health system that will be enhanced through eHealth. It also highlighted the specific benefits that will be experienced by the general public, patients, care providers and the overall health system.

The next section (Part Three) describes in detail the implementation strategy, and the individual projects designed to realize the tangible benefits of eHealth over the next three years.

*The focus of Phase 1 is to provide clinicians with key clinical information at the point-of-care...*

# Part Three: Implementation Strategy

The long-term vision for eHealth in British Columbia was stated in Part One as:
"an integrated, interoperable eHealth system in which health care information is accessible, when and where it is needed to support personal health, health care decision making and health system sustainability."

Achieving the vision and benefits of eHealth is an exciting journey that will enable significant movement towards the positive transformation of health care in British Columbia. To achieve the long-term vision for eHealth, an implementation strategy has been developed which outlines the key actions that need to be taken and the corresponding milestones that need to be met.

## 3.1 Phased Implementation

The implementation strategy has three interconnected phases, each phase representing a specific stage in the progressive implementation of eHealth. The first phase enables access to priority clinical information, the second phase results in enhanced clinical capability through knowledge-based tools, and the third phase provides the capability of integrating systems to support coordinated care across the continuum.

### *Phase 1: Access to priority clinical information (in the next 3 years)*

The focus of Phase 1 is to provide clinicians with key clinical information at the point-of-care and provide citizens and patients with credible sources to access health information. The strategic intent of this first phase is to invest in eHealth projects that enable health information to be accessible regardless of geography.

Included in this phase is the implementation of some key foundational projects (such as development of Registries), as well as projects that will result in significant clinical benefits (such as access to laboratory results and expanding the functionality of PharmaNet).

The foundational projects of Phase 1 are important building blocks required to support the implementation of the clinical projects.

### *Phase 2: Enhance capability through knowledge-based tools (in the subsequent 3 to 7 years)*

*...creating seamless information transfer between care providers across the Province.*

The second phase builds on the infrastructure from Phase 1 and begins to add some of the higher level of functionality of eHealth. This phase will expand the number of accessible data sources to include areas such as community care, mental health and public health, and expand the level of integration for clinical information within individual settings. Phase 2 will move eHealth beyond just providing access to clinical data, it will begin to integrate clinical systems and introduce additional functionality into the existing applications.

The enhanced capability that will be achieved in Phase 2 includes: clinical decision support tools such as clinical guidelines, prompts, and alerts; online order entry for laboratory tests, medications and diagnostics; increased Telehealth integration including improvements from expanded use of clinical video conferencing to home based monitoring; and improved integration and sharing of information between health authorities as well as between health care providers practicing in the same health authority.

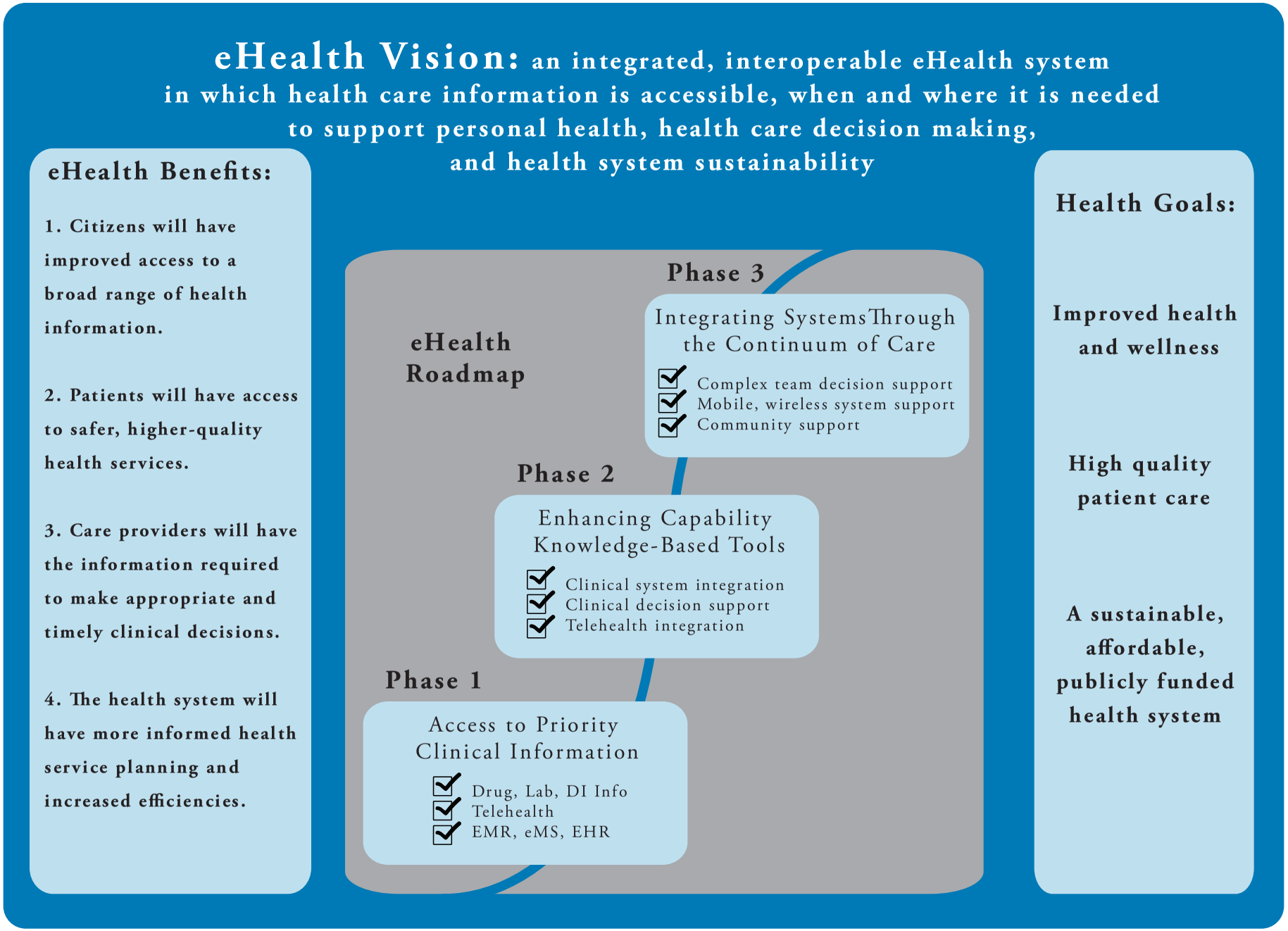
### *Phase 3: Integrating systems to support coordinated care across the continuum (in the subsequent 7 to10 years)*

The third phase builds on the capabilities developed in previous phases to enhance coordination of patient care across the continuum.

Phase 3 focuses on implementing eHealth components that enable information sharing between health authorities and creating seamless information transfer between care providers across the Province. The result will be an integrated, interoperable eHealth system which contains patient health information that spans the entire continuum of care across many settings and locations. This information can be securely and appropriately accessed by hospital and community health care providers anywhere in the Province.

Figure 6 on the following page depicts the strategic phases of the implementation of eHealth in British Columbia, illustrating the "building" nature of the three phases.

*Figure 6*


eHealth Vision: an integrated, interoperable eHealth system in which health care information is accessible, when and where it is needed to support personal health, health care decision making, and health system sustainability
eHealth Benefits:
1. Citizens will have improved access to a broad range of health information.
2. Patients will have access to safer, higher-quality health services.
3. Care providers will have the information required to make appropriate and timely clinical decisions.
4. The health system will have more informed health service planning and increased efficiencies.
eHealth Roadmap
Phase 3
Integrating Systems Through the Continuum of Care
Complex team decision support
Mobile, wireless system support
Community support
Phase 2
Enhancing Capability Knowledge-Based Tools
Clinical system integration
Clinical decision support
Telehealth integration
Phase 1
Access to Priority Clinical Information
Drug, Lab, DI Info
Telehealth
EMR, eMS, EHR
Health Goals:
Improved health and wellness
High quality patient care
A sustainable, affordable, publicly funded health system

Each phase builds on the previous phase, with no one phase being entirely independent or discrete. For example, the functionality gained in Phase 1, through improved access to priority clinical information, will enhance the functionality of Phase 2 and 3 projects. A phased approach to implementing eHealth allows a focus on accomplishing specific deliverables and benefits at each phase, and creates incremental successes from which to build and realize the full vision for eHealth. As illustrated, with the implementation of eHealth, there are key benefits that will be achieved, moving British Columbia closer to realizing the overall provincial health system vision.

*...overall governance of eHealth development and implementation resides with the eHSC.*

## 3.2 Project Management

As stated in Part One, the overall governance of eHealth development and implementation resides with the eHSC. Recognizing that no eHealth project stands entirely alone or independent of the others, all projects will be managed and coordinated so as to ensure their full alignment with the eHealth strategic framework. This fundamental alignment will be ensured by the eHSC through its high-level review and ongoing leadership for all eHealth initiatives undertaken by the Province.

The individual eHealth projects included in this strategic framework are generally being managed by the organization leading and implementing them.

Depending on the nature of the project, it may:

- involve the Ministry, one or more health authorities and other stakeholders, such as physicians, Infoway, etc., and
- be led by either one health authority or by the Ministry, and then implemented by all health authorities.

Each project has an identified lead sponsor and a project steering committee that typically includes both clinical and technical representatives.

The project charter is a primary document used to guide project teams in planning their work. A charter is being developed for each project, defining the project in terms of its objectives, scope, stakeholders and major deliverables, along with other required standard elements. In its governance role, the eHSC will determine whether projects (as indicated by their charters) are consistent with the overall strategic framework and provincial priorities. The charters also serve as a reference point for the eHSC in its ongoing monitoring role to ensure achievement of the promised project deliverables and continued alignment with the provincial eHealth vision.

*Infoway's current notional eHealth allocation for BC is $120 million...*

### *Financial Resources*

eHealth is a priority across Canada, with significant contributions being made at the federal, provincial and regional levels. Canada Health Infoway is a major source of strategic funding that is targeted to allow individual provinces and territories to focus their efforts on specific eHealth solutions that also can be used in other jurisdictions. Infoway funding has not been fully committed, and full funding for projects is usually dependent on the successful attainment of interim performance targets. As a result, investment forecasts at the provincial and project level are in part notional.

Infoway's current notional eHealth allocation for BC is $120 million to fiscal 2008/09. Along with the health authority allocations, the Ministry expects to contribute approximately $30 million to eHealth intiatives over the period 2005/06 to 2008/09, in order to take full advantage of Infoway's investment.

## 3.3 eHealth Project Descriptions

This section describes the Phase 1 eHealth projects that have been prioritized for implementation over the next three years.

Many of the projects are being planned and implemented concurrently; however, there are also some projects that need to be implemented sequentially. The timelines outlined for some of the projects are estimates that will be confirmed as more detailed planning occurs over the upcoming months. Some projects may be completed faster than their estimated timelines, while others may be slower. Project timelines are also contingent on other factors, which may be beyond the control of project leads, such as timing of formal approvals, resolution of privacy or new legislative issues, or the availability of critical specialized resources.

The clinical projects that are targeted to be implemented within the next three years include:

- Provider Engagement
- Chronic Disease Management – Integration
- Provincial Surgical Services Project (PSSP) - Registry
- InterRAI Implementation – Home Care and Residential
- Health Surveillance – BC Implementation of Pan-Canadian Solution
- Immunization Data and Physician Office Strategy

- Provincial Lab Information Solution
- Provincial eDrug Project
- Provincial Diagnostic Imaging – Archive and Viewer
- BC NurseLine Initiative
- Telehealth Strategic Plan
- Telehealth Video/Conference Scheduling System

*Part Three also provides a series of "one-page" summaries covering each of the planned projects...*

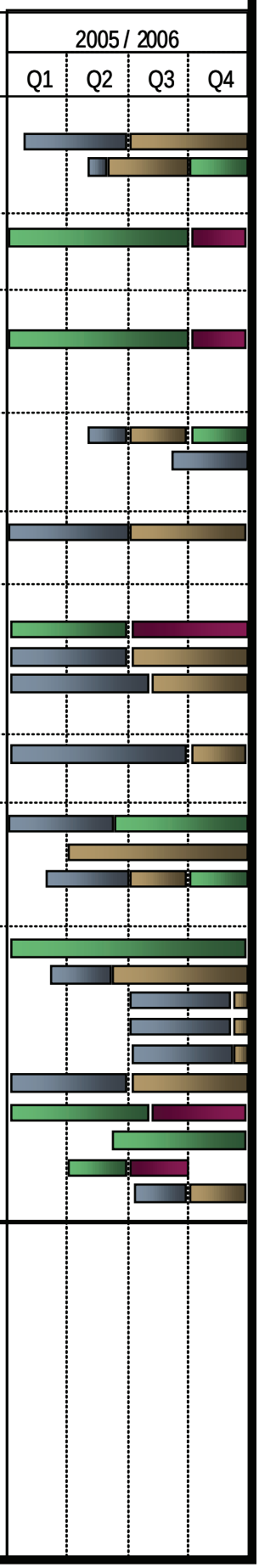
The foundational projects that are targeted to be implemented within the next three years include:

- Interoperable Electronic Health Record (iEHR) – Viewer
- Interoperable Electronic Health Record – Authentication and Access Control
- Electronic Health Record - Index and Integration Services
- Electronic Medical Summary (eMS) Rollout
- Electronic Medical Record (EMR) Standards
- Aggregated Health Information Project
- Provincial Client Identity Management – EMPI
- Provider Registry – Health Authority Uptake
- Ministry of Health Connectivity to Private Network Gateway
- Physician Connectivity

The following portion of Part Three provides an extended chart showing the eHealth Strategy 10-year Implementation Plan. This chart illustrates the relationship of the planning, design, implementation and evaluation timelines among the individual eHealth projects. Part Three also provides a series of "one-page" summaries covering each of the planned projects, outlining the project title, description, lead organization, benefits, expected outcome and estimated timelines. The section ends by briefly highlighting the basic strategy for ensuring successful implementation, and also provides a short closing summary statement.

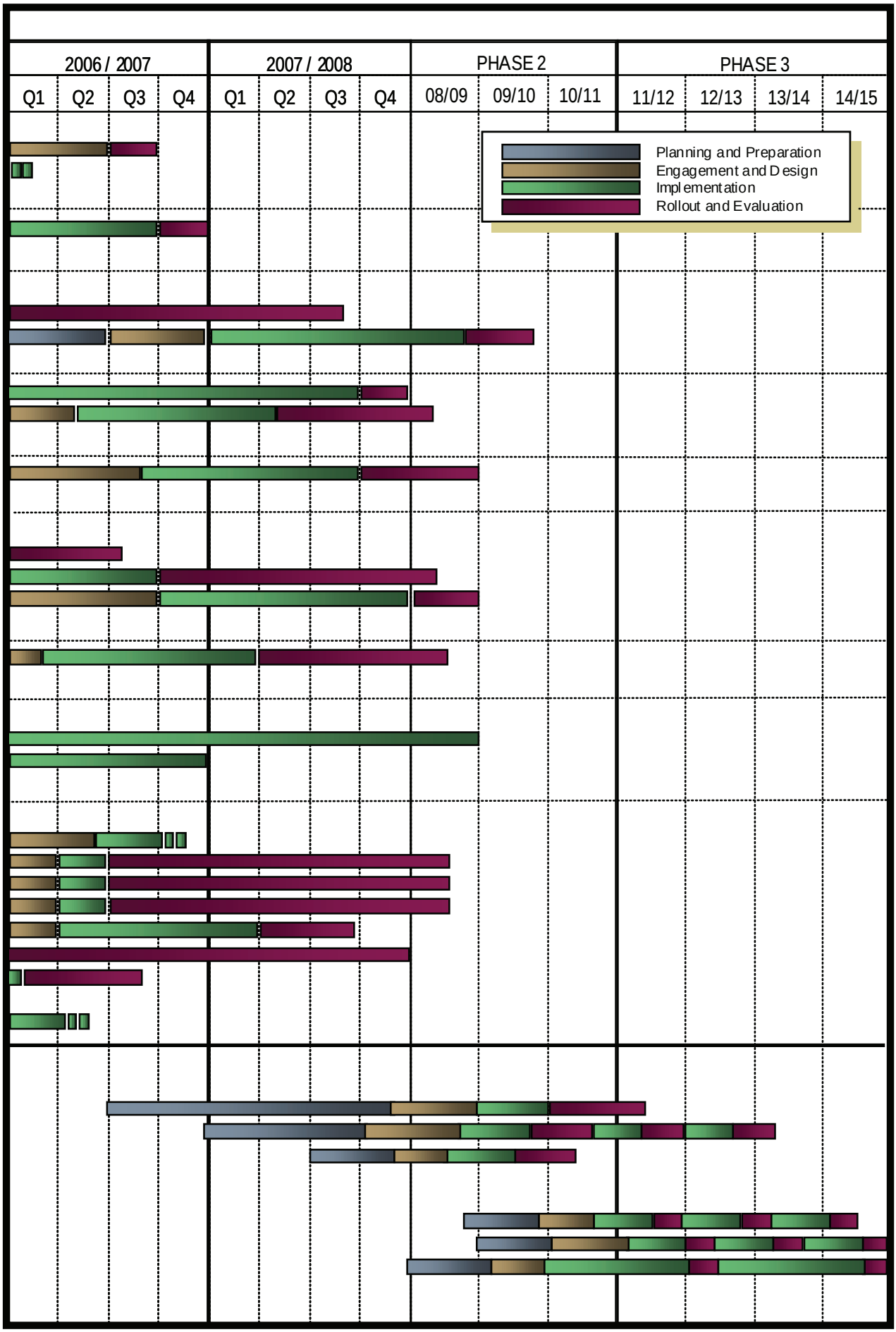
# eHealth Strategy – 10 Year Implementation Plan

| eHealth Component<br>eHealth Project | Lead Agency |
|---|---|
| **1. Primary / Physician Care** | |
| • Provider Engagement | SPEED |
| • Chronic Disease Management – Integration | MoH |
| **2. Acute / Hospital Care** | |
| • Provincial Surgical Services Project (PSSP) – Registry | PHSA |
| **3. Home and Community Care** | |
| • InterRAI Implementation – Home Care and Residential | |
| • Home Care | each HA |
| • Residential Care | each HA |
| **4. Population and Public Health** | |
| • Health Surveillance – BC Implementation of Pan-Can... | MoH |
| • Immunization Data and Physician Office Strategy | MoH/PHSA |
| **5. Laboratory** | |
| • Provincial Laboratory Information Solution | MoH/PLCO |
| **6. Pharmacy** | |
| • Provincial eDrug Project | |
| • Increasing Physician Access | MoH |
| • Inclusion of In-hospital & Phys. Dispensed Drugs | MoH |
| • ePrescribing | MoH |
| **7. Diagnostic Imaging** | |
| • Provincial Diagnostic Imaging – Archive and Viewer | FHA/IHA |
| **8. Telehealth** | |
| • BC Nurseline Initiative | MoH |
| • Telehealth Strategic Plan | PHSA |
| • Telehealth Video/Conference Scheduling System | NHA/PHSA |
| **9. Foundational Projects** | |
| • Electronic Medical Summary (eMS) Roll Out | VIHA / IHA / VCHA |
| • Electronic Medical Record (EMR) Standards | MoH |
| • Interoperable Electronic Health Record (iEHR) – Viewer | VCH/FHA |
| • Interoperable Electronic Health Record – Authentication... | VCH/FHA |
| • Electronic Health Record – Index & Integration Services | PHSA/VCH |
| • Aggregated Health Information Project | MoH |
| • Provincial Client Identity Management – EMPI | MoH |
| • Provider Registry – Health Authority Uptake | MoH |
| • MoH Connectivity to Private Network Gateway | MoH |
| • Physician Connectivity | MoH |




**PHASE 2 – Enhancing Capability and Knowledge Tools**
- Clinical System and Scheduling Integration
- Clinical Decision Support
- Telehealth Integration

**PHASE 3 – Integrated Through the Continuum of Care**
- Multi-Disciplinary Team Decision Support
- Mobile / Wireless iEHR Support
- Single iEHR for Individuals


2006 / 2007
2007 / 2008
PHASE 2
PHASE 3
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
08/09
09/10
10/11
11/12
12/13
13/14
14/15
Planning and Preparation
Engagement and Design
Implementation
Rollout and Evaluation

## 3.3.1 Primary/Physician Care

### Project Title: Provider Engagement

#### *Project Description*

eHealth is about more than just information technology. It is about changing clinical and business practices in health care. For example, using Telehealth to deliver services, and using EMR and EHR to move from paper-based charting to an electronic environment for improved functionality, quality assurance and patient safety surveillance are significant challenges to health care providers and administrators. It involves change management for service delivery processes and information flow, and involves participation from clinical experts and business managers. It also requires new and innovative systems development and integrated linkages between previously isolated systems, data islands, and geographically separated communities.

This project will ensure that physicians and health professionals are engaged in the design of the process changes and the selection and implementation of new supporting technology.

#### *Project Lead*

Dr. Jonathan Burns and Dr. Kendall Ho on behalf of the Special Physician Engagement Expert Delegate (SPEED) Committee and the eHealth Steering Committee.

#### *Benefits*

- Increased care provider understanding of and input into how eHealth can help patient care delivery.
- Increased engagement of health professionals in the development process to ensure the eHealth projects are of clinical value.
- Increased alignment of training, clinical practice, and mutual support amongst health trainees and professionals to ensure progressive and escalating adoption and use of the new information technologies and electronic services.

#### *Outcome in 3 Years*

- 50% of physicians are engaged in some eHealth initiatives.
- Establishment of a system of related communication and exchange amongst health professionals in BC to support eHealth.

#### *Timelines*

| | |
|---|---|
| Planning and Preparation: | May 05 – Sep 05 |
| Engagement and Design: | Sept 05 – Nov 06 |
| Rollout and Evaluation: | Sept 06 – Dec 06 |

## Project Title: Chronic Disease Management - Integration

### *Project Description*

The Chronic Disease Management Toolkit, EMR and eMS are all separate applications. This project will develop a strategy to promote the integration of the CDM functionality and the eMS messaging standard within the evolving EMR standards.

### *Project Lead*

The initiative will be led by the Ministry of Health.

### *Benefits*

- Integration to provide improved clinical care.
- Improved coordination and continuity of patient care.

### *Outcome in 3 Years*

- CDM functionality merged with EMR and eMS.

### *Timelines*

CDM, EMR and eMS Merger Strategy:

| | |
|---|---|
| Planning and Preparation: | Aug 05 – Oct 05 |
| Engagement and Design: | Aug 05 – Dec 05 |
| Implementation initiated: | Jan 06 |

## 3.3.2 Acute/Hospital Care

**Project Title: Provincial Surgical Services Project (PSSP) - Registry**

### *Project Description*

PSSP is a collaborative, province-wide project aimed at:

- Developing provincial standards, as well as quality and performance measures for surgical services.
- Creating processes for the ongoing collection of consistent data to allow better planning and decision making.
- Ensuring existing resources can be allocated and applied appropriately to areas of greatest need.
- Developing province-wide resources for health authorities to help them improve their surgical services.

The overarching purpose of the PSSP is to build a patient surgical registry based on patient needs with a focus on transparency, consistency and the evidence base.

### *Project Lead*

The Provincial Health Services Authority leads this project under the direction of the Provincial Surgical Services Steering Committee (PSSSC) with involvement by the other five health authorities and the Ministry of Health.

### *Benefits*

*Patients:*

- Will be able to know, with increased accuracy, their level of urgency for surgery and where they are on the wait list in relation to most other patients.
- Will know they have been placed on a wait list at a specific time.

*Physicians:*

- Will have more information to ensure patients are scheduled for surgery appropriately.
- Will have access to information that will identify the reasons why a certain patient has been waiting longer than other patients requiring the same surgery.
- Will be able to demonstrate surgical care system efficiency.

## Project Title: Provincial Surgical Services Project (PSSP) - Registry - continued

*Health Authorities:*

- Will be provided accurate, comprehensive, and timely data for decision making.
- Will be better able to predict the operating room time required to meet the needs of those requiring surgery.

*Ministry of Health:*

- Will be able to better define and quantify the resources required to increase system throughput and reduce waiting times.

### *Outcome in 3 Years*

- 14 surgical assessment tools in 12 specialties.
- Surgical Patient Registry - the registry will track all patients booked for surgery in the province of British Columbia. The intent is to produce accurate reports that will include: patient waiting; for how long; for what procedures; for which surgeon; and at what level of surgical need (priority).

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Complete |
| Engagement and Design: | Complete |
| Implementation (Initial): | Jan 05 – Dec 05 |
| Rollout (Initial): | Jan 06 – Mar 06 |
| Implementation: | Apr 06 – Dec 06 |
| Rollout and Evaluation: | Jan 07 – Mar 07 |

## 3.3.3 Home and Community Care

**Project Title: InterRAI Implementation – Home Care and Residential**

### *Project Description*

Procure, configure and implement InterRAI to guide consistent community-based service delivery.

### *Project Lead*

This project is being implemented by all health authorities.

### *Benefits*

- Enhanced consistency and continuity of care between care providers.
- Ability to monitor changes in patient condition and change care plans accordingly.
- Improved quality and safety of care.
- Enhanced standardization in data collection.

### *Outcome in 3 Years*

- Additional information aids in developing care plans.
- Tool implemented by all health authorities.
- Standardization of the assessment tool used in the home care environment.

### *Timelines*

**1. Home Care:**

| | |
|---|---|
| Planning and Preparation: | Complete |
| Engagement and Design: | Complete |
| Implementation: | Mar 04 – Dec 05 |
| Rollout and Evaluation: | Jan 06 – Nov 06 |

**2. Residential (pending approval):**

| | |
|---|---|
| Planning and Preparation: | Apr 06 – Sep 06 |
| Engagement and Design: | Oct 06 – Mar 07 |
| Implementation: | Apr 07 – Dec 08 |
| Rollout and Evaluation: | Jan 09 – Nov 09 |

## 3.3.4 Population and Public Health

**Project Title:** Health Surveillance – BC Implementation of Pan-Canadian Solution

### *Project Description*

British Columbia will lead a national project that involves the development of a client and population-centred information system to improve access, delivery and integration of health care services for managing communicable diseases. The second phase of this initiative will be the implementation of the Pan-Canadian Solution in British Columbia.

### *Project Lead*

This project will be led by the Ministry of Health.

### *Benefits*

- Enhanced ability to recognize and manage potential communicable disease outbreaks.
- Faster response to public health issues.
- Improved national coordination on public health issues.

### *Outcome in 3 Years*

- Communicable disease and environmental health surveillance solutions implemented.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Aug 05 – Sep 05 |
| Engagement and Design: | Sep 05 – Dec 05 |
| Implementation: | Jan 06 – Dec 07 |
| Rollout and Evaluation: | Jan 08 – Mar 08 |

## Project Title: Immunization Data and Physician Office Strategy

### *Project Description*

Currently only immunizations given by public health nurses are captured electronically and stored in the Public Health Information System. Immunizations given in physician offices are not captured or entered into the system. This project will develop the strategy to capture the majority of immunizations in the Public Health System and make them electronically available to care providers.

### *Project Lead*

Ministry of Health with PHSA.

### *Benefits*

- Care providers would have access to the majority of immunization records.
- Patient care would be improved.
- Immunization rates could be efficiently monitored.
- Higher level of overall system efficiency.

### *Outcome in 3 Years*

- Strategy developed.
- Implementation underway.
- Care providers have access to immunization records held in the Public Health Information System.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Dec 05 – Mar 06 |
| Engagement and Design: | Apr 06 – Jul 06 |
| Implementation: | Jul 06 - Jul 07 |
| Rollout and Evaluation: | Aug 07 - Aug 08 |

## 3.3.5 Laboratory

**Project Title:** Provincial Lab Information Solution

### *Project Description*

This project will support care providers with a standardized view and timely access to laboratory information at the point-of-care anywhere in the Province. It will provide physicians and other health care providers with more complete, timely and relevant information to support medical decision making. The project will be phased, with the end-state solution delivering web enabled laboratory test order entry and results reporting capability across BC.

### *Project Lead:*

This project will be led by the Ministry of Health's Provincial Laboratory Coordinating Office (PLCO) and Knowledge Management and Technology Division (KMT).

### *Benefits*

- Improved efficiency of lab test ordering and results distribution.
- Improved speed of service for patients and care providers.
- Reduced duplication of testing.
- Increased ability for care providers to share information with other providers.

### *Outcome in 3 Years*

- Most lab results provincially accessible.
- Selected lab ordering capabilities implemented.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Sep 03 – Sep 05 |
| Engagement and Design: | Oct 05 – Nov 06 |
| Implementation: | Dec 06 – Dec 07 |
| Rollout and Evaluation: | Jan 08 – Mar 09 |

## 3.3.6 Pharmacy

### Project Title: Provincial eDrug Project

#### *Project Description*

There are three main objectives for the provincial eDrug project:

- increasing and improving authorized access to patient medication profiles;
- enhancing the content and scope of patient medication profiles (e.g. by adding in-hospital drugs); and
- introduction of electronic prescribing (ePrescribing or eRx).

British Columbia will leverage the existing capability of PharmaNet and further enhance it to improve clinician access to patient medication history and increase the scope of medications recorded to include drugs dispensed in acute settings.

This project will also set the foundation for ePrescribing. ePrescribing involves automating a physician's ability to electronically generate a medication prescription, and have the prescription go automatically to the PharmaNet system, where it can be accessed by any pharmacist for dispensing.

#### *Project Lead*

This project will be led by the Ministry of Health with primary involvement by the Vancouver Island Health Authority, Interior Health Authority and Vancouver Coastal Health Authority.

#### *Benefits*

- Physician is able to make better clinical decisions by knowing the complete medication and treatment history.
- More effective treatment.
- Improved patient safety through the reduction of adverse drug events.
- Decreased risk of dispensing errors.
- Improved service to patients.

## Project Title: Provincial eDrug Project - continued

### *Outcome in 3 Years*

- 90% of physicians have online access to patient medication profiles.
- 25% of physicians providing information on office medications at least a portion of the time.
- 50% of prescriptions are electronically generated.

### *Timelines*

The three components have different timelines:

**1. Increasing Physician Access:**

| | |
|---|---|
| Planning and Preparation: | Apr 04 – Oct 05 |
| Engagement and Design: | Apr 04 – Mar 06 |
| Implementation: | Apr 05 – Oct 06 |
| Rollout and Evaluation: | Oct 05 – Oct 07 |

**2. Inclusion of in-hospital physician dispensed medications:**

| | |
|---|---|
| Planning and Preparation: | Apr 05 – Sep 05 |
| Engagement and Design: | Oct 05 – Mar 06 |
| Implementation: | Apr 06 – Dec 07 |
| Rollout and Evaluation: | Jan 07 – Aug 08 |

**3. ePrescribing:**

| | |
|---|---|
| Planning and Preparation: | Apr 05 – Nov 05 |
| Engagement and Design: | Nov 05 – Dec 06 |
| Implementation: | Jan 07 – Mar 08 |
| Rollout and Evaluation: | Apr 08 – Mar 09 |

## 3.3.7 Diagnostic Imaging

**Project Title: Provincial Diagnostic Imaging – Archive and Viewer**

### *Project Description*

Diagnostic imaging (DI) serves a critical role in the delivery of high quality health care in British Columbia. Diagnostic images and their interpretation are of clinical value, but their supply is constrained by the high capital and operational cost of the imaging modalities and by the limited availability of the skilled health professionals that support imaging services. In response, BC has developed a provincial DI Electronic Health Record Strategy to use information technology to increase the value of imaging services to health care delivery.

The key project within the strategy will deploy a provincial DI archive, which will function as the long term storage for most diagnostic images, replacing the need for local and health authority image archives. It will also provide the mechanism for clinicians to access images regardless of the facility or region within which the DI study was originally undertaken. In addition to the archive, British Columbia is introducing a provincial DI viewer.

### *Project Lead*

This project will be led by the Fraser Health Authority and the Interior Health Authority.

### *Benefits*

- Improved quality and speed of service for patients - less time waiting for results.
- Improved access to health information (e.g. improved sharing of health information between providers).

### *Outcome in 3 Years*

- All health authorities to utilize the provincial DI archive.
- Provider access to DI through common Viewer.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Apr 05– Dec 05 |
| Engagement and Design: | Jan 06 – May 06 |
| Implementation: | May 06 – Jun 07 |
| Rollout and Evaluation: | Jul 07 – Sep 08 |

## 3.3.8 Telehealth

### Project Title: BC NurseLine Initiative

#### *Project Description*

The purpose of this initative is to evaluate the effectiveness of an integrated delivery of Telehealth, self-management support for adult patients with diabetes or congestive heart failure. Primary health care teams (PHCTs) refer patients to a nurse or pharmacist coach, who provides help with individual problem solving, goal setting and action planning. Integration of the nurse with the PHCT involves written reports to team. The pharmacist delivers self-management support, medication reviews and clinical decision support as a fully integrated, virtual member of the team. Development within the project includes:

1. a pharmacist coach database - used by pharmacists to support patient care and reporting;
2. use of SharePoint software to facilitate online case-based information sharing for pharmacists;
3. enhancement to the BCNL knowledge-base and call tracking/management system; and
4. possible enhancements to CDM supporting secure file delivery and flow sheet handling, subject to resolution of privacy issues.

#### *Project Lead*

Ministry of Health, in collaboration with the BCNL, Northern Health and Fraser Health.

#### *Benefits*

- Increased patient access to self-management support.
- Improved patient self-management.
- Improved support for clinical practice guideline-based care.
- Improved quality care by primary health care providers.

#### *Outcome in 3 Years*

Results of a multi-component evaluation will be used to determine the value of extending the initiative further. If successful, it will be rolled out to other PHCTs, chronic patient populations and geographic areas, in partnership with the health authorities.

#### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Nov 04 – Aug 05 |
| Implementation: | Sep 05 – Mar 06 |
| Rollout and Evaluation: | To be determined |

## Project Title: Telehealth Strategic Plan

### *Project Description*

Telehealth uses technology such as video conferencing to provide services when the care provider and patient are geographically separated. A comprehensive province-wide Strategic Plan is being developed. This will be an inclusive process with a significant Aboriginal component.

The plan will also involve a clinical needs assessment through the identification and prioritization of clinical Telehealth services that can be implemented to improve patient access to clinical services and improve patient health outcomes in the rural, remote and Aboriginal communities.

### *Project Lead*

This project will be led by the Provincial Health Services Authority with primary involvement by the Ministry of Health and other health authorities.

### *Benefits*

- Increase universal accessibility to clinical services.
- More timely care, and better quality of care for patients living in geographically remote areas of the Province.

### *Outcome in 3 Years*

- 25% increase in clinical use of Telehealth.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Jul 05 – Apr 06 |
| Engagement and Design: | Jul 05 – Jan 06 |
| Implementation: | Apr 06 – Mar 09 |

## Project Title: Telehealth Video/Conference Scheduling System

### *Project Description*

Telehealth uses technology such as video-conferencing to provide services when the care provider and patient are geographically separated. The Video Scheduling System project will define the requirements for a province-wide Telehealth Video/Conference Scheduling System to ensure that that personnel and equipment are used to their maximum efficiency.

### *Project Lead*

This project will be led by the Northern Health Authority with primary involvement by the Provincial Health Services Authority and Interior Health Authority.

### *Benefits*

- Increased efficiency of personnel and equipment.
- Reduced requirement for patient travel to access health services, which reduces potential risk and burden.
- Increased ability for rural care providers to access timely specialist consultation.
- More timely access to care.

### *Outcome in 3 Years*

- Increased clinical uptake.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Jun 05 – Sep 05 |
| Engagement and Design: | Oct 05 – Dec 05 |
| Implementation: | Jan 06 – Mar 07 |

## 3.3.9 Foundational Projects

### Project Title: Electronic Medical Summary (eMS) Rollout

***Project Description:***

An Electronic Medical Summary is a system messaging standard that facilitates the delivery of a standard subset of patient data between disparate electronic medical record systems and primary care physicians. Timely access to patient information will enhance clinical decision making, thereby improving safety and quality of care when sharing care of individual patients.

***Project Lead***

Vancouver Island Health Authority for the standard development and implementation, along with the Interior Health Authority and the Vancouver Coastal Health Authority for implementation in their authorities.

***Benefits***

- Access to reliable, relevant information to support the processes associated with patient referral, on-call and emergency intervention.
- Reduction in multiple examinations and duplicate tests due to missing information at the point-of-care.
- More timely referrals through the reduction in the number of lost or misplaced faxed and mailed referrals.

***Outcome in 3 Years***

- eMS standard implemented by 4 EMR vendors (Clinicare, Wolf, Med Access, and Osler) supporting referral and other summary exchange processes. It will also be integrated with Meditech in the IHA to support their emergency departments.

***Timelines***

**Phase 1:** Development complete

**Phase 2:** Initial rollout in VIHA

| | |
|---|---|
| Planning and Preparation: | Complete |
| Engagement and Design: | Complete |
| Implementation: | Nov 03 – Dec 05 |

**Phase 3:** Rollout in VCHA and IHA

| | |
|---|---|
| Planning and Preparation: | Complete |
| Engagement and Design: | Complete |
| Implementation: | Apr 05 – Mar 06 |

## Project Title: Electronic Medical Record (EMR) Standards

### *Project Description*

Less than 10% of physicians in British Columbia currently use electronic records to manage and retain patient information in their offices. There are currently numerous EMR vendor products that use different standards and have differing functionality. Physicians will in the future use EMRs as one way to access the patient's health information such as lab test results, medication profiles, hospital reports and digital images that will be held in data repositories and clinical information systems.

This project will facilitate the establishment of common standards for EMRs so that vendors will know what is required to interface with the data repositories. Physicians will have increased confidence that the EMR they are investing in will be compatible with the Province's EHR system.

Through this project, BC will also actively participate in and contribute to the creation of national EMR standards, along with the other provinces and Canada Health Infoway

### *Project Lead*

This project will be led by the Ministry of Health with primary involvement by Fraser Health Authority, Vancouver Coastal Health Authority and Northern Health Authority. Subsequent to the initial BC effort, the leadership will shift to Canada Health Infoway.

### *Benefits*

- Providers have improved access to clinical information.
- Enhanced continuity and consistency of patient care between care providers.
- Reduced duplication of tests and clinical assessments.

### *Outcome in 3 Years*

- EMR Standards completed with compliance criteria established.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Jun 05 - Aug 05 |
| Engagement and Design: | Aug 05 - Aug 06 |
| Implementation initiated: | Sept 06 |

## Project Title: Interoperable Electronic Health Record (iEHR) - Viewer

### *Project Description*

The iEHR is a series of computer applications that will link care providers with electronically held health information at the point-of-care. The EHR viewer will provide clinicians, working in most care settings, with access to a range of clinical information including lab results, medication histories and diagnostic images. It will also act as a linking point to other clinical information systems, providing more detailed patient information (e.g. hospital information systems).

### *Project Lead*

This project will be led by the Vancouver Coastal Health Authority with primary involvement by Fraser Health Authority.

### *Benefits*

- Increased access by physicians to clinical data for most care settings.
- Decreased need for patients to duplicate the provision of personal health information.
- Increased ability for care providers to share patient information with other providers.
- Enhanced consistency and continuity between care providers.

### *Outcome in 3 Years*

- Move towards a single point of access for electronic health information.
- Additional services available through the viewer.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Nov 05 – Mar 06 |
| Engagement and Design: | Mar 06 – Jun 08 |
| Implementation: | Jul 06 – Sep 08 |
| Rollout and Evaluation: | Oct 06 – Dec 08 |

*Note: an iterative process is expected, with the initial implementation taking place 4Q 2006, followed by successive expansions and enhancements at approximately 6-month intervals.*

## Project Title: Interoperable Electronic Health Record - Authentication and Access Control

### *Project Description*

The interoperable Electronic Health Record is not one computer application, but a series of components that will link care providers at the point-of-care with electronically held health information. One component of the project is clinician authentication. Access to personal health information over unsecured networks such as the internet requires strong security. Physician and other care providers work in multiple locations that often require access to patient information from outside of the secure health network. A common approach will be used for authentication, which includes the use of two factor authentication for unsecured networks. The project will involve the deployment of the common authentication process /technology (including two-factor technology) on a province-wide basis.

### *Project Lead*

This project will be led by Vancouver Coastal Health Authority, with primary involvement by Fraser Health Authority.

### *Benefits*

- Increased assurance of privacy for citizens and patients.
- Sharing of information is secure.
- Serves as a foundation element for other clinical projects.

### *Outcome in 3 Years*

- Common authentication/access controls across the Province.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Nov 05 – Mar 06 |
| Engagement and Design: | Mar 06 – Jun 08 |
| Implementation: | Jul 06 – Sep 08 |
| Rollout and Evaluation: | Oct 06 – Dec 08 |

*Note: an iterative process is expected, with the initial implementation taking place 4Q 2006, followed by successive expansions and enhancements at approximately 6-month intervals.*

## Project Title: Electronic Health Record - Index and Integration Services

### *Project Description*

The EHR index project will define and implement the capability to identify the encounters a patient has had with the health system and the clinically relevant information from each encounter.

Integration services will facilitate/enable the interoperability and sharing of information between disparate clinical systems.

### *Project Lead*

This project will be led by the Provincial Health Services Authority with primary involvement by Vancouver Coastal Health Authority.

### *Benefits*

- Improved standardization and sharing of health information.
- Reduced duplication of tests and clinical activities.

### *Outcome in 3 Years*

- Better able to integrate, identify and locate patient information.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Nov 05 – Mar 06 |
| Engagement and Design: | Mar 06 – Jun 08 |
| Implementation: | Jul 06 – Sep 08 |
| Rollout and Evaluation: | Oct 06 – Dec 08 |

*Note: an iterative process is expected, with the initial implementation taking place 4Q 2006, followed by successive expansions and enhancements at approximately 6-month intervals.*

## Project Title: Aggregated Health Information Project

### *Project Description*

The purpose of the Aggregated Health Information Project (AHIP) is to create an integrated, provincial health information management infrastructure, capable of quickly supporting new types of analyses, as the need arises. Through a staged and iterative process, AHIP will provide a strategic information management framework for the Ministry of Health and the health authorities.

The AHIP will integrate currently separate health data sources and systems into a more accessible, knowledge-based, corporate decision support framework.

### *Project Lead*

This project will be led by the Ministry of Health.

### *Benefits*

- Easier access for common information requests.
- Improved quality of data, which will assist the Ministry and health authorities to make more informed decisions concerning the overall health system.

### *Outcome in 3 Years*

- Development of a target Information Management strategy and architecture.
- Validation of the new Health Information Management approach with one or more proof of concept applications.
- Development of a comprehensive statement of information and data analysis requirements.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Apr 05 – Sep 05 |
| Engagement and Design: | Sep 05 – Jun 06 |
| Implementation: | Jul 06 – Jun 07 |
| Rollout and Evaluation: | Jul 07 – Dec 07 |

## Project Title: Provincial Client Identity Management - EMPI

### *Project Description*

The Enterprise Master Person Index (EMPI) will enable EHR capability by providing the ability to effectively identify the health records (lab result, medications, diagnostic reports, discharge summaries, etc.) that all belong to the same patient. Today, patient records exist in numerous care settings, residing in a variety of different information systems that each holds patient demographic information. To address the problem of identifying what records belong to a single patient, British Columbia is implementing a new technology to enhance the existing client registry system that will enable the linkage of patient demographic information contained in the Province's and health authorities' key client registry/clinical systems.

### *Project Lead*

This project will be led by the Ministry of Health with first implementation by Vancouver Coastal Health Authority.

### *Benefits*

- Current patient demographic information stored in each information system.
- Link disparate clinical records to support care of patients.

### *Outcome in 3 Years*

- 50 % of all health authority and ministry client registry systems (covering 80% of the population) are integrated with EMPI.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Complete |
| Engagement and Design: | Complete |
| Implementation: | Nov 04 – Mar 06 |
| Rollout and Evaluation: | Nov 05 – Mar 08 |

## Project Title: Provider Registry – Health Authority Uptake

### *Project Description*

The Provider Registry System was designed by, and implemented in, the four western provinces. The project will develop and implement the necessary interfaces to the health authority business and clinical information systems.

### *Project Lead*

This project will be led by the Ministry of Health with involvement of all health authorities.

### *Benefits*

- Better management of provider resources.
- A foundational element for other projects.

### *Outcome in 3 Years*

- Provider registry links into health authority registry systems and is the trusted source for 2 to 5 key applications.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Complete |
| Engagement and Design: | Complete |
| Implementation: | Sep 05 – Sep 06 |
| Rollout and Evaluation: | May 06 – Nov 06 |

## Project Title: Ministry of Health Connectivity to Private Network Gateway

### *Project Description*

The Private Network Gateway (PNG) interconnects the networks of all of the health authorities. The PNG is in production, allowing health care communications and data to travel securely between all health care facilities in the Province. The services traveling through the PNG include e-mail, dictations, diagnostic reports, diagnostic images and Telehealth.

### *Project Lead*

The project is being led by the Provincial Health Services Authority with primary involvement by the Ministry of Health.

### *Benefits*

- The PNG will be more secure, more cost effective and simpler to extend to additional services than historic linkages.

### *Outcome in 3 Years*

- Streamlined access between health authority/related systems and Ministry of Health applications such as PRS, EMPI, and PharmaNet.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Jul 05 – Sep 05 |
| Implementation: | Oct 05 – Dec 05 |

## Project Title: Physician Connectivity

### *Project Description*

Provide secure, efficient access to the Health Wide Area Network (WAN) for physicians.

### *Project Lead*

This project will be led by the Ministry of Health with primary involvement by the Northern Health Authority.

### *Benefits*

- Increased capability for physicians to access health information electronically.
- Improved delivery of care to remote communities and to federally managed health facilities on First Nations reserves.
- Increased access to online clinical education opportunities for health care professionals.
- Improved ability to attract physicians to more rural locations as a result of improved access to resources.

### *Outcome in 3 Years*

- The majority of physician offices have secure high speed Internet.

### *Timelines*

| | |
|---|---|
| Planning and Preparation: | Oct 05 – Dec 05 |
| Engagement and Design: | Jan 06 – Mar 06 |
| Implementation initiated: | Apr 06 |

*...ensuring the physician population is actively engaged and participating in the eHealth projects...*

## 3.4 Ensuring Successful Implementation

The implementation of eHealth in British Columbia is about fundamental cultural and business process changes in the way health care is delivered across the Province. It is about enabling the transformation and modernization of service delivery methods to improve the quality, safety, timeliness and efficiency of health service delivery. A high level of coordination and integration is critical to the successful implementation of the eHealth strategy. In particular, the key factors that are required to achieve success include:

- strong and enduring provincial leadership - ensuring the realization of the eHealth vision;
- unwavering commitment - ensuring successful completion and uptake of the eHealth projects;
- collaboration - key stakeholders working together throughout the implementation of the eHealth strategy;
- physician engagement - ensuring the physician population is actively engaged and participating in the eHealth projects, as well as the development of a strategy that continues to ensure physicians remain "on board" over time;
- connectivity to health information - ensuring care providers have the secure, physical connectivity required to access the provincial eHealth systems; and
- integration of disparate systems - ensuring the standards and technologies are in place to integrate local Electronic Medical Records and health authority clinical applications with the provincial eHealth systems.

The eHealth Steering Committee will provide the strong leadership and commitment required to guide the implementation of eHealth in British Columbia. The eHSC is also taking an active role in facilitating collaboration among key stakeholders across the Province. The importance of physician engagement has been well recognized and, as such, an eHealth project has

been initiated to focus on this area. Connectivity and integration have been identified as essential components of an effective eHealth system and are imbedded in the foundational aspects of eHealth development.

*...an integrated, interoperable eHealth system that spans and supports the entire continuum of care...*

Throughout the planning and development of the eHealth strategy and the individual eHealth projects, there has been significant attention directed towards each of the success factors. British Columbia is well positioned to successfully implement the eHealth initiatives and achieve significant health care benefits.

## 3.5 In Summary

The time is right to fully commit and move forward with the provincial eHealth strategy. The leadership is aligned and committed, the funding is available and the benefits to the overall health system in British Columbia are clear. Implementation is now of paramount importance.

The implementation of eHealth enables significant progress towards improved continuity and coordination of health services, early detection of disease and illness, and better information on health care needs and outcomes. Progress in these fundamental areas will move British Columbia closer towards having a health system that is sustainable, affordable, publicly funded and delivers excellent quality health services to its citizens.

A broad spectrum of eHealth projects are being implemented in British Columbia with the common goal of having an integrated, interoperable eHealth system that spans and supports the entire continuum of care across all of the many settings and locations where health services are provided and accessed.

Over the next three years, key clinical and foundational projects will be implemented. The implementation of these eHealth projects will enhance current care processes and, more importantly, will transform clinical and business practices enabling improved quality of health and health care.

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# APPENDIX A: eHealth Steering Committee Terms of Reference

British Columbia
eHealth Steering Committee

TERMS OF REFERENCE

## VISION, MISSION AND VALUES

### *Vision*

Effective infrastructure, applications and information assets supporting effective and efficient delivery of health care services in British Columbia.

### *Mission*

The Mission of the eHealth Steering Committee (Committee) is to accelerate the development and implementation of eHealth Systems for British Columbia. The Committee is expected to be able to demonstrate substantial progress and material achievements over the three years of its mandate.

The Committee is a partnership between the Ministry of Health (MOH), the health authorities and the service provider community. The Committee provides leadership in matters ranging from strategy, governance structure, and financial arrangement to the implementation approach, in order to ensure an effective and practical implementation of eHealth Systems in BC.

### *Values*

**Service to the public:** Strategy and priorities will be based upon the three fundamental goals of the BC health system.

**Efficiency:** The Committee's job will be to accelerate the progress of the right initiatives, rather than to introduce additional decision-making obstacles.

## RATIONALE

The Ministry's vision for the province's Health Care system is:

> *"A health system that supports people to stay healthy, and when they are sick provides high quality publicly funded health care services that meet their needs where they live and when they need them."*

This mission implies a set of Goals, Objectives and Performance Measures, which are defined in the Ministry's Service Plan. The Ministry's three goals are:

1. Improved Health and Wellness for British Columbians.
2. High Quality Patient Care.
3. A Sustainable, Affordable, Publicly Funded Health System.

Each one of these goals may be directly or indirectly affected by effective electronic information services.

eHealth systems, including Electronic Health Record systems, are critical to improving the effectiveness, efficiency and safety of care delivery in the province. They serve as enablers of business goals and objectives.

The Electronic Health Record is considered a cornerstone of the government's comprehensive strategy to assist health care professionals in delivering faster and more effective treatment to patients.

This commitment has been articulated in a number of directional documents, including the New Era document (June 2001), the Select Standing Committee on Health (December 2002), and the recommendations from the Premier's Technology Council (September 2002 and June 2004),

In its June 2004 Report, the Premiers Technology Council (PTC) stated:

> *"If an electronic health record is to be effectively designed and implemented, the PTC believes that a focused, dedicated team must be assigned responsibility for it. Also clear from advice the PTC received from practitioners is that their involvement at every stage of development is essential if practical, workable results are to be achieved. Further, the final product must be scalable; that is, the design must be flexible enough so that health authorities and possibility even individual practitioners can adapt it to suit particular needs."*

The PTC recommends that the government establish a governance structure dedicated to the development and implementation of the EHR. Its structure and accountabilities would involve the following:

- a pre-determined term be set, and clear, reasonable success criteria developed;
- a team leader who is a member of the ministry executive reporting to the deputy minister;
- positioning so that it is acceptable to the entire community (the health ministry, health authorities and practitioners);
- a direct link between the success of the team and the success of the EHR implementation;
- a funding model utilizing resources from other bodies such as Canada Health Infoway; The model must allow for central decision making on the common or province-wide EHR infrastructure, but also provide continued funding for specific health authority equipment and software; and
- an advisory group with members from the Ministry, health authorities and practitioners to guide development activities.

The PTC recognized that much necessary and useful work had been achieved to date, but recommended that a dedicated steering committee be established to ensure substantial progress and accountability.

While the PTC focused specifically on the Electronic Health Record, there are a number of other eHealth initiatives which have a provincial focus, require significant investment, and cannot be successful simply within the context of a single organization (such as the Ministry or a Health Authority). All of these initiatives are the subject of this Committee.

## SCOPE and FUNCTIONS

The Committee will be responsible for eHealth related initiatives if they will result in the creation, adoption or enhancement of significant information systems assets (whether infrastructure, applications, standards or data), and either of the following is true:

- they should be supported by provincial or Canada Health Infoway funding; and
- they have a provincial focus -- in other words, they are dependent for success on the involvement of stakeholders from multiple health authorities.

For this set of initiatives, the function of this Committee is to:

- resolve issues related to strategy, priorities, financial arrangement, governance structure and implementation approaches;
- provide central strategic planning, initiative endorsement and approval;
- provide effective integration and harmonization between initiatives;
- rationalize the accountability and reporting processes of the various working groups currently involved in eHealth initiatives, to ensure a fully coordinated approach in BC;
- review recommendations from advisory and working groups;
- ensure effective communications with executive stakeholders; and
- present recommended courses of action to the BC Health Leadership Council for approval, where necessary.

This committee's constitution will be reviewed in three years (i.e. in December 2007). The Committee's work plan (and the resultant eHealth strategic plan) will be based on this timeframe.

## EXPECTED OUTPUTS

1. A strategic plan for eHealth (including EHR and Telehealth), including a clear vision of what the initial EHR and Telehealth systems will look like in three years; what needs to be done to realize that vision; and the role of the Committee in ensuring its successful implementation.
2. A communication plan for eHealth initiatives, identifying the audiences, intended message and content, and communication strategies and media.
3. Progress reports and successful final implementation of the deliverables as stated in the plans.

## MEMBERSHIP

The Committee consists of the following members:

Keith Anderson.....CEO, Fraser Health Authority
Bill Boomer .....CFO, Vancouver Island Health Authority
Jonathan Burns.....MD CCFP (EM)
Lynda Cranston ..... CEO, Provincial Health Services Authority
Ron Danderfer....Assistant Deputy Minister, Knowledge Management and Technology
Peter Durrant .....Executive Director, eHealth Program
Joan Elangovan ..... Executive Director, Corporate Management and Operations
Greg Feltmate..... CIO, Vancouver Coastal Health Authority
Nick Grant .....Executive Director, Planning and Innovation
Kendall Ho ..... MD FRCPC
Chris Mazurkewich.....CFO, Interior Health Authority
Joseph Mendez..... CIO, Northern Health Authority
Kirsten Tisdale .....Senior Advisor, Alternative Service Delivery Secretariat
Martin Wright .....Executive Director, Evaluation and Strategic Directions

Ron Danderfer, Assistant Deputy Minister, Knowledge Management and Technology Division of the Ministry of Health, and Kirsten Tisdale, Senior Advisor, Alternative Service Delivery Secretariat, Ministry of Labour and Citizens' Services, co-chair the Committee.

## REPORTING AND ACCOUNTABILITY

The Committee reports to the BC Health Leadership Council.

The Committee submits quarterly reports of progress made to the BC Health Leadership Council. Executive summaries of the reports will be transmitted to the Minister via the Deputy Minister of the Ministry of Health.

The following existing groups and their key projects report to the Committee on matters relating to eHealth initiatives:

- Provincial Laboratory Information Solution (PLIS) Executive Steering Committee
- CIO Council
- Telehealth Steering Committee
- BC Health Information Standards Council
- Special Physician Engagement Expert Delegate Committee (SPEED)
- eDrug Project Steering Committee

These groups will present to the Committee their overall plans and progress reports. The Committee will provide input to those plans, and will expedite the resolution of issues and the approval of funding requests.

The Committee, through its designated members, interacts with other key stakeholders such as Canada Health Infoway, practitioner communities, the BCMA IT Liaison Committee, the NetWork BC Project, the Privacy Commissioner, and other health and technology partners.

It is recognized that the MOH and the health authorities will be undertaking business related activities that contribute to eHealth. The CIO Council will continue to work on areas of mutual interest in addition to the scope of this Committee, at its discretion.

## COMMUNICATIONS

The Committee has a responsibility to provide education and leadership in eHealth initiatives to participants and executive stakeholders. It is required to communicate the provincial eHealth vision and the progress towards its implementation via the MOH Media Website and other mechanisms.

The Ministry will also establish a restricted website for Committee business and communications.

## MEETINGS

It is expected that the Committee will generally meet once every two months; however, initial meetings may be required at shorter intervals.

Meetings will be held on a rotating basis at locations provided by the MOH and each of the health authorities. The host location will be responsible in each case for the meeting logistics (meeting accommodation and catering).

If committee members send delegates to committee meetings, it is expected that those delegates will exercise the same authority as the committee members they represent.

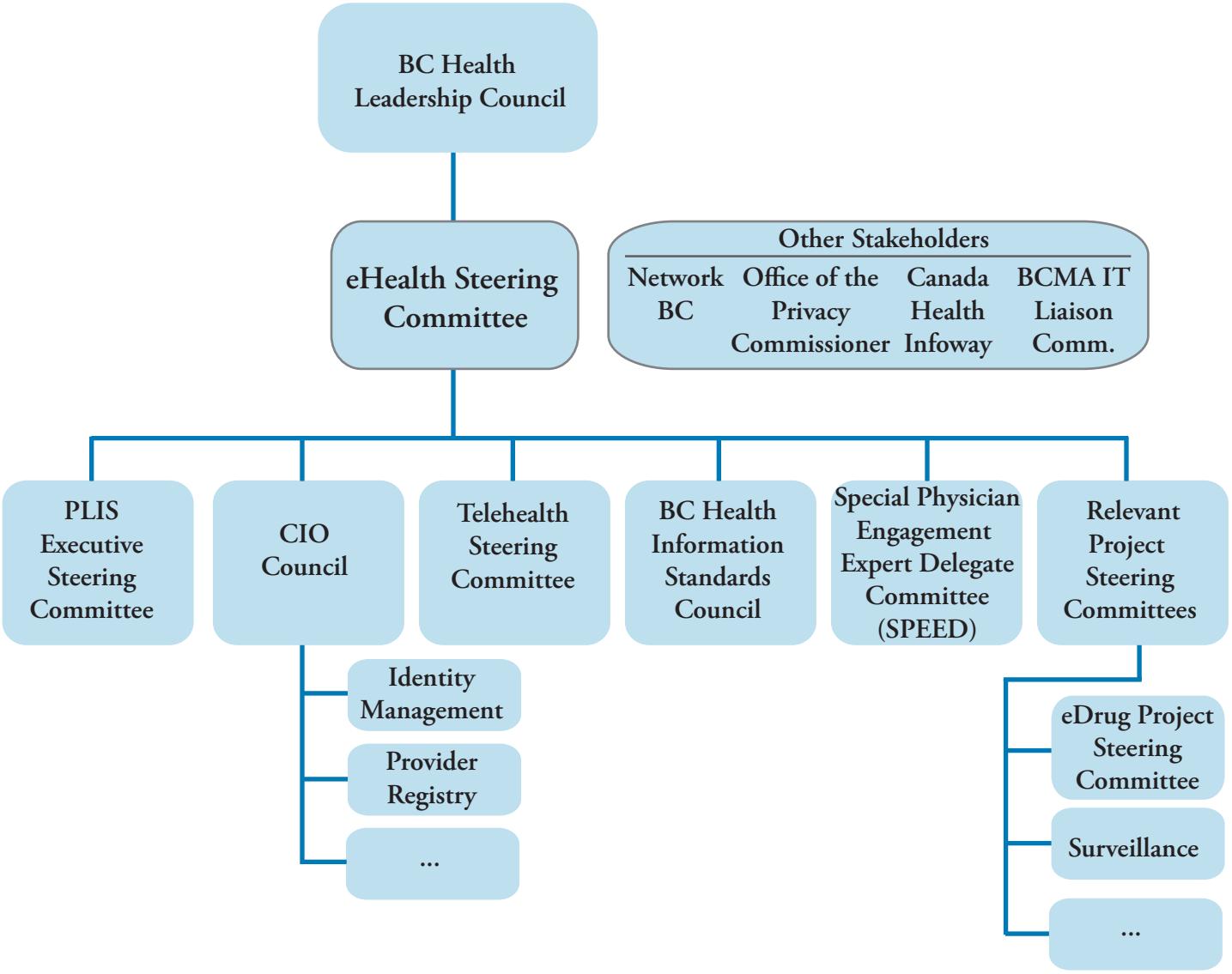
Travel and accommodation expense will be the responsibility of each individual committee member.

## COMMITTEE SECRETARIAT

The Knowledge Management and Technology Division of MOH will provide secretariat support for the Committee.

Last Revised November 2005

## REPORTING STRUCTURE



# APPENDIX B: *Infoway* Investment Approach

To be considered by *Infoway* for investment, health IT projects must be developed with a view to reuse and replication in other parts of the country. *Infoway* will invest in projects which fall into its six investment programs - infostructure, registries, drug information systems, diagnostic imaging systems, laboratory information systems and telehealth. These can be existing initiatives or sometimes at idea or development stage.

*Infoway* does not invest in venture capital funds, bandwidth, user interface devices such as PCs and PDAs, operating costs nor in clinical applications such as hospital information and clinical management systems.

**2 ways that *Infoway* finds the right projects:**

- Primarily - **Targeting existing initiatives:** *Infoway* reaches out to existing projects, based on priorities, expert consultation, market analysis and jurisdictional alignment.
- Exceptionally - **Calling for proposals:** As the need arises, *Infoway* may call for proposals to address gaps in specific areas.

**Three lenses** through which *Infoway* looks at a project to determine the suitability for investment, each lens providing a further level of specificity:

### *Principles:*

- Enhancing the quality of health care services to Canadians;
- Supporting interoperable EHR;
- Strategically leveraging projects and partnerships;
- Focusing on the best initiatives;
- Being socially responsible.

### *Policies:*

- Public sector sponsorship required;
- Compliance to privacy requirements;
- Compliance to standards (infostructure and architecture);
- Fit with *Infoway's* six investment programs;
- Nationally beneficial results;
- Transparency;
- Gated funding.

### *Criteria:*

- Each of the six investment programs has a set of specific criteria. These criteria will be detailed in *Infoway's* Investment Strategy Framework which will be posted on our Web site shortly.

Source: See http://www.canadahealthinfoway.com

# APPENDIX C: Glossary of Terms

***Acute Care -*** acute care involves active interventions to reduce the impact of urgent or life-threatening conditions or injuries. It is generally episodic or short-term in nature and includes the full continuum of prevention, assessment, diagnostic, emergency, treatment, rehabilitative, and palliative services. Although acute care has traditionally been associated with in-patient hospital beds, many of these services are today provided on an out-patient basis or in an emergency room.

***Care Provider –*** a term to cover a variety of health care professionals who provide services to patients. They include such people (in alphabetical order) as: chiropractors, dentists, massage therapists, nurses, paramedics, pharmacists, physicians, physician specialists, physiotherapists, podiatrists, psychiatrists, psychologists and radiologists. At times, also shown as "practictioner".

***CDM – Chronic Disease Management -*** a systematic approach to improving health care for people with chronic disease (prolonged conditions that often do not improve and are rarely cured completely e.g. diabetes, depression, congestive heart failure, hepatitis and asthma). Health services can be delivered more effectively and efficiently, if patients with chronic diseases take an active role in their own care and providers are supported with the necessary resources and expertise to better assist their patients in managing their illness.

***Community Care -*** home and community care services provide a range of health care and support services for eligible residents who have acute, chronic, palliative or rehabilitative health care needs. These services are designed to complement and supplement, but not replace, the efforts of individuals to care for themselves with the assistance of family, friends and community. In-home services, for eligible clients, include home care nursing, rehabilitation, home support and palliative care. Community-based services include adult day programs, meal programs, as well as assisted living, residential care services and hospice care. Case management services are provided in both the home and community.

***Diagnostic Image (DI) -*** the medical image resulting from the process by which physicians evaluate an area of the patient's body that is not normally visible. Medical imaging may be "clinical", seeking to diagnose and examine disease in specific human patients. Alternatively, it may be research-motivated, attempting to understand processes in humans. Radiology is a diagnostic specialty that employs X-rays and other modalities for diagnostic imaging.

***eDrug–*** see ePrescribing.

***eHealth -*** Electronic health care - an integrated set of information and communication technologies, together with related health delivery process enhancements, that:

- enables the efficient delivery of health care services over the full continuum of care through the provision of integrated, interoperable health information systems, tools and processes;
- transforms the health sector decision-making culture into one that is firmly supported by accurate, timely and relevant information in a manner that protects individual privacy, respects clinical practice requirements and sustains the long-term viability of the health system; and
- encompasses the interoperable Electronic Health Record and Telehealth.

***EHR - Electronic Health Record -*** a medical record or any other information relating to the past, present or future physical and mental health, or condition of a patient which resides in computers that capture, transmit, receive, store, retrieve, link, and manipulate multimedia data for the primary purpose of providing health care and health-related services. EHR records includes patient demographics, progress notes, SOAP notes (subjective, objective, assessment, and plan), problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. (shown at times as iEHR i.e. led by an "i" to emphasize its "interoperable" nature, meaning it is able to be accessed and used across a larger system by that wider system's various applications)

***EMR - Electronic Medical Record -*** a computer-based patient medical record, which is supported by the practice management system in the medical office. An EMR facilitates:

- access of patient data by clinical staff at any given location
- accurate and complete claims processing by insurance companies
- building automated checks for drug and allergy interactions
- clinical notes
- prescriptions
- scheduling
- sending and viewing lab tests.

***eMS - Electronic Medical Summary -*** a subset of patient data suitable for communication among primary health care practitioners and other health service providers for the purpose of sharing the care of a patient. The eMS can serve either as a standalone tool, or as an integrated component of the physician office's electronic medical record (EMR) system. Relevant data can include demographic information, allergies, medications, current problems, recent procedures and diagnostics.

***ePrescribing -*** the use of computing devices to enter, modify, review and output or communicate drug prescriptions. It can eliminate the need for hard-to-read handwritten prescriptions, and the serious errors in doses and drug combinations they sometimes cause. It can also be accompanied by decision tools that help profile the drugs being considered for prescription and indicate possible drug interactions with medications already being prescribed to the patient. (also sometimes shown as eRx or eDrug)

***Health care -*** the prevention, treatment, and management of illness and the preservation of mental and physical wellbeing through the services offered by the medical and allied health professions. (sometimes shown as health services)

***Health care system –*** a set of elements and their relations in a complex whole, designed to serve the health needs of the population – the comprehensive, formal health provision structure supporting a defined population. It provides for services to be delivered to people that contribute to their health…delivered in specific settings such as homes, educational institutions, workplaces, public places, communities, hospitals and clinics. It normally refers to health care services performed in the primary, secondary and tertiary health care sectors; it is the system to deal with the medical and therapeutic measures intended to preserve or improve the health condition of a patient.

***Home Care -*** home care support services are designed to help clients remain independent and in their own home as long as possible. Home support provides personal assistance with daily activities, such as bathing, dressing, grooming and light household tasks that help to maintain a safe and supportive home. Also see community care.

***iEHR –*** Interoperable Electronic Health Record – see EHR.

***Infoway*** (Canada Health Infoway) - Infoway's mandate is to accelerate the development and adoption of eHealth information systems in Canada. An independent, not-for-profit corporation, Infoway is a partnership of federal, provincial, and territorial governments. It has $1.1 billion in capital to invest with partners to develop and deploy robust, reusable, interoperable Electronic Health Record solutions, and replicate them throughout the health care system. The Ministry, in conjunction with the health authorities, currently is working with Infoway to plan future collaboration opportunities for the Provincial Lab Reporting System, adding electronic prescribing capability to the existing PharmaNet system, and province-wide care provider authentication and access control, as well as a number of other eHealth initiatives.

***InterRAI -*** interRAI is a collaborative network of researchers in over 20 countries committed to improving health care for persons who are elderly, frail, or disabled. Their goal is to promote evidence-based clinical practice and policy decisions through the collection and interpretation of high quality data about the characteristics and outcomes of persons served across a variety of health and social services settings. "InterRAI" is often used interchangeably with the assessment tool or instrument supported by the group. The main objective for developing the RAI (Residential Assessment Instrument) tool was to introduce comprehensive assessment

as the foundation for care planning. Assessment Protocols are clinically oriented written narratives designed to assist the assessor to interpret systematically all the information recorded on the instrument. Assessment Protocols are not intended to automate care planning; rather, they help the clinician focus on key issues identified during the assessment process, so that decisions as to whether and how to intervene can be productively explored with the individual.

***Ministry of Health (MoH)*** - refers also to the former Ministry of Health Services.

***PharmaNet -*** a province-wide network linking all pharmacies into a central set of data systems. These systems provide significantly improved data and services to support drug dispensing, drug monitoring and claims processing. Twenty eight million claims are processed through PharmaNet annually, with a financial impact in excess of $690 million. Additional clients to PharmaNet include, emergency departments, hospital admitting, medical practice offices and clinics, the College of Pharmacists and the College of Physicians and Surgeons.

***Population health -*** an approach to health that aims to improve the health of the entire population and to reduce health inequities among population groups. In order to reach these objectives, it looks at and acts upon the broad range of factors and conditions that have a strong influence on our health. The population health approach recognizes that health is a capacity or resource rather than a state. This broader notion of health recognizes the range of social, economic and physical environmental factors that contribute to health.

***Public health -*** an aspect of health services concerned with threats to the overall health of a community based on population health analysis. It generally includes surveillance and control of infectious disease, and promotion of healthy behaviors among members of the community. Prevention is another important principle - vaccination programs are public health measures. Public health promotes not simply the absence of disease but mental, physical, and emotional wellbeing.

***Primary care -*** primary care is a term used to denote a service offered by a health provider who typically acts as a first point of consultation for all patients. It represents the first and most frequent point of ongoing contact with the health care system. This may involve a checkup by the family doctor, care by a midwife or nurse practitioner, a visit to a physiotherapist, etc. Generally, primary care physicians are based in the community, as opposed to the hospital. Common alternative names for the field are general practice and family medicine.

***SARS -*** Severe Acute Respiratory Syndrome.

***Strategic Framework –*** strategic planning suggests ways (strategies) to identify and to move toward a desired future state. Typically, when such planning is labeled as "strategic" it is expected to operate on a grand scale and to take in "the big picture." A framework is used to outline appropriate courses of action or a preferred approach, particularly in a systems or analytical environment. The strategic framework is the course of action or the approach designed to identify and then move toward the desired future state by developing and implementing plans to reach defined goals and objectives; in this case, delivery of an effective system of eHealth for BC.

***Telehealth -*** is the use of communications and information technology to remotely link medical practitioners to their patients, so they can deliver health care services over distance. It can be used to collect, organize and share information for patient assessment, diagnosis, and treatment. Telehealth can help overcome barriers of geography, transportation infrastructure, and socio-economic disparity. It is used to enable clinical consultation, continuing professional education, health promotion, and health care management, when the participants are in separate locations. Telehealth is especially useful in remote or under-serviced areas by helping to improve patient access to required medical services.

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