

CAPITAL PROJECT PLAN
CLINICAL AND SYSTEMS TRANSFORMATION PROJECT
AUGUST 14, 2013

1. Project Background

The primary purpose of the Clinical and Systems Transformation (CST) Project is to establish a common standardized, integrated, end-to-end clinical information system and environment (“Integrated Clinical Information System (CIS) Environment”) for Provincial Health Services Authority (PHSA), Vancouver Coastal Health Authority (VCHA) and Providence Health Care (PHC) (collectively “the Health Organizations”). The three Health Organizations enable approximately 1.2 million patient visits each year and provide health services that serve each citizen in British Columbia. In addition, the facilities within the Health Organization’s are central for teaching and research in British Columbia.

The vision of this integrated system is “One Person. One Record. Better Health”. A single health record for each patient will promote high quality care and improve health outcomes throughout the region by ensuring clinicians have a greater level of accurate and consistent patient information. A single electronic health record per patient across the continuum of care (acute, ambulatory, and residential integrated with lab, medical imaging, health information, and pharmacy) will streamline the care process, improve the safety and efficiency of patient care, and provide clinicians with a longitudinal view of a patient’s medical history for better care decisions.

The CST Project is more than a change in technology platform—it will transform the way practitioners care for patients. The Health Organizations are standardizing clinical processes and systems in acute, ambulatory, and residential sites throughout the Lower Mainland and some of the outlying regions serviced by PHSA. This initiative will enhance the Health Organizations’ ability to ensure accuracy, safety, and the integrity of patient identification.

The CST Project will deliver real-time health information to clinicians and researchers in a way the current heterogeneous systems do not. It will enable the standardization of administration functions, such as referrals, scheduling, and registration. It will also enable the Health Organizations to better manage and measure wait times as well as provide comparable and timely data for efficient resource management. This will in turn allow British Columbia to better manage future health care costs while improving the quality of patient care.

The core components of the CST Project include the design, build, integration and implementation of the Integrated CIS Environment, based on the Cerner system (Cerner). This solution will not be built from “scratch” but rather leverage the existing PHSA instance of Cerner to save time and reduce costs. By creating a standardized clinical platform, the foundation for a provincial clinical and technology asset is established and available to other Health Authorities in British Columbia and if desired, nationally.

2. Project Objectives

The key objectives for the CST Project are to:

- Transform care delivery through standardized protocols, order sets and clinical documentation with the focus to improve patient safety and quality;
- Standardize key clinical and business processes including admitting/registration, discharge, transfer, referral, medical imaging, laboratory services and pharmacy;
- Standardize acute, residential and ambulatory care information systems on a non-customized Cerner application;
- Standardize and enhance technology infrastructure including access and medical devices (IV pumps, medical equipment for closed-loop, monitors, computers), servers, storage and networks; and
- Achieve a HIMSS¹ Analytics score across the Health Organizations of Level 5+ ² in 5 years.

3. Project Status

Preparations for the project have included:

1. The CST Project has been approved by the Board of Directors of each Health Organization;
2. A service agreement has been signed with IBM Canada Limited;
3. The Project Director and Chief Transformation Officer has been appointed;
4. Communication on project approvals and signing of the service agreement have been circulated within the Health Organizations;
5. A Memorandum of Understanding between the Health Organizations is being finalized;
6. A Project Board has been established to govern the project.

4. Project Costs and Benefits

Project Costs:

The ten-year total cost of ownership (TCO) for the project is projected to be \$842 million, comprising of a capital and an operating cost component. This TCO includes expenditures on the

¹ The Health Organizations use the Electronic Medical Record Adoption Model (EMRAM) to benchmark, set targets and track progress toward a complete electronic health record. The model, developed by the Healthcare Information and Management Systems Society (HIMSS – see www.himss.org) is internationally recognized.

² Level 5 involves the integration of Labs, Radiology and Pharmacy, clinical documentation, clinical protocols and closed loop medication administration. Level 6 is the addition of Physician documentation (structured template), and full R-PACS (PACS – Picture Archiving and Communications System). Level 7 is the final stage, and achieves a complete Electronic Medical Record.

installation and implementation of the new system and related maintenance and support costs for the ten-year period.

The industry average annual expenditure on IM/IT operating costs is approximately three percent of the total annual Health Organizations operating budget. This average is based on information from Canada Health Infoway.

During the ten-year period of this project, the total operating budget expenditure for the Health Organizations will be approximately 60 billion. Prior to the initiation of the project, the Health Organizations spend approximately 1.2 percent of their operating budget on IM/IT costs, which is 1.8 percent less when compared with the industry average.

This project will help to close this investment gap, although the ratio anticipated will stay below industry average.

The capital cost component of the CST Project is estimated at \$480 million over the next ten years. The operating cost component of \$362 million is projected over the ten years for supporting the new Integrated CIS Environment and the current legacy systems, until such systems are replaced by the Integrated CIS Environment. The Health Organizations are committed to have a rigorous governance process in place to oversee and manage the project and adequately fund the CST Project during its implementation and ongoing support as required.

Project Benefits:

The most significant benefit to patients and the care delivery process is in relation to the reduction of adverse events associated with a hospital stay. The anticipated benefits of the CST Project are listed below under several high-level benefit categories. Many of the listed technical and system benefits work together in the interest of the patient and delivery of care.

Quality, Patient Safety and Clinical Excellence:

- Enhanced patient experience and higher levels of satisfaction related to information flow and retrieval during hospital stay or outpatient visit
- Reduced number of forms to complete for clinicians
- Decreased need to repeat information by both clinicians and patients
- Decreased need to carry written copy of history
- Decreased need to remember medications taken while in hospital
- Care providers have comprehensive information at the point of care
- Decreased need for repeating tests
- Increased ability for preventative care, such as reminders for immunizations and screening
- Automatic alerts for results out of range
- Records easily shared with other providers which facilitates decision making as not dependent on having chart with them
- Decreased adverse events (drugs, blood transfusion errors, infections)
- Increased clinical documentation compliance (inpatient admission, discharge, education, wounds, shift assessment)
- Improved care maps/pathway compliance

- Increased computerized physician order entry adoption rates
- Medications are reconciled more quickly and accurately with less effort

Process Redesign and Workflow:

- Reduced medical record deficiencies
- Reduced duplicate ancillary testing and decreased cycles times (Lab, Radiology)
- Increased standardization of workflow within and across the Health Organizations
- Improved data quality for research and health system planning
- Decreased need for standalone research databases
- Decreased cycle time for first medication dose administered
- Decreased time from medication order to medications available at point of care
- Improved access to information at patient care transfer points
- Decreased call backs to physicians for order clarification
- Improved reporting and health planning decision making

Efficiency and Cost Avoidance:

- Increased productivity as repetitive tasks related to paper charts are removed
- Cost avoidance for drugs, laboratory and radiology
- Decreased transcription costs
- Reduced length of stay
- Fewer reports missing on charts that require repeating to determine plan of care
- Improved wait times
- Decreased operating cost per exam/test
- Increased report turnaround time
- Improved medication management (improvement in inventory, packaging and distribution processes)
- Efficient clinical documentation (decreased clinician overtime)
- Reduced readmission rates
- Cost avoidance associated with legacy systems
- Increased system security, audit capability and accountability

5. Project Risks & Mitigation Strategies

As a large project spanning multiple years and Health Organizations, challenges could arise and have adverse impact on the project unless properly mitigated. Some of the common issues with other major projects would include: achieving agreement around standard practices, having the appropriate internal resources to meet project timelines, and consistent engagement with stakeholders for timely decision making.

Major Risks:

- Project timelines or scope are not achievable or keep changing to meet shifting expectations
- Clinical stakeholders are not engaged and accountable

- Clinical standardization is not accepted by all Health Organizations and decisions are not based on best practices or evidence-based clinical practices
- Strong organizational identities clash with shared project vision impacting on collaboration and rapid decision making
- End users and other stakeholders are not aware of required changes, not adequately prepared for changes, or not sufficiently supported after implementation
- Decision-making governance structures not clear, efficient or timely, or decisions once agreed are not followed
- Leadership is not visible or effective at influencing change across the Health Organizations
- Appropriate resourcing, including clinicians, are not available for project duration or supported with dedicated time to participate in planning, workflow redesign and ongoing education
- Technical complexity from integration with other downstream clinical and business systems, data conversions from multiple legacy systems and module implementation challenges
- Vendor is unable to execute on requirements and ineffective dispute resolution

Mitigation Strategies Identified:

- Manage competing expectations through governance processes and a dedicated project phase for strategy and planning
- Robust governance and project management structure to review and prioritize changes to scope, and ensure clear decision-making structures
- Establish clear and visible executive and clinical leadership by having visible executive support throughout the implementation, setting expectations and establishing physician and clinical advisory groups to provide leadership and make appropriate decisions
- Early engagement of end-users and stakeholders
- Develop and model a culture of collaboration at the Health Organizations leadership level, and ensure consistent messaging through a communication plan
- Acquire executive support and allocate funding to secure commitment for key resources
- Develop and monitor accurate long-term funding forecast to meet realistic project costs
- Ensure adequate on-site support for system implementation and sustainment, and establish long-term support model including training, education and support resources
- Leverage vendor and Health Organization's tools and resources to standardize workflow processes before and during the design and build of the enterprise solution, maintaining a focus on best practices
- Include best practice protections including performance incentives and penalties in the service agreement