# The Ontario Cardiac Rehabilitation Pilot Project

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In February 2001, the Ontario Ministry of Health and Long-Term Care announced a $9.6 million, 15-month pilot project (the Pilot) to implement and evaluate a comprehensive, multifactoral model of cardiac rehabilitation (CR) service delivery at 17 sites across Ontario. This is the second paper in a three-part, policy-related series which provides a summary of the Ontario CR Pilot model and the Pilot implementation and evaluation methodology. The aim of the present paper was to outline the goals of the Pilot, the Pilot model of care, the organizational structure that facilitated implementation of the model, and the operational procedures that were put in place to evaluate patient outcomes and the generalizability of a regional model of CR service delivery. The model was based on the findings and recommendations of the Cardiac Care Network of Ontario's 1999 Consensus Panel on Cardiac Rehabilitation and Secondary Prevention, which was described in part one of this series. An upcoming final paper will describe the outcomes of the project and its recommendations for CR health policy decisions in Ontario.

**Key Words:** *Health care planning; Health policy; Prevention; Rehabilitation*

## Le projet pilote ontarien de réadaptation cardiaque

En février 2001, le ministère de la Santé et des Soins de longue durée de l'Ontario a annoncé la tenue d'un projet pilote de 15 mois d'une valeur de 9,6 millions de dollars en vue d'implanter et d'évaluer un modèle multifactoriel complet de réadaptation cardiaque (RC) dans 17 établissements de l'Ontario. Le présent article est le deuxième d'une série de trois sur les politiques, qui fournit un résumé du projet pilote ontarien en RC, de son implantation et de sa méthodologie d'évaluation. Il vise à énoncer les objectifs du projet pilote, le modèle de soins qu'il préconise, la structure organisationnelle qui en a facilité l'implantation, les méthodes de fonctionnement mises en place pour évaluer les issues des patients et la généralisabilité d'un modèle régional de prestation de services en RC. Le modèle se fondait sur les observations et les recommandations du comité de concertation sur les services de réadaptation cardiaque et de prévention secondaire du Réseau des soins cardiaques de l'Ontario de 1999, décrit dans la première partie de cette série d'articles. Un dernier article, à venir, décrira les résultats du projet et les recommandations quant aux décisions en matière de politiques ontariennes de santé en RC.

Since 1996, the Cardiac Care Network of Ontario (CCN) has published three reports supporting the value of cardiac rehabilitation (CR) and recommending strategies for bringing these services to Ontarians (1-3). In February 2001, the Ontario Ministry of Health and Long-Term Care (the Ministry) announced a $9.6 million, 15-month pilot project (the Pilot) to implement and evaluate a comprehensive, multifactoral model of CR service delivery at 17 sites across Ontario. The model was based on the findings and recommendations of the CCN's 1999 Consensus Panel on Cardiac Rehabilitation and Secondary Prevention, and was designed to address the issues identified in the Panel's report (3): lack of integration, coordination and comprehensiveness, and limited patient access to CR services. Fewer than 20% of eligible cardiac patients in Ontario participated at that time in any form of CR after a major cardiac event. This paper, the second in a three-part series, provides a summary of the Ontario CR Pilot model and the Pilot implementation and evaluation methodology. Part one in this series described the foundational work and recommendations of the 1999 Panel report (4).

## PILOT PROJECT OBJECTIVES

The Pilot was evaluated by the CCN to provide objective evidence about the effectiveness of the model, as measured against defined criteria. The original 15-month time frame to complete the Pilot evaluation was subsequently extended to 21 months to obtain a more complete outcome data set and to address additional evaluation requirements.

The Pilot objectives, as defined by the Ministry, were as follows:

- to assess the process of providing CR in Ontario and provide strategies for improving patient access to care;
- to develop and improve access to and coordination of CR services at the local and regional levels;
- to have a positive impact on the health status of residents requiring CR services;
- to provide models for use in other parts of Ontario;

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**TABLE 1**
**Service requirements**

| Type of service |
|---|
| Inpatient and outpatient referrals |
| Intake assessment |
| Risk stratification |
| Patient case management |
| Dietary counselling |
| Supervised exercise |
| Education and risk factor counselling |
| Smoking cessation |
| Psychosocial assessment and support |
| Stress management |
| Family and personal counselling |
| Vocational assessment and counselling |
| High-risk patient management* |
| Expert consultations |
| Progress evaluations |
| Exit assessment |
| Regional coordination* |

**Regional coordination centres only*

- to provide objective evidence with respect to the success and effectiveness of the provincial CR model against defined criteria;
- to conduct a needs gap analysis of CR services in Ontario;
- to review and analyze the accumulated scientific literature related to CR since the Panel report in 1999; and
- to make recommendations for future planning of CR services for the province.

The Pilot objectives were evaluated according to six evaluation themes that are common to other Ministry-funded initiatives: access, quality of care, patient health and well being, resource use, cost effectiveness, and transference and generalizability of the model provincially.

## PILOT MODEL OF CARE

The Pilot model was implemented and evaluated at nine new and eight existing CR sites across Ontario. The centres were distributed across all seven Ontario Ministry planning regions, and were located in various settings including rural and urban, tertiary and community hospitals, and community-based centres. Six of the 17 centres were designated 'regional coordinating' sites and had additional responsibilities, including the establishment of 'regional satellite centres'. In total, seven satellite sites were established for the Pilot, in small community hospitals and community centres. For a complete listing of all participating Pilot sites, refer to the CCN Web site <www.ccn.on.ca/rehabpublic/ocrpppilotsites.html>.

The Pilot model of care was based on the recommendations of the 1999 Panel report and was consistent with Canadian and American guidelines which state that the best way to deliver CR services is via comprehensive multidisciplinary programs (5-7).

### Multidisciplinary staffing model

Before the implementation of the Pilot, there was considerable variation in staffing patterns across CR centres in Ontario. The Pilot model mandated a standardized multidisciplinary staffing mix that included the following health professionals (full-time equivalents) for 250 to 400 patients: 1.0 nurse practitioner, 3.0 exercise personnel (exercise personnel could include kinesiologists, physical educators, physiotherapists and/or nurses), 0.5 to 1.0 psychologist, 1.0 administrative assistant, 0.5 to 1.0 operational director and 0.5 regional coordinator (RC) at coordinating sites.

Early in the project, it was recognized that there could be difficulties recruiting certain professional groups due to the limited duration of the project and significant shortages for certain staffing categories in Ontario. Both the nurse practitioner and psychologist positions proved to be difficult to fill. Therefore, certain modifications to the model were accepted. These were substituting a registered nurse with a specialty designation in place of the nurse practitioner, and fully or partially replacing the psychologist with a social worker or expanding existing psychology consultation services in lieu of hiring program-specific staff. As well, some sites added a pharmacist and/or occupational therapist to their teams at their own expense. These variations were in keeping with previous practice patterns at these sites.

### Comprehensive service delivery model

The comprehensive Pilot service requirements are listed in Table 1. Services encompassed a formal intake and exit assessment, as well as regular progress assessments and discharge planning at the completion of the six-month program. A case manager monitored all aspects of the patient's program. The model required that patients exercise onsite under CR staff supervision two times per week. In rare circumstances, when patient access to care would be compromised, patients could be offered an alternative structured offsite exercise program, with regular patient monitoring by the case manager.

### Regional coordination model

Regional coordination of CR was a designated aspect of the Pilot project and its evaluation. Regional coordinating centres had additional functions including the establishment of a minimum of one satellite site within their region. The Ministry outlined four areas of focus for regional coordination: quality management, regional planning and program development, research and education, and outreach activities (see Table 2 for a detailed description of the coordinating site functions).

RCs were hired at each coordinating centre to oversee the above functions. The RC also had responsibility for triage and case management of patients awaiting access to CR services in their regions, and for providing stewardship of the Pilot data for their site and associated satellites. The RC worked with the sites, CCN and steering committee to further develop the RC role within the coordinating sites and in the region.

## IMPLEMENTATION METHODOLOGY

The organizational framework for the project was provided through a committee of provincial and national experts including representatives from the Canadian Association of

**TABLE 2**
**Pilot project regional coordination functions**

| Category | Functions |
|---|---|
| Planning and program development | • Assist with the development of cardiac rehabilitation programs in region |
| | • Establish linkages with hospitals and other health care providers and organizations in region to develop satellite centres for cardiac rehabilitation |
| | • Create a regional database linked to Cardiac Care Network of Ontario's information system to support future planning and enhanced programming |
| Quality management | • Incorporate the principles of CQI |
| | • Minimize risks |
| | • Monitor trends and activities |
| | • Identify potential problem areas |
| | • Adopt region-wide use of quality indicators |
| | • Develop new and revise existing clinical programs to meet the changing needs of patients |
| Research and education | • Provide a leadership role in providing cardiac rehabilitation education opportunities for the region |
| | • Collaborate with other centres in research |
| | • Serve as resource centre to all sites |
| | • Provide a centre of excellence |
| Outreach activities | • Work with all providers of cardiac rehabilitation to facilitate stronger integrated linkages with the larger health care community |
| | • Link with District Health Council, Cardiac Care Network, Canadian Association of Cardiac Rehabilitation and Cardiac Rehabilitation Network of Ontario |
| | • Liaise with other health care providers in the community |

*CQI Continuous Quality Improvement*

Cardiac Rehabilitation, the Cardiac Rehabilitation Network of Ontario, the Institute for Clinical Evaluative Sciences, the Joint Policy and Planning Committee of the Ministry, the Ontario Hospital Association, the Canadian Institute for Health Information, Ministry staff and the CCN. The Pilot project steering committee provided overall direction for the project under the leadership of its Chair, Dr Neville Suskin (London Health Sciences Centre, London, Ontario). Two working groups reported to the steering committee: The Information Systems and Evaluation Working Group (Chair, Dr Heather Arthur, McMaster University, Hamilton, Ontario) and the Pilot Site Working Group (Chair, Terri Swabey, CCN, Toronto, Ontario).

Sites were provided a maximum of six months to implement the Pilot model of care. To support the sites during this relatively short implementation phase, various strategies were employed. Communication was a critical element of the success of this project. The communication strategy identified important stakeholders in the project and associated communication methodologies including project communiqués to the Pilot sites, general public newsletters and press releases, a patient information brochure, and a Web site with both public and members-only access sections <www. ccn.on.ca>. As well, Pilot site representatives met regularly throughout the project.

The Pilot required the development and implementation of a standardized patient information system at each site to capture patient-specific data. The Information Systems and Evaluation Working Group, using frameworks previously developed by the Cardiac Rehabilitation Network of Ontario, Hamilton Health Sciences Centre and the London Health Sciences Centre, developed the Pilot database, which was implemented at all sites in June 2001. Two centralized database training workshops were held and all sites were provided with a data dictionary of standardized definitions and data sources for all fields captured in the database.

At the outset of the project, the steering committee recognized the need for consistent implementation of the Pilot model across all sites, as well as the importance of standardized collection of data. Therefore, a Pilot project guidelines document was developed to provide detailed guidelines to the sites regarding the elements of the Pilot model. As well, a centralized provincial training workshop was attended by 130 staff from across the province and provided an opportunity to deliver a standard message to all staff regarding the service model requirements, project objectives and evaluation requirements. A resource binder was provided to all sites for ongoing continuing education.

## EVALUATION METHODOLOGY

The Information Systems and Evaluation Working Group developed the evaluation template and indicators for the Pilot in accordance with the Ministry's project objectives and evaluation themes. Standard definitions and criteria for site and outcome evaluation were also established. Several evaluation methodologies and data sources were required for the project and are described below. Subcommittees of content experts assisted with the development of evaluation indicators and provided input into the data analysis.

### Baseline survey

A baseline survey was distributed early in the project and was used to identify the pre-Pilot status of all sites, including staffing, services, and referral and intake volumes. The survey

enabled the CCN to evaluate the impact of the Pilot on these service elements.

### Coordinating site submissions

In recognition of the limited scope and duration of the Pilot and the uniqueness of regional needs, coordinating sites were requested to identify achievable goals for addressing each element of the coordination function within the time frame of the project. An executive steering subcommittee reviewed all coordinating site project plans; feedback was provided to sites. The activities and functions defined in the submissions were used as a template to evaluate the coordinating sites during subsequent site visits.

### Pilot project database

The Pilot database was developed to capture patient-specific data at all participating sites. A case report form was developed to standardize data collection. Sites were required to make data submissions to the CCN at the end of each of the four evaluation periods. The database analysis was conducted by the University of Toronto Research Services Unit under the guidance of the Information Systems and Evaluation Working Group Chair.

### Data quality

To standardize and simplify data quality assurance processes across all sites, and to ensure that the data being analyzed were complete and accurate, an electronic database audit program was implemented at all Pilot sites. The electronic database audit program tested for incomplete critical data fields, data outliers and illogical parameters. Printed error reports facilitated data tracking and correction at the sites. The audit program provided the sites with an overall accuracy score, which could be compared with the benchmark accuracy target of 90%, and the average results from all sites.

Before each data submission, sites were required to run the electronic data audit program and ensure the best quality data. Printed data audit reports and written explanations of variances were required along with the data submitted to the CCN.

### Site visits

All sites were visited by one of three evaluation teams in August 2001 and again in November 2001. Site visit teams comprised two members: a CR expert and a project standing committee member. At least one evaluator from each team performed both Pilot site visits. To enhance interrater reliability, all site evaluators met for an orientation previsit and debriefing postsite visit. Standardized evaluation templates were developed for the visits. The site visits comprised a facility tour, round table discussions with CR team members, documentation review, chart and database audit, and patient interviews where possible. An additional evaluation template was used at coordinating sites and was customized according to individual site objectives.

### Costing submissions

Sites were required to submit quarterly Pilot costs using a standardized electronic template. All costs associated with staffing, start-up, and other supplies and expenses were included. Both dedicated Pilot funding and in kind contributions were tracked to establish the full costs of the program.

### Focus groups

Two separate focus group sessions were held to explore site participants' views of the generalizability of the Pilot model of care and the regional coordination model. Focus group members represented the scope of the project from both geographical and multidisciplinary perspectives, and included a consumer representative and other regional stakeholders.

### Structured telephone interviews

Structured telephone interviews were conducted with each RC following the focus groups to further explore the role of the RC and the regional coordinating centre. Regional coordinating sites were also invited to submit a 'team' response to the structured questions following the interviews.

### Provincial survey of CR services

Pilot project funding was limited to the participating sites across the province. Therefore, to provide recommendations to the Ministry to assist in future planning for CR services, a supply-side analysis of all CR services was conducted at the request of the Ministry. A provincial survey of services was distributed to all known CR programs across the province and all acute care hospitals. In total, 195 surveys were distributed, of which 151 (77%) were returned.

### Geographical information systems

Geographical information systems software was used to geographically map the Pilot and non-Pilot sites across the province; referring and nonreferring hospitals; patient referral patterns and travel distances; and population incidence of heart disease. Data were mapped on both provincial and regional levels. This information was used to identify referral patterns to CR services as well as to provide the Ministry with a provincial and regional needs gap analysis of services for future planning.

### Demographic and hospital discharge data

Ontario population and census data were obtained from the 1996 Census data from Statistics Canada and extrapolated to 2001 using population projections provided by the Ministry. The Institute for Clinical Evaluative Sciences provided 2000 to 2001 discharge data from the hospital Discharge Abstract Database (Canadian Institute for Health Information) in accordance with project criteria. Discharge case mix groupings were matched to Pilot referral criteria to establish the eligible cardiac referral population for CR within Ministry planning regions. The methodology used in the 1999 Panel report was adapted to estimate the size of the eligible population for CR services and population projections, to develop rate-based service targets.

### Patient satisfaction questionnaire

The Information Systems and Evaluation Working Group developed a short patient satisfaction questionnaire. The questionnaire was designed to assess patient satisfaction with the model of care and to capture the evaluation themes of the

project. Satisfaction data were solicited from patients who completed the full six-month intervention as well as those who exited the program early.

## CONCLUSIONS

Expansion of CR could save both lives and costs by reducing illness and use of health care services. A landmark Pilot project was thus announced by the Ontario Ministry of Health and Long-Term Care in 2001 to determine how best to proceed in making these benefits systematically available to patients with heart disease.

Teams of experts, supported administratively by the CCN, designed, coordinated and evaluated this $9.6 million undertaking. An evidence-based, standardized, comprehensive and multidisciplinary service delivery model was implemented at 24 sites across Ontario. This multifaceted, 21-month evaluation project will provide detailed clinical and administrative insight for both planners and providers of CR services. The final report and recommendations were released publicly in early 2003 (8).

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