

The Dorval Model

A Performance-Oriented Model for Primary Care

George Southey MD FCFP
Lead Physician and Medical Director
Dorval Medical

Second Edition
February 6, 2012



fresh care

© George Southey 2012. This document and its associated spreadsheet, "The Dorval Model Relative Value Data Collection and Analysis," are copyrighted and subject to the following terms of distribution: anyone has the right to use, modify, and redistribute the document, *or any document derived from it*, but only if the distribution terms are unchanged and credit to these (original) documents is stated. ©

Table of Contents

Executive Summary.....	3
Introduction	5
Chapter 1 Assumptions.....	6
The Provincial System.....	6
Focus on Groups	6
Measuring Performance	7
Chapter 2 Measuring Performance	8
Chapter 3 Quality	9
The PCCCAR Basket of Services	9
How can one Measure Performance?.....	9
Dorval Quality Estimation.....	10
Stage 1: Surveying Patients	10
Figure 1: Schematic for relative value polling.....	11
Figure 2: Survey results from a Test Survey in 2009	12
Stage 2: Quantifying Expectations	12
Stage 3: Assigning Indicators.....	12
Stage 4: Identifying Data for Indicators	12
Conclusion	13
Chapter 4 Capacity.....	14
Figure 3: Practice capacity, Dorval Medical, 2005--11	15
Chapter 5 Cost.....	17
Figure 4: Annual cost per patient, Dorval Medical, 2008--10	17
Figure 5: Length of stay (LOS) in hospital, Oakville group practices	18
Chapter 6 Data	20
Data Sources	20
Data Reporting.....	20
Data Verification.....	21
Focus on Groups	23
Chapter 7 Applying the Model.....	24
Establishing System Infrastructure.....	24
Ensuring Accuracy of Data.....	24
Paying for the Model	25
Paying for Data	26
Paying for Performance.....	26
Paying for Stewardship	26
Phasing in the Model.....	27
Phase 1: Adopting Pay for Data.....	27
Phase 2: Adopting Pay for Performance and for Stewardship	27
Funding the Model	27
Setting Up Electronic Medical Records (EMRs).....	28
Correcting Labour Distortions	29

Political Perspectives	29
Next Steps	30
Glossary	31
Appendix A: Measuring Performance: Activities or Transactions v. Outcomes or Processes.....	33
Measuring Activities or Transactions	33
Measuring Outcomes or Processes	34
Productivity in Both Methods.....	34
Implications	35
Appendix B: PCCCAR Functions	36
Appendix C: Estimating Relative Value of Primary Care Services from a Population	38
Overview	38
Dynamic Change	39
Process	39
Stage 1: Surveying Patients	39
1. Establish the perspective of the interviewee.....	39
2. Describe the two divisions of clinical practice.....	40
3. Describe the divisions in physical medicine. (Figure 1, box 1).....	40
4. Describe the possible chronic physical conditions.....	40
5. Describe the divisions of mental health. (box 3)	41
6. Describe the types of chronic mental-health conditions. (box 4).....	41
7. Describe the divisions of management services. (box 5).....	42
8. Describe the nature of patient experience. (box 6).....	42
9. Estimate the value of the high-level divisions. (box 7)	43
10. Calculate score.....	43
Stage 2: Quantifying Expectations	43
Stage 3: Assigning Indicators.....	44
Stage 4: Identifying Data for Indicators	47
Conclusion	47
Appendix D: Achieving Quality <i>and</i> Efficiency	49
Comparing Systems	49
A Typical Practice	49
A Walk-In Clinic	51
A Practice with Trusting, Accessible Relationships	52
Appendix F: Current Modes of Pay for Performance and Dorval Model	57
Fee for Service	57
Family Health Group.....	57
Family Health Network	57
Family Health Organization	57
Family Health Team	57
Community Health Clinic	57
Dorval Model	57
Appendix G: Measuring Access.....	58
Mark Murray’s Advanced-Access Indicators	58
Other Indicators of Access.....	58

Executive Summary

Background: Observers have characterized Ontario's health system as displaying uncertain quality, inadequate capacity, and high costs. Cost for Ontario health care continues to escalate, yet citizens' satisfaction with primary health care is decreasing.

Eight years ago, the British government implemented a method for measuring quality of primary care with multiple indicators – the Quality Outcomes Framework (QOF). Critics claim that the QOF is expensive, that it permits easy removal of patients from registries, that its fixed indicators distort practice behaviour by encouraging gaming, and that its targets are unreasonably easy to achieve¹. None the less the QOF provides an innovative mechanism for assessing multiple indicators in comprehensive primary care. Dorval Medical adapted the QOF to reflect value in Ontario and further modified it to allow for ongoing adjustment to measurement as perception of quality changed over time.

Three years ago, Dorval Medical began a pilot project to try to improve patient satisfaction and reduce costs by continually measuring the parameters of Quality, Capacity and Cost. To date, implementation of the Dorval Model has led to provision of cheaper and better primary care for patients of the practice.

The Dorval Model: The Dorval Model maintains electronic medical records (EMRs) for its patients and applies a reproducible method to analyse and assess performance. It complies fully with the Canada Health Act, is readily adaptable to all comprehensive primary care practices, and could link patients, practitioners, and policy-makers (stewards) in feedback loops.

The Dorval Model's methods of data collection and analysis focus on relationships between groups of doctors and their patients, not on the traditional pay for individual service transactions by individual provider prevalent in the province. The model allows for continuous assessment of quality, as well as the capacity and the cost, of primary care in participating practices and facilitates improvements.

Analysis of Dorval Medical's practice through the Dorval Model shows that primary care physicians maintain a capacity of 65, which if used across the province could meet the province's current needs with its current resources. Dorval finds its costs are about \$300 per average patient per year, significantly lower than those for other models and practices in Ontario. In addition, the time Dorval patients stay in hospital is 14 per cent shorter than the national average and 22 per cent shorter than other practices in the same city (Oakville).

Widespread adoption of the Dorval Model could transform primary health care in the province, improving quality, increasing capacity, and reducing cost.

¹ http://en.wikipedia.org/wiki/Quality_and_Outcomes_Framework

This report outlines the Dorval Model and concludes with a recommendation to widen the pilot to include other primary health care practices in the province in order to determine whether it could be widely adopted to meet both fiscal demands and citizens' expectations.

This report presents the Dorval Model's assumptions about primary health care (chapter 1); its approach to measuring quality of performance (chapter 2); its new method of Dorval Quality Estimation (chapter 3), with elements and indicators for data and their analysis; its effects on cost (chapter 4) and capacity (chapter 5); its acquisition, handling, and analysis of data (chapter 6); and its potential application to other practices (chapter 7).

Introduction

Most of the components of the full Dorval Model have been functioning at Dorval Medical, in Oakville Ontario for more than three years. Some components, outlined in the model but not currently in place, are those that would have to come from the system (the province of Ontario and its Ministry of Health and Long Term Care).

The Dorval Model has a number of characteristics, which are highly desirable in the current political and economic environment in Ontario:

- It is consistent with existing principles of the Canada Health Act.
- It assures the quality of primary care Ontarians expect.
- It has demonstrated the ability to address the province's needs for capacity (satisfactory relationships for all Ontario residents) in primary care.
- It tracks and reports its own costs.
- It encourages patients to conserve health resources (demand-side economics).
- It is sustainable and could be readily adopted by other practices.
- It creates the environment for rapid adoption of electronic medical records (EMRs).
- It can generate reports on the population's health status and the physicians' practice performance.
- It creates an environment for ongoing quality improvement in line with Ontarians' expectations.
- It adapts to people's changing expectations of quality.
- It encourages the use of interprofessional health providers (e.g. nurses, nurse practitioners, and social workers etc.) wherever possible

Chapter 1 Assumptions

The Dorval Model makes the following basic assumptions:

The Provincial System

- Ontarians overwhelmingly support the ongoing public funding of primary care
- The province's health system is accountable to its people.
- Popular expectations shape performance expectations in primary care.
- Performance accountability necessitates explicit measurement, verifiable data, and public reporting.
- Investment in improving primary care reduces health costs (Starfield et al.^{2,3,4}), but it is not clear why. There are at least three possible explanations: First, better quality may directly reduce costs, although Ovretveit's review⁵ of quality and cost does not support this argument. Second, improving management of primary care may make patient care more efficient. These improvements may occur in the collection and organization of information, transmission of information, coordination of care, and patient advocacy. Third, lower costs may be due to emerging relationships between patients and care providers, which may encourage patients to consider stewardship in their health-care choices (demand-side economics).
- Primary care has an obligation to influence stewardship in the health system.

Focus on Groups

- Groups in primary care should be defined by the presence of common objectives, resources, and performance measurements.
- Relationships are more useful than transactions in describing performance in primary care. (See Appendix A.)

² B. Starfield, L. Shi, and J. Macinko, "Contribution of primary care to health systems and health," *Millbank Quarterly* 2005 83: 457—502.

³ B. Starfield, "Primary care: Is it essential?" *Lancet* 1994 (Oct. 22) 344 (8930): 1129—33.

⁴ J. Macinko, B. Starfield, and L Shi, "Quantifying the health benefits of primary care physician supply in the United States," *International Journal of Health Services* 2007 37(1): 111--22.

⁵ John Ovretveit, "Does improving quality save money? A review of evidence of which improvements to quality reduce costs to health service providers," Health Foundation, Sept. 2009.

Measuring Performance

- This document describes efficiency in terms of the number of satisfactory relationships per unit of care provider's time rather than the number of transactions per unit of care provider's time.
- The basket of 15 PCCCAR⁶ services (see chapter 3 and Appendix B) can capture the full scope of comprehensive primary care.
- Performance should be measured on the practice of a group rather than on an individual provider. This would more accurately reveal normal performance in the province. Also it would instil a culture of continuous quality improvement by encouraging trust and understanding among members of the group, who would all seek improved measurements.

⁶ Subcommittee on Primary Care of the Provincial Co-ordinating Committee on Community and Academic Health Science Centre Relations (PCCCAR) (1996), *New Directions in Primary Health Care*. PCCCAR report to the Minister of Health Ontario, 21–31. These services are a part of every FHO and FHN contract.

Chapter 2 Measuring Performance

The Dorval Model describes primary-care performance in terms of three cardinal dimensions – quality, capacity, and cost. Dorval Medical aims above all to ensure quality, establish adequate capacity, and minimize costs.

Accurate measurement of quality, capacity and cost are required because of the absence of market forces in Ontario’s health-care system. The relationships among quality, capacity, and cost are loose in the system – in other words, an adjustment in one does not necessarily change the other two. In other economic sectors, their relationship is very close -- a change in one directly affects the other two.

‘Quantity’ is a useful synonym for ‘capacity,’ and this document uses the two terms interchangeably.

Observers have characterized Ontario’s health system as displaying uncertain quality, inadequate capacity, and high costs.

Within the framework of quality, capacity, and cost, Dorval Medical proposes the following priorities for the system:

- assure quality at a level reflecting public expectations
- establish and maintain capacity that allows choice of practice for every person
- shape costs to limit growth by a maximum of 3 per cent per year
- with assured quality and sufficient capacity, continue to seek means to reducing costs

Chapter 3 Quality

Assuring quality of primary care to its patient population is the primary objective of the Dorval Model. This chapter outlines the PCCCAR basket of services, and describes the three-stage method known as the Dorval Quality Estimation which Dorval Medical has developed to identify and meet patients' expectations of quality.

The PCCCAR Basket of Services

Quality involves all aspects of the relationship between the population and primary care. The PCCCAR basket delineates the spectrum of 15 services (see also Appendix A). These 15 services are listed in every FHO and FHN contract.

All primary health care agencies (PHCAs) should offer the following functions:

1. Health assessment
2. Clinical, evidenced-based prevention of illness and promotion of health
3. Appropriate interventions for episodic illness and injury
4. Primary reproductive care
5. Early detection and initial and ongoing treatment of chronic illnesses
6. Care for most illnesses (in conjunction with specialists, as necessary)
7. Education and support for self-care
8. Support for hospital, in-home, and long-term care
9. Arrangements for response 24 hours a day 7 days a week
10. Service co-ordination and referral
11. Maintenance of a comprehensive health record for each rostered patient
12. Advocacy
13. Primary mental health care, including psycho-social counselling
14. Co-ordination of and access to rehabilitation
15. Support for people terminally ill

How can one Measure Performance?

Dorval Medical has found that patients expect results but that the current fee for service payment model does not encourage better outcomes or processes. Appendix B describes two different methods of assessment (transactions v. outcomes and processes).

Quality measurement indicators across the spectrum will change, along with their weighting, as public expectations evolve. Tracking and responding to shifts in public expectations is essential in public health care. Dorval Medical has worked to develop such a method, which it calls 'Dorval Quality Estimation.' This method can describe the relative value of most elements of the PCCCAR basket of services.

Dorval Quality Estimation

This section describes the three stages of quality analysis at Dorval Medical -- surveying patients, quantifying their expectations, and assigning indicators to these expectations. For the detailed, step-by-step process, see Appendix C: Estimating Relative Value of Primary Care Services from a Population.

The Dorval Model adopted many components of Dorval Quality Estimation from the British government's Quality Outcomes Framework (QOF). Authorities there instituted the QOF in 2004, and almost all British primary care physicians and groups adopted it quickly. The methods of indicator weighting and aggregate scoring, in particular, are the 'brainchild' of the QOF and are central to Dorval Quality Estimation.

Stage 1: Surveying Patients

The first stage is to survey the target population in order to estimate the value it places on the various services in comprehensive primary care. The structuring of the questions allows estimation of value for all 15 PCCCAR services. See Figure 1: Schematic for relative value polling. Preliminary work at Dorval Medical has resulted in the relative value of services as in Figure 2: Survey results.

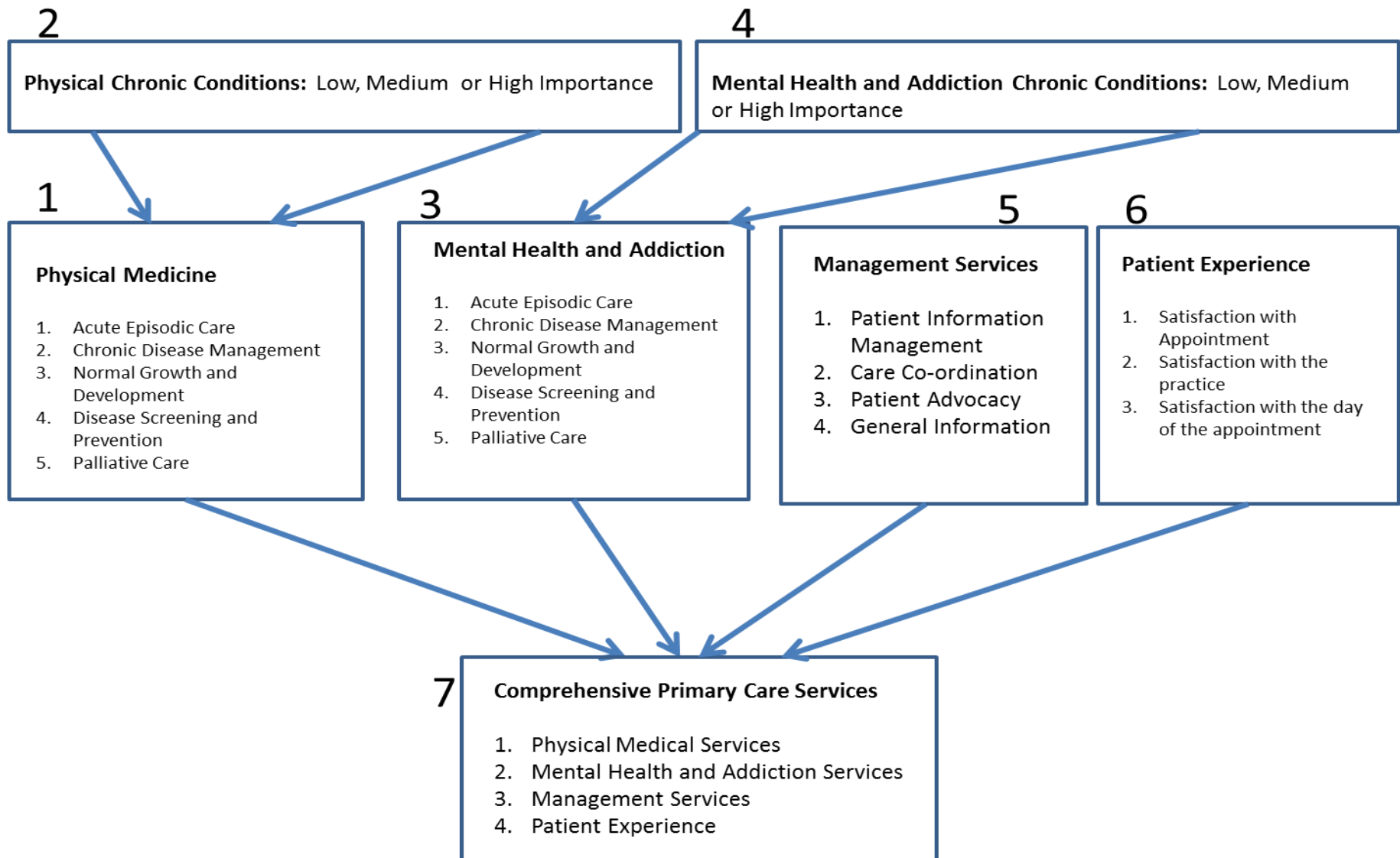


Figure 1: Schematic for relative value polling

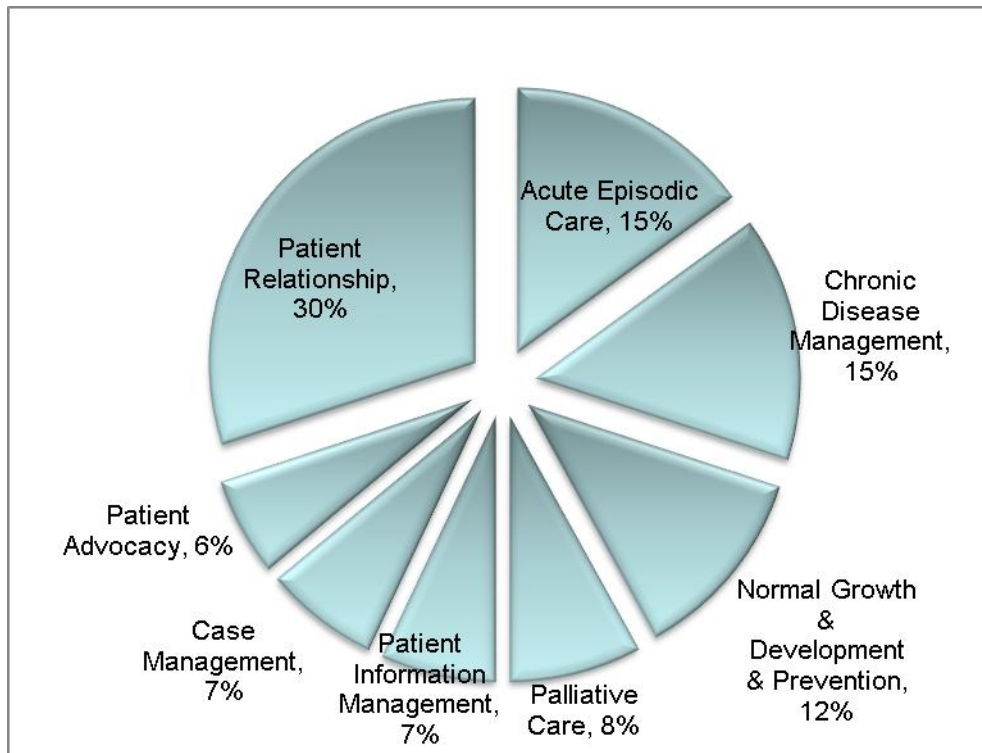


Figure 2: Survey results from a Test Survey in 2009

Stage 2: Quantifying Expectations

The second stage is to take the survey of patients' expectations from stage 1 and assign relevant attributes, outcomes, or practice processes that reflect the services that emerged in the survey. Appendix C describes this process in detail.

Stage 3: Assigning Indicators

The third stage is to assign indicators to the attributes, outcomes, and processes from stage 2. See Appendix C.

Stage 4: Identifying Data for Indicators

All the indicators in Table 1 in Appendix C emerge from a limited set of data. The list of 74 data elements and their sources appears in Table 2 in Appendix E. These data elements are sufficient to generate Table 1's 49 indicators of quality (chapter 3), as well as to determine practice capacity (chapter 4) and cost (chapter 5).

Conclusion

Indicators with assigned relative value (see Table 1 in Appendix C) allow for aggregation of multiple indicators in a way that describes quality for PCCCAR services and allows an estimation of overall value.

All indicators can be determined by a small number of data points reported by the practice.

With this method in place, the system can assign a value for adequate quality and use it to assure the province about quality.

Chapter 4 Capacity

Establishing adequate capacity is a second objective of the Dorval Model and follows achievement of the first objective of assuring quality.

At Dorval Medical, we define 'capacity' as the number of satisfactory relationships that a practice can maintain for a given unit of provider's time with assured quality. For example a practice maintaining relationships with 6,000 satisfied patients has 100 appointment hours each week for all providers. This practice's capacity would be $6000/100=60$

Dorval believes a capacity of 65 (patients/all weekly MD hours) is adequate, because it allows the province to meet its primary care promises with current resources. Stated in another way, if all primary care physicians working the same hours as they are currently, achieved capacity of 65, the entire population of Ontario would have a choice of primary care practice.

Capacity needs to adjust for age/gender distribution. The primary-care needs of a population depend on the age and gender of the patients, as we can see in the multiplier table in Family Health Network (FHN) and Family Health Organization (FHO) Template Agreements.

This table derives from historic service use ('utilization') in the Ontario Hospital Insurance Plan (OHIP) for each age and sex grouping. The average for the province at the time of the table's creation was 1.

The capitation payment offers a simple means of correcting for age and gender: dividing capitation payment by the average current payment to the practice generates the roster's number of "average" patients.

It is necessary to describe capacity as a function of time units (e.g., hours worked/week) in order to compare practices with different full-time equivalents (FTEs). Correction for hours worked allows measurement of capacity to identify efficient practices. An efficient part-time practice would not be visible in the absence of this correction.

If a practice limited the scope of services or limited the quality of the services it provided, it could roster more patients for the same number of hours. However, this would not meet the expectations of the people of Ontario.

When a practice ensures adequate quality, and adjusts capacity measurement in terms of hours worked and age/gender distribution, measuring its capacity provides insight into its efficiency. Comparing inter-practice figures on efficiency should reveal innovative ideas and should encourage the spread of ideas throughout the province.

Dorval Medical has been measuring and assuring quality and access for over three years. Its capacity ranges between 62 and 72 (average patients/MD weekly hours), with an average of 65 (see Figure 3).

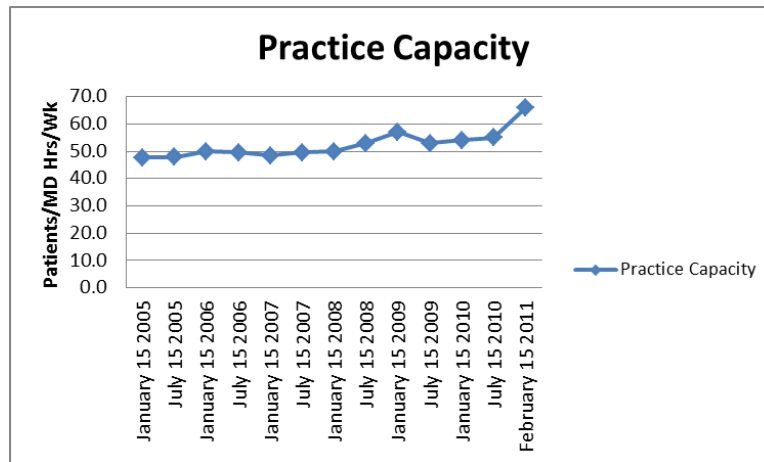


Figure 3: Practice capacity, Dorval Medical, 2005--11

Province-wide adoption (assume 6,000 doctors working 35 hours/week) of Dorval Medical’s efficiency (capacity of 65) would provide more than sufficient capacity for the population of Ontario.

There are many tactics available to improve practice capacity without compromising quality. Successful implementations at Dorval Medical have included:

- open access
- “Max-Packing”^{6,7} to address all new issues at one visit
- all team members available to deal with new issues
- reminders for prevention screening and chronic-disease management
- encouraging patients’ self-management

Dorval maintains open access: its physicians will accept new patients only if the physician can demonstrate that he or she is available through open access and achieves reasonable levels of quality. It tries to avoid enrolling patients that it cannot serve because the practice might become too large. Open access results in more available time for each patient encounter, so that both parties can address all issues in the one encounter.

“Max-Packing” is Mark Murray’s term^{7,8} for the strategy of addressing all needs at the current

⁷ Mark Murray, “Same-day appointments: exploding the access paradigm,” *Family Practice Management* Sept. 2000. <http://www.aafp.org/fpm>, 30 June 2009.

⁸ www.calquality.org/programs/learningnetworks/resources/documents/CQC-IPE-QuickReferenceGuide.pdf

encounter, if at all possible. Issues would include the patient's presenting complaint, any other issue he or she might think of, and all reminders. This strategy results in efficient use of patient's time and high achievement in quality outcomes. Max-Packing reduces future appointments by ensuring early and complete addressing of issues.

Dorval Medical uses reminders in EMRs where records indicate that the patient is due for disease screening, chronic-disease management, or preventive care. These reminders appear both in the screen display (which both patient and provider see) and on the paper encounter form on the door for each encounter. Any staffer can resolve a reminder issue if it is in their scope of practice.

Encouraging patient self-management is a cornerstone of Wagner's⁹ chronic-disease model. Dorval Medical supports this principle by taking the time to inform patients about their condition and giving them tools to self-manage. For example, a patient with stable hypertension will know the target blood pressure, will have a blood pressure cuff that they know how to use and receive a lab requisition and a year's supply of medication. The patient knows that if the management indicates a failure to achieve target blood pressure, the practice is available at their request.

A key element in Dorval Medical's support of self-management: the duration of the prescription acts as a "clock" to remind patients and providers about their next assessment. The practice prescribes all medications at the same time and for the same duration, and it allows no phone or fax prescriptions except with extenuating circumstances (the author receives fewer than 10 requests for fax prescriptions a week). This method assures active management of chronic conditions, with frequency of appointments appropriate to individual health needs.

⁹ Michael Von Korff, ScD, Jessie Gruman, PhD, Judith Schaefer, MPH, Susan J. Curry, PhD and Edward H. Wagner, MD, MPH: *Annals of Internal Medicine*: December 15, 1997 vol. 127 no. 12 1097-1102

Chapter 5 Cost

In addition to quality and capacity, the third objective of the Dorval Model, is cost of the health-care system. Dorval Medical sees conservation of scarce resources as a social obligation and believes that it delivers assured quality with adequate capacity for the lowest-possible cost. The cost for the services of the practice is about \$300 per average patient per year (see Figure 4).

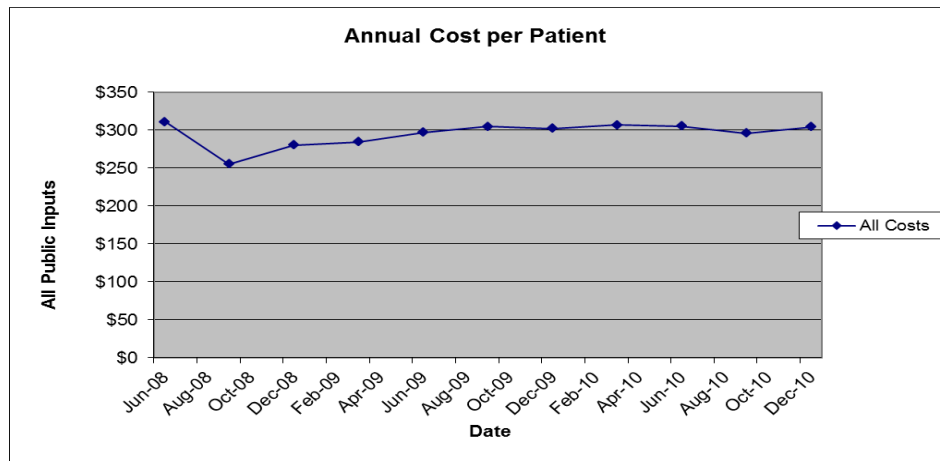


Figure 4: Annual cost per patient, Dorval Medical, 2008--10

Dorval Medical believes that the health system's costs for the population Dorval Medical serves are also significantly lower than other models and practices in Ontario.

Cost is an attribute of quality in the Health Quality Ontario (HQO) reports. Why does the Dorval Model describe cost as a distinct dimension of performance? Unlike all other attributes of quality, cost represents the ability to choose other goods and services. If the system reduces cost, any other government service can use the resources.

Primary care accounts for about 10 per cent of Ontario's total health costs. Due to current relationships between providers and patients, primary care can substantially affect total costs for health care. For this reason, any model should measure costs for the practice's population both for its primary care and for all of its health care.

In order to illustrate how effective primary care affects demand for health services, Appendix D presents three scenarios in which a man presents with back pain to primary care in three different models.

Cost measurement needs to calculate per-capita figures and patient numbers in terms of age and gender distribution (converting these to “average” Ontario patients).

Determining the system’s total cost of health care for a practice’s population requires provincial data. It will involve estimating some costs, as not all costs are tracked.

Dorval Medical does not have a data source for the system cost for the population it serves. It has indirect measurements of cost, including data on patients’ length of stay (LOS) in hospital in comparison to all other patients in Oakville (see Figure 5). Dorval Medical’s LOS is 14 per cent less than the national expected LOS and 22 per cent less than the other practices in Oakville. Hospital costs represent about 40 per cent of total health costs. The author’s individual performance is added because the strategy was initiated as an individual effort prior to the group’s involvement (allowing greater progress to occur).

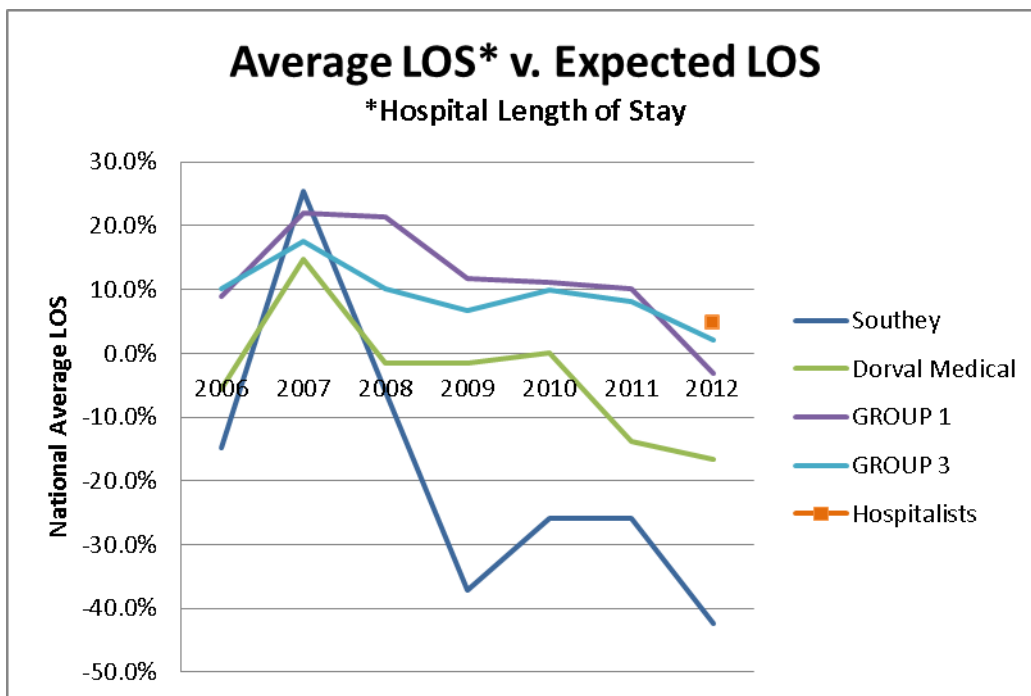


Figure 5: Length of stay (LOS) in hospital, Oakville group practices 2005/2006—20011/2012(3/4)

We have no proof to explain the reduced LOS by the providers of Dorval Medical but we suspect that it is due to several factors.

- Patients of the practice have a strong pre-existing relationship of trust and knowledge with their doctor helping with patient engagement in difficult decisions.

- The primary care record is incorporated into the admission note providing seamless transfer of prior health information.
- Dorval Medical doctors actively manage inpatient care by the coordination of consultations, providing patient advocacy, and maintaining good information management.
- Dorval Medical patients can consider discharge with unresolved issues because their doctor can continue to manage such issues after the transition out of acute care.
- Information from discharge follows the patient seamlessly because the acute care Most Responsible Physician (MRP) is also the family doctor.

Chapter 6 Data

Achieving the three goals of the Dorval Model – assuring *quality*, establishing adequate *capacity*, and reducing *costs* – requires ongoing feedback on performance. This chapter describes issues relating to the data – their sources, elements, reporting, and verification and the focus on groups -- that ground this performance feedback.

Data Sources

Data for the model come from participating practices and from other data sources in the system. However, no data exist for the total costs of health service for patients in primary health care – e.g., hospital care, pharmaceuticals, specialists, and testing.

Data sources from within a practice are more desirable for two reasons. First, it is possible to verify data vis-à-vis source data (e.g. for clinical indicators, from EMRs). Second, a practice's own data motivate quality improvement much more effectively than outside data. The care providers enter the data, and thus errors are the practice's responsibility. External data are harder to correct; if errors are prevalent, providers may reject the data before the data can shape quality improvement.

Data Elements

A small number of data elements from EMRs and direct reporting of a few additional data points can generate all indicators. Current indicators in the United Kingdom's Quality Outcomes Framework (QOF) all emerge from 57 data elements in EMRs and from 23 process questions. The Dorval Method uses 52 data points, which any practice could derive automatically from its own EMRs, and it could manually report 13 data points. Table 2 (Data elements) in Appendix E lists 56 elements from EMRs and 18 from direct reporting. These data points allow the determination of quality, capacity and cost in the Dorval Model.

Data Reporting

Performance data require analysis in order to accurately demonstrate performance in a relevant manner. Dorval Medical manages this function internally, but if other practices applied the Dorval Model they would need to send data to a central repository (created for this

purpose) for analysis, performance reporting, data accuracy verification, and management of incentives in order to ensure these functions are available to practices. This section describes issues relating to data reporting outside the practice to an external authority.

There are several ways to report clinical and process data to describe performance. Britain's Quality Outcomes Framework (QOF), for example, has medical practices report the result of each indicator – for example, the number of patients aged 65 or older who received a flu shot in the past year.

There are two significant drawbacks to reporting by indicator result. First, auditing of data must cover entire registries to ensure accuracy. Second, it does not reveal the concurrence of conditions or treatments.

An alternative method for reporting data would be to request source data. This would entail reporting on each rostered patient anonymously on the 56 discrete data elements necessary to generate the desired indicator outcomes. This type of file would be small enough to manage with standard applications for data reporting (e.g., Access files, delimited text files, Excel files, and standard e-mail attachments).

Reporting source data has several advantages:

- It allows multiple ways of analysing data.
- It allows efficient verification of the accuracy of data.
- The agency receiving data can easily analyse the source data using standard commercial “industrial intelligence” applications.
- EMR vendors do not have to create the ability to analyse data,

The receiving agency for the data – not likely to be the Ministry of Health -- needs to have the authority to verify data. The College of Physicians and Surgeons of Ontario (CPSO), the Institute for Clinical Evaluative Studies (ICES), and Health Quality Ontario (HQO) have such authority.

The Ministry of Health would fund the pay-for-data process. Either it would transfer funds (to pay practices) to the data-receiving agency, or the data-receiving agency could report to the ministry for payment purposes.

Data Verification

Data verification is the process of determining the accuracy of data. If other practices were to apply the Dorval Model, this process would have to form part of the model.

Data verification for completeness and accuracy is a matter of due process if the reporting agency is receiving and paying for the data. This should be an obligation for any participating practice.

Quality auditing is a valuable educational process. The opportunity should exist for participating providers to offer auditing services (and receive payment for these services).

The practice should pay for auditing costs to participate in the pay-for-data process.

The structure of the Dorval Model reduces the incentive for participants to “game” the model for economic benefit.

- It provides the larger portion of payment by pay for data and a minority in terms of clinical performance (pay for performance).
- It is dynamic, fixing no indicator permanently.
- It reports source data, which are subject to verification and require analysis to produce outcomes.

The structure of the verification process ensures efficient performance from a distance (electronically). Practices requiring on-site audit should cover the additional cost as an incentive to establish EMRs and ability to audit from a distance.

If a practice uses the source-data method (see above), it can verify data by sampling records for evidence of accuracy. It can do so by asking, for example, whether data in the EMR support the diagnosis in the report.

An aggressive method of verification would be to find an alternative data source (e.g., ICES) and sample records only where there is discordance regarding a reported data element (e.g., when the practice reports a patient having a particular diagnosis but the alternative data source does not indicate that diagnosis).

It is possible to verify measurement data (e.g. blood pressure) by statistical analysis of all the practice’s data over time (e.g., all the records’ BPs). Accurate data should result in a normal (Gaussian) distribution for both the population as a whole and individual patients over time.

For verifying access, survey data and “screen shots” of the appointment schedule will prove invaluable.

For the practice’s process indicators, infrequent visits to the site should provide adequate verification.

Focus on Groups

The Dorval Model describes the group's performance to any external audience. This section addresses the reasons for this decision. The practice also has performance information on individual providers for internal use.

The titles for primary-care (i.e. family-health) practices – for example, family health group (FHG), network (FHN), organization (FHO), and team (FHT) -- all imply teamwork. A label does not create teamwork; it merely describes the model of a group. The dynamic of teamwork occurs when individuals work towards common objectives, pool common authority and resources, and consider performance a collective creation.

Most groupings of doctors in all current models (FHGs, FHNs, FHOs, and FHTs) are similar. Most physicians earn money through fees for service or from capitation income attributable to their own patients (as if the patient care was completely their own achievement). This distribution often creates or reflects a doctor's individualistic orientation, particularly for those with large panels of patients. Such an orientation works against the potential establishment of group behaviour.

Performance (in terms of quality, capacity, and cost) is measurable at the level of the individual care provider or of the group. However, group performance provides several advantages:

- Measuring groups will assess performance of more of the population and reveal normal performance more effectively than voluntary measurement of individual providers. (Voluntary measurement will favour high-performance, motivated providers.)
- Measuring groups allows the trust and familiarity of the internal relationships to nurture quality improvement.
- Group performance and the sustaining economic environment can fund interprofessional health providers (IHPs). If an IHP can help achieve a desired outcome cheaper than a physician, the practice should rationally hire IHPs for that purpose. Where a practice measures individual performance, such a decision is less attractive.
- In most economic sectors, groups perform better than individuals. This should be true in primary care. Any economic structure (e.g., measure by groups) that encourages cohesion should also improve performance.

Chapter 7 Applying the Model

Establishing System Infrastructure

If the Dorval Model were to be widely adopted, a supportive infrastructure would have to be developed. This would entail the creation of a provincial organization to provide the following functions:

- Oversee ongoing refinement of the polling method.
- Conduct ongoing polling of the population.
- Re-evaluate the values underlying primary-care service.
- Re-evaluate the indicators, their weighting, their thresholds, and rules for measuring them.
- Re-evaluate the data required for the indicators.
- Receive data from participating groups.
- Analyse data and report performance back to participating groups.
- Manage payments to the groups associated with the model.
- Manage data verification and ensure accuracy of data from participating groups.

Ensuring Accuracy of Data

Accurate performance-oriented primary care data can directly benefit the system because it would accurately describe the health status of the population and the system's achievements vis-à-vis desired outcomes.

The two most important types of data for health status and management of a new presentation are the problem list (diagnoses) and the medication list.

Lists of diagnoses and medications degrade over time due to change and re-evaluation. Reconciliation renders these lists accurate. Reconciliation uses all data sources, including the patient to update the information.

Reconciliation of lists of problems and medications is a manual process and happens most frequent in primary care (where most transactions occur). For this reason, data from primary care may become the gold standard for the most important information in a patient's record.

Paying for the Model

Dorval Medical has demonstrated the functioning of the Dorval Model for more than three years. The model needs economic support. The current economics of primary care discourages adoption of the Dorval Model in favour of income optimization without assuring quality, establishing capacity, or worrying about system stewardship and cost.

Ontario's economic environment in health care does not encourage the Dorval Model. Most doctors favour the current payment system and focus on fee for service or enrolment rather than performance. For example, in the QIIP (Quality Improvement and Innovation Partnership) initiative only about 10 per cent of providers participated. Their uptake peaked at about six months of performance measurement and then declined until QIIP finished.

Informal observations at Dorval Medical suggest that behaviour needs about 20 per cent of a physician's total incentives (monetary and non-monetary) in order to establish sustainability.

The Dorval Model requires incentives large enough to sustain and spread the model. Payment mechanisms that could sustain the model include:

- paying for data
- paying for performance
- paying for stewardship

The costs and benefits of the choice of practice model include monetary, personal, and professional considerations.

A physician working in the current models enjoys considerable personal freedom regarding professional activities, hours of work, establishment of income, method of record keeping, and freedom from accountability measures.

A doctor working within the Dorval Model loses elements of personal freedom by being more closely bound to the group. The data reporting requires some discipline in the way a physician uses EMRs. Performance accountability would result in a loss of personal freedom.

Capital requirements for a practice are higher with the Dorval Model than for traditional models. EMR technology and using information in EMRs requires both infrastructure and human capital from the group.

To make the Dorval Model attractive, it would be necessary to provide for recovery by the practice that made an initial investment when a doctor leaves the group. It would be irrational to expect a group to invest in capital that it could not recover. A possible solution would be to allow the group to retain the benefits of the Dorval Model when an individual practitioner

leaves the group. This would represent value to a new physician joining the group and could result in payment (recovery of capital) to the departing doctor.

Paying for Data

The system would benefit from access to the data in primary-care records. Monthly payment for these data could be the economic foundation for performance-oriented primary care. Payment for trustworthy data elements would represent pay for data independent of indicator performance.

Current payments to FHTs run at about \$75 - \$100/average patient/year. This represents about 30 per cent of a practice's total gross revenue. If FHT funds went instead towards a pay-for-data incentive, the amount could shape behaviour and sustain the model.

If there was concern that physician might pocket the additional revenue, regulation could forbid use of such funds to pay for physician services and implement an audit requirement. Payments would help fund support IHP personnel and infrastructure.

Paying for Performance

The model allows for payment for performance. This would respond to accumulation of indicator points (derived from the practice's data). The Ministry of Health would assign points a monetary value and pay participants monthly.

Paying for Stewardship

Dorval Medical presumes that its high performance at lower cost is a result of the Dorval Model. The model assures high quality and efficient care. It also encourages providers and patients to consider stewardship of health resources.

If a group is successful in its stewardship through efficiency and conservation, it should benefit. Payment to the group for lower costs to the practice and the system would encourage stewardship. Payments for stewardship could derive entirely from actual savings.

Phasing in the Model

A practice considering the Dorval Model faces considerable work vis-à-vis many aspects of the practice (infrastructure, staffing, EMR modification, and data clean-up). It would be unrealistic to expect groups to switch directly from an existing model into a fully functioning Dorval Model. A possible solution would be transition in two phases.

Phase 1: Adopting Pay for Data

A group could elect to engage gradually into the pay-for-data component of the Dorval Model over a reasonable period (12--18 months). Initially, the practice could collect data from a portion of the group (perhaps a minimum of 25 per cent of the roster), which would report a portion of the full data set (perhaps 20 per cent). Payment for data in phase 1 would reflect the portion of the group reporting and the portion of the data it was reporting.

By the end of phase 1, the entire group would be reporting the entire data set. A minimum of 95 per cent of the roster would be reporting the full data set with 95 per cent accuracy.

Pay for data should represent a significant portion of the total revenue available from the model (perhaps 50 per cent of the model's total financial benefit).

Phase 2: Adopting Pay for Performance and for Stewardship

On establishment of reporting of group data (see phase 1, above) the group would be able to benefit from the Dorval Model's other two elements of payment – for performance and for stewardship. The group would have to maintain the requirements of phase 1 and establish and maintain a minimum capacity (perhaps 65 average patients/ doctor hours/week). Appendix F compares payment for performance under various current models and the Dorval Model.

Pay for performance and pay for stewardship would divide the remaining portion of revenue available to the model (perhaps 30 per cent for performance and 20 per cent for stewardship).

Funding the Model

The Dorval Model was created with the assumption that it would not lead to additional costs to the health-care system. Money to fund the model could come from shifting revenue within the current primary-care budget and from actual savings.

If the province felt that it was placing too much emphasis on transactions and activities in primary care, it could move funding from the fee-for-service budget to the Dorval Model.

Setting Up Electronic Medical Records (EMRs)

Performance in the Dorval Model requires adoption of electronic medical records (EMRs), which can record, aggregate, and report a small data set that provides the foundation of performance information. The Dorval Model describes the data's value to the system and the value proposition where the system pays the practice for accurate data. This value proposition would allow for rapid adoption of EMRs throughout the province.

EMRs are essential for a performance-oriented practice to be able to record, aggregate, and analyse data and thus measure performance with outcomes. An EMR that can record, aggregate, and report data allows for reporting of primary care to the system through a pay-for-data incentive.

It is straightforward to transmit the primary-care record or a portion of it if the record is in electronic form. Transmission of a manual record, in contrast, involves substantial labour and cost.

With the proper incentives in place, primary care would rapidly adopt and adapt EMRs. EMRs and the supporting infrastructure represent an ongoing expense to the practice of about \$600/month/MD or about \$6/patient/month.

The current OntarioMD subsidy system allows for establishment of EMRs but stops support after three years. This subsidy does not sustain the ongoing use of EMR technology. This would have to be addressed

Most current EMRs have great difficulty recording, aggregating, and reporting practice-wide data. The province has never refined criteria to encourage vendors to support this function. In the presence of focused functional requirements (record, aggregate, and report the model's data), most vendors will be able to adapt and provide these functions.

A pay-for-data system of incentives would encourage the use of EMRs.

In addition to encouraging the establishment and maintenance of EMR technology, the Dorval Model could encourage transmission of the primary-care record to patients and outside providers caring for the group's patients. Providing focused incentive for data element 63 and indicator 48 (dealing with patients being able to access their own file) would facilitate the individual patient's access to the full primary-care record. This would satisfy the eHealth objective of mobilizing patient data when and where people need it.

Correcting Labour Distortions

OHIP's fees for service result in significant labour distortions in primary care in Ontario, which causes unnecessary expense to the system. This section outlines the reasons for these distortions and how the Dorval Model corrects them.

Primary-care practices involve a historic distortion in labour. OHIP's rules require a physician to see a patient in person in order to receive payment for most OHIP services. As a result, most primary-care practices hire few support and allied health professionals -- office staffers represent only overhead and generate no income.

A different payment system could allow for a more rational inclusion of alternative-service providers, with the most efficient provider doing the work.

The current FHT funding model has limited scope. Only certain health professionals receive payment, on the basis of the FHT's number of patients. The current model creates its own labour distortion by limiting the types of professionals receiving funding and basing the funding on professional credentials rather than on an individual's capabilities or the team's functional abilities.

The current model also distorts the purpose of the funded allied health providers. It requires detailed reporting of activities for each funded provider. There is no reporting on the basis of quality outcomes or processes. The implicit message is "Be busy, don't worry about results."

A pay-for-data incentive model could help pay allied health professionals and would significantly reduce labour distortion in the provision of primary care.

Political Perspectives

The Dorval Model offers benefits and challenges for the players in our political and health-care systems. The performance-orientation model for primary care should be attractive to the population and system stewards but may represent problems for physicians.

The public would probably be happy with the results. The model would create choice of family practice for all Ontario residents (solves access to primary care). It would assure quality of primary care and improve information flow.

Such a model would please system stewards for at least six reasons:

- It would ensure adequate capacity.
- It would ensure reasonable quality.

- It would provide a voice for the public.
- It would provide flexibility for change.
- Costs might well fall because of more efficient handling of information, greater access to primary care, and popular engagement in considering stewardship choices in care (demand-side economics).
- This model would establish management by objectives for primary care.

The model would generate benefits and difficulties for physicians.

- It could help generate stability for physicians by controlling the political issues of quality assurance, capacity establishment, and cost control.
- It could reduce physicians' political power by giving system stewards an effective management method.
- It would expose physicians to public awareness of actual performance. Initial response in other sectors to performance measurement is often one of fear and embarrassment. It takes time for professionals to develop comfort with performance reporting and to want the accurate feedback.
- It establishes competitive forces in primary care by establishing capacity larger than the population. Competition can make some doctors uncomfortable.
- Full employment with high earning potential would become less certain. Even if the incentives were revenue neutral, the distribution of earnings would likely be broader, reflecting the range of actual performance. With a broader range of payments, some doctors would see their income decline.

Next Steps

If the province were to find the Dorval Model sufficiently attractive, it should consider expanding the pilot.

The province would need to establish the system infrastructure (see above) and test the model with more volunteer groups. This would allow for refinement of operations and verification of the model's benefits.

Should the model demonstrated value in an expanded pilot phase, it would be ready for general introduction into the system.

Glossary

Attribute. A characteristic or quality. Health Quality Ontario lists nine attributes of health quality: accessibility, appropriately resourced, effectiveness, efficient, equitable, focused on population health, integrated, and patient-centred.

Capacity. Capacity in primary care (the Dorval Model) is the number of satisfactory relationships that a physician can maintain for a given input of time (number of doctor hours in the week).

College of Family Physicians of Canada (CFPC). The CFPC is a national body with the authority to train physicians in the specialty of family medicine and to oversee the ongoing education of family physicians that are in practice.

College of Physicians and Surgeons of Ontario (CPSO). CPSO is the quasi-judicial body that regulates the registration (permission to practise) of physicians in Ontario. CPSO has a mandate to assure quality of performance but can evaluate only about 3 per cent of the province's doctors each year.

Community Health Clinic (CHC). CHCs are primary-care practices that the Ministry of Health funds through its LHINs. Most physicians receive salaries and work under the CHC's management.

Data Element. A data element is a defined type of data such as a blood pressure value, a laboratory value or a date of a service.

Family Health Group (FHG). FHGs are groups of at least three physicians who have signed the FHG template agreement. This patient-enrolment model (PEM) rosters patients to doctors in the FHG. Physicians receive most of their professional income by OHIP's Fee for Service Schedule of Benefits. There are additional (small) capitation payments and incentives for preventive-care outcomes.

Family Health Network (FHN). FHNs are a PEM very similar to the FHO (see below). Most groups have migrated to the FHO model. The FHN has a smaller basket of services in its capitation agreement and a smaller capitation payment.

Family Health Organization (FHO). FHOs are the dominant PEM in Ontario. Groups of three or more physicians contract with the Ministry of Health to adhere to the FHO template agreement. The agreement has no current mechanism of accountability for the PCCCAR basket of 15 services, which it incorporates.

Family Health Team (FHT). FHTs are organizations that have received funding for allied health professionals (interprofessional health professionals) and their support infrastructure and staff. Physicians receive little funding from this source. There are no outcomes or processes common

to all FHTs, but all FHTs must report medical transactions (similar to OHIP transactions below, but not eligible for fees for service).

Fee for Service (FFS). FFS is the traditional payment system in Ontario. Doctors can work independently in the FFS model. They generate income by providing OHIP transactions. There is currently no accountability in this model for quality performance. There is no requirement for scope of service in this model.

Indicator. An indicator can be defined as something that helps us to understand where we are, where we are going and how far we are from the goal.

OHIP Transaction. This is the report that an OHIP-insured service has occurred. In primary care there is currently no accountability regarding service quality.

Ontario College of Family Physicians (OCFP). OCFP is the provincial body that acts as an advocate for family physicians in Ontario.

Ontario Medical Association (OMA). The OMA is the political voice of doctors in Ontario. It negotiates the OHIP schedule of benefits and template agreements (FHG, FHN, FHO) as the physicians' representative.

Outcomes. These are population-based performance measurements. A patient-oriented outcome is an outcome relevant to a lay person (e.g., death or disability). A disease oriented outcome relates to a disease parameter (e.g., an HgA1c level in diabetics).

Patient-Enrolment Model (PEM). A PEM is a model which includes placing patients on the roster of a group practice in primary care and specifies conditions for all parties.

Pay for Data. Pay for data is payment for a practice's data where accurate reporting of the data is the primary criterion for payment.

Pay for Performance. Pay for performance is payment for a practice's achievement of a specified activity. This term often relates to achievement of a clinical outcome (e.g. the proportion of patients 65 or older with a current flu immunization).

PCCCAR Basket of Services. The basket is the list of 15 primary-care services that the PCCCAR drew up in 1996. See chapter 3 and Appendix B.

Process. A process is a practice's formal mechanism for addressing a particular need.

Stewardship. Stewardship involves caring for something you don't own and/or an orientation to conversation.

Appendix A: Measuring Performance: Activities or Transactions v. Outcomes or Processes

This discussion outlines two competing ways of measuring performance and productivity in comprehensive primary care. The two systems measure various activities/transactions or outcomes/processes.

Ontario currently defines productivity and performance in comprehensive primary care by the measurement of activities or transactions (the number of assessments or procedures for a given time). In contrast, the United Kingdom measures performance through the Quality Outcomes Framework (QOF), which measures population-based outcomes and practice processes. The two systems of measurement differ significantly in their perspectives of effectiveness and efficiency.

The choice between measuring activities/transactions or measuring outcomes/processes relates mainly to the system's philosophy of quality and who defines quality. A system valuing volume of services will measure services (activities/transactions) to reflect performance. A system focusing on population-based results or outcomes will look at outcomes/processes.

Both systems can measure the services of comprehensive primary care vis-à-vis the PCCCAR list of 15 primary-care services.

Despite Ontario Ministry of Health's current measurement of activities, Health Quality Ontario (HQO) measures quality on the basis of outcomes and processes. This conflict creates confusion for providers and health-system stewards.

In order to illustrate the significant differences between the two systems, we look at a practice addressing hypertension -- the most important treatable risk for the most prevalent cause of premature death and disability in Ontario.

Measuring Activities or Transactions

A practice wanting to be productive and performing well in the care of hypertension decides to measure activities or transactions. These activities might include:

- the number of blood pressure measurements performed over time
- the number of office visits where hypertension is a billing diagnosis over time
- the number of low-sodium dietary counselling sessions provided over time

During the time of measurement, the practice tries to be productive by providing as many of these services as possible. If it provides lots of services, it appears productive. The practice is busy with a focus on hypertension.

The cost of this management of hypertension steadily increases with the volume of services. There is no feedback in this measurement system, which restrains the practice from continuing to push for greater volumes of service.

Measuring performance by activities risks generating inappropriate activities, as it will not be sensitive to the distribution of transactions within the practice. For example, transaction counting will not distinguish between 10 transactions to one patient and one transaction to 10 patients. Both scenarios appear the same.

This method of performance measurement does not address the control of blood pressure in patients with the condition.

Measuring Outcomes or Processes

A practice wanting to be productive and to perform well in the care of hypertension decides to measure outcomes or processes. These measurements might include

- the proportion of patients the practice has screened for hypertension in the past five years
- the proportion of all hypertensive patients with a blood pressure of 150/90 (or less) in the past year

In this performance system, the outcomes apply to the entire practice for screening and the entire registry of hypertensive patients for effective treatment. Outcome measurements miss no patient from either screening or treatment.

The cost of this system of performance measurement is limited by the limits of the outcome measurement. Once the practice has measured all patients, there is no value to further effort to provide service.

Productivity in Both Methods

Productivity is a ratio of what is produced to what is required to produce it. As we saw above, productivity in both performance-measurement systems (activity or outcome and process) reflects the choice of measurements.

In activity-based measurement, the more activities at the same price means greater productivity.

In the outcome system, the target outcome achieved at a lower cost means greater productivity.

One might assume that measuring activities is a potentially useful indirect measurement of outcomes. This is not correct. The relationship of activities in the achievement of outcomes is not linear. While some activity is necessary to achieve an outcome, at some point further activities simply add cost without achievement. In other words, activities become an inverse indicator of productivity where measurement values outcomes.

Implications

It appears that the people of Ontario expect value for money in the provision of comprehensive primary care. They want service for the entire population and disapprove of volumes of service that fail to assure results. This philosophy is explicit in the work of the Health Quality Ontario. For these reasons, measurement focusing on outcome and process best reflects Ontarians' values.

Measurement of activities in comprehensive primary care is inconsistent with the values of Ontario (and The Association of Family Health Teams of Ontario - AFHTO). Persistent insistence on counting activities and failure to assess outcomes and processes distort the understanding of outcome achievement. Activity measurement can be misleading to providers by encouraging non- or counterproductive behaviour.

If we want to exercise stewardship and encourage performance in health care, we should encourage measurements of outcomes and processes.

Appendix B: PCCCAR Functions

All primary health-care agencies (PHCAs) should provide the following 15 PCCCAR¹⁰ functions:

1. Health assessment
 - determine patient's current health status and potential for health problems by collecting information on physical and psycho-social condition and lifestyle
2. Clinical evidenced-based illness prevention and health promotion
 - clinical prevention services for patients and families, based on evidence-based guidelines, such as periodic health exams and immunization
 - approach (rather than specific set of services) that focuses on broad determinants of health, underlying causes of illness, and factors that affect ability to cope; looks at entire population
 - includes education and support and possibly community development, advocacy, and education
3. Appropriate interventions for episodic illness and injury
 - in case of illness or injury, timely access to primary-care services through simple telephone advice, direct patient contact, and/or referrals to secondary and tertiary care
 - appropriate follow-up
4. Primary reproductive care
 - includes counselling for birth control and family planning, education, screening and treatment for STDs, ante- and post-natal care, and labour and delivery
 - in absence of full in-house maternal care, relationship with agency that provides service
5. Early detection and initial and ongoing treatment of chronic illnesses
 - range of services, including anticipatory care, monitoring to prevent/treat flare-ups, ongoing education for patient and family, and follow-up at appropriate intervals
 - knowledge about community-based services
6. Care for majority of illnesses (in conjunction with specialists, as necessary)
 - comprehensive care to meet all primary medical-care needs -- i.e., for all health problems and illnesses
7. Education and support for self-care
 - encourage greater self-reliance, self-care, and mutual aid, through health education, counselling, linking to resources in community, access to phone health information, advice, and triage services
8. Support for hospital care and care at home and in long-term facilities

¹⁰ Subcommittee on Primary Care of the Provincial Co-ordinating Committee on Community and Academic Health Science Centre Relations (PCCCAR) (1996), *New Directions in Primary Health Care*. PCCCAR report to the Minister of Health Ontario, 21–31.

- in some communities, GP/FPs to deliver or coordinate and monitor hospital care
 - as minimum, involvement in planning pre- and post-hospital care, including linking patients at discharge with home care and other community services
 - support for care and treatment at home and in long-term care
 - develop links with home-care programs and make appropriate referrals and liaise and consult with home-care coordinators and providers
9. Response 24/7
- ability to respond to patients' health problems 24 hours a day, 7 days a week
 - person to person, not through answering machine or instruction to go to emergency
10. Service coordination and referral
- coordinate community, secondary, and tertiary care
11. Maintenance of comprehensive health record for each patient
- managing client information in order to facilitate coordination and referral
12. Advocacy
- support, referral, and liaison for patients aware of need but unable to organize help
 - includes supportive listening, accompaniment if necessary, writing letters, making telephone calls, and/or speaking on their behalf and organizing case conferences
13. Primary mental-health care, including psycho-social counselling
- recognize emotional and psychiatric problems, work out and implement comprehensive management plan, be aware of resources in community, know when to refer patients to and/or work with other mental-health providers
14. Coordination and access to rehabilitation
- ensure appropriate rehabilitative care
 - refer patients to rehabilitation therapists, participate in treatment planning and follow-up, provide education and advocacy, develop care map leading to return to function/school/work
15. Support for people with terminal illness
- home visits and capability for 24-hour response when necessary for care and advice
 - coordinate medical care with home care and other community agencies
 - ensure timely access to hospital care and proper discharge

Appendix C: Estimating Relative Value of Primary Care Services from a Population

Overview

This polling tool attempts to reveal the relative value of various choices in primary health care. Normally price will guide the choice among options, but Ontario's publicly funded system needs an alternative method to describe value.

The strategy of this tool is to estimate the values that a population has regarding the choices of its primary-care services. The tool attempts to quantify the weighting of various potential domains of the value choices. These domains include:

- clinical services (physical; mental health and addiction)
- management services
- the patient experience

The tool assumes the philosophical position that the system is patient-centric and that the population determines what has value and to what degree different choices have value in relationship to each other.

The first step is to define the population to target. This population can be as small as a single medical practice (1,000) or as large as the province.

The second step is to poll the chosen population using this tool. Once investigators have polled the population for its opinion, they calculate the relative value of the various domains. They then enter data from the polling into the spreadsheet "The Dorval Model Relative Value Data Collection and Analysis" in the "Data Collection" tab. A graphic display of the question hierarchy appears above, on page 11, in Figure 1, "Schematic for relative value polling."

The third step is to apply indicators to the relative value choices. This process requires use of the spreadsheet using the tab "Data Analysis." There are thousands of potential indicators for hundreds of attributes, services, and processes in primary-care quality. An alternative to the expensive and time-consuming measurement of seemingly endless indicators is to focus on stewardship. A practice exercising stewardship will probably deliver all aspects of medical and management service well.

Stewardship is the responsible management of something in a person's care. For a practice to steward well it needs accessibility, sensitivity to its patients' perceptions, ability to manage

well, and understanding of its patients' health status. Indicators that reflect these attributes are the foundation of a high-performing practice.

It is possible to weight indicators that measure different characteristics of primary care by referring to the value choices that emerge in the polling. Investigators would then present a set of indicators to a panel of representative experts. They would ask the panel – step 3 -- to apply a point value to each indicator on the basis of how much each indicator draws value from the value choices (the second step). As there are a finite number of points to allocate, the experts will negotiate the number of points any indicator receives. This process would determine the maximum point achievable for each indicator. This step produces a surrogate for price for the maximum achievement for each indicator.

The fourth step is to describe the achievement of value that a practice would achieve through practice performance. For each indicator there needs to be a determination of the measurement method, the minimum threshold for point achievement, and the maximal threshold. The minimum points for any indicator are 0, and the maximum points emerge through step 3. It is the responsibility of the representative expert panel to determine the rules for point achievement.

Dynamic Change

Indicators should reflect population-based service and performance. Expectations change over time, and the domains, sub-domains, indicators, and measurement rules must adapt to public sentiment. Dynamic change over time also discourages "gaming" of the rules and encourages practices to strive to reflect their population's expectations.

Process

Stage 1: Surveying Patients

The interviewer presents the interviewee with a series of questions using the script described in points 1—9 below. There should be an opportunity for the interviewee to clarify issues prior to giving an answer to each question. Interviewers enter answers in the spreadsheet in the "Data Collection" tab.

1. Establish the perspective of the interviewee.

"I want you to give me your opinion on different aspects of services you might receive from your family doctor's practice. I want you to take the perspective of a representative of your family and your community, and I would like you to also take the perspective of future needs."

2. Describe the two divisions of clinical practice.

“Family practice clinical services can be divided into two broad categories: physical medicine and behavioural medicine. This distinction is artificial, and the two areas overlap. The following questions will assess your opinion on the two categories separately.”

3. Describe the divisions in physical medicine. (Figure 1, box 1)

“The services of a family practice can be described in a variety of ways. One way of describing all services is to gather them into types of care, including acute episodic care, chronic-disease management, normal-development prevention and screening, and palliative care.”

Acute care	Acute care refers to most of the services provided at a primary location in our current system. It includes any new injury or illness, any urgent change in a chronic condition, any failure in palliative care, and any other service requiring urgent attention.
Chronic-disease management	Chronic-disease management is the ongoing management of a chronic condition that would require ongoing monitoring, planning, and therapy.
Normal- development prevention and screening	Normal-development prevention and screening refers to the care of healthy people, the preservation of good health, and the detection of conditions that may not be apparent yet.
Palliative care	Palliative care refers to the management of symptoms and their control in patients where the disease causing the symptoms cannot be cured.

“Are there any other types of physical-medical services you might receive from your family doctor?”

“Give each of the types of care a value from 1 to 100, but all the types’ values need to add up to 100.

4. Describe the possible chronic physical conditions. (box 2)

“There are many types of chronic conditions. This is a list of a number of examples. Are there any conditions you would like to add to the list?”

Diabetes	High blood pressure	Angina/MI/stroke	Congestive heart failure
Arthritis	Osteoporosis	Chronic lung disease	Physical disabilities
Kidney failure	Blindness	Deafness	Chronic brain disorders
Chronic skin diseases	Chronic bowel disorders	Cancers	Chronic infections

“Give your opinion on the importance (to you and your community) of the chronic conditions that you want to include. Use the letter H for high importance, M for medium importance, and L for low importance.”

5. Describe the divisions of mental health. (box 3)

“Mental health services of a family practice can be described in a variety of ways. One way of describing all services is to gather them into types of care including acute episodic care, chronic-disease management, normal-development prevention and screening, and palliative care.”

Acute care	Acute care of a behavioural nature might include any new emotional trauma or illness, any urgent change in a chronic mental-health condition, and any failure in the palliative care of a patient suffering from mental health or addiction.
Chronic-disease management	In the care of patients with mental health and addiction, chronic-disease management is the ongoing management of a chronic condition that would require ongoing monitoring, planning, and therapy.
Normal-development prevention and screening	Normal-development prevention and screening refers to the care of healthy people, the preservation of good health, and the detection of behavioural risk factors or conditions that may not be apparent yet.
Palliative care	Palliative care refers to the management of symptoms and their control in patients where the disease causing the symptoms cannot be cured.

“Are there any other types of mental health and addiction services you might receive from your family doctor?”

“Give each of the types of care a value from 1 to 100, but all the types’ values need to add up to 100.”

6. Describe the types of chronic mental-health conditions. (box 4)

“There are many types of chronic behavioural conditions. This is a list of a number of examples. Are there any conditions you would like to add to the list?”

Depression	Bipolar disease	Anxiety disorder	Schizophrenia
Personality disorders	Learning disorders	Alcoholism	Tobacco dependence
Drug dependence	Behavioural addictions	Developmental delay conditions	

“Give your opinion on the importance (to you and your community) of the chronic conditions that you want to include. Use the letter H for high importance, M for medium importance, and L for low importance.”

7. Describe the divisions of management services. (box 5)

“In addition to providing medical services, primary-care practices also provide management services to their patients. These management services might be described as falling into one of the following categories: maintaining a comprehensive record, communicating the record, case management and patient advocacy, and information resource.”

Maintaining a comprehensive record	Maintaining a comprehensive record refers to keeping a record that accurately describes the patient's story and current status. It includes information from a variety of service providers and sites (consultants, hospitals, and tests).
Record communication	Record communication refers to the provision of a patient's record to another provider to assist in the care of a patient (e.g., to a consultant and/or emergency room).
Case management and patient advocacy	Case management and patient advocacy refers to the role of coordinating the care of a patient when several providers are involved.
Information resource	Information resource refers to acting as a source of information for any purpose.

“Are there any other types of management that have not been described?”

“Give each of the types of management a value from 1 to 100, but all the types’ values need to add up to 100.”

8. Describe the nature of patient experience. (box 6)

“Patient experience refers to the subjective opinion of the service recipient about their satisfaction with the service they received. While many factors influence the patient experience, the effect of the experience is the focus of these questions.”

“These questions look at experience from the perspective of satisfaction with the most recent encounter and from the perspective of overall satisfaction with the services of the practice. How important is each of the criteria in your overall evaluation of the patient experience?”

Practice Satisfaction	How satisfied are you with the overall services you receive from the practice?
Appointment Service Satisfaction	How satisfied are you with your experience from your last appointment with the practice?
Appointment Day Satisfaction	Were you satisfied with the day of your most recent appointment?

“Give each aspect of patient experience a value from 1 to 100, but all the types’ values need to add up to 100.”

9. Estimate the value of the high-level divisions. (box 7)

“How would you describe the value of the medical services for physical v. the services for mental-health conditions v. the management services v. patient experience? Give each a percentage adding up to 100%.”

10. Calculate score.

The score from each question set (1--9 above) goes into an Excel spreadsheet that performs calculations. The resulting calculations give a relative value to each of the components of comprehensive primary care.

Stage 2: Quantifying Expectations

The second stage in Dorval Quality Estimation is to take the survey of patients’ expectations from stage 1 and assign relevant attributes, outcomes, or practice processes that reflect the services that emerged in the survey. Investigators weight these attributes, outcomes, and processes to reflect the population’s values as they emerged in stage 1. The spreadsheet “The Dorval Model Relative Value Data Collection and Analysis” in the Data Analysis tab can assist in this stage.

This stage requires development of consensus within a representative group of investigators, which discusses and negotiates over potential choices, assessing their practicality and the presence of data sources in the practice.

The lack of data for acute episodic care created a challenge in the development of the Dorval Quality Estimation process: quality assessment of specific presentations usually requires information available only in the narrative of the diagnosis. This information requires manual review and so makes ongoing auditing very difficult. Fortunately, all acute episodic care depends heavily on access, which boasts a number of established indicators, which we adopted. See Appendix G: Measuring Access.

Assessment of the quality of the care provider’s relationship with patients requires asking patients about their satisfaction. Ontario currently has no standardized questionnaires, but many other jurisdictions do. Dorval Medical asks three questions about overall satisfaction. We believe these questions represent the “bottom line” for the political stewards of the system.

The model assesses care coordination, case management, information management, and patient advocacy in terms of the presence or absence of processes that deliver these services.

Five types of services – acute episodic care, chronic disease, normal growth and development, prevention and screening, and palliative care -- offer well-established quality indicators.

Many of the indicators in this stage depend on accurate description by a registry. This is key information that the system needs for planning and monitoring performance.

Stage 3: Assigning Indicators

The third stage in Dorval Quality Estimation is to assign indicators to the attributes, outcomes, and processes from stage 2. Again, a representative body negotiates the selection and weighting of the indicators. The process always refers back to the relative values that the population in stage 1 expressed.

Table 1 gives the current set of indicators that Dorval Medical proposes for measuring the quality of performance. Participants report indicators and processes monthly with few exceptions. Indicators are reported for the entire group as a unit.

The “Points” column describes the maximum total points (out of 1,000 for all indicators) earnable for performance in the indicator. The “Min” column gives the minimum performance necessary to earn any points, and “Max,” the performance that achieves maximum points. Performance between these two numbers results in a linear earning of points.

Performance for each indicator appears in the percentage of possible points that the practice earned. For example, in indicator 1 there is a potential of 90 points. If the practice earned 80, its performance for that indicator would be 80/90, or 89 per cent.

The model allows for ready estimation of performance for any grouping of indicators, such as chronic-disease management (CDM), where there are 23 indicators with a maximum total of 165 points. The percentage of total points earned for the 23 indicators represents performance for CDM. Performance for all divisions would be the total of all points in all indicators divided by 1,000.

The actual numbers in Table 1 are from Dorval Medical’s group practice. Indicators are arbitrarily grouped under headings but can relate to different services from the polling process.

Table 1: Indicators

No.	Access, Acute Care, and Patient Satisfaction	Points	Min	Max
1	The percentage of the practice where there was Satisfaction with most recent visit. Survey within the past	90	75%	85%

	year. Minimum polling of 10% of the practice			
2	The percentage of the practice Satisfaction with overall service. Survey within the past year. Minimum polling of 10% of the practice	70	75%	85%
3	% Patients satisfied with the day of their Appointment measured within the past month (minimum sample size 2% of roster)	40	75%	85%
4	4 wk. average of the 3rd Next Available Apt.	80	5	2
5	Access Bonus earned in the last 6 months	30	20%	40%
6	% LTC patients covered 7/24	30.00	80%	100%
7	%Palliative Patients covered 7/24	30	80%	100%
8	% Acute Care patients Covered 7/24	30	80%	100%
9	% of the week with direct patient access to the office	25	30%	40%
10	Proportion of the practice able to contact the practice via email	10	30%	40%
11	Proportion of the practice able to schedule their own appointments electronically	10	30%	40%

No.	Information Management	Points	Min	Max
------------	-------------------------------	---------------	------------	------------

12	% of the group with a Contract to transfer data for an emergency 24/7	30	90%	100%
13	% patients with Rx List Reconciled in the last Year	30	40%	60%
14	% patients with Dx List Reconciled in the last Year	30	30%	50%
15	% Patients who can Access their own Record	30	70%	80%

No.	Chronic Disease Management	Points	Min	Max
------------	-----------------------------------	---------------	------------	------------

16	Proportion of Depression patients with a clinically relevant review in the past year	8	80%	90%
17	Proportion of Bipolar patients with a clinically relevant review in the past year	8	80%	90%
18	Proportion of Schizophrenia patients with a clinically relevant review in the past year	7	80%	90%
19	Proportion of Diabetic patients with a clinically relevant review in the past 6 months	10	80%	90%
20	DM Composite Score	3	60%	80%

21	Proportion of ASHD patients with a clinically relevant review in the past year	10	80%	90%
22	Proportion of Hypertension patients with a clinically relevant review in the past year	10	80%	90%
23	Hypertension & BP<150 in last year	2	50%	70%
24	Proportion of CHF patients with a clinically relevant review in the past year	10	80%	90%
25	% of CHF with ACE/ARB	1	40%	70%
26	% CHF with Beta Blocker	1	40%	70%
27	Proportion of COPD patients with a clinically relevant review in the past year	10	80%	90%
28	% COPD on Spireva	1	40%	70%
29	Proportion of Chronic Renal Failure patients with a clinically relevant review in the past year	10	80%	90%
30	% Chronic renal failure with BP<130/80 within 6 months	2	50%	70%
31	Proportion of Smokers with a clinically relevant review in the past year	10	80%	90%
32	Proportion of Alcohol Dependency patients with a clinically relevant review in the past year	10	80%	90%
33	Proportion of the group where there is a registry of Patients on Coumadin (95% accurate)	10	80%	90%
34	% On Coumadin with INR 2-3 in last 2 months	10	80%	90%
35	Proportion of Asthma patients with a clinically relevant review in the past year	10	80%	90%
36	% Asthma with Flu shot in last year	7	80%	90%
37	Proportion of CVA patients with a clinically relevant review in the past year	10	80%	90%
38	% CVA on ASA or Antiplatelet Medication	5	80%	90%

No.	Palliative Care	Points	Min	Max
39	% Palliative Patients with care plan less than 2 months old	135	75%	90%

No.	Prevention and Screening	Points	Min	Max
40	% Patients over 64 with a current flu shot	20	60%	80%

41	% Women aged 50 - 70 with a Mammogram in the past 2 years	15	55%	75%
42	Women aged 35 - 70 with a uterus who have had a pap in the past 2 years	15	60%	80%
43	% Children under 2 with full basic immunizations	20	85%	95%
44	% Patients aged 50- 75 with current Colorectal Screening	25	15%	70%
45	% patients with a Skin Exam in past 3 yrs.	10	50%	70%
46	% patients Screened for Depression age>30 in last 5 yrs.	8	30%	60%
47	% Patients screened for Alcoholism age >30 in last 5 yrs.	7	30%	60%
48	% Patients Screened for smoking >15 in last 3 years	8	30%	60%
49	% of 18 month olds with Nippising Screen in the past year	7	80%	90%

Stage 4: Identifying Data for Indicators

All the indicators in the table above can be determined from a limited set of data. The list of 74 data elements and their sources are found in Appendix E: Data Elements for Assessing Performance. These data elements are all that is required to determine the 49 indicators of quality (above), as well as practice capacity and cost.

Conclusion

Indicators with assigned relative value allow for aggregation of multiple indicators in a way that describes quality for PCCCAR services and allows an estimation of overall value.

With this method in place, the system can assign a value for overall adequate quality and use it to assure quality.

A practice can use a small set of data to calculate all the indicators of the Dorval Method (see Data Sources in chapter 6, above).

At present, Dorval Quality Estimation generates (at best) a crude estimate of a population's expectations for its primary-care system. The purpose of the method is to create a dynamic framework that is constantly measuring and re-evaluating. With time and multiple iterations, the accuracy of the estimation will increase.

The polling of the public in stage 1 should continue and should improve with experience.

Stages 2 and 3 both refer back to stage 1 and are likely to change as the expert panel refines its choices of indicators and indicator thresholds.

The dynamic nature of the method is advantageous, because it:

- increases accuracy over time
- adapts to changing public expectations
- adapts to changing medical science
- discourages “gaming” towards a particular indicator

Appendix D: Achieving Quality *and* Efficiency

Observers have known for years about the association between investment in primary care and overall efficiency in health systems. Dr Barbara Starfield has done a lot of research and writing on the subject. Experts know less, however, about how investment in primary care increases efficiency.

Attempts to associate quality initiatives in primary care and cost reduction have failed in the literature (Ovretveit, “Does Improving Quality Save Money?”). Years of qualitative improvement in Ontario (and other jurisdictions) have failed to result in cost reduction.

Dorval Medical established the hypotheses that comprehensive quality establishes trust and from within the trusting relationship providers and patients can engage in discussions and choices vis-à-vis stewardship and hence cost. The achievement of quality and the achievement of efficiency are two separate but dependent elements.

Dorval Medical has adopted these two strategic initiatives in its philosophy and services. Its performance achievements suggest that this dual strategy may reduce demand on the health system and thus the system’s cost.

Comparing Systems

To illustrate this achievement, the following three scenarios illustrate the power of patient choice from within a trusting, accessible primary-care relationship.

Example: A 50-year-old man develops severe lower-back pain and needs to see a doctor.

We describe the same clinical presentation in three different primary-care clinical settings, each with different provision of services based on both the patient and the provider’s expectations.

A Typical Practice

Appointment date is not timely.

Office wait time to see doctor is excessive.

After fighting through the busy signals on the telephone, Paul has to negotiate with the overbooked schedule to obtain a fit-in appointment in two weeks. In the two weeks he suffers and decides that he needs to prepare by researching on Google. He arrives for his appointment, he waits the usual 45 minutes, and the doctor comes in looking harried.

The physician observes Paul walking and concludes that there is no neurological compromise (he doesn't say this to Paul, in order to save time).

Paul asks for diagnostics he's read about. The doctor takes path of least resistance and agrees.

Paul realizes that he has one shot at a cure. He asks for an X-ray and an MRI, an anti-inflammatory medication, and a referral to a specialist. Wanting to satisfy these wishes and catch up on his own schedule, the doctor agrees and gives him what he wants.

Course of treatment and recovery are unmanaged.

Paul leaves without understanding the plan, knowing the expectation for recovery, and obtaining the tools to self-manage, and having created demand for expensive, scarce resources. He stays home from work and is better in a month, has a normal X-ray, and joins waiting lists to have an MRI in two months and see a consultant in six months. But because he has recovered, he forgets these appointments and misses them.

Paul is better, but sees the timeline for full diagnostics as the big problem with the Canadian health system.

Paul likes his family doctor and thinks that he received reasonable service, but he is unhappy because he could not get the tests and consultation that he believed would have assisted his recovery. He feels that the government and the ministry are not meeting his expectations.

The doctor is constantly busy seeing patients and meeting their immediate needs.

Paul's doctor is exhausted each day with the endless demand on his time and the feeling that he is always behind. He can't imagine working into the evenings and weekends or managing his patients in the local hospital. His office can't consider delivering service other than by appointment, because it would receive no payment for such services.

Supporting resources are inefficiently utilized.

The imaging department of the hospital wastes a booking slot and considers Paul and his doctor to be negligent of their services.

The specialist has an empty appointment that Paul missed and feels that he and his doctor are not respectful of his time.

Due to inefficient utilization, there is constant demand to increase resources.

The system sees increased demand on the scarce resources of the MRI and the specialist and wonders about devoting more resources to the system at the expense of other government services.

Because Paul has neither the understanding nor a plan to prevent or manage future back pain, he will repeat his treatment, with similar results and costs. Future cost is estimated at 50 per cent of the current episode ($50\% \times \$4,687 = \$2,343.50$).

The costs to the health system and to the patient of Paul's sore back (real and opportunity costs) are

The actual, opportunity, and recurring costs add up.

- doctor's fee: \$37
 - specialist's costs: \$120
 - medication: \$35
 - X-ray back: \$45
 - MRI: \$450
 - Paul's lost work (4 weeks): \$4,000
 - cost of future events: \$2,343.50
- Total: \$7,030.50**

A Walk-In Clinic

Paul experiences similar service to a "Typical Practice" except that access to the appointment is good, but the provider is a stranger

Paul uses a walk-in clinic because it is convenient. He goes to the clinic and waits for the usual two hours on the evening he has chosen. Paul knows (by the sign in the room) that there will be time for only one issue. Paul says he has a very sore lower back. The doctor observes Paul walking and concludes that there is no neurological compromise (he doesn't say this to Paul, in order to save time).

The doctor receives excellent pay to conclude the interview speedily by one of three methods: prescribe, test, or consult. He tells Paul that he needs an X-ray and an MRI, an anti-inflammatory medication, and referral to a specialist.

Paul leaves without understanding the plan, knowing the expectation for recovery, and obtaining the tools to self-manage, and having created demand for expensive, scarce resources.

Paul stays home from work and is better in a month, has a normal X-ray, and goes on waiting lists to have an MRI in two months and to see a consultant in six months. Paul books an MRI in Buffalo, New York, but holds on to his other appointment just to be on the safe side. Because he recovers, he forgets the local appointments and misses them.

Paul likes the convenience of the walk-in clinic and thinks he received reasonable service, but he is unhappy because he could not have the tests and consultation that he believed would have assisted his recovery. He feels that the government and the ministry are not meeting his expectations.

The walk-in clinic is proud that it provides extended hours seven days a week in the evenings and on weekends. It keeps no comprehensive record because it believes that it has no need to provide continuity of care. It does not consider that it has any role for patients in the nearby hospital. It can't consider delivering service other than by appointment because it would receive no payment for such services.

The Imaging department of the hospital wastes a booking slot and considers Paul and the clinic negligent of its services.

The specialist has an empty appointment (that Paul missed) and feels that he and the clinic are not respectful of his time.

The system sees greater demand on the scarce resources of the MRI and the specialist and considers devoting more resources to the system at the expense of other government services.

Because Paul has neither the understanding nor the medicine to manage future back pain, he will repeat his treatment, with similar results and costs. Future cost will be $50\% \times \$5,275 = \$2,638$.

The costs of Paul's sore back (real and opportunity costs) are

- doctor's fee: \$75
 - specialist's costs: \$120
 - medication: \$35
 - X-ray back: \$45
 - MRI Buffalo: \$550
 - MRI Ontario: \$450
 - Paul's lost work (4 weeks): \$4,000
 - cost of future events: \$2,638
- Total: \$7,913**

A Practice with Trusting, Accessible Relationships

Paul calls his primary-care practice and receives an appointment on the day of his choice (today). His doctor sees him on time and gives him the time to tell his story and describe his expectations. The physician explores his history to ensure that there are no "red-flag" issues of high risk and explains this process to Paul as this occurs. He examines Paul to ensure that there are no neurological compromises and explains this to him.

In the setting where there is no personal relationship, the provider is less restricted in the choice of OHIP billing codes. In walk-in-clinics aggressive billing is more likely -- an A003 (complete physical), instead of an A007 (intermediate assessment).

Paul's expectations have been consistently met in the past and he knows the people who provide his care. He trusts his practice to meet these expectations in the future.

Paul feels confident and safe to consider a cautious, staged approach to his problem. He is confident that there is no risk to his recovery, and he chooses to act with a conservation orientation.

As Paul is a typical case, the doctor advises him that it is safe to treat the pain, he should keep mobile, and he will recover probably within three months. He prescribes narcotics for Paul's pain, which first-line treatment with Tylenol won't reduce. He advises Paul that, if his condition changes in a manner that concerns him, he can obtain an appointment on the day he wants. Paul knows that this is a real promise, because this is the way the clinic consistently treats him.

Paul feels that he understands the problem and how to resolve it and does not feel that he is alone as he manages his back pain. He stays home from work and recovers in two weeks without any need for further investigations or consultations. He is happy because the system is 'there for him' when he needs it.

Paul likes his family doctor and feels the service met his expectations. Paul's doctor is relaxed. The practice is able to offer hours in the evenings and on weekends and manages patients in the nearby hospital. It offers service by a variety of modes, including phone advice, e-mail, and other members of the team.

There is no negative impact on diagnostic imaging services and specialists. They know when Paul's doctor seeks service that he needs and values their time and service.

The system sees that Paul's back problems do not generate costs and that costs therefore do not increase.

Because Paul has the understanding and medication to manage a future episode of back pain, he is less likely to need further advice or medication from his doctor. Future costs will be $25\% \times \$2,038 = \510 .

The costs of Paul's sore back (real and opportunity costs) are

- doctor's fee: \$3
 - specialist's costs: \$0
 - medication: \$35
 - MRI: \$0
 - Paul's lost work (2 weeks): \$2,000
 - cost of future events: \$510
- Total: \$2,548**

Paul's satisfaction is high and the system can provide for his needs at a reduced cost.

Appendix E: Data Elements for Assessing Performance

Table 2 gives the necessary data points from both EMRs (56 elements) and direct reporting -- monthly reports (17) and weekly reports (1). The actual numbers in the table are from Dorval Medical's group practice.

Table 2: Data elements

From EMRs

Field #	Comment	Data Type	Sample
1	Group Identifier	4 Letter or null	BABF
2	MD Identifier	6 numbers	244301
3	Patient Identifier	10 numbers	1234567890
4	Date of Birth	Date	4/27/1956
5	Gender	M or F	M
6	Postal Code	Postal Code	L6K 3W6
7	Current Dx Depression, last Date of entry	Date	11/30/2011
8	Current Dx Bipolar, last Date of entry	Date	12/1/2011
9	Current Dx Schizophrenia, last Date of entry	Date	12/2/2011
10	Current Dx Diabetes, last Date of entry	Date	12/3/2011
11	Current Dx ASHD, last Date of entry	Date	12/4/2011
12	Current Dx Hypertension, last Date of entry	Date	12/5/2011
13	Current Dx CHF, last Date of entry	Date	12/6/2011
14	Current Dx COPD, last Date of entry	Date	12/7/2011
15	Current Dx Chronic Renal Disease, last Date of entry	Date	12/8/2011
16	Current Dx Depression, last Date of entry	Date	12/9/2011
17	Current Dx Alcohol dependency, last Date of entry	Date	12/10/2011
18	Current Dx Asthma, last Date of entry	Date	12/11/2011
19	Current Dx CVA, last Date of entry	Date	12/12/2011
20	Current Dx Palliative, last Date of entry	Date	12/13/2011
21	Most recent Systolic value	Numeric	130
22	Most recent Diastolic value	Numeric	70
23	Most recent BP Date	Date	11/30/2011

24	Most recent BMI Value	Numeric	28
25	Most Recent BMI Date	Date	11/30/2011
26	Most Recent Pulse Rate Value	Numeric	70
27	Most Recent Pulse Rate Date	Date	11/30/2011
28	Date of most recent Skin exam	Date	10/30/2011
29	Date of most recent Depression Screen	Date	10/31/2011
30	Date of most recent Alcohol Screen	Date	11/1/2011
31	Date of most recent Smoking screen	Date	11/2/2011
32	Date of Most recent Nippising 18/12 Screen	Date	11/3/2011
33	Date of most recent Dx Reconciliation	Date	11/4/2011
34	Date of most recent Rx Reconciliation	Date	11/5/2011
35	ACE or ARB Current Rx?	Yes (Y) or null	Y
36	Beta Blocker current Rx?	Yes (Y) or null	Y
37	Spireva Current Rx?	Yes (Y) or null	Y
38	Coumadin current Rx?	Yes (Y) or null	Y
39	ASA or Antiplatelet Rx?	Yes (Y) or null	Y
40	Most Recent INR Value	Numeric	2.3
41	Most Recent INR Date	Date	10/31/2011
42	Date of most recent Mammogram	Date	10/31/2011
43	Date of Most Recent Flu Shot	Date	10/30/2011
44	Number of Pentacils and MMR in last 2 years	Numeric	6
45	Current Colorectal Screen?	Yes (Y) or null	Y
46	Date of most Recent Palliative Care Plan	Date	10/30/2011
47	Most recent A1C Value	Numeric	0.055
48	Most Recent A1C Date	Date	11/30/2011
49	Most Recent Fasting Sugar Value	Numeric	5.5
50	Most Recent Fasting Sugar Date	Date	10/31/2011
51	Most Recent LDL Value	Numeric	2.3
52	Most Recent LDL Date	Date	10/31/2011
53	Date of most recent pap smear	Date	12/13/2011
54	Dx of Breast Cancer, most recent date	Date	12/14/2011
55	Dx of Colon Cancer, most recent date	Date	12/15/2011
56	Hysterectomy in record	Yes (Y) or null	Y

From Direct Reporting

Monthly Report

Field #	Comment	Data Type	Sample
57	Number of anonymous patient surveys in the past year	Numeric	300

58	% of Patients reporting satisfaction with the Most recent Visit in past 3 months	Percentage	85%
59	% of patients reporting satisfaction with Overall Service in past 3 months	Percentage	75%
60	% of patients reporting satisfaction with the day of their last appointment in past 3 months	Percentage	85%
61	Access Bonus earned as a proportion of full potential in the past 6 months	Numeric	25%
62	% of LTC Patients covered directly 7/27	Percentage	100%
63	% of Palliative Patients covered directly 7/27	Percentage	100%
64	% of Acute Hospital Patients covered directly 7/27	Percentage	100%
65	% of the week with direct patient access to the office	Percentage	30%
66	% of the group with a Contract to transfer data for an emergency 24/7	Percentage	50%
67	% Pts who can Access their own Record	Percentage	50%
68	For each Family Doctor in the Group, MD Identifier	6 numbers	244320
69	For each family doctor in the Group, Regularly scheduled patient appointment hours in the week	Numeric	31.5
70	Proportion of patient appointments of a minimum of 10 minutes	Percentage	95%
71	Proportion of patients who can email the practice	Percentage	90%
72	Proportion of patients who can book their own appointment electronically	Percentage	30%
73	All Gross practice Revenue for the preceding 12 months	Monetary	\$2,500,000
	Weekly Report		
74	Average Practice Weighted 3rd Next Available Appointment over the past 4 weeks (minimum 1 measurement each week)	Numeric	2.5

Appendix F: Current Modes of Pay for Performance and Dorval Model

All six models of primary care in Ontario pay for performance, but each has a different focus. Table 3 describes the types of payments for each of the six models and contrasts these characteristics with the Dorval Model. The figures relate to the actual earnings of practices and derive from the author's discussions with practitioners across the province. The six existing models are:

- Fee for Service (FFS)
- Family Health Group (FHG)
- Family Health Network (FHN)
- Family Health Organization (FHO)
- Family Health Team (FHT)
- Community Health Clinic (CHC)

Table 3: Modes of pay

Model objectives	Fee for Service (FFS)	Family Health Group (FHG)	Family Health Network (FHN)	Family Health Organization (FHO)	Family Health Team (FHT)	Community Health Clinic (CHC)	Dorval Model ¹¹
Proportion of all practices ¹²	29%	28%	4%	33%		4%	
OHIP transactions	100%	88%	34%	32%	100%	0%	20%
Enrolment	0%	10%	55%	57%	0%	0%	40%
Clinical outcomes	0%	2%	10%	10%	0%	0%	39%
Hourly payment	0%	0%	1%	1%	0%	100%	1%

¹¹ Proposed initial distribution of objectives.

¹² Ontario Medical Association Presentation to HNHB Board, April 20, 2011.

Appendix G: Measuring Access

Access is a primary concern of both the system stewards and the population of Ontario. People need access to a practice, to an appointment, and to all the other services of comprehensive primary care. Measuring practice access is a challenge in order that the measurement is informative to the practice and verifiable by the system. This appendix looks at six useful indicators of access, two of them by Mark Murray.

Mark Murray's Advanced-Access Indicators

First, Mark Murray suggests the measurement of “third next available appointment” (3NA) -- a standard indicator for access,¹³ but one extremely easy to distort accidentally or intentionally. Dorval Medical applies six rules to make the measurement informative to the group and reduce gaming:

- measures 3NA weekly on a randomly selected weekday
- measures 3NA at least three hours after the office opens (i.e., after a significant portion of the day's demand has surfaced)
- does not count time slots blocked off
- counts only full-time (not “fit-in”) appointment slots
- measures all comprehensive care providers -- physicians and RN(EC)s in comprehensive care -- at the same time
- measures group 3NA using Oldham's weighted method¹⁴ for all comprehensive care providers

Verification of 3NA requires review of the schedule for each provider to ensure that he or she is following the rules (above bullets).

Second, Mark Murray suggests a measure of the proportion of patients satisfied with the day of their appointment. Random sampling of patients is the only way to do this. Verification would require a random survey by the auditor to confirm a similar reported proportion.

Other Indicators of Access

There are at least four other verifiable indicators of access:

¹³ <http://www.ohqc.ca/pdfs/access.pdf>

¹⁴ http://qiip.ca/user_files/Advanced_Access_Oldham.pdf

- proportion of appointments with a full-time slot (minimum 10 minutes) -- verification through observation of the schedule
- proportion of palliative patients with practice access 24/7 -- verification through sampling surveys of families of palliative patients
- proportion of acute care patients with practice access 24/7 -- verification through verifying the service by the hospital's medical-staff office
- proportion of the week when patients have direct access to the practice (hours of access by any means divided by the 168 hours in the week) -- verification through a survey of patients