The Dorval Model

An Accountable, Performance-Oriented Model for Primary Care

George Southey, MD, FCFP

Lead Physician and Medical Director,

Dorval Medical

Third Edition

September 2012

fresh care

© George Southey 2012. This document and its associated spreadsheets, “Quality Weighting” and “Value for Money,” 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 the (original) document is stated.
The Covenant

The origins of Canadian health care have roots in the country's harsh, uncompromising environment. Survival meant that people had to help each other. A major story in Canadian social policy in health begins in a hospital bed in Winnipeg in 1910, where a six-year-old immigrant boy from Scotland learned he would lose his right leg. Fortunately, another surgeon took interest and, in return for making the situation a teaching case, treated the lad. Tommy Douglas kept his leg and the memory of the events. He experienced the Depression in Canada and Chicago and was also influenced by the works of Norman Bethune. While he was premier of Saskatchewan 1944--61, heading the Co-operative Commonwealth Federation (CCF), his government introduced free hospital care for most residents in 1946.

In 1962, the New Democratic Party (the CCF's successor) implemented Medicare in the province, establishing the pattern for the rest of the country. The birth of Medicare in Saskatchewan had labour pains. The doctors went on strike, and the government had to seek a compromise. The two sides made a covenant: the government would provide a public service by paying for physicians' services, and in return the doctors would retain their autonomy and be accountable only to their patients and to the communities in which they lived by means of their sense of social justice and their professional body. A system of fee-for-service emerged, despite everyone's understanding that the fees addressed only parts of the relationship on which primary care rests.
The covenant spread and worked surprisingly well across Canada, despite the loose accountability. With time, however, relationships changed. Inflation eroded incomes of doctors, many of whom became more aggressive in their billing practices, and many primary care physicians reduced their scope of practice by eliminating their hospital privileges, deliveries in obstetrics, and care in nursing homes. Primary care’s focus shifted gradually from comprehensive relationships to service transactions. The loss of competitive forces in the mid-1980s accelerated the deterioration of the fundamental primary care relationship.

Most Canadian doctors still are taught and believe that they are accountable only to their patients and to their profession. There is widespread mistrust and distaste for the political and bureaucratic system.

Now in 2012, governments are telling Canadians that the current system is unsustainable. In the ongoing discussion, research, and debate, two truths are likely:

- Canadians cherish their publicly funded health care and would probably adapt to a new relationship in which physicians become accountable to their communities in different ways.
- We in the medical profession can influence these inevitable changes only by the wisdom with which we respond and adapt.

This document explores choices facing primary care and how one practice implemented a solution.
Figure B6: Total quality score 102
Table B1: Domain scores for providers and practice 103
Table B2: Performance in cost, capacity, and quality 103

An Evolving Method 104
Conclusion 105
Appendix C: The Dorval Model and Health Quality Ontario 106
Appendix D: Data Elements 110
  From the EMR 110
  From Direct Reporting 112
    Monthly Report 112
    Weekly Report 113
Appendix E: Comparing Systems 114
  A Typical Individual Practice 115
  A Walk-In Clinic 116
  A Group Practice with Trusting, Accessible Relationships 117
    Table E1: Costs for Paul in three settings 118
Appendix F: Measuring Access 119
  Mark Murray’s Advanced-Access Indicators 119
    Figure F1: Average 3NA 120
    Other Indicators of Access 120
Table F1: Proportion and verification, indicators 121
Appendix G: Current Modes of Pay 122
  Table G1: Modes of pay 122

Acknowledgments 123
Executive Summary

**Background:** Some perceptive observers have characterized Ontario’s health system as displaying uncertain quality, inadequate capacity, and high costs. Costs for health care in the province continue to rise, yet residents’ satisfaction with primary health care is low.

In 2004, 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 achieve.\(^1\) None the less the QOF provides an innovative mechanism for assessing multiple indicators in comprehensive primary care simultaneously. Dorval Medical adapted the QOF mechanism to reflect value in Ontario and further modified it to allow for ongoing adjustment to measurement as perception of quality changed over time.

In 2009, Dorval Medical began a pilot project – the Dorval Model -- to try to increase patients’ satisfaction and reduce costs by continually measuring the parameters of quality, capacity, and cost. To date, its implementation of the Dorval Model has led to cheaper and better primary care for its patients.

The Dorval Model maintains electronic medical records (EMRs) for 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 Ontario’s traditional pay-for-individual-service transactions by individual providers. The model allows continuous assessment of quality, as well as of capacity and of cost, for primary care in participating practices and facilitates comparison and improvements.

Analysis of Dorval Medical’s practice through the Dorval Model shows that primary care physicians maintain a service capacity that, if use spread across the province, could meet current needs with current resources. Dorval Medical finds its costs are about $315 per average patient per year, probably lower than those for other models and practices in Ontario. In addition, Dorval Medical’s patients stay in hospital for 14 per cent less time than the national average and 22 per cent less 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.

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 its general adoption could meet both fiscal demands and residents’ expectations.

The Dorval Model has a number of characteristics that are highly desirable in Ontario’s current political and economic environment:
• It is consistent with principles of the Canada Health Act.

• It assures the quality of primary care that Ontarians expect.

• It has demonstrated the ability to address the province’s needs for capacity (satisfactory relationships for all 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 readily adoptable 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 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 use of interprofessional health providers (e.g., nurses, nurse practitioners, and social workers) wherever possible

• It encourages rapid adoption of electronic medical records (EMRs) and their mobilization to provide them where they are needed.
The report’s seven chapters deal with the following subjects:

- elements of performance (chapter 1)
- measuring quality (chapter 2)
- measuring capacity (chapter 3)
- measuring cost (chapter 4)
- acquiring, handling, and analysing data (chapter 5)
- Dorval Medical’s experience with the model (chapter 6)
- applying the model elsewhere (chapter 7)
Introduction

Many doctors and members of the public do not see a significant risk to the health care system (in terms of its sustainability or affordability). At the same time, others have expressed concern for many years, and yet the system has continued to evolve.

Don Drummond, in 2010 (as chief economist of TD Economics)\(^2\) and in 2012 (as a provincial commissioner),\(^3\) advised the Ontario government that stabilizing its finances would require control of health costs. He also stated that managing these expenses required reform of the health system. Both of his reports gave suggestions for such reform. To date, these proposals have not initiated change.

The government is currently discussing contracts with the Ontario Medical Association (OMA) and has recently reduced the fees on numerous services. It did so within the existing system and did not attempt the sort of reform that Drummond suggested. So far, neither side has articulated objectives, strategies, or implementation of reform.

Given the delay of Drummond’s recommendations, risk may arise from the financial sector, which funds government services. Such risk can manifest itself suddenly and dramatically (as in the bursting of the U.S. housing bubble in 2008 and the current sovereign debt crisis in Europe).

\(^2\)“Charting a Path to Sustainable Health Care in Ontario,” *TD Economics Special Reports*, May 27, 2010.
\(^3\)Commission on the Reform of Ontario’s Public Services, Report, Feb. 15, 2012.
The medical profession might reconsider the position that family physicians are a scarce resource in its risk analysis. The general impression has been of a scarcity of primary care personnel, placing the profession in a position of strength, where it could use the threat of further loss of personnel as a reason to limit financial cuts.

But is this reading accurate? Data from the Ontario Medical Association indicate that there are 7,650 comprehensive primary care physicians in the province working at least 30 hours a week in direct and indirect patient care. There are about 13 million Ontarians, and so, with the current number of physicians working in the way they do, the system would achieve capacity with a capacity measurement of 57. Dorval Medical reports a practice capacity of 60, and informal discussion with other family health teams (FHTs) suggests similar capacity there. If that were to become the norm in the province, the current levels of personnel would suggest that there is about a 5 per cent surplus of primary care physicians.

Primary care services represent less than 10 per cent of the health system’s costs, but 60 per cent of its encounters and an even greater proportion of ongoing relationships between health providers and the public. In other words, despite its small system cost, primary care -- the locus of important ongoing relationships -- shapes the public’s experience of its health system and profoundly influences patients’ health choices (demand-side economics).

Comprehensive primary care requires management of patient information, coordination of

---

6 Physician capacity = the number of satisfied relationships/physician care hours in a week. A doctor with 1,500 patients who works 40 hours per week and satisfies their needs would have a capacity of 1,500/40 = 37.5. See chapter 3, Assessing Capacity, below.
care, and management of expectations, in addition to medical services. Better management in primary care could significantly increase the system’s efficiency.

Through greater efficiency, the system might evolve past the current risks to a new stability.

Don Drummond has suggested clear objectives for reforming the health system in terms of costs. As an appointee of the Ministry of Finance, for the 2012 report, his primary objective was to limit increases in health care costs to 2 per cent per year – well below the expected growth of 6 per cent. Despite an ageing, growing population, this cost objective requires savings of about $1.8 billion per year.

The government also has articulated its objectives vis-à-vis quality and capacity. It wants an accountable assurance of quality and capacity that would allow everyone access to all primary care services. These objectives are reflected in the Excellent Care for All Act of 2010.

Thus we can summarize the province’s objectives in reform:

- **quality** that meets the province’s expectations
- **capacity** that ensures primary care for every Ontarian
- **costs** as low as possible (no more than 2 per cent growth per year)

---

7 Subcommittee on Primary Care of the Provincial Co-ordinating Committee on Community and Academic Health Science Centre Relations (PCCCAR), *New Directions in Primary Health Care*, PCCCAR Report to the Minister of Health Ontario, 1996, 21–31. These services form part of the contract of every family health organization (FHO) and family health team (FHT).

8 The Dorval Model, [www.dorvalmedical.ca](http://www.dorvalmedical.ca) Appendix D <17 July 2012>.

This paper might seem an academic exercise without much relation to ‘real world’ experience, were it not for the work of Barbara Starfield.\textsuperscript{10,11,12,13} This renowned researcher in primary care and health systems saw repeatedly and in many jurisdictions that investment in primary care correlated with a more effective and cheaper overall health system. She observed higher quality, adequate capacity, and lower cost.

The way in which this correlation works is not clear. Some experts believe that it flows from higher quality; others, from solid relationships in primary care, which encourage public stewardship of the health system. Because the underlying causation for Starfield’s findings is unclear, a framework for measuring performance should work both ends of the relationship – i.e., encourage better quality and foster solid relationships and stewardship. With a framework that allows both hypotheses to work, reform is more likely to succeed.

The empirical test of measuring performance will be to observe change in providers’ behaviour vis-à-vis the system’s three objectives, which we saw above:

- \textit{quality} that meets the province’s expectations
- \textit{capacity} that ensures primary care for every Ontarian
- \textit{costs} as low as possible

\textsuperscript{12} Starfield B, Shi L. Policy relevant determinants of health: an international perspective. Health Policy. 60 (2002), 201--18.
\textsuperscript{13} Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Quarterly. 83(3) (2005), 457--502.
The medical profession has not described its objectives in the event of system reform. In the absence of consensus, one might assume it wants general economic objectives: economic stability, so it can plan and implement professional practice, and resources to provide the expected services. In addition to desiring economic stability, doctors require significant motivation to retool their methods of practice. The current models in use do not have explicit accountability vis-à-vis the system, whereas the Dorval Model establishes clear lines and modes of accountability. This sea change breaks with the covenant that has informed Canada’s system of public health since its inception.

Accordingly, the Dorval Model provides strong incentives to participants, allowing them purpose, mastery, and autonomy. Its purpose is common to the profession, individual providers, and the public -- achievement of high-quality comprehensive primary care. It presents a method to measure mastery in the achievement of that purpose. And each participating group is free to innovate -- it has autonomy -- as it works towards mastery vis-à-vis the common purpose.
Most people experience comprehensive primary care when they visit their family doctor. They may come away with a sense of the level of satisfaction they receive from the service. Despite the shared experience, there is little consensus on defining performance in primary care. There is even less understanding about the relationship between primary care services and achieving reform.

An old adage states: “What cannot be measured cannot be managed.” This applies to comprehensive primary care. Because people cannot agree on what performance means, methods of measuring it differ, and assuring and improving quality are difficult. Primary care is not simply the provision of clinical services, but also includes management services and attention to interpersonal relationships. The elements (clinical, management, and relationships) are inseparable and influence each other.

Different definitions of performance may reflect varying perspectives. This section describes and defines eight potential elements of performance and looks at how observers measure them: authority, perspective, change, focus, scope, parameters, level, and scalability. There are options available in each element. A practice’s selections in the first four elements – authority, perspective, change, and focus -- will tend to shape its character; those in the last four – scope, parameters, level, and scalability -- will probably flow from those first four
choices. This discussion attempts to describe the implications that result from choices in each of the eight elements.

The final section of this chapter outlines Dorval Medical’s choice of elements and their contents.

**Authority (Internal or External)**

Deciding where the ultimate authority lies to determine ‘quality’ depends on a practice’s philosophy. This issue also speaks to the fundamental covenant in Canadian health care, which gives the profession autonomy vis-à-vis provincial governments. Quality in primary care can be accountable to external authority (the population served) or internally (to the profession).

Internal and external perspectives of quality are not mutually exclusive -- components of each form part of a complete sampling of quality characteristics. The issue of authority arises when there is disagreement between two perspectives. Such a difference of opinion might emerge, for example, over the relative importance of different quality indicators. This authority is important in the comprehensive orientation of quality (see subsection on Perspective, next, and Figure 1).

The two possible perspectives (internal and external) are likely to measure performance differently. Internal perspectives may respond strongly to indicators relating to diseases or clinical practice. The Ontario Diabetes Registry can serve as an example. External perspectives
stress patient experience and access. We can see this in the comments on patient rating services such as <ratemds.com>.

An internal determination of quality would require professional consensus on the characteristics of quality – an elusive ideal! External determination involves asking the population about its expectations of primary care and requires a method – not yet generally available – to allow popular opinion to express itself. Some observers might see such a method as inherent in the market system, but this is not relevant in Ontario’s public system.

The Excellent Care for All Act describes the Ontario health system as centring on patients and outlines obligations for quality accountability. This law appears to favour the authority of the people (external authority).

Both internal and external assessments of quality are naturally going to change over time, and both reference each other.

**Perspective (Granular or Comprehensive)**

A purely granular (or detailed) perception of primary care observes at the level of specific attributes, conditions, indicators, or services. This view allows analysis of individual service characteristics in isolation. For example, Ontario’s current initiative in diabetic care analyses performance of diabetes care in isolation. In a similar manner, its efforts to reduce unnecessary visits to the emergency room focus on the isolated service of access for acute episodic care. There is no limit to the detail or level of achievement that such a perspective might generate, but a passion for a particular issue can lead to neglect of other services or attributes.
The field of cognitive psychology suggests a natural limit in our ability to comprehend pieces of information -- about seven items for simple pieces of information, such as numbers, and three or four for more complex items, such as indicator results.

This finding has major implications for assessing quality in comprehensive primary care. If assessing the full scope of such care requires multiple indicators, a person looking at this information will perceive only three or four indicator results and will judge on a very narrow basis. Worse still, two different people looking at the same indicators are likely to perceive different indicators, so will probably reach different conclusions. Any three or four indicators represent probably only about 20 per cent of a population's total sense of value.

In contrast, a granular and comprehensive orientation of primary care starts with granular observations but then takes an additional, comprehensive perspective. The method for the latter holds the values of the granular components in a constant relationship to each other.

This perspective harnesses a variety of methods. The comprehensive orientation can be as simple as the ‘overall assessment’ in a rating system such as <ratemds.com>. Some people feel that comprehensive evaluation can occur through market forces in open markets (e.g., segments of the U.S. health system). It is possible to estimate the comprehensive perspective in

---

14 Pashler H. Doing two things at the same time: how many things can we do at once? Fewer than we think, say psychologists, who are identifying “bottlenecks” in the process. Am Scientist, 81 (Jan.–Feb. 1993).
16 Gobet F, Clarkson G. Chunks in memory: evidence for the magical number four . . . or is it two? Memory. 12(6) (Nov. 2004), 732—47.
terms of a mathematical relationship between indicators, as occurs in Britain’s Quality
Outcomes Framework (QOF).

A comprehensive orientation must not be static and should evaluate the relationship
over time, adapting to changing reality. Although it may seem too subjective or too arbitrary or
biased a concept, it can compare performances of a service provider over time and between
service providers.

The comprehensive perspective also facilitates rational selection of initiatives. Consider
a practice that can improve two indicators by 10 per cent. In the granular perspective, both
initiatives appear equally beneficial; in the granular and comprehensive perspective, one might
appear much more valuable.

Figure 1 illustrates the philosophical choices available in authority and perspective and
offers examples of models or research proposals.
Figure 1: Choices in authority and perspective

Change

Everything changes. Even the best framework for measuring performance must adjust to changing knowledge, shifting priorities, and new opportunities. The manner in which it does so decides its future viability, even its survival. A framework that changes too slowly may precipitate conflict when comparisons cease to be useful or meaningful.
Focus (Activities or Outcomes)

There are two competing foci for assessing performance and productivity in comprehensive primary care: one can measure either activities/transactions or outcomes/processes. The choice a practice makes will shape its organization and activities decisively.

Ontario’s system of payment for primary care defines productivity and performance in terms of activities, or transactions (the number of assessments or procedures for a given time). In contrast, in the United Kingdom, the Quality Outcomes Framework (QOF) measures population-based outcomes and practice processes. The two systems conceive of effectiveness and efficiency very differently. Ontario’s Excellent Care for All Act appears to be silent on the issue of activities versus outcomes. Although the Ontario Ministry of Health measures activities, Health Quality Ontario (HQO) looks at outcomes and processes, creating confusion for providers and stewards.

The choice between the two foci relates mainly to the 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 will look at outcomes/processes. One might also choose different foci for assessing comprehensive primary care versus the assessment in a specialty practice.

Both systems can measure the services of comprehensive primary care vis-à-vis the 15 PCCCAR services (Appendix A).
Example: Treating Hypertension

As an illustration, I apply here the two systems of measurement to a practice addressing hypertension -- the most prevalent treatable risk for the principal cause of premature death and disability in Ontario.

Measuring activities or transactions. A practice might decide to measure activities or transactions over time, such as the numbers of

- blood pressure measurements
- office visits where hypertension is a billing diagnosis
- counselling sessions on a low-sodium diet

During the time of measurement, the practice tries to supply as many of these services as possible so as to appear productive. The practice is busy with a focus on hypertension.

The approach’s cost increases steadily with the volume of services, for it offers no feedback to lessen the pressure to provide more service. As well, it is insensitive vis-à-vis the distribution of transactions within the practice -- for example, it will not distinguish between 10 transactions to one patient and one to 10 -- and so may generate inappropriate activities.

This method does not address the control of blood pressure in patients with the condition.
Measuring outcomes or processes. A practice might decide instead to measure outcomes or processes:

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

In this 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. Once the practice has measured all patients, there is no value in offering more service.

Productivity in both methods. Productivity is a ratio of what a practice produces to what it requires to produce it. As we saw above, productivity in both measurement systems (activity/transaction or outcome/process) reflects the choice of measurements. With activities, undertaking more at the same price means greater productivity. With outcomes, in contrast, achieving the target at lower cost means greater productivity.

One might assume that measuring activities is a potentially useful indirect measurement of outcomes, but the relationship is not linear. While some activity is necessary to achieve an outcome, at some point further activity simply adds cost without achievement and hence becomes an inverse indicator of productivity.

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 unproductive service. This philosophy is explicit in the work of Health
Quality Ontario. For these reasons, measurement focusing on outcome and process best reflects Ontarians’ values.

Measurement of activities is inconsistent with the values of Ontario (and the Association of Family Health Teams of Ontario, or AFHTO). Counting activities and transactions and ignoring outcomes and processes distort the understanding of achievement and can encourage non- or counterproductive behaviour.

If we want to exercise stewardship\textsuperscript{17} and encourage performance in health care, we should encourage measurements of outcomes and processes.

**Scope (Range of Services)**

Many determinants of health – perhaps as many as 70 per cent of them -- do not fall within the responsibility of the health system (e.g., social determinants of health, such as education, employment, and political system). And the public system itself does not cover 30 per cent of health services (e.g., dental services, drugs, and aspects of institutional care).

Fortunately, in Ontario, the majority of comprehensive primary care physicians have signed contracts in patient enrolment models (PEMs). These contracts define the scope of services as the list of the PCCCAR’s basket of 15 services (see Appendix A). This consensus provides a convenient solution to this philosophical issue.

\textsuperscript{17} Stewardship: caring for someone else or for something that one doesn’t own.
Parameters (for Measuring Performance)

Performance measurement in primary care can involve the use of a wide variety of parameters: activities, capacity, costs, income, overhead, processes, qualitative attributes, service descriptions, and subjective impressions. Despite the wide variety of options, the purpose of this choice is to allow comparison, either of an individual’s performance over time or of different individuals.

Selecting too few parameters may lead to an incomplete description of performance, while using too many may obscure performance. For example, considering only income from the practice will ignore crucial characteristics of primary care that the payment system also neglects. Likewise, the many parameters in the Ontario Hospital Association’s Balanced Scorecard make it almost useless for comparing performances. This limitation reflects the human (in)ability to manage multiple concepts (see above the subsection Perspective (Granular or Comprehensive). The Institute for Health Improvement strikes a balance in its Triple Aim, using three parameters: clinical indicators (just a few), cost, and patient experience. Dorval Medical’s choices of cost, capacity, and quality are somewhat different, as we see below.

Level (Provider or Group)

Should one measure performance at the provider level or the group level? Over several generations of physicians, OHIP’s payment mechanism has embedded a sense that individual
performance in primary care is a function of individual providers. Nothing in it encourages orientation towards group performance. This situation is arbitrary and a function of the economic distortion that flows from the historic funding system. A more realistic perception of the reality of practice might offer refreshing new perspectives.

There are at least two compelling arguments for including group performance. First, in most services of any sort, groups outperform individuals. There are very few circumstances where individuals provide the greatest performance and productivity. If there is a group dynamic in primary care, then it should be possible to observe it and support it. Second, measuring group performance may well improve performance. An individual provider is less likely to react to external feedback, but when a group works together towards common objectives, individuals are more likely to respond. Group safety and support can be a great catalyst for change.

**Scalability**

The framework should consider incorporating scalability -- the option of having the framework scalable to different-sized populations. Reference population sizes include a single provider that might have a practice of about 1,300 patients; Ontario has about 13 million residents, or 10,000 times more than a provider’s population.

A framework that is scalable by a factor of 10,000 provides a valuable advantage in Ontario: a successful innovation in the practice could suggest steps to improve the entire
system. In other words, each scalable practice can innovate in ways that could apply readily to the system and the province as a whole.

When a framework opts for scalability, it restricts its own choices of indicators. Some indicators work only with small populations (e.g., the chart audit method of the College of Physicians and Surgeons of Ontario, or CPSO), and others, only with large numbers (e.g., rate of serious complications). In small populations, indicators can measure only frequent phenomena; for example, the diabetic indicator of amputation rates would not apply at a practice level, but control of blood pressure works in all scales of population. With large numbers, such indicators can accurately observe shifts in performance of crucial factors such as premature death due to specific conditions.

**Elements at Dorval Medical**

In health care in Ontario, there is little or no system-level guidance, support, or feedback for many of the choices physicians face when constructing a performance framework. Some of the system’s feedback is contradictory, presenting mixed messages to primary care doctors. The system’s stated support for group cohesion conflicts with payment of individuals and measurement of their activities. The system says that it seeks measurement of outcomes but pays instead for activities. It also leaves scope of service to the discretion of each physician. In the face of conflicting feedback, Dorval Medical (a small family health team in Oakville) addressed measurement of performance and made choices (in italic in the subheadings) vis-à-vis the eight elements above.
Authority (External: Patients): Dorval Medical has always believed that it is accountable to the population it serves. As a result, it uses its patient population as the external reference for defining quality.

Perspective (Granular and Comprehensive): Measurement of performance becomes less useful with too many haphazard indicators. To establish the relationship of various indicators, Dorval Medical developed a method of measurement (see Appendix B) that applies a granular and comprehensive perspective.

Change (Feedback from Patients): The Dorval Model uses ongoing feedback from its patients to adjust its selection of indicators and their relative weighting. In this manner, its performance measurements respond to patients’ shifting priorities.

Focus (Outcomes): For the reasons I outlined above, and to be accountable to the population it serves, Dorval Medical measures outcomes rather than activities.

Scope (15 Services): All the physicians of Dorval Medical are committed to comprehensive primary care, have signed the Family Health Organization (FHO) contract -- with the 15 PCCCAR services -- and operate within the additional funding of a family health team.

Parameters (Quality, Capacity, Cost): Dorval Medical chose Don Drummond’s three parameters to describe performance -- quality, capacity, and cost -- and measures each one separately (see chapters 2, 3, and 4, respectively). It defined each parameter:

- **quality**: all characteristics of all services
- **capacity**: the number of satisfied relationships in relation to doctors’ time (booked hours in the week)
•  **cost** (per patient): for primary care (practice’s costs divided by number of patients) and for total health (costs of all patients’ health services divided by total number of patients)

**Level (Group):** Dorval Medical has always held itself accountable as a group practice to the population it serves. It measures individual performance but uses the results only internally to ensure and improve quality.

**Scalability:** The Dorval Model is intentionally scalable for populations as small as an individual practice and as large as the entire province, as is clear from the model’s choices of performance elements (see Table 1). Dorval Medical’s roster is about 6,000 patients. When the province uses the same performance measurement as individual practices, a successful innovation in a practice of 6,000 can be spread and be a successful innovation for the province.

<table>
<thead>
<tr>
<th>Element</th>
<th>Dorval Medical’s choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority</td>
<td>External (patients)</td>
</tr>
<tr>
<td>Change</td>
<td>Feedback from patients</td>
</tr>
<tr>
<td>Focus</td>
<td>Outcomes</td>
</tr>
<tr>
<td>Perspective</td>
<td>Granular and comprehensive</td>
</tr>
<tr>
<td>Scope</td>
<td>PCCCAR’s 15 services</td>
</tr>
<tr>
<td>Parameters</td>
<td>Quality, capacity, cost</td>
</tr>
<tr>
<td>Level</td>
<td>Organization</td>
</tr>
<tr>
<td>Scalability</td>
<td>Factor of 10,000</td>
</tr>
</tbody>
</table>

**Table 1: Dorval Medical’s choices of elements**
Chapter 2: Assessing Quality

Assuring quality of primary care to its patient population is the primary objective of the Dorval Model. The first four parts of this chapter describe challenges a practice faces in picking indicators of quality, its objectives in doing so, the types of indicators available, and a strategy for selecting indicators.

The fifth outlines the process of assessing quality at Dorval Medical. The practice has developed Dorval Quality Estimation, and the section shows how it uses the method to identify and quantify patients’ expectations of service and how the method assigns weightings to indicators to allow an estimation of comprehensive quality.

Challenges

In choosing Indicators, there are at least six types of challenges, involving scope, accountability, cost accuracy, practice distortion, data sources, and coding and interoperability.
**Scope**

Comprehensive primary care in Ontario includes a wide range of services and attributes. The majority of primary care physicians in the province have signed contracts that list the services they are to provide. Contracts for family health groups, networks, and organizations (FHGs, FHNs, and FHOs, respectively) all prescribe the PCCCAR Basket of (15) Services (see Appendix A).

In Ontario, the Health Quality Council has a mandate to assure and improve quality of health services using a framework of nine attributes (see Appendix C). There are a number of independent initiatives looking at quality measurement currently under way in Ontario, including those by Health Quality Ontario (BestPath), the Ontario College of Family Physicians (Quality in Family Medicine), the Ontario Ministry of Health (a selection of LHIN Provider Networks), and the Canadian Institute for Health Informatics (the primary care measurement summit).

Indicator selection is a function of the scope of service and attributes being measured. There should be enough indicators to represent most services and attributes.

**Accountability**

Historically, the Ministry of Health has paid for primary care in Ontario, with the profession delivering services and ensuring quality. The College of Physicians and Surgeons of Ontario (CPSO) has a time-consuming and expensive peer assessment process but applies it
infrequently and to few physicians, and its findings are not likely to influence most doctors in their day-to-day practice.

The province’s Medical Review Committee theoretically had the authority to hold physicians accountable for questionable billing practices, but the government struck down this process in 2004 and has not replaced it.

Over the past 25 years, the majority of doctors have gradually reduced the scope of their practice. Only about 25 per cent now maintain privileges as most responsible physician (MRP) in acute care hospitals, less than 10 per cent practise emergency medicine, and less than 2 per cent do obstetrics. There is no system-level requirement for a particular scope of practice.

The recent Excellent Care for All Act (June 2010) requires all medical organizations to have an explicit process for measuring and improving quality and ties executive compensation to performance outcomes. Many practitioners expect that the ministry will apply this law to primary care.

In 2010 and again in 2012, Don Drummond advised the province that health care costs represented a financial risk. He recommended that it require accountability to ensure value for money and the achievement of government objectives.

Accountability affects the choice of indicators. Indicator reporting provides data that can reflect the accountability between primary care and the system.

**Cost Accuracy**

The discussion above shows the clear need to find a means of measuring quality in comprehensive primary care through indicators.
Each indicator carries costs. It is essential to record, aggregate, and report data in order to generate an indicator result. In addition, each indicator will influence providers to address aspects of that indicator, including the accuracy of the registry and provision of the targeted intervention. The cost of measuring indicators can reduce the number of indicators.

Striking a balance between the cost of reporting indicators and the need to reflect the full scope of services is a challenging and sensitive task.

**Practice Distortion**

Measuring a particular outcome can lead clinicians to focus on that outcome -- ‘playing to the indicator’ -- and neglect other aspects of practice, especially if there are very few indicators.

Consider the ministry’s current emphasis on measuring diabetic care. Some practices divert resources to diabetes-related services, perhaps to the detriment of care for cardiovascular disease (three times as prevalent) and access to care (advanced access). Increasing the number of indicators in the set can discourage too narrow a focus, and changing indicators from time to time also discourages playing to the indicator.

**Data Sources**

Data for indicators can come from the practice or from external data sources. Some data must rely on external sources (e.g., incidence of emergency department visits), and some can come only from internal sources (most recent blood pressure).

Choosing an option (e.g., determining the registry of a disease either from the practice’s EMRs or from system-level databases) involves several considerations. External data cost little or nothing but may be less accurate; internal data come with the costs we saw above. Data
reconciliation may be necessary to ensure accuracy, and reconciliation is more frequent in primary care than in any other setting in the health system. Accurate data are essential for assuring and improving quality.

A practitioner receiving inaccurate data will be less likely to use the feedback to modify behaviour, while his or her own data may serve as a powerful motivator for improvement. For this reason, whenever possible an internal data source is desirable and more likely to improve providers’ behaviour.

**Coding and Interoperability**

Similar to the issue of data sources is that of transmitting and understanding data from different systems. This challenge has existed for years, and Andreas Kluth\textsuperscript{18} has suggested “interoperability” as a solution. This approach remains central to Ontario’s strategy for eHealth. Interoperability, however, poses challenges. For one thing, various people use the term differently. For this discussion, I assume that it means the ability to transmit and interpret data from different systems in the health sector.

Interoperability is desirable for external data. While OntarioMD is developing descriptions of coding and communication, few primary care physicians use interoperable systems. As the standards for interoperability emerge, providers will have to change their systems and reconcile their data accordingly -- a massive undertaking.

Several methods can provide an alternative to common coding and communicating between systems. In Britain’s Quality Outcomes Framework, practices report the results of

\textsuperscript{18} Kluth A. The no-computer virus. Economist. 2005.
indicators, rather than source data, but this severely limits analysis and hides overlap or concurrence of performance. For example, its performance data can’t determine the degree to which patients have multiple conditions.

It is possible to avoid the need for interoperability by sending source data with data fields for all reports. There is a record for each rostered patient with discretely identified fields. For example, the diagnosis for smoking is the presence of a date in field 58 (the most recent date where the diagnosis appears in the patient’s file). For diagnoses with multiple ways of recording, there are enough fields to accommodate the variations (e.g., 58a, 58b, 58c). Appendix D lists the complete data set Dorval Medical uses to derive all clinical indicators.

Objectives

When choosing the method for selection and specific indicators, it is helpful to remember the main objectives for both providers and the system.

Providers’ Objectives

The primary purpose of quality measurement is to assure and improve quality. To that end,

- Does the indicator set reflect the provider’s understanding of quality?
- Are the data accurate?
- Does the indicator set encourage motivation to assure and improve quality?
The indicator set must reflect the provider’s sense of quality. Providers will not use information that does not resonate with their professional judgment regarding quality of service. The narrow focus of the indicators in the Quality Improvement and Innovation Partnership (QIIP) may have reduced its impact. Only 10 per cent of the 130 participating FHTs actually engaged in the process, and many dropped out after six months.\(^\text{19}\)

In order to reflect providers’ sense of quality, indicators need to address the full spectrum of attributes and services, and their weighting must reflect reality.

Data must be reasonably accurate to encourage providers to assure and improve quality. Providers will dismiss inaccurate information, even if the indicator correctly suggests the opportunity for improvement. Providers found an error rate of 25 to 35 per cent in initial data from the Ontario Diabetes Registry. They reconciled these errors as part of the process, but a similar error rate will be likely for each chronic condition in any data set.

The Institute for Clinical and Evaluative Sciences (ICES) verifies its data in terms of the ‘gold standard’ -- the primary care medical record. In order for indicator data to be accurate, data should come from that source. This source may limit selection of indicators but will more likely engage providers.

Encouraging motivation in providers is a key to making our health system sustainable. The current ‘science’ of motivation provides some guidance on indicator selection. Giving providers purpose, autonomy, and mastery seems crucial.\(^\text{20, 21}\)

\(^{19}\) In QIIP aggregate reports, only 10 per cent of diabetic patients reported data.
The “purpose” in health care in Ontario seems to consist of three goals:

- **quality**: fulfilling popular expectations
- **capacity**: such that everyone has the choice of primary care practice (with assured quality)
- **cost**: Drummond’s goal of no more than 2 per cent growth per year

**Purpose**: Indicators must be sufficiently diverse to reflect the provider and the public’s understanding of the goals of comprehensive primary care (cost, capacity, and quality).

**Mastery**: Providers must be able to measure progress towards the purpose (the three goals), and so indicators must reflect quality and be measurable so as to allow frequent feedback to providers, to help them work towards mastery. **Autonomy**: Indicators that arise from providers’ own data express their autonomy, while indicators from other authorities may generate resistance to seeming criticism and interference.

The ability to compare results among providers encourages providers to seek better quality; effective mastery – attention to individual indicators and comprehensive quality; and better outcomes. In its absence, they may simply assume that their performance is satisfactory.

Comparison of indicators is common in current performance measurement – e.g., the Ontario Diabetes Registry and the Hospital Balanced Scorecard of the Ontario Hospital Association (OHA). This information is helpful at a detailed level but doesn’t focus providers on improving comprehensive quality of service (the “purpose”). The Ontario Diabetes Registry publishes detailed performance information for three indicators, but there is no sign that these
reports alter providers’ behaviour. In a similar manner, the OHA’s scorecard gives results on many detailed indicators but does not reveal an individual hospital’s overall performance.

The fundamental comparison needs to be at a comprehensive (high) level, with an estimation of overall quality of performance. This comparison informs providers in a way that describes the need for any action and also offers direction on the specifics. To change providers’ behaviour, feedback on performance must include a weighted aggregate score of comprehensive quality.

*The System’s Objectives*

Political stewards will harness quality measurement and indicator selection to advance the system’s objectives. Appropriate indicators will help them shape policy.

If indicators are to further this end, they must be accurate. As we saw in the subsection Providers’ Objectives, frequent reconciliation makes medical records for primary care the most accurate list of diagnoses and medications.

Some indicators have no data source in these records and so require alternative sources. Such indicators include the rate of visits to the emergency room (ER) for ambulatory care sensitive diagnoses and the rate of ER usage for class-4 and -5 visits in the Canadian Triage Acuity Score (CTAS).

Cost control is important to the system. Indicators relating to cost are essential to addressing Don Drummond’s goals. Ideally, the total cost of care for a practice’s patients would provide insight into cost control reflecting Barbara Starfield’s observations. If this measurement
is too ambitious, surrogate indicators might be useful – perhaps those relating to length of stay in acute care.

A word of caution: the surrogate can become the focus and distract from the true purpose of the indicator. For example, if the cost of acute care services is the true concern, a surrogate such as the number of ER visits might suggest inaccurately that reducing them lowers costs. ²²

**Types of Indicators**

*Static or Dynamic Indicators?*

It is tempting to seek indicators that will always be useful in measuring quality in primary care. When the data source is external to the practice, developing indicators requires considerable effort, as does changing them.

Generally, value is not static. Our assessment of value is constantly changing, including in primary care. For realistic measurement, indicators should be dynamic, and in several ways. Users can add or delete them from the set. The parameters for measuring and scoring them can change. Their weighting vis-à-vis other indicators in the set can vary over time. All these changes allow a dynamic process so that indicators can continue to reflect public value in primary care.

Allowing indicators to be dynamic reduces the risk in selecting them, for it is possible to modify them later. Initial choices do not have to be perfect.

**Individual or Aggregate Scores?**

The set of indicators will allow results for each indicator. A set of indicators can lead to individual scores and an aggregate score of all indicators, reflecting the issue that we looked at above in the section Perspective in chapter 1.

Individual indicator scores are useful when considering improvement in the service or attribute. A sensitive indicator can guide a group’s progress to better performance.

Aggregate indicator score also offers a valuable perspective. It is the sum of all indicator scores when a method weights each score by importance, as the Quality Outcomes Framework does. It allows comparison of practices: a higher aggregate score would suggest better quality. The scoring method is transparent and invites refinement by changing indicators, their scoring, or their weighting. It allows a framework for discussion on what quality means in primary care.

Having both individual and aggregate scoring affects the choice of indicators to evaluate quality. The aggregate score ensures that each indicator’s score will represent only a small portion of the total. At Dorval Medical, the average indicator weighting is 2.9 per cent of the total, with a range of 0.5 per cent to 13 per cent of the total. As a result, there is minimal incentive to distort practice behaviour in order to seek benefit at the comprehensive level.
How to Select a Strategy

The following points suggest a rational strategy for selecting indicators.

1. Quality measurement is a key component of accountable primary care.
2. The full scope of primary care requires a broad set of indicators.
3. The weighting of indicators should reflect their relative value in the public perception of comprehensive primary care. Indicator weighting allows aggregation of indicator scores and an estimate of comprehensive quality. A method for weighting appears below in the next section and in Appendix B: Assessing Primary Care at Dorval Medical.
4. The indicator selection and weighting need to be dynamic, changing in line with public perceptions.
5. The indicators should cover the scope of primary care but not be too costly. Experience at Dorval Medical suggests use of 30--40 indicators.
6. Where possible, data should come from the primary care medical record.
7. Because the indicators may change, the system should collect source data, not indicator levels. See subsection above, on Coding and Interoperability.

Following these seven points leads to an effective strategy. Choosing 30—40 indicators that change over time prevents any one indicator from acquiring too much significance. It is easy to replace or reweight any indicator in a transparent manner if appropriate. The initial selection merely launches ongoing cycles of refinement. Selecting the ‘right’ indicators is not
essential; what is crucial is finding the appropriate process for the public to engage in refinement.

The ongoing adjustment in selecting indicators and measuring and weighting criteria minimizes the risk of letting the process distort the practice. A participating practice will have little interest in playing to the indicators when it knows they will change. This dynamic feature also reflects the community’s evolving evaluation of quality.

The process of refinement in itself helps engage providers and the public.

Assessing Quality at Dorval Medical

This section describes the five steps of quality analysis at Dorval Medical. The Dorval Model adopted key components from Britain’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 QOF provided the mathematical method of weighting indicators and aggregate scoring that allows multiple indicators to combine and give an estimate of total quality. The QOF’s aggregate scoring is central to what we call ‘Dorval Quality Estimation.’

Dorval Quality Estimation includes continuous re-evaluation of all components through iterative, large-number polling, or crowd-sourcing. This process seeks the opinion of many participants and uses the group consensus to estimate the result. The initial outcome launches the next cycle of crowd-sourcing and leads over time to refined and dynamic components. The

participants are the practice’s patients, which grounds the method firmly in their experiences and expectations (patient-centredness).

Crowd-sourcing estimates patients’ expectations, selects indicators and their thresholds and weighting, and generates an estimate of patients’ satisfaction. Dorval Medical’s polling method assumes a system that centres on patients. In this tool, it is the patient population that determines what has value and the weighting of each.

**Step 1: Select the target population.** This decision defines the population to target, which can be as small as a single medical practice (perhaps 1,000 people) or as large as a province. The method uses crowd-sourcing and benefits from large numbers of participants. A group practice has a good size to sample for the tool.

**Step 2: Survey the patients.** The practice surveys the target population regarding expectations for primary care services. Structuring of the questions allows estimation of value for all 15 PCCCAR services (Appendix A). Figure 2 graphically describes this process. The questionnaire is in Appendix B: Assessing Primary Care at Dorval Medical.

(Initially, physicians at Dorval Medical performed this survey in person as part of a conversation with patients during their visits. Recently, the practice modified the survey by using a commercial web-based polling site to perform it electronically. An e-mail from the practice invites patients to participate in the five-minute survey in the month of their birthday. While this method is just coming into play, we expect that it will allow about 250 surveys per month. Table 2 describes early results at Dorval Medical after about 300 completed surveys.)
Table 2: Survey of services, Dorval Medical, early results

**Step 3: Assign and refine indicators.** The practice takes the survey and assigns initial indicators that reflect the relevant attributes, outcomes, or processes that emerged from the survey. Crowd-sourcing can suggest improvements to existing indicators or consider new indicators.

**Step 4: Assign value to indicators.** The practice assigns weighting and thresholds to indicators for the attributes, outcomes, and processes from step 3. As before, use of crowd-sourcing can refine these parameters.

When individual indicators have assigned value (points), it is possible to estimate the quality of domains and total quality by adding the points of the desired indicators.

**Step 5: Identify data.** All the indicators in Figure B2: Indicators emerge from a limited set of data. The list of 74 data elements and their sources appears in Appendix D. These data elements are sufficient to generate all indicators of quality (Appendix B), as well as to determine practice capacity (chapter 3) and cost (chapter 4); the data set is capable of producing many more indicators.
Conclusion

Indicators with assigned relative value (see Figure B4: Points earned for 3NA between thresholds) allow for aggregation of multiple indicators in a way that describes quality for PCCCAR services and allows an estimation of comprehensive value. The practice’s reporting of a small number of data points can determine the indicators.

The data allow for the reporting of the three parameters of quality, capacity, and cost in a manner that reflects patient and system expectations. The method is dynamic, changes as expectations alter, and is not likely to distort practice behaviour.
Figure 2: Schematic: relative value polling, Dorval Medical
Chapter 3: Assessing Capacity

Establishing adequate capacity is the second objective of the Dorval Model and follows achievement of the first objective of assuring comprehensive quality. The practice can measure capacity fully only after it has assured high-quality service for its patients. In this chapter, we first consider the complex relations between capacity, quality, and efficiency, and then we look at Dorval Medical’s method of measuring capacity in the light of that discussion.

Capacity, Quality, and Efficiency

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

Dorval believes a capacity of 60 patients/all weekly MD hours is adequate, because it allows the province to meet its primary care promises with current resources. Data from the Ontario Medical Association indicate 7,650 comprehensive primary care physicians working at least 30 hours per week.

---

in direct and indirect patient care. There are about 13 million people in the province. As a result, the system would achieve capacity with an average capacity measurement of 57 for all primary care doctors. In other words, if all primary care physicians, working the same number of hours as they are currently, achieved capacity of 60, the entire population would have a choice of primary care practice.

Capacity needs to adjust patient count for age and gender distribution, which affects a population’s need for primary care, as we can see in the multiplier table in the template agreements for family health networks (FHNs) and family health organizations (FHOs). The multiplier table derives from historic patterns of 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.

There are at least two ways to correct for age and gender distribution: first, divide the capitation payment by the average current payment to the practice, which gives the roster’s number of ‘average’ patients, or, second, determine the intensity of the practice panel by using an external commercial algorithm, such as the Johns Hopkins ACG System.

One measures capacity to be able to compare several practices’ efficiency when they have different office hours. Within our Dorval Medical group we have some practitioners working about 20 hour per week and others working 30 hours. If everyone is delivering adequate service, one can determine efficiency only by looking at how many patients each doctor cares for and correcting for the hours each works.

Using this method, we discovered that the most efficient doctor was the one working 25 hours per week, with a capacity of 71. We then looked at that practice to see how the doctor managed efficiency, and we tried to replicate those methods with the others.

Capacity is comparable between practices only with the assurance of quality, but the calculation can be useful within the practice even in the absence of high quality. If a practice’s quality is less than adequate, calculation of capacity might help explain the poor quality. If the practice has an apparently high capacity and low quality, perhaps the doctor has rostered too many patients for the hours he or she works. Poor quality and low or normal capacity would hint at an inefficient practice or an unusual population, which inhibits quality.

When a practice ensures adequate comprehensive quality and measures capacity (adjusting patient count to reflect health acuity), its capacity indicates its efficiency. Comparing calculations of efficiency for practices should reveal innovative ideas and encourage their spread throughout the province.

**Dorval Medical Measures Capacity**

Dorval Medical has been assuring quality and measuring capacity for over three years. The capacity of individual providers ranges between 62 and 71 (average patients per MD weekly hours), with a practice capacity of 60 (see Figure 3).
There are many tactics available to increase a practice’s capacity without compromising quality.

Successful implementations at Dorval Medical have included:

- open access
- “Max-Packing” to address all of a patient’s 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 Medical 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\(^{27,28}\) for the strategy of addressing all needs at the current 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 the providers’, the office’s, and the patient’s time and in high-quality outcomes. Max-Packing reduces future appointments by ensuring early and complete addressing of issues.

Dorval Medical uses reminders in electronic medical records, which 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 physician’s office door for each encounter. Any staffer can resolve a reminder issue if it is in his or her scope of practice.

Encouraging patients to manage their own condition is a cornerstone of Wagner’s\(^{29}\) 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, have a blood pressure cuff and know how to use it, and receive a lab requisition and a year’s supply of medication. The patient knows that if the management indicates failure to achieve target blood pressure, the practice is available on request.

The duration of a patient’s 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.

**Conclusion**

After a practice assures quality, it can provide service to a high number of patients. This level of efficiency, measured as capacity, holds the promise of providing the choice of primary care practice to all residents of Ontario without the need for more resources.
Chapter 4: Assessing Cost

In addition to ensuring quality and capacity, the Dorval Model aims to reduce and control cost to the system of its services and the services it influences. It sees conservation of scarce resources as a social obligation, and I believe that it delivers assured quality with adequate capacity for a prudently low cost. The cost for the services of the practice is about $315 per average patient per year (see Figure 4).

Figure 4: Annual cost per patient, Dorval Medical, 2008–12
Dorval Medical believes that the total health system’s costs for the population that Dorval Medical serves are also significantly lower than other models and practices in Ontario. Primary care accounts for about 10 per cent of the province’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.

Cost is just an attribute of quality in the Health Quality Ontario (HQO) reports, but Dorval Model feels that cost, unlike all other attributes of quality, represents the ability to choose other goods and services. If the system reduces cost, any other government service can use the resources. Hence it measures cost separately. In order to illustrate how effective primary care affects demand for health services, Appendix E 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 can determine the system cost for its own population only indirectly, such as through data on its patients’ length of stay (LOS) in hospital, which is 14 per cent less than the national expected LOS and 22 per cent less than that for other practices in Oakville (Figure 5). Hospital costs represent about 40 per cent of total health costs.
We have no definitive explanation for Dorval Medical’s lower LOS, but we suggest several factors:

- Its patients have a strong pre-existing relationship of trust and knowledge with their doctor, which encourages their engagement in difficult decisions.
- It incorporates the primary care record in the patient’s admission note, seamlessly transferring prior health information.
- Its doctors actively manage in-patients’ care in hospital by coordinating consultations, advocating for patients, and managing information well.
- Its patients can consider discharge even with unresolved issues because their doctor can continue to manage such issues afterwards.
The patient’s most responsible physician (MRP) in hospital is also his or her family doctor, so information is always available.

Calculating Value for Money

To compare the performance of practices more easily, one can reduce the three parameters (quality, capacity, and cost) to two, by mathematically combining quality and capacity. This assumes that both parameters require at least a certain, satisfactory level. Society needs to determine these thresholds.

The spreadsheet “Value for Money” illustrates this process. Best political judgment sets the minimum threshold for quality and capacity (spreadsheet cells C5 and C6). A four-step process follows.

**Step 1.** A practice enters its data -- quality score, corrected roster count, regular weekly office hours, and all annual practice inputs (OHIP, FHT funding, and stipends from hospitals and other institutions). While there is a place to enter total annual system costs attributable to the practice population, no data source currently exists for this information.

**Step 2.** Quality points (see Appendix B) remain at full value only if the practice surpasses the quality assurance threshold. Scores below that level earn progressively less value the lower the score. This is the assured quality score.

**Step 3.** The assured quality score remains at full value only if the practice achieves desired capacity. Lesser capacity lowers the assured quality score. The resulting point value is in effect an assured quality and assured capacity score -- an approximate measurement of performance.

---

30 Visit www.dorvalmedical.ca/about-us/documents/ and download the spreadsheet “Value for Money.”
**Step 4.** The practice can then compare performance to costs (practice and system costs) to estimate value for money.

In Figure 6, practice B delivers better value for money. It achieves its performance for $2,857 per performance unit (Performance points divided by cost), while practice A requires $3,571 to achieve the same level.

<table>
<thead>
<tr>
<th>Political Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the minimal Quality value which represents reasonably assured quality (any value 0 to 1,000)?</td>
</tr>
<tr>
<td>2. What is the minimum Capacity value which represents the achievement of adequate capacity (0 to 60)?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practice Information</th>
<th>Practice A</th>
<th>Practice B</th>
<th>Adjusted to Assured Quality</th>
<th>Adjusted to Assured Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Achieved Quality Score</td>
<td>600</td>
<td>750</td>
<td>600.0</td>
<td>750.0</td>
</tr>
<tr>
<td>2. Corrected Roster Count *</td>
<td>5000</td>
<td>7000</td>
<td>Practice Capacity</td>
<td></td>
</tr>
<tr>
<td>3. Regular patient care hours/week</td>
<td>120</td>
<td>150</td>
<td>46.7</td>
<td>46.7</td>
</tr>
<tr>
<td>4. Practice annual cost</td>
<td>$2,000,000</td>
<td>$2,000,000</td>
<td>$2,000,000</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>5. System annual cost for the patients of the practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Roster count is corrected to reflect average activity. See The Donal Model, Chapter 8, page 49

<table>
<thead>
<tr>
<th>Value for Money comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice A</td>
</tr>
<tr>
<td>Practice Cost per performance unit (assured quality and capacity)</td>
</tr>
<tr>
<td>System Cost per performance unit (assured quality and capacity)</td>
</tr>
</tbody>
</table>

**Figure 6: Comparing value for money in two practices**
Chapter 5: Dealing with 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 five issues relating to the data — their sources, their elements, reporting them, verifying them, 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 care — e.g., hospital care, pharmaceuticals, specialists, and testing.

Data sources from within a practice are more desirable for two reasons. First, source data (e.g., for clinical indicators, from electronic medical records, or EMRs) can verify data. 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 as inaccurate 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. Appendix D lists 74 elements: 56 from EMRs and 18 from manual reporting. These data points allow the determination of quality, capacity, and cost in the Dorval Model.

Data Reporting

Performance data require analysis so they can accurately describe performance in a relevant manner. Dorval Medical manages this function internally, but if other practices applied the Dorval Model they would probably need to send data to a central repository (created for this purpose) for analysis, reporting of performance, verification of data, and management of incentives. This section describes issues in reporting data to an external authority.

There are at least two potential sources of clinical and process data to describe performance – indicators and source data. Britain’s QOF, for example, has medical practices report the result of each indicator – for example, the percentage of patients aged 65 or older who received a flu shot in the past year (e.g., 85 per cent). However, verifying the data’s accuracy through audit must cover entire registries, and it does not reveal the concurrence of conditions or treatments.
An alternative method is to collect source data. This would entail a practice’s reporting on each rostered patient anonymously on the 74 discrete data elements necessary to generate the desired indicator outcomes. The 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).

Using source data has at least five advantages:

- It allows multiple ways of analysing data.
- It allows re-analysis of old data if indicators change.
- It allows efficient verification of accuracy.
- The receiving agency can use standard commercial ‘industrial intelligence’ applications to analyse the data.
- EMR vendors do not have to create the ability to analyse data,

All existing EMR applications collect aggregate data and report coded data. This function is used primarily in the billing component but also in some clinical data (the preventive care bonus data in patient enrolment contracts, or PEMs). All current vendors can modify their software to collect the data this document outlines. However, there is little demand from the system and users. Currently, eHealth Ontario does little to encourage development of this potential, and its ‘interoperable’ objective discourages EMR vendors from investing in any intermediate functionality of the type this document describes.

A practice would submit data to a central agency. The receiving agency – 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 could fund the pay-for-data process either by transferring funds (to pay practices) to the data-receiving agency or by having the agency report to it for payment. See subsection Paying for the Model in chapter 7, below.

**Data Verification**

Verifying data is the process of determining the accuracy of data. If other practices were to apply the Dorval Model, this process should form part of the model.

Verification of data’s 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.

Auditing of quality is a valuable educational process. Participating providers should offer auditing services (and receive payment accordingly). The practice should pay for auditing to participate in the pay-for-data process.

Data verification is necessary to ensure that data reflect the actual state of the practice’s patients and are not gaming the system. The Dorval Model’s structure reduces the incentive for gaming:
• It pays more for data than 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 method of verification 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.

Sampling records can determine whether data in the EMR support the diagnosis in the report. For example, to verify the registry of diabetics, auditors can sample individual EMRs of those patients to see if they look like those of a diabetic. More aggressive auditors could look for an alternative data source (e.g., ICES) and sample records where reported data elements seem inconsistent (e.g., when the practice reports a particular diagnosis that the alternative source does not indicate).

It is also possible to verify measurement data (e.g., blood pressure, or BP) 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 indicators of access, survey data and ‘screen shots’ of the appointment schedule will verify reported indicators.

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 approach. The practice also has performance information on individual providers for internal use.

The model names for primary care (i.e., family health) practices – for example, family health groups (FHGs), networks (FHNs), organizations (FHOs), and teams (FHTs) – all imply teamwork. A label does not create teamwork; it merely describes the model of a group. The dynamic of teamwork occurs when individuals strive 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 receive fees for service or capitation income for 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:

- It covers more of the population and reveals normal performance more effectively than voluntary measurement of individual providers, which favours high-performance, strongly motivated providers.
• It allows the trust and familiarity of the internal relationships to nurture quality improvement.

• It encourages group performance and nurtures a sustaining economic environment to fund interprofessional health providers (IHPs). If IHPs can help in an appropriate manner more cheaply than a physician, the practice should rationally hire IHPs for that purpose. Where a practice measures individual performance, it is less likely to do so.

• 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 6: Open Access and Motivation at Dorval Medical

Over its history, Dorval Medical has assimilated aspects of the model this document describes. It started in 1989 with an explicit focus on patients and group practice and a strong commitment to meeting patients’ expectations. It began measuring outcomes in 2002 by looking at the preventive care items in the contract for family health networks (FHNs): children’s immunizations, flu shots, mammograms, and pap smears. As a participant in the first wave of the Quality Improvement and Innovation Partnership (QIIP), the practice chose to measure all 16 indicators for all providers.

This chapter describes Dorval Medical’s incorporation of its most important attribute — open access — and the motivation for team members to seek many smaller qualitative improvements.

Open Access

Dorval Medical’s implementation of the principle of advanced access generated the most enthusiasm; it used a strategy different from what QIIP suggested. It had always been careful to take in only patients it could serve but had done so informally. Group members met in March 2007 to learn about the concept of advanced access and decided the following month to implement it as a group with a mix of open access and protected time (carve-out model). In May, they created an analysis of demand. With summer
approaching (when vacations disrupt regular hours), they decided to wait till September. During the summer, everyone worked to clear their backlogs.

Soon afterwards, the group went to a full open access system of scheduling. The ongoing monitoring of access indicators focused the group’s commitment to access. The group established a rule that no providers could take new patients unless they could prove that they were accessible to their existing patients in terms of access indicators.

From time to time, group members discuss ideas to make advanced access more efficient. Providers can try ideas on their own initiative. Weekly, everyone receives a report on their current access performance.

The group takes a more cohesive approach to preventive care. A staff member (a registered practical nurse, or RPN) leads the effort and works with a team of providers and staff to implement a strategy during the six months prior to the target date of March 31.

**Motivation**

This section illustrates how the current ‘science’ of motivation supports Dorval Medical’s experience. As we saw above in chapter 2, Daniel Pink is an American advocate of the science of motivation. His work reveals some surprising aspects of the field. Monetary incentives do not motivate workers, and actually do the opposite.
Giving providers purpose, autonomy, and mastery appears to be the key.\textsuperscript{31,32} For Dorval Medical, purpose is the practice’s assurance of quality, cost, and capacity (our measurements of performance); mastery is each provider’s achievement vis-à-vis the purpose; and autonomy is each provider’s freedom to act on any initiative that works towards the purpose.

A medical practice is an ideal environment for Pink’s motivational factors. Incomes are high enough that people can easily meet their basic needs, their educational level is high, and there is consensus that the practice is there to care for patients. Working towards a common purpose and achieving mastery of the work both require a measurement system that reflects the sense of purpose. The Dorval Model provided this elusive measurement for the doctors and staff of the practice.

When the practice added quality measurement, it had all three of Pink’s motivators. Its regular provision of meaningful feedback on performance allows each doctor to work in an accountable manner towards the common purpose. There is no prescribed process or scope to the team’s undertakings. Some members work solo on small initiatives, others work in groups, and others tackle ‘big picture’ items (such as creation of this model).

Dorval Medical suspects that its performance is quite high but, in the absence of data from other practices, cannot confirm this impression. It describes its current performance in terms of the high-level parameters of cost, capacity, and quality. The practice’s current cost is $315 per patient per year, its capacity is 60, and its quality score is 82 per cent.

The quality score is particularly difficult to compare with other practices. Appendix B describes the current indicators with their achievements. In narrative form, the practice looks to be achieving high

\textsuperscript{32} "Daniel Pink on the surprising science of motivation." www.youtube.com/watch?v=rrkrvAUbU9Y <July 17, 2012>.
comprehensive quality. It has been operating with open access since 2007, and surveys of patients regarding access and general experience indicate high satisfaction. Achievement in preventive care appears very high, with the entire practice doing better than the highest threshold for all measures except fecal occult blood testing (FOBT) for colorectal cancer, where it was second highest. Colorectal screening by any method covers 73 per cent of all patients in the registry. Disease screening and management of chronic disease also appear strong.

It would appear that the Dorval Model works to measure and improve performance in comprehensive primary care.
Chapter 7: Applying the Model: Practice and Province

This chapter describes some of the challenges facing readers who might seek to apply the Dorval Model. Five issues relate to the practice level -- tasks for practice members, reconciling data, phasing in the model, setting up EMRs, and mobilizing EMRs. And five relate to the province – tasks for the province, paying for the model, the model’s impact on current labour distortions, political issues, and future steps.

Practice

Tasks for Practice Members

Despite the complexity that the creators of the Dorval Model faced, a group wishing to implement the model will have a much simpler process. The electronic medical records (EMRs) and system-level analysis of the reported data do much of the work automatically. All EMRs are capable of modification to support the model by recording the data elements and generating the source data file.

The necessary actions at the practice level involve physicians, the staff, and EMRs:

- Physicians must keep a record consistent with the CPSO Policy on Medical Records.
- Physicians must record when reconciliation of medication and diagnosis occurs.
• The staff must run the patients’ satisfaction survey each month (Appendix B).

• The staff must prepare a monthly report on administrative data elements 57--73 (Appendix D).

• The staff must prepare a weekly record of 3NA (Error! Reference source not found.).

• The staff must run a “source data file” query and send the data file for analysis (see below).

• EMRs must provide reminders to providers (prompting services relating to indicators in Appendix B).

• EMRs must discretely record the 56 data elements (Appendix D).

• EMRs must be able to generate the “source data file” (see chapter 5).

The amount of labour in adopting the model is quite modest -- once the IT infrastructure is in place, only two to three hours of support-staff time per month for a practice of six doctors.

_Reconciling Data_

Accurate performance-oriented data on primary care can describe the population’s health status and the system's achievements vis-à-vis desired outcomes. The two most useful types of data for health status and management of a patient’s new presentation are the lists of problems (diagnoses) and of medications.
Change and re-evaluation degrade these lists over time, and reconciliation can use all data sources, including the patient, to update the information. Reconciliation is a manual process and is common in primary care (where most transactions occur). For this reason, data from primary care are the gold standard in information for the system.

**Phasing in the Model**

A practice considering the Dorval Model faces a great deal of set-up work (ensuring infrastructure and staff, modifying EMRs, and cleaning up data). A direct switch would be unrealistic, so transition in two phases might be more appropriate.

**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 (perhaps 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.

**Phase 2: Adding 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 – if the system offered such incentives. The group would have to maintain the requirements of phase 1 and establish and maintain a minimum capacity (perhaps 50). Pay for performance and pay for stewardship would shift the current distribution
of monetary incentives. Appendix G compares payment for various forms of performance under various current models and the proposed Dorval Model.

Pay for performance and pay for stewardship should be paid at a group level in order to avoid distorting behaviour within the group and de-motivating providers.

The assumption underlying the Dorval Model was that it would not increase costs to the system. Money to fund the model could come from shifting of revenue within the current budget for primary care and from actual savings.

**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.

With sufficient funding in place to pay for data, primary care would rapidly adopt and adapt EMRs. EMRs and the supporting infrastructure represent an ongoing expense to the practice of about $600 per month per doctor or about $6 per month per patient.

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 need changing.
Most current EMRs have difficulty recording, aggregating, and reporting practice-wide clinical data. All current EMRs provide this function to a limited degree, and some (such as ChartStar and OSCAR) perform the function well. All current EMRs in Ontario have the capability to encode, store, aggregate, and report the data set this document describes. Vendors are unlikely to invest in developing this capability unless the province sends a clear signal that there will be willing customers for the data.

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

**Mobilizing EMRs**

The Dorval Model could encourage transmission of the primary care record to patients and outside providers caring for the group’s patients. Management of information and coordination of care can improve the primary care relationship and are explicit functions within the PCCCAR basket of services. The form and content of the primary care medical record ‘tell the story of the patient.’ This body of information is invaluable to an unfamiliar care provider, as in an emergency room or a new consultant’s office. The record would allow the provider to understand the patient’s health status and how he or she reached their current status. A pay-for-data model should enable practices to implement the technology that allows patients to view their own record and for outside providers to see it.

The system can use any or all of three methods to mobilize EMRs:

- Make mobile EMRs a condition for a practice to participate in a pay-for-data system.
- Include a quality indicator reflecting EMR mobility and assign it significant value.
- Use pay for performance in the form of a monthly payment] for each patient who can access his or her EMR remotely by any means 24/7.

---

33 [www cps o.on.ca/policies/policies/default.aspx?ID=1686 <September 1, 2012>].
Mobilizing primary care EMRs would satisfy eHealth Ontario’s objective of mobilizing patient data when and where people need the information and would be using the information source designed to meet the eHealth objective.

The Province

Tasks for the Province

If the Dorval Model gained wide adoption, a supportive infrastructure would become essential. The province would need to set up an organization to provide the following functions:

- Oversee ongoing refinement of the crowd-sourcing method.
- Conduct ongoing crowd-sourcing.
- Re-evaluate the values underlying primary care.
- Use crowd-sourcing to re-evaluate the indicators and their weighting and thresholds and the rules for measuring them.
- Reassess types of data for indicators.
- Receive data from participating groups.
- Analyse data and report performance back to participating groups.
- Manage payments to groups using the model.
- Manage data verification and ensure accuracy of data from participating groups.
Paying for the Model

Dorval Medical has demonstrated the functionality of the Dorval Model over more than three years. To have broader viability, the model needs an economic foundation. The current economics of primary care discourages the model’s adoption in favour of optimizing income without assuring quality, establishing capacity, or worrying about the stewardship and cost of the system.

Ontario’s economic environment in health care does not encourage application of the Dorval Model. Most doctors favour the current payment system and focus on fee for service or enrolment rather than on accountable performance. To illustrate this point, only about 10 per cent of providers participated in the Quality Improvement and Innovation Partnership in the three waves of FHTs. Their uptake peaked at about six months of performance measurement and then declined until QIIP finished.

Efforts to sustain and spread the model require funds to support the IT infrastructure to report the information -- about $600 per doctor (FTE) per month or about $6 per rostered patient per year. They also require psychological motivation in the three characteristics that Daniel Pink describes: mastery, autonomy, and purpose (see chapters 2 and 6).

Payment for the model can cover any or all of three types of input:

- data
- performance
- 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, and level of income; method of record keeping; and accountability. Work in the Dorval Model entails close ties to the group and explicit accountability. The data reporting requires some discipline in use of EMRs. Accountability for performance would reduce personal freedom but create the opportunity to work in an environment with purpose, mastery, and autonomy.

**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.

As we saw above, the minimum payment for data should cover the infrastructure to report data (information technology and labour). This cost is about $600 per month for each full-time-equivalent physician, or about $6 per patient per year as a capitation rate.

**Paying for performance.** The Quality Outcomes Framework in Britain operates with pay for performance in terms of indicator points (deriving from a practice’s data). If this approach seemed desirable in Ontario, the Ministry of Health would assign points a monetary value and pay participants monthly.

This concept finds little support in the current science of motivation, and there is good evidence that it is actually counterproductive. It is not clear whether its de-motivating tendency is a factor in payment and performance at a group level. For example, allowing patients access to their EMR at any time could be workable with a specific payment for achievement to the group.
For reference, Appendix G describes the current models of payment with a description of the services receiving incentive.

**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 steward health resources.

If a group achieves efficiency and conservation, it should benefit. Payment to the group would encourage stewardship and could derive entirely from actual savings, but could lead to unintended consequences.

*Correcting Labour Distortions*

OHIP’s payment of fees for service distorts use and assignment of labour in primary care in Ontario, adding to its costs. This subsection outlines the reasons for these distortions and how the Dorval Model corrects them.

OHIP’s rules require a physician to see a patient in person in order to receive payment for most OHIP services, and so most 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 funding model for family health teams (FHTs) is problematic. It pays only certain health professionals, on the basis of the FHT’s number of patients, limiting the types of professionals receiving payment and basing funding on professional credentials rather than on an individual’s capabilities or the team’s functional abilities. And it distorts the purpose of these people by requiring
detailed reporting of their activities, not of their quality outcomes or processes. The implicit message to them is, “Be busy, don’t worry about results.”

A pay-for-data incentive model (if set at a sufficient level) could help pay them and would significantly reduce labour distortion.

**Political Perspectives**

The Dorval Model offers benefits and challenges for the players in our political and health care systems. An accountable performance orientation for primary care should be attractive to the population and to 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:

- 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 both 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 might reduce physicians’ political power by giving system stewards an effective accountability system.
- 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. It 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 demonstrate value in an expanded pilot phase, it would be ready for general introduction into the system.
Glossary


Capacity. In primary care (the Dorval Model), 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). A national body with the authority to train physicians in the specialty of family medicine and to oversee the ongoing education of family physicians who are in practice.

College of Physicians and Surgeons of Ontario (CPSO). A quasi-judicial body that regulates the registration (permission to practise) of physicians in Ontario. It 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). A primary care practice that the Ontario Ministry of Health funds through its Local Health Integration Networks (LHINs). Most of its physicians receive salaries and work under the CHC’s management.

Data element. A defined type of data such as a blood pressure value, a laboratory value, or a date of a service.
**Family health group (FHG).** A group of at least three physicians who have signed the FHG template agreement and roster patients; its physicians receive most of their income by OHIP’s Fee for Service Schedule of Benefits, plus (small) capitation payments and incentives for preventive-care outcomes.

**Family health network (FHN).** Very similar to the FHO (see below). Most groups have migrated to the FHO model, which has fewer services in its capitation agreement and a smaller capitation payment.

**Family health organization (FHO).** A group of three or more physicians who have signed the FHO template agreement and offer the PCCCAR basket of 15 services, but with no mechanism for accountability.

**Family health team (FHT).** The part of a multidisciplinary medical practice that receives funding for allied, or 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).** Ontario’s traditional payment system. A doctor generates income by providing OHIP transactions, with no accountability for quality performance and no requirement for scope of service.

**Indicator.** Something that helps people understand where they are, where they are going, and how far they are from the goal.

**OHIP transaction.** 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).** A provincial body that acts as an advocate for family physicians in Ontario.
Ontario Medical Association (OMA). 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. Population-based performance measurements. A patient-oriented outcome is an outcome relevant to a layperson (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 model that includes placing patients on the roster of a group practice in primary care and specifies conditions for all parties.

Pay for data. Payment for a practice’s data where accurate reporting is the primary criterion for payment.

Pay for performance. Payment for a practice’s achievement of a specified activity. It often relates to a clinical outcome (e.g., the proportion of patients 65 or older with a current flu immunization).

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

Process. In primary care, a practice’s formal mechanism for addressing a particular need.

Stewardship. Caring for something you don’t own or for which you have no formal responsibility.
Appendix A: PCCCAR Services and the Dorval Model

The following are the 15 services in the PCCCAR Basket of Services, along with the numbers of the indicators (in italic) that Dorval Medical uses for them (see tables in Appendix B).\(^{34}\)

1. **health assessment** (*indicators 1--5*)
   - 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** (*indicators 14--19*)
   - 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** (*indicators 1--4 and 8--9*)
   - 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

---

\(^{34}\) Subcommittee on Primary Care of the Provincial Co-ordinating Committee on Community and Academic Health Science Centre Relations (PCCCAR), *New Directions in Primary Health Care*, 1996, PCCCAR Report to the Minister of Health Ontario, 21–31.
4. **primary reproductive care** *(indicator 2)*
   - 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** *(indicators 20--3 and 26--36)*
   - 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
   - comprehensive care to meet all primary medical-care needs -- i.e., for all health problems and illnesses

6. **care for majority of illnesses** *(in conjunction with specialists, as necessary (indicators 1--4 and 10--13)*
   - comprehensive care to meet all primary medical-care needs -- i.e., for all health problems and illnesses

7. **education and support for self-care** *(indicator 2)*
   - 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** *(indicators 1--4 and 7--13)*
   - 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 (indicators 8--13)

• 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 (indicators 2 and 10--13)

• coordinate community, secondary, and tertiary care

11. maintenance of comprehensive health record for each patient (indicators 5 and 6)

• managing client information in order to facilitate coordination and referral

12. advocacy (indicator 2)

• 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 patients’ behalf and organizing case conferences

13. primary mental-health care, including psycho-social counselling (indicators 1--4, 8--9, and 34--6)

• 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 (indicator 2)

• 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 (*indicators 1--4 and 8--11*)

- 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 B: Assessing Primary Care at Dorval Medical

This polling tool — the "Patient Expectations and Impressions" survey — which Dorval Medical created, attempts to reveal the relative value of various choices in primary health care. Price is not an accurate guide because the services are intangible. Ontario’s publicly funded system needs an alternative method to describe value.

This tool can estimate a population’s valuation of its choices in primary care. It is an attempt to quantify the weighting of various potential services and domains of the value choices. The services are the 15 in the PCCCAR Basket of Services (see Appendix A). There are three domains: clinical services (physical; mental health and addiction), management services, and the patient experience.

This appendix looks at Dorval Medical’s experience with implementation; crowd-sourcing as a source of input; the nature of the indicators; an example of assessment; obtaining, calculating, and applying results; and the evolving nature of the method.

Implementation

The tool assumes a system that focuses on patients. The patient population determines what has value and the relative value of different choices. Implementation proceeds in three steps.

---

35 Intangible (economic definition): unable to determine value (price) by market forces. For primary care in Ontario, and more generally throughout Canada, there is not enough of the information and choice that markets require to function.
Step 1. An organization defines the population to target, which can be as small as a single medical practice (perhaps 1,000 people) or as large as a province. The method uses crowd-sourcing and benefits from large numbers of participants. In this case, the organization is a practice.

Step 2. The practice polls the chosen population using this tool.

Step 3. It then calculates the relative value of the various domains by entering the polling results into the spreadsheet “Quality Weighting” in the “Survey” tab (the spreadsheet is available on the Dorval Medical website). This spreadsheet converts the Likert Scale results for each question into a relative value for each of the services of comprehensive primary care.

Dorval Medical performed its first iteration of this tool by interviewing patients face to face. Now it uses a regular, mass e-mailing – ‘crowd-sourcing’ -- to patients in the month of their birth.

Crowd-sourcing the Survey

Dorval Medical collects the e-mail addresses of its patients. Investigators can recall these e-mails by means of a query as they require them. Crowd-sourcing involves five steps.

Step 1. Each month assessors run the query and e-mail people whose birthday occurs in the current month, requesting their participation. The e-mail contains a URL link, which will take the patient to the survey web page. The patient then completes the survey, which appears below (Figure B1).

Step 2. The web survey service updates the practice about the survey’s progress. At any time, the practice can obtain a report on all completed surveys. It enters this report into the Excel spreadsheet
“Quality Weighting” in the Survey tab. The spreadsheet converts the Likert-scale survey responses into relative value of services and indicators as they appear on the “Quality” tab.

**Step 3.** The practice assigns and refines indicators to the relative value choices. This process uses the spreadsheet “Quality Weighting” and the tab “Quality.” The practice chooses indicators and assigns them values (weighting) that reflect the polling results. Subsequent cycles of crowd-sourcing allow refinement of the choice of indicators and their weighting.

Indicators that reflect the public’s perceptions of value and the profession’s sense of purpose establish the foundation for stewardship -- the responsible management of something in a person’s care. To this end, a practice needs accessibility for patients, sensitivity to their perceptions, understanding of their health status, and good management. Indicators that reflect these attributes are the foundation of a high-performing practice.

**Step 4.** The practice assigns rules to each indicator. There must be a measurement method for each indicator, a minimum threshold for achieving points, and a maximum threshold. The minimum points for any indicator are 0, and the maximum points emerge through step 3.

**Step 5.** The practice identifies data sources for the indicators (see Appendix D).

Dorval Medical is in the process of implementing and experimenting with its crowd-sourcing method. Future documents will report this experience.
# Patient Expectations and Impressions

This survey is designed to gain a better understanding about your expectation and impressions as a patient of Dorval Medical Family Health Team

## Medical Services:
Medical Services include the range of services your doctor might provide to treat illness or keep you healthy.

## For you and your family future care, how important is it that Dorval Medical provides acute care?
(e.g. an injury or infection which you feel is not an emergency)
- Not Important At All
- Not Too Important
- Neutral
- Somewhat Important
- Extremely Important

## As compared with acute care, how important is it that Dorval Medical provides the following?

<table>
<thead>
<tr>
<th>Chronic Disease Management (i.e. taking care of a chronic disease such as diabetes)</th>
<th>Not Important at all</th>
<th>Less Important than Acute Care</th>
<th>Equal to Acute Care</th>
<th>More Important than Acute Care</th>
<th>Much More Important than Acute Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention and Screening (e.g. Immunization, pregnancy care, cancer screening)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Palliative Care (i.e. end of life care)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

*Figure B1: Web-based survey for crowd-sourcing*
How important are services of mental health and addiction compared to all services.

Refining assessment of access:

Please help us assess the importance of fast access for the following services.
Access is a characteristic of all services we provide. For some services access is more important, for example, in an acute illness we assume a short time to access is very important.

How important is fast access to acute care?
(e.g. Injury of infection that you feel is not an emergency)

- Not Important at all
- Not Too Important
- Neutral
- Somewhat Important
- Extremely Important

Figure B1 (page 2): Web-based survey for crowd-sourcing
### As compared to acute care, how important is fast access to the following?

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Not Important at all</th>
<th>Less Important than Speed of Access for Acute Care</th>
<th>Equal Speed of Access for Acute Care</th>
<th>More Important than Speed of Access for Acute Care</th>
<th>Much More Important than Speed of Access for Acute Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disease Management (e.g. scheduled care for a chronic condition like diabetes)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Prevention and Screening (e.g. Immunization, well baby check, or colon cancer screening)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Palliative Care (i.e. end of life care)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### Patient Management Services:

Patient management services include the keeping of good records, sharing the records when needed, coordinating your care with other providers and helping you understand health issues.

### For future care, how important is it that Dorval Medical keeps an organized and comprehensive medical record?

- ○ Not Important at all
- ○ Not too Important
- ○ Neutral
- ○ Somewhat Important
- ○ Extremely Important
As compared to keeping a comprehensive medical record, how important are the following?

<table>
<thead>
<tr>
<th></th>
<th>Not Important at all</th>
<th>Less Important than Keeping a Good Record</th>
<th>Equal to Keeping a Good Record</th>
<th>More Important than Keeping a Good Record</th>
<th>Much More Important than Keeping a Good Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication of your record with specialists</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Coordination of your care with specialists</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provision of health related information</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

How important is it that patient management services are located at Dorval Medical's office?

- ○ Not important at all
- ○ Not Too Important
- ○ Neutral
- ○ Somewhat Important
- ○ Extremely Important
### As compared to patient management services being provided at Dorval Medical, how important is it that the services are offered in the following locations?

<table>
<thead>
<tr>
<th></th>
<th>Not Important at all</th>
<th>Less Important than Management at the Office</th>
<th>Equal to Management at the Office</th>
<th>More Important than Management at the Office</th>
<th>Much More Important than Management at the Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Patients at Home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Patients at the Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Patients at Long Term Care Facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Patient Experience:
How you feel about your experience at the practice is important to us.

### How is your experience and satisfaction affected by getting an appointment on the day of your choice?
- Not Important
- Not Very Important
- Neutral
- Somewhat Important
- Extremely Important
Compared with getting an appointment on the day of your choice, how important are the following?

<table>
<thead>
<tr>
<th>Not Important at all</th>
<th>Less Important than the choice of appointment day</th>
<th>Equal to the choice of appointment day</th>
<th>More Important than the choice of appointment day</th>
<th>Much More Important than the choice of appointment day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeing your own doctor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Your overall satisfaction with the service</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Having enough time to be heard and understood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

How important is communicating in person with Dorval Medical?

- ☐ Not Important
- ☐ Not Very Important
- ☐ Neutral
- ☐ Somewhat Important
- ☐ Extremely Important
As compared to communication in person, how important are the following forms of communication with Dorval Medical?

<table>
<thead>
<tr>
<th>Not Important at all</th>
<th>Less Important than In-Person Communication</th>
<th>Equal to In-Person Communication</th>
<th>More Important than In-Person Communication</th>
<th>Much More Important than In-Person Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the Phone</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>E-Mail</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Viewing your own health record</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>

Were you satisfied with the day of your last appointment?
- Yes
- No

Were you seen by your own doctor at your last appointment?
- Yes
- No

What was your overall experience from your last visit?

Did you Feel that you were heard an understood at your last appointment?
- Not at all
- Very much so
Regarding the different types of primary care services, how important are medical services?
- Not Important at all
- Not Too Important
- Neutral
- Somewhat Important
- Extremely Important

As compared to medical services, how important are the following?

<table>
<thead>
<tr>
<th></th>
<th>Not Important</th>
<th>Less Important than Medical Services</th>
<th>Equal to Medical Services</th>
<th>More Important than Medical Services</th>
<th>Much More Important than Medical Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Management Services</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Your comfort with all services</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Please help us understand how much your overall experience of satisfaction at Dorval Medical is dependent on the relationships and the services you receive.

Your sense of satisfaction at Dorval Medical is:

- Totally dependent on relationships
- Totally dependent on services

Please provide any additional comments you may have about the practice.

*Optional*

Figure B1 (page 8): Web-based survey for crowd-sourcing
Current Indicators

Figure B2 shows the 35 indicators currently in use at Dorval Medical, which derive from a limited set of data (see Appendix D). These data elements allow measurement of the indicators, as well as the practice’s capacity and cost.

<table>
<thead>
<tr>
<th>Ref #</th>
<th>Data Source</th>
<th>Quality Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patient Survey</td>
<td>Patient Survey - Satisfaction with Apt</td>
</tr>
<tr>
<td>2</td>
<td>Patient Survey</td>
<td>Patient Survey - Satisfaction with Being Heard</td>
</tr>
<tr>
<td>3</td>
<td>Patient Survey</td>
<td>Patient Survey - Satisfaction with day of apt</td>
</tr>
<tr>
<td>4</td>
<td>OHR F, A</td>
<td>Access Bonus (% of Max)</td>
</tr>
<tr>
<td>5</td>
<td>EMR</td>
<td>% Reconciled Med List in last Yr</td>
</tr>
<tr>
<td>6</td>
<td>EMR</td>
<td>% Reconciled by List in last Yr</td>
</tr>
<tr>
<td>7</td>
<td>DMA Admin Data</td>
<td>Note: Data on admission in 24 hrs</td>
</tr>
<tr>
<td>8</td>
<td>Scheduler</td>
<td>Advanced Access 3rd Next Appt</td>
</tr>
<tr>
<td>9</td>
<td>DMA Admin Data</td>
<td>% of Palliative Pts with coverage 24/7</td>
</tr>
<tr>
<td>10</td>
<td>DMA Admin Data</td>
<td>% of LTC Pts with coverage 24/7</td>
</tr>
<tr>
<td>11</td>
<td>DMA Admin Data</td>
<td>% of Acute Care Pts with coverage 24/7</td>
</tr>
<tr>
<td>12</td>
<td>DMA Admin Data</td>
<td>% of Pts with direct office access</td>
</tr>
<tr>
<td>13</td>
<td>EMR</td>
<td>Flu Shots</td>
</tr>
<tr>
<td>14</td>
<td>EMR</td>
<td>Pap Smears</td>
</tr>
<tr>
<td>15</td>
<td>EMR</td>
<td>Mammograms</td>
</tr>
<tr>
<td>16</td>
<td>EMR</td>
<td>Rads, Radio</td>
</tr>
<tr>
<td>17</td>
<td>EMR</td>
<td>X-ray</td>
</tr>
<tr>
<td>18</td>
<td>EMR</td>
<td>15 Month Development Check</td>
</tr>
<tr>
<td>19</td>
<td>EMR</td>
<td>% on Coumadin with INR 2-3 in 2/12</td>
</tr>
<tr>
<td>20</td>
<td>EMR</td>
<td>BMI HgbA1C &gt; 7 in 1 year</td>
</tr>
<tr>
<td>21</td>
<td>EMR</td>
<td>BMI - Syst BP &gt; 130 in 6/12</td>
</tr>
<tr>
<td>22</td>
<td>EMR</td>
<td>BMI - LDL &gt; 120 in last year</td>
</tr>
<tr>
<td>23</td>
<td>EMR</td>
<td>% Pts screened for DM</td>
</tr>
<tr>
<td>24</td>
<td>EMR</td>
<td>% Pts Screened for HTN</td>
</tr>
<tr>
<td>25</td>
<td>EMR</td>
<td>HbA1C and Sys &lt; 115 in last year</td>
</tr>
<tr>
<td>26</td>
<td>EMR</td>
<td>% Smokers Counseled in last year</td>
</tr>
<tr>
<td>27</td>
<td>EMR</td>
<td>CHF with review in last year</td>
</tr>
<tr>
<td>28</td>
<td>EMR</td>
<td>CHF with review in last year</td>
</tr>
<tr>
<td>29</td>
<td>EMR</td>
<td>Diabetes</td>
</tr>
<tr>
<td>30</td>
<td>EMR</td>
<td>ASHD</td>
</tr>
<tr>
<td>31</td>
<td>EMR</td>
<td>CHF</td>
</tr>
<tr>
<td>32</td>
<td>EMR</td>
<td>Hypertension</td>
</tr>
<tr>
<td>33</td>
<td>EMR</td>
<td>Depression</td>
</tr>
<tr>
<td>34</td>
<td>EMR</td>
<td>Bipolar Affect Disorder</td>
</tr>
<tr>
<td>35</td>
<td>EMR</td>
<td>Schizophrenia</td>
</tr>
</tbody>
</table>

Figure B2: Indicators
An Example: Measuring 3NA

The practice aims to standardize measurement through a set of guidelines. As an example of measuring an indicator, we look at Advanced Access 3rd Next Available Appointment (3NA) – see Figure B3. Dorval Medical found that the QIIP method was not sensitive enough to guide the practice in managing aspects of access, so it developed a more sensitive and informative way to measure access (see Appendix F).

The values of the indicators reflected the survey results. For example, 3NA affects the services of Medical Services and Patient Experience, so both characteristics receive points (see Figure B3). In each row, the indicator’s weighting is the sum of the values the survey results assigned to the row. The analyst adjusts the sum of value in each column to match the result of the survey for that service (see Target in Figure B3). The analyst then adjusts the raw weighting so that the total score for all indicators is 1,000.

For each indicator, the score column is a link with the data source to give the current performance score. The Min and Max are the scoring thresholds, and the Earned column represents the weighted score for each indicator. The performance of participating practices or individual practitioners determines thresholds, such that the minimum is the 25th percentile of performance and the maximum is the 75th.

For example, in 3NA, the minimum threshold for points is 8.9. A measurement of that level or higher earns no points. The maximum is 2.9. A measurement of 2.9 or less earns the maximum points (24). Measurements between 8.9 and 2.9 earn points on a linear basis between 0 and 24, as in Figure B4. This is part of the QOF’s method.
Figure B3: Point assignment to indicators

Access by 3NA

Days to Third Next Available Appointment (3NA)

Figure B4: Points earned for 3NA between thresholds

100
Obtaining, Interpreting, and Applying Results

Figure B5 describes the Dorval Medical indicators, current scores, minimum and maximum thresholds, weighting (potential maximum earned points), and points earned for current scores.

<table>
<thead>
<tr>
<th>Ref #</th>
<th>Data Source</th>
<th>Quality Indicators</th>
<th>Values</th>
<th>Min</th>
<th>Max</th>
<th>Wt/1000</th>
<th>Raw Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patient Survey</td>
<td>Patient Survey - Satisfaction with Apt</td>
<td>86%</td>
<td>87%</td>
<td>94%</td>
<td>6.3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Patient Survey</td>
<td>Patient Survey - Satisfaction with Being Heard</td>
<td>88%</td>
<td>89%</td>
<td>97%</td>
<td>23.7</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>Patient Survey</td>
<td>Patient Survey - Satisfaction with day of Apt</td>
<td>97%</td>
<td>93%</td>
<td>98%</td>
<td>38.2</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>OHP R.A.</td>
<td>Access Bonus (% of Max)</td>
<td>33%</td>
<td>24%</td>
<td>43%</td>
<td>46.1</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>EMR</td>
<td>%Reconciled Med List in last Yr</td>
<td>15%</td>
<td>1%</td>
<td>25%</td>
<td>32.7</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>EMR</td>
<td>%Reconciled Dx List in last Yr</td>
<td>10%</td>
<td>0%</td>
<td>17%</td>
<td>47.4</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>DMA Admin Data</td>
<td>ChartStar Record on admission in 24 Hrs</td>
<td>80%</td>
<td>79%</td>
<td>80%</td>
<td>65.9</td>
<td>50</td>
</tr>
<tr>
<td>8</td>
<td>Appointment Scheduler</td>
<td>Advanced Access 3rd Next Appt.</td>
<td>5.0</td>
<td>8.9</td>
<td>2.9</td>
<td>31.6</td>
<td>24</td>
</tr>
<tr>
<td>9</td>
<td>DMA Admin Data</td>
<td>% of Palliative Pts with coverage 24/7</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>126.5</td>
<td>96</td>
</tr>
<tr>
<td>10</td>
<td>DMA Admin Data</td>
<td>% of LTC Pts with coverage 24/7</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>65.9</td>
<td>50</td>
</tr>
<tr>
<td>11</td>
<td>DMA Admin Data</td>
<td>% of Acute Care Pts with coverage 24/7</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>101.4</td>
<td>77</td>
</tr>
<tr>
<td>12</td>
<td>DMA Admin Data</td>
<td>% of week with direct office access</td>
<td>34.2%</td>
<td>32.8%</td>
<td>35%</td>
<td>72.5</td>
<td>55</td>
</tr>
<tr>
<td>13</td>
<td>EMR</td>
<td>Flushots</td>
<td>82.6%</td>
<td>64%</td>
<td>90%</td>
<td>19.8</td>
<td>15</td>
</tr>
<tr>
<td>14</td>
<td>EMR</td>
<td>Pap Smears</td>
<td>72.0%</td>
<td>54%</td>
<td>79%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>15</td>
<td>EMR</td>
<td>Mammograms</td>
<td>71.5%</td>
<td>54%</td>
<td>79%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>16</td>
<td>EMR</td>
<td>Kids Shots</td>
<td>94.1%</td>
<td>91%</td>
<td>102%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>17</td>
<td>EMR</td>
<td>FOBT</td>
<td>75.6%</td>
<td>25%</td>
<td>60%</td>
<td>14.5</td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td>EMR</td>
<td>18 Month Development Check</td>
<td>100.0%</td>
<td>99%</td>
<td>100%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>19</td>
<td>EMR</td>
<td>% on Coumadin w/INR 2-3 in 2/12</td>
<td>67.5%</td>
<td>59%</td>
<td>81%</td>
<td>9.2</td>
<td>7</td>
</tr>
<tr>
<td>20</td>
<td>EMR</td>
<td>DM HgbA1c&lt;7 in 1 year</td>
<td>66.1%</td>
<td>82%</td>
<td>89%</td>
<td>6.6</td>
<td>5</td>
</tr>
<tr>
<td>21</td>
<td>EMR</td>
<td>DM Sys BP =&lt;130 in 6/12</td>
<td>66.1%</td>
<td>53%</td>
<td>76%</td>
<td>7.9</td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>EMR</td>
<td>DM LDL &lt;2 in last Year</td>
<td>47.6%</td>
<td>36%</td>
<td>44%</td>
<td>6.6</td>
<td>5</td>
</tr>
<tr>
<td>23</td>
<td>EMR</td>
<td>% Pts screened for DM</td>
<td>42.9%</td>
<td>26%</td>
<td>60%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>24</td>
<td>EMR</td>
<td>% Pts Screened for HTN</td>
<td>68.6%</td>
<td>37%</td>
<td>78%</td>
<td>19.8</td>
<td>15</td>
</tr>
<tr>
<td>25</td>
<td>EMR</td>
<td>Htn and Sys =&lt;150 in last year</td>
<td>69.3%</td>
<td>27%</td>
<td>67%</td>
<td>7.9</td>
<td>6</td>
</tr>
<tr>
<td>26</td>
<td>EMR</td>
<td>% Smokers COUNCILED in last year</td>
<td>51.2%</td>
<td>31%</td>
<td>58%</td>
<td>7.9</td>
<td>6</td>
</tr>
<tr>
<td>27</td>
<td>EMR</td>
<td>CHF with review in last Year</td>
<td>70%</td>
<td>64%</td>
<td>84%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>28</td>
<td>EMR</td>
<td>Diabetes</td>
<td>91.5%</td>
<td>87.6%</td>
<td>95.0%</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>29</td>
<td>EMR</td>
<td>ASHD</td>
<td>64.9%</td>
<td>24%</td>
<td>55%</td>
<td>11.9</td>
<td>9</td>
</tr>
<tr>
<td>30</td>
<td>EMR</td>
<td>CHF</td>
<td>70.0%</td>
<td>64%</td>
<td>84%</td>
<td>11.9</td>
<td>9</td>
</tr>
<tr>
<td>31</td>
<td>EMR</td>
<td>Hypertension</td>
<td>62.9%</td>
<td>30%</td>
<td>73%</td>
<td>11.9</td>
<td>9</td>
</tr>
<tr>
<td>32</td>
<td>EMR</td>
<td>COPD</td>
<td>50.0%</td>
<td>17%</td>
<td>69%</td>
<td>11.9</td>
<td>9</td>
</tr>
<tr>
<td>33</td>
<td>EMR</td>
<td>Depression</td>
<td>36.5%</td>
<td>23%</td>
<td>71%</td>
<td>27.7</td>
<td>21</td>
</tr>
<tr>
<td>34</td>
<td>EMR</td>
<td>Bipolar Affect Disease</td>
<td>100.0%</td>
<td>19%</td>
<td>74%</td>
<td>27.7</td>
<td>21</td>
</tr>
<tr>
<td>35</td>
<td>EMR</td>
<td>Schizophrenia</td>
<td>1.0%</td>
<td>9%</td>
<td>76%</td>
<td>27.7</td>
<td>21</td>
</tr>
</tbody>
</table>

Figure B5: Indicator thresholds: weighting and earned points
The aggregate score of comprehensive quality is the sum of all earned scores divided by the maximum earnable points. The total weighted points are 1,000, and the total earned points are 744.9, for a comprehensive score of 74.5 per cent (see Figure B6).

The EMR data are extracted as 14 demographic elements and 47 clinical elements. Dorval Medical uses only 25 indicators from these data but could produce hundreds.

Each month, the practice produces a quality report card for each doctor and for the practice as a whole. Each doctor receives the details of each indicator as well as a table, as in

![Figure B6: Total quality score](image)

102
Figure B6. It takes less than 60 minutes each month for a member of the support staff to produce such a report for the entire practice of six doctors.

The aggregate scores for each of the six doctors in August 2012 ranged from a low of 61 per cent to a high of 87 per cent; the quality score for the practice was 79 per cent. Clearly the method allows for the group to achieve a quality superior to the results for the individuals. See Table B1.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Dr A</th>
<th>Dr B</th>
<th>Dr C</th>
<th>Dr D</th>
<th>Dr E</th>
<th>Dr F</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient experience</td>
<td>26%</td>
<td>86%</td>
<td>15%</td>
<td>79%</td>
<td>30%</td>
<td>56%</td>
<td>37%</td>
</tr>
<tr>
<td>Management</td>
<td>48%</td>
<td>47%</td>
<td>71%</td>
<td>100%</td>
<td>51%</td>
<td>43%</td>
<td>75%</td>
</tr>
<tr>
<td>Access</td>
<td>93%</td>
<td>94%</td>
<td>88%</td>
<td>96%</td>
<td>76%</td>
<td>96%</td>
<td>94%</td>
</tr>
<tr>
<td>Health status</td>
<td>21%</td>
<td>36%</td>
<td>69%</td>
<td>77%</td>
<td>74%</td>
<td>13%</td>
<td>50%</td>
</tr>
<tr>
<td>Prevention</td>
<td>73%</td>
<td>88%</td>
<td>51%</td>
<td>63%</td>
<td>44%</td>
<td>86%</td>
<td>71%</td>
</tr>
<tr>
<td>Chronic disease</td>
<td>29%</td>
<td>55%</td>
<td>79%</td>
<td>84%</td>
<td>40%</td>
<td>11%</td>
<td>64%</td>
</tr>
<tr>
<td>All domains</td>
<td>61%</td>
<td>74%</td>
<td>69%</td>
<td>87%</td>
<td>61%</td>
<td>65%</td>
<td>79%</td>
</tr>
</tbody>
</table>

**Table B1: Domain scores for providers and practice**

In addition to measuring quality, Dorval Medical informs its providers about their performance in capacity and their cost per patient, giving them a picture of their overall performance (Table B2).

<table>
<thead>
<tr>
<th></th>
<th>Dr A</th>
<th>Dr B</th>
<th>Dr C</th>
<th>Dr D</th>
<th>Dr E</th>
<th>Dr F</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>63.5</td>
<td>74.9</td>
<td>71.8</td>
<td>61.1</td>
<td>63.3</td>
<td>31.5</td>
<td>61.3</td>
</tr>
<tr>
<td>Quality</td>
<td>67%</td>
<td>72%</td>
<td>60%</td>
<td>66%</td>
<td>88%</td>
<td>64%</td>
<td>79%</td>
</tr>
<tr>
<td>Practice cost</td>
<td>$320.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table B2: Performance in cost, capacity, and quality**
Dorval Medical measures quality in a number of ways. It does so each month with fresh data for each indicator. This provides ‘real time’ feedback to providers and makes improvement visible at an early stage. The ongoing polling of patients alters the proportions we see at the top of Figure B3, generating changing assignment of points for indicators (middle of Figure B3). The practice constantly reviews the weighting for indicators and may even change indicators so that they better reflect patients’ expectations. It exercises similar judgment vis-à-vis thresholds. From time to time, the practice adds new indicators to help address these expectations.

An Evolving Method

Indicators should reflect population-based service and performance. Expectations change over time, and everything must adapt to these new circumstances. Dynamic change over time also discourages gaming of the rules and encourages practices to reflect their population’s expectations. Dorval Medical measures quality through extensive crowd-sourcing and transparent communication of the current situation, so that all engaged members of the practice can refine the measurement tool.

The Dorval Model uses provider performance to evaluate individual indicators. All indicators undergo analysis of standard deviation to observe how much providers’ performance varies. If the standard deviation is too small, the indicator is not helpful in seeing differences in providers’ performance. An indicator with a small standard deviation will be refined or rejected.
The Dorval Model’s dynamic selection and implementation of indicators may seem problematic for ongoing measurement. A measurement of a year ago might relate to different indicators and parameters. However, because perception of quality is dynamic, measurement of it should be too. So long as the reference point is public perception of quality, the changes continue to measure the same complex human perception. Other economic measurements in our society are equally dynamic – for example, the consumer price index (CPI).

**Conclusion**

It is possible to create a method for measuring quality in comprehensive primary care that reflects public expectations for services and attributes of primary care. This method uses providers’ own data and is a powerful force for ensuring and improving quality. It is inexpensive to maintain and in the current economic environment might allow primary care strongly to influence the system’s cost, capacity, and quality and thus ensure the system’s long-term sustainability.
Health Quality Ontario describes nine attributes of quality: “accessibility,” “effective,” “safe,” “patient centred,” “equitable,” “efficient,” “appropriately resourced,” “integrated,” and “focused on population health.” This appendix quotes Health Quality Ontario’s definition of each attribute and describes how the Dorval Model supports it.

**Appendix C: The Dorval Model and Health Quality Ontario**

Accessible: “**People should be able to get timely and appropriate healthcare services to achieve the best possible health outcomes.**” For example, when a special test is needed, you should receive it when needed and without causing you extra strain and upset. If you have a chronic illness such as diabetes and asthma, you should be able to find help to manage your disease and avoid more serious problems.”

> Public expectations place high value on access. See the significant weighting for indicators of access in the Dorval Model. Indicators of access also serve to reflect quality in acute episodic care.

Effective: “**People should receive care that works and is based on the best available scientific information.**” For example, your doctor (or healthcare provider) should know what the proven
treatments are for your particular needs including best ways of coordinating care, preventing disease or using technology.”

_Indicators in the Dorval Model reflect current ‘best practices’ in clinical practice in chronic conditions, disease screening, prevention, and normal growth and development._

_These standards change, and the Dorval Model can adapt quickly as new evidence emerges._

_Safe:_ “People should not be harmed by an accident or mistakes when they receive care.” For example, steps should be taken so that elderly people are less likely to fall in long-term care homes. There should be systems in place so you are not given the wrong drug, or the wrong dose of a drug.”

_The Dorval Model’s greatest contribution to patient safety is its powerful incentive to adopt electronic medical records. EMRs support safety by improving legibility, communication of data, and detection of drug interaction._

_Patient-centred:_ “Healthcare providers should offer services in a way that is sensitive to an individual’s needs and preferences.” For example, you should receive care that respects your dignity and privacy. You should be able to find care that respects your religious, cultural and language needs and your life’s circumstances.”

_The Dorval Model centres entirely on patients. Its use of crowd-sourcing determines priorities and the foci of the evaluation. The model quickly incorporates change in patients’ expectations into the measurement process._
Equitable: “People should get the same quality of care regardless of who they are and where they live. For example, if you don’t speak English or French, it can be hard to find out about the health services you need and to get to those services. The same can be true for people who are poor or less educated, or for those who live in small or far-off communities. Extra help is sometimes needed to make sure everyone gets the care they need.”

The Dorval Model can further equality of access by helping generate adequate capacity in the province. Competitive forces would emerge where practices work to attract patients and encourage practices to meet the needs of all patients and, in this way, achieve equitability in the system.

Efficient: “The health system should continually look for ways to reduce waste, including waste of supplies, equipment, time, ideas and information. For example, to avoid the need to repeat tests or wait for reports to be sent from one doctor to another, your health information should be available to all of your doctors through a secure computer system.”

The Dorval Model is explicitly sensitive to primary care’s impact on health costs. This efficiency could well save hundreds of millions of dollars without compromising quality.

Appropriately resourced: “The health system should have enough qualified providers, funding, information, equipment, supplies and facilities to look after people’s health needs. For example, as people age they develop more health problems. This means there will be more need for specialized machines, doctors, nurses and others to provide good care. A high-performing health system will plan and prepare for this.”
The Dorval Model does not incorporate any authority to allocate resources. However, explicit measurement of performance and highly efficient delivery of primary care will create many more opportunities for stewards to allocate resources where appropriate.

Integrated: “All parts of the health system should be organized, connected and work with one another to provide high quality care. For example, if you need major surgery, your care should be managed so that you move smoothly from hospital to rehabilitation and into the care you need after you go home.”

The Dorval Model stresses information management, patient advocacy, and coordination of care in its measurements of quality. These services should help generate considerable efficiencies and thereby create a virtuous cycle of efficiency and integration.

Focused on population health: “The health system should work to prevent sickness and improve the health of the people of Ontario.”

The Dorval Model measures many of its indicators through population-based outcomes.
## Appendix D: Data Elements

### From the EMR

<table>
<thead>
<tr>
<th>Field #</th>
<th>Comment</th>
<th>Data type</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Group Identifier</td>
<td>4 Letter or null</td>
<td>BABF</td>
</tr>
<tr>
<td>2</td>
<td>MD Identifier</td>
<td>6 numbers</td>
<td>244301</td>
</tr>
<tr>
<td>3</td>
<td>Patient Identifier</td>
<td>10 numbers</td>
<td>1234567890</td>
</tr>
<tr>
<td>4</td>
<td>Date of Birth</td>
<td>Date</td>
<td>27/04/1956</td>
</tr>
<tr>
<td>5</td>
<td>Gender</td>
<td>M or F</td>
<td>M</td>
</tr>
<tr>
<td>6</td>
<td>Postal Code</td>
<td>Postal Code</td>
<td>L6K 1B8</td>
</tr>
<tr>
<td>7</td>
<td>Current Dx Depression, last Date of entry</td>
<td>Date</td>
<td>30/11/2011</td>
</tr>
<tr>
<td>8</td>
<td>Current Dx Bipolar, last Date of entry</td>
<td>Date</td>
<td>01/12/2011</td>
</tr>
<tr>
<td>9</td>
<td>Current Dx Schizophrenia, last Date of entry</td>
<td>Date</td>
<td>02/12/2011</td>
</tr>
<tr>
<td>10</td>
<td>Current Dx Diabetes, last Date of entry</td>
<td>Date</td>
<td>03/12/2011</td>
</tr>
<tr>
<td>11</td>
<td>Current Dx ASHD, last Date of entry</td>
<td>Date</td>
<td>04/12/2011</td>
</tr>
<tr>
<td>12</td>
<td>Current Dx Hypertension, last Date of entry</td>
<td>Date</td>
<td>05/12/2011</td>
</tr>
<tr>
<td>13</td>
<td>Current Dx CHF, last Date of entry</td>
<td>Date</td>
<td>06/12/2011</td>
</tr>
<tr>
<td>14</td>
<td>Current Dx COPD, last Date of entry</td>
<td>Date</td>
<td>07/12/2011</td>
</tr>
<tr>
<td>15</td>
<td>Current Dx Chronic Renal Disease, last Date of entry</td>
<td>Date</td>
<td>08/12/2011</td>
</tr>
<tr>
<td>16</td>
<td>Current Dx Depression, last Date of entry</td>
<td>Date</td>
<td>09/12/2011</td>
</tr>
<tr>
<td>17</td>
<td>Current Dx Alcohol dependency, last Date of entry</td>
<td>Date</td>
<td>10/12/2011</td>
</tr>
<tr>
<td>18</td>
<td>Current Dx Asthma, last Date of entry</td>
<td>Date</td>
<td>11/12/2011</td>
</tr>
<tr>
<td>19</td>
<td>Current Dx CVA, last Date of entry</td>
<td>Date</td>
<td>12/12/2011</td>
</tr>
<tr>
<td>20</td>
<td>Current Dx Palliative, last Date of entry</td>
<td>Date</td>
<td>13/12/2011</td>
</tr>
<tr>
<td>21</td>
<td>Most recent Systolic value</td>
<td>Numeric</td>
<td>130</td>
</tr>
<tr>
<td>22</td>
<td>Most recent Diastolic value</td>
<td>Numeric</td>
<td>70</td>
</tr>
<tr>
<td>23</td>
<td>Most recent BP Date</td>
<td>Date</td>
<td>30/11/2011</td>
</tr>
<tr>
<td>24</td>
<td>Most recent BMI Value</td>
<td>Numeric</td>
<td>70</td>
</tr>
<tr>
<td>25</td>
<td>Most Recent BMI Date</td>
<td>Date</td>
<td>30/11/2011</td>
</tr>
<tr>
<td>26</td>
<td>Most Recent Pulse Rate Value</td>
<td>Numeric</td>
<td>70</td>
</tr>
<tr>
<td>27</td>
<td>Most Recent Pulse Rate Date</td>
<td>Date</td>
<td>30/11/2011</td>
</tr>
<tr>
<td>28</td>
<td>Date of most recent Skin exam</td>
<td>Date</td>
<td>30/10/2011</td>
</tr>
<tr>
<td>29</td>
<td>Date of most recent Depression Screen</td>
<td>Date</td>
<td>31/10/2011</td>
</tr>
<tr>
<td>30</td>
<td>Date of most recent Alcohol Screen</td>
<td>Date</td>
<td>01/11/2011</td>
</tr>
<tr>
<td>31</td>
<td>Date of most recent Smoking screen</td>
<td>Date</td>
<td>02/11/2011</td>
</tr>
<tr>
<td>32</td>
<td>Date of Most recent Nippising 18/12 Screen</td>
<td>Date</td>
<td>03/11/2011</td>
</tr>
<tr>
<td>33</td>
<td>Date of most recent Dx Reconciliation</td>
<td>Date</td>
<td>04/11/2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------</td>
<td>------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>34</td>
<td>Date of most recent Rx Reconciliation</td>
<td>Date</td>
<td>05/11/2011</td>
</tr>
<tr>
<td>35</td>
<td>Ace or Arb Current Rx?</td>
<td>Yes (Y) or null</td>
<td>Y</td>
</tr>
<tr>
<td>36</td>
<td>Beta Blocker current Rx?</td>
<td>Yes (Y) or null</td>
<td>Y</td>
</tr>
<tr>
<td>37</td>
<td>Spireva Current Rx?</td>
<td>Yes (Y) or null</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Coumadin current Rx?</td>
<td>Yes (Y) or null</td>
<td>Y</td>
</tr>
<tr>
<td>39</td>
<td>ASA or Antiplatelet Rx?</td>
<td>Yes (Y) or null</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Most Recent INR Value</td>
<td>Numeric</td>
<td>2.3</td>
</tr>
<tr>
<td>41</td>
<td>Most Recent INR Date</td>
<td>Date</td>
<td>31/10/2011</td>
</tr>
<tr>
<td>42</td>
<td>Date of most recent Mammogram</td>
<td>Date</td>
<td>31/10/2011</td>
</tr>
<tr>
<td>43</td>
<td>Date of Most Recent Flu Shot</td>
<td>Date</td>
<td>30/10/2011</td>
</tr>
<tr>
<td>44</td>
<td>Number of Pentacils and MMR in last 2 years</td>
<td>Numeric</td>
<td>6</td>
</tr>
<tr>
<td>45</td>
<td>Current Colorectal Screen?</td>
<td>Yes (Y) or null</td>
<td>Y</td>
</tr>
<tr>
<td>46</td>
<td>Date of most Recent Palliative Care Plan</td>
<td>Date</td>
<td>30/10/2011</td>
</tr>
<tr>
<td>47</td>
<td>Most recent A1C Value</td>
<td>Numeric</td>
<td>0.055</td>
</tr>
<tr>
<td>48</td>
<td>Most Recent A1C Date</td>
<td>Date</td>
<td>30/11/2011</td>
</tr>
<tr>
<td>49</td>
<td>Most Recent Fasting Sugar Value</td>
<td>Numeric</td>
<td>5.5</td>
</tr>
<tr>
<td>50</td>
<td>Most Recent Fasting Sugar Date</td>
<td>Date</td>
<td>31/10/2011</td>
</tr>
<tr>
<td>51</td>
<td>Most Recent LDL Value</td>
<td>Numeric</td>
<td>2.3</td>
</tr>
<tr>
<td>52</td>
<td>Most Recent LDL Date</td>
<td>Date</td>
<td>31/10/2011</td>
</tr>
<tr>
<td>53</td>
<td>Date of most recent pap smear</td>
<td>Date</td>
<td>13/12/2011</td>
</tr>
<tr>
<td>54</td>
<td>Dx of Breast Cancer, most recent date</td>
<td>Date</td>
<td>14/12/2011</td>
</tr>
<tr>
<td>55</td>
<td>Dx of Colon Cancer, most recent date</td>
<td>Date</td>
<td>15/12/2011</td>
</tr>
<tr>
<td>56</td>
<td>Hysterectomy in record</td>
<td>Yes (Y) or null</td>
<td>Y</td>
</tr>
</tbody>
</table>
### Monthly Report

<table>
<thead>
<tr>
<th>Field #</th>
<th>Comment</th>
<th>Data type</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>Number of anonymous patient surveys in the past year</td>
<td>Numeric</td>
<td>300</td>
</tr>
<tr>
<td>58</td>
<td>% of Patients reporting satisfaction with the Most recent Visit in past 3 months</td>
<td>Percentage</td>
<td>85%</td>
</tr>
<tr>
<td>59</td>
<td>% of patients reporting satisfaction with Overall Service in past 3 months</td>
<td>Percentage</td>
<td>75%</td>
</tr>
<tr>
<td>60</td>
<td>% of patients reporting satisfaction with the day of their last appointment in past 3 months</td>
<td>Percentage</td>
<td>85%</td>
</tr>
<tr>
<td>61</td>
<td>Access Bonus earned as a proportion of full potential in the past 6 months</td>
<td>Numeric</td>
<td>25%</td>
</tr>
<tr>
<td>62</td>
<td>% of LTC Patients covered directly 7/27</td>
<td>Percentage</td>
<td>100%</td>
</tr>
<tr>
<td>63</td>
<td>% of Palliative Patients covered directly 7/27</td>
<td>Percentage</td>
<td>100%</td>
</tr>
<tr>
<td>64</td>
<td>% of Acute Hospital Patients covered directly 7/27</td>
<td>Percentage</td>
<td>100%</td>
</tr>
<tr>
<td>65</td>
<td>% of the week with direct patient access to the office</td>
<td>Percentage</td>
<td>30%</td>
</tr>
<tr>
<td>66</td>
<td>% of the group with a Contract to transfer data for an emergency 24/7</td>
<td>Percentage</td>
<td>50%</td>
</tr>
<tr>
<td>67</td>
<td>% Pts who can Access their own Record</td>
<td>Percentage</td>
<td>50%</td>
</tr>
<tr>
<td>68</td>
<td>For each Family Doctor in the Group, MD Identifier</td>
<td>6 numbers</td>
<td>244320</td>
</tr>
<tr>
<td>69</td>
<td>For each family doctor in the Group, Regularly scheduled patient appointment hours in the week</td>
<td>Numeric</td>
<td>31.5</td>
</tr>
<tr>
<td>70</td>
<td>Proportion of patient appointments of a minimum of 10 minutes</td>
<td>Percentage</td>
<td>95%</td>
</tr>
<tr>
<td>71</td>
<td>Proportion of patients who can email the practice</td>
<td>Percentage</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Proportion of patients who can book their own appointment electronically</td>
<td>Percentage</td>
<td>30%</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------------</td>
<td>------------</td>
<td>-----</td>
</tr>
<tr>
<td>73</td>
<td>All Gross practice Revenue for the preceding 12 months</td>
<td>Monetary</td>
<td>$2,500,000</td>
</tr>
</tbody>
</table>

**Weekly Report**

<table>
<thead>
<tr>
<th></th>
<th>Average Practice Weighted 3rd Next Available Appointment over the past 4 weeks (minimum 1 measurement each week)</th>
<th>Numeric</th>
<th>2.5</th>
</tr>
</thead>
</table>
Appendix E: Comparing Systems

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 in the literature to associate quality initiatives in primary care and cost reduction have failed, as Øvretveit shows. He demonstrates the lack of reduction in total health costs despite lower spending on specific processes and programs. Years of qualitative improvement in Ontario (and other jurisdictions) have failed to reduce costs.

Dorval Medical established the hypothesis that comprehensive quality establishes trust, which enables providers and patients to discuss and make sound 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 (reducing cost through higher quality and reducing cost through stewardship) in its philosophy and services. Its performance suggests that this dual strategy may reduce demand on the health system and thus the system’s cost.

---

36 Dr John Øvretveit, Does improving quality save money? A review of evidence of which improvements to quality reduce costs to health service providers, Health Foundation (Sept. 2009).
To illustrate this achievement, we look at the same clinical presentation in three clinical settings – a typical individual practice, a walk-in clinic, and a group practice with trusting, accessible relationships -- and consider the results for all parties.

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

A Typical Individual Practice

Appointment date is not timely. Office waiting time to see doctor is excessive.

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

Course of treatment and recovery are unmanaged.

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

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

Supporting resources are used inefficiently.

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

After fighting through the busy signals on the telephone, Paul has to negotiate with the receptionist, who has an 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 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.

Paul leaves without understanding the plan, knowing the expectation for recovery, or obtaining the tools to self-manage, and he has 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 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.

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.

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

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

Total: $7,030.50

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% x $4,687 = $2,343.50). See Table E1.

A Walk-In Clinic

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, or obtaining the tools to self-manage, and he has 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 vis-à-vis 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.

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

- doctor’s fee: $75
- specialist’s costs: $120
- medication: $35
- X-ray of back: $45
- MRI in Ontario: $450
- MRI in Buffalo: $550
- Paul’s lost work (4 weeks): $4,000
- cost of future events: $2,363

Total: $7,088

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 $4,725 x 50% = $2,363. See Table E1.

A Group 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.

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.

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

- doctor’s fee: $3
- medication: $35
- Paul’s lost work (2 weeks): $2,000
- cost of future events: $509.50

Total: $2,548

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% x $2,038 = $509.50. See Table E1.

<table>
<thead>
<tr>
<th>Category</th>
<th>Typical practice</th>
<th>Walk-in clinic</th>
<th>Group practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor’s fee</td>
<td>$37</td>
<td>$75</td>
<td>$3</td>
</tr>
<tr>
<td>Specialist’s cost</td>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Medication</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>X-ray</td>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>MRI in Ontario</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>MRI in Buffalo</td>
<td></td>
<td>550</td>
<td>550</td>
</tr>
<tr>
<td>Paul’s lost work</td>
<td>4,000</td>
<td>4,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Future events</td>
<td>2,343.50</td>
<td>2,638</td>
<td>509.50</td>
</tr>
<tr>
<td>Total</td>
<td>$7,030.50</td>
<td>$7,087.50</td>
<td>$2,547.50</td>
</tr>
</tbody>
</table>

Table E1: Costs for Paul in three settings
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 access to a practice with the assurance of comprehensive quality – i.e., its capacity -- should be 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**

Mark Murray suggests, first, measuring “third next available appointment” (3NA) -- a standard indicator for access, but one very easy to distort by accident or intention. Seven rules help make it sensitive and informative to the group and reduce gaming (and see Figure F1):

- It measures 3NA weekly on a randomly selected weekday.
- It measures 3NA at least three hours after the office opens (i.e., after a significant portion of the day’s demand has surfaced).
- It does not count time slots blocked off.

---

- It counts only full-time (not ‘fit-in’) appointment slots.
- It measures all comprehensive care providers -- physicians and RN(EC)s -- at the same time.
- It measures group 3NA using Oldham’s weighted method\(^{38}\) for all comprehensive care providers.
- It averages measurements of the six most recent readings.

![Averaged 3NA](image.png)

**Figure F1: Average 3NA**

Second, Mark Murray suggests measuring 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 (see Table F1):

• proportion of appointments with a full-time slot (minimum 10 minutes) -- verification by observation of the schedule

• proportion of palliative patients with practice access 24/7 -- verification by sampling surveys of families of palliative patients

• proportion of acute care patients with practice access 24/7 -- verification by checking with the office of the hospital’s medical staff

• 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 by survey of patients

<table>
<thead>
<tr>
<th>Proportion of ...</th>
<th>Verify by ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>appointments with full-time slot (minimum 10 minutes)</td>
<td>observing schedule</td>
</tr>
<tr>
<td>palliative patients with practice access 24/7</td>
<td>sampling surveys of families</td>
</tr>
<tr>
<td>acute care patients with practice access 24/7</td>
<td>checking with office of hospital’s medical staff</td>
</tr>
<tr>
<td>week when patients have direct access to practice (hours of access by any means divided by 168)</td>
<td>survey of patients</td>
</tr>
</tbody>
</table>

**Table F1: Proportion and verification, indicators**
Appendix G: Current Modes of Pay

All six models of primary care in Ontario pay for various forms of performance, but each has a different focus. Table G1 describes the types of payments for each model and 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), and community health clinic (CHC).

<table>
<thead>
<tr>
<th>Model Objectives</th>
<th>FFS</th>
<th>FHG</th>
<th>FHN</th>
<th>FHO</th>
<th>FHT</th>
<th>CHC</th>
<th>Dorval Model39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of all practices39</td>
<td>29%</td>
<td>28%</td>
<td>4%</td>
<td>33%</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHIP transactions</td>
<td>100%</td>
<td>88%</td>
<td>34%</td>
<td>32%</td>
<td>100%</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>Enrolment</td>
<td>0%</td>
<td>10%</td>
<td>55%</td>
<td>57%</td>
<td>0%</td>
<td>0%</td>
<td>40%</td>
</tr>
<tr>
<td>Clinical outcomes</td>
<td>0%</td>
<td>2%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>39%</td>
</tr>
<tr>
<td>Hourly payment</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>100%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Table G1: Modes of pay

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

This project would not have been possible without the support and love of my life partner, business partner, and medical partner, Margaret Found. Today marks the 25th anniversary of the start of our journey together.

Jim Knowlton deserves special appreciation: his support and enthusiasm were matched only by his oracle-like abilities to perceive patterns of behaviour. Our pact on Flagpole Point at Camp Hurontario in August 2004 still holds.

This project has been a living evolution as we invented ideas and tried them out in the real world of community practice. The members of Dorval Medical, under the leadership of Paul Sandiford, breathed life into the concepts and anchored them in reality. The team members form my professional family, and they deserve to be proud of their wonderful work: Danielle Bremermann, Marion Campbell, Mary Coroza, Alda Dacosta, Irena Dimoska, Linda Doughty, Alex Ginty, Reddy Harwart, Nancy Hretzay, Nancy Ku, Tanya Lecic, Michele Mach, Jennifer McCauley, Lennox Mirander, Lee-Ann Okolisan, Nicole Peritore, Abir Troop, and Cherl Turner.

Technical support for the project was invaluable, as we charted unknown waters using every technique from data manipulation to inexpensive hardware solutions. Application support from Medical Software Systems (Asystar) with its application ChartStar came from Ted Badiuk, Chris Landry, and James Olson. On the ground, life support for the systems came from Business Computer Networks and from Eric Anderson, James Neal, and Rich Neal. LOS data
from OTMH came from the hard work of Lise Kittson, and creative analysis of data came from the OTMH guru of Excel, Roman Walornyj. Hil Southey created the web survey process and implementation with only a little help from his grateful Dad.

Thanks to Michael Thompson and Tim Elliott, who provided the support and encouragement for me to realize that the creation of this document would be an expression of my spiritual mission.

Deep appreciation goes to my friend and editor John Parry who was invaluable in making an immensely complex concept a document within reach of the interested public.

George Southey
Oakville, Ontario
September 4, 2012