

# Balancing Equity Issues in Health Systems: Perspectives of Primary Healthcare



EQUITY

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## **Importance and Impact of Primary Healthcare**

Primary healthcare is usually considered the first level of contact with the health system. In Organisation for Economic Co-operation and Development (OECD) countries, strong primary healthcare system and practice characteristics are associated with improved population health. The strength of a country's primary healthcare system has been shown to be negatively associated with all-cause mortality, all-cause premature mortality and cause-specific premature mortality from asthma and bronchitis, emphysema and pneumonia, cardiovascular disease and heart disease (Macinko et al. 2003). Starfield (1991) demonstrated that there was strong concord-

ance in 10 industrialized countries between the extent of primary health service, health indicators (including life expectancy and infant mortality) and the satisfaction of their populations in relation to the systems' overall costs. A systematic review found evidence that increased accessibility to physicians working in primary healthcare contributes to better health and lower total healthcare-system costs (Engstrom et al. 2001). Primary healthcare has also been shown to be associated with reduced socio-economic disparities in overall mortality, infant mortality and low birth weight, stroke mortality, self-reported health and avoidable hospitalizations (Starfield, Shi and Macinko 2005).

Studies of individual access to care provide

evidence supporting the effectiveness of primary healthcare at the country or regional level. Lack of access to a regular source of care has been associated with excess emergency department visits (Oster and Bindman 2003), while having a regular source of care has been associated with increased preventive healthcare (Bindman et al. 1996) and improved glycemic control for people with diabetes (O'Connor et al. 1998). Continuity of primary healthcare has been associated with increased preventive care (Gill et al. 2003), decreased hospitalization (Saultz and Lochner 2005), improved glycemic control for people with diabetes (Gill and Mainous 1998) and decreased rates of emergency department visits (Gill et al. 2000) and hospitalization (Gill and Mainous 1998).

The evidence for primary healthcare's positive contributions to population health is observational in nature (and therefore not necessarily causal) and there are minor inconsistencies about specific outcomes. Nonetheless, the overall findings are strong and consistent across ecological and individual-level studies, they appear to have dose-response relationships and they are specific to primary healthcare (Starfield, Shi, Grover and Macinko 2005). Experimental evidence will always be lacking about the organization of healthcare at the national or regional levels; therefore, the current evidence should be considered consistent and moderately strong within the realm of feasibility.

### **Health Provider Roles**

Among health providers, family physicians (FPs) and general practitioners (GPs) are the health professionals most often contacted at least once by Canadians (80% in 2003), followed by dentists (64%) (Canadian Institute for Health Information 2005). A large majority of Canadians (85%) have a regular medical doctor, most commonly an

FP/GP (Statistics Canada 2003). Among physicians, FPs/GPs play the largest role in the care of children, adults and seniors and of people with respiratory conditions, heart failure, mental health problems and cancer (Jaakkimainen et al. 2006).

Compared with physicians, less is known about the supply or practice patterns of other primary healthcare professionals. Although the supply of nurses in Canada has been extensively documented, with almost 250,000 in total, the number working in primary healthcare and their roles are not well understood. The majority of nurses (76%) work in hospitals or long-term care settings and less than 10% work in industry, private agencies, self-employment and physicians' offices combined. While many work in primary care settings, Canada has fewer than 1,000 nurse practitioners. The majority of Canada's 28,000 pharmacists are employed in retail settings, where they provide first-contact care; however, coordination with other primary care providers is limited in many of these environments. Canada has over 28,000 social workers but their roles and interactions with other primary care providers are not well documented. Primary healthcare reform efforts in Canada are attempting to bridge gaps between providers in order to expand access to care and to improve the comprehensiveness and quality of care. As these efforts move forward, all providers can expect changes in their current roles and interactions as members of teams (Canadian Institute for Health Information 2006).

### **Declining Access to Primary Healthcare**

Canada's physician workforce declined during the 1990s, with a large decrease in the availability of FPs/GPs. Provider factors related to these declines include a decrease in the proportion of FP/GP physicians, a decrease in the average hours worked (attributed to

the profession's changing demographics), an increase in time spent in training, a decrease in foreign-trained doctors, more physicians retiring and medical school enrolment cuts. Patient factors include an aging population that uses healthcare more intensively. In 2003, 5% (1.2 million) of Canadians age 12 and over were unable to find a regular doctor and an additional 9% (2.4 million) had not looked for one (Statistics Canada 2003). Across the country, only about 20% of FPs/GPs were accepting new patients, and this proportion declined between 2001 and 2004. In many communities, walk-in and special clinics staffed on a rotating basis are the only source of care for thousands of people. These clinics cannot provide care continuity and are not geared to provide ongoing chronic disease management or preventive healthcare. Lack of interest in family medicine among new medical school graduates, low professional satisfaction and rapid aging of the current workforce in the face of a growing and aging population generate a worsening crisis in access to basic healthcare in Canada.

The overall supply of FPs/GPs is not the only concern. Uneven distribution and reduced care comprehensiveness also greatly compromise the availability of primary care. There were 96 FPs/GPs per 100,000 people in Canada in 2002, with large variations – ranging from 35 (Nunavut) to 172 (Vancouver) – among the country's health regions. Even these variations do not fully account for severe shortages within certain sub-regions, part-time practices and limited and changing scope of practice over time. From 1989 to 1999, there were significant decreases in hospital in-patient care, surgical assistance, surgery, obstetrics and anaesthesia by Canadian FPs/GPs. There is evidence that this decline in the comprehensiveness of care offered by FP/GPs has occurred across all physician age groups for males and females, and that it is happen-

ing in rural areas as well as in cities with and without medical schools (Chan 2002). Along with a widespread withdrawal from hospital-based care, many FPs/GPs have developed

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specialty areas of practice, such as psychotherapy, sports medicine and palliative care. While these services are needed, and often fill serious gaps in care, such specialization further decreases the availability of comprehensive primary care services at the community level.

### **The Policy Response: Primary Healthcare Reform in Canada's Provinces**

Access to care has been an important focus of primary healthcare policy-making in Canada. The 2003 First Ministers' Accord on Health Care Renewal committed federal and provincial governments to accelerating primary healthcare renewal so that citizens routinely receive needed healthcare from an appropriate provider. This accord set a goal that by 2011 “at least 50 per cent of their residents have access to an appropriate health care provider, 24 hours a day, seven days a week” (Health Canada 2003). In 2004's 10-Year Plan to Strengthen Health Care, this target was described as “50 per cent of Canadians having 24/7 access to multidisciplinary teams by 2011.” The 2004 plan also committed governments to continue to work with Health Canada's Infoway to realize the vision of an electronic health record

(Health Canada 2004).

According to a 2006 report (Health Council of Canada 2006), nine Canadian jurisdictions now provide access to a province- or territory-wide telephone service. Only five of those jurisdictions have a mechanism to inform a patient's primary care provider about telephone encounters. Interprofessional teams, another main policy response to improve access to primary healthcare, vary a great deal in composition and are not rolling out as quickly as expected. The same report also gives information about team care for several provinces in 2005:

- British Columbia had more than 1,000 clinicians providing team care; Saskatchewan had 34 primary care teams covering approximately 23% of the population.
- Ontario had 75 interdisciplinary teams, was adding community health centres and had plans to establish 150 family health teams by 2007.
- Quebec had an estimated 104 family medicine groups providing services to 1.55 million people.
- New Brunswick had eight community health centres and one collaborative practice model.
- Prince Edward Island had established five family health centres.
- Newfoundland and Labrador had eight teams in various stages of implementation.

Several other aspects of primary healthcare policy are relevant to improving access and quality. Rostering of patients with primary healthcare providers or teams has been promoted as a way to define practice populations, to increase accountability, to reduce duplication and to implement blended, capitated and other non-fee-for-service reimbursement models. Rostering has been criti-

cized as potentially difficult and disruptive to implement on a population-wide level given the current dispersion of care, especially in urban areas. The majority of Canadian FPs/GPs favour blended payment reimbursement over straight fee-for-service. Nonetheless, the large-scale implementation of capitation-based blended models has also been criticized and has generated a high degree of controversy among Canadian FPs/GPs. A chief concern raised about capitation models is their inherent incentive to underprovide services. Few Canadian capitation models have incorporated adjustment for patient characteristics beyond age and sex, raising concerns about preferential selection (aka "cream skimming") of the least complex and least demanding patients. The main concern is that, without adjustment for morbidity, physicians might continue to care for a range of patients but selectively enrol only the healthiest onto their capitation rosters.

There is also remarkably little evidence or consensus about whether patient outcomes are improved under any particular system of reimbursement. A 2001 systematic review concluded that, while the funding method in place influenced some aspects of physician behaviour, the authors were "unable to make conclusions as to whether these changes are beneficial to patients" (Gosden et al. 2001: 53). Even less evidence is available from Canadian settings where reimbursement and system issues are different from settings in the United States (US). Attention to care quality in primary healthcare reform is critical because funding appears to influence service delivery and there are concerns over the ability of primary healthcare providers to deliver evidence-based preventive care and chronic disease-management care as well as to communicate effectively with patients.

Dimensions of performance that have been proposed for primary healthcare reform

include effectiveness, continuity, quality, cost reduction, decline in total use, responsiveness, accessibility and equal access (Canadian Health Services Research Foundation 2003). No single model of care was found to approach optimal performance in all these dimensions; two models, however, were closest: the integrated community model and the professional coordination model. The former is most characteristic of community health centres (CHCs) and Quebec's centres locaux des services communautaires (CLSC) and centres de santé et des services sociaux (CSSS), with good performance reported in all dimensions except accessibility and responsiveness. The latter is best represented by Ontario's health service organizations (HSOs) and by managed care models such as health maintenance organizations (HMOs) in the US, which receive better ratings for accessibility and responsiveness than the integrated community model but worse ones in other dimensions. The professional contact model, which is most characteristic of fee-for-service care, also has strengths in accessibility and responsiveness but was not found to perform well in other dimensions. A commentary in the same report noted that the evidence on these issues is not strong and that funding and payment – two related but separate issues – need to be considered separately. A US analysis of domains of primary healthcare quality came to similar conclusions, based on the finding that CHC users are more likely than HMO users to rate their primary healthcare providers highly, except in the area of ease of first contact (Shi et al. 2003). Most Canadian jurisdictions have a mix of these models. In Canada, there is a current policy shift away from fee-for-service (professional contact model) and toward other organizational and payment arrangements, with most resembling the professional coordination model. In areas where CHCs are being expanded, this entails a move toward the

integrated community model.

Electronic health records (EHRs) are another policy response, one aimed more at quality of care and coordination than at access. An international comparison found that Canada lagged well behind many other nations in the uptake of EHRs in primary care, with only 20% of providers using computers for clinical purposes, compared with over 90% in 10 other countries (Protti 2005). Most Canadian FPs/GPs had some computer familiarity and already had computer systems in their offices for billing purposes – these were seen as positive steps toward clinical use. The most common functions in primary care offices internationally were prescription writing and accessing laboratory results. Both of these applications have been associated with practice benefits. Use of EHRs has also been associated with improved preventive care. A policy conference sponsored by Canada Health Infoway and the Health Council of Canada in June 2006 reported on evidence of positive impacts of EHRs on patient care in Canada and internationally. It also reported on financial benefits from e-health generally, but the return on investment of the EHR specifically remains to be determined (Canada Health Infoway and Health Council of Canada 2006). EHRs are increasingly being used in research and evaluation because they have numerous advantages over review of paper-based charts.

### **Policy Response: Ontario**

Along with other Canadian jurisdictions, Ontario is struggling with the increasing challenges facing access to and quality of primary healthcare. The 2005 Canadian Community Health Survey (CCHS) (Statistics Canada 2005) indicates that more than 900,000 people in Ontario aged 12 and over (8.8%) did not have a regular medical doctor, ranging – by Local Health Integration Network

(LHIN) – from 6.4% in Hamilton Niagara Haldimand Brant to 15.4% in the Northwest. The proportion of FPs/GPs accepting new patients in Ontario is only 11%, with levels as low as 5% in Eastern Ontario and Southwest Ontario. The province is pursuing policy initiatives on several fronts, including increased medical school enrolment, increased licensure of international medical graduates, telehealth and enhanced incentives for physicians to work in under-serviced areas.

A key strategy to overcome shortfalls in primary medical care is primary healthcare reform. In Ontario these efforts include re-organization of payment mechanisms and financial incentives to reward comprehensive care, continuity of care and delivery of preventive services; increased access to after-hours care; payments to subsidize EHR implementation and payments to add non-medical health personnel to healthcare teams, especially nurses, nurse practitioners, pharmacists and social workers. New models have become available at different times and, due to the voluntary nature of the rollout and historical patterns of care, the uptake has not been uniform in all areas of the province.

Ontario’s new care models all involve patient enrolment, so that most people in the province are becoming associated with primary healthcare providers or teams. There is, however, considerable variation in mechanisms of physician compensation (see Figure 1). Straight fee-for-service remains a common method but there has been a rapid increase in a blended fee-for-service model, the Family Health Group (FHG), with more than 4,000 physicians representing more than 4 million patients enrolled from July 2003 to January 2006. That model includes higher fees for comprehensive care claims (comprising a large proportion of most physicians’ practices), has incentives for reaching preventive care targets

and requires expanded after-hours coverage. An earlier version, the Comprehensive Care Model (CCM), involved a small number of practices. Blended capitation is the dominant reimbursement mechanism for two older models: HSOs, which had 145 physicians in January 2006, and Group Health Centres (GHCs), which had 38 physicians in January 2006. It is also the dominant reimbursement mechanism for three newer models: Family Health Networks (FHNs), which had 648 physicians in January 2006; Primary Care Networks (PCNs), which had 1,919 physicians in January 2006; and Family Health Teams (FHTs). The major distinction between the newer blended capitation models is that FHTs support interprofessional team members. An initial round of 31 FHTs was announced in December 2005, along with an application process for 50 more FHTs and a plan to establish 150 in total by 2007. All of the newer patient-enrolment models (CCM, FHG, FHN, PCN, FHT) require after-hours coverage, provide financial support for EHRs and have incentives for preventive healthcare and diabetes comprehensive care.

**Figure 1. Ontario’s patient enrolment models with types of physician compensation**

Patient Enrolment Model	Physician Compensation
Comprehensive Care Model (CCM)	Blended fee-for-service
Family Health Group (FHG)	
Family Health Network (FHN)	Blended capitation
Family Health Team (FHT)	
Primary Care Network (PCN)	
Health Service Organization (HSO)	
Group Health Centre (CHG)	

**Figure 2. Ontario's salaried models of primary healthcare showing physician-compensation types**

Model	Physician-Compensation Types
Rural and Northern Physicians Group (RNPG)	Blended complement (payments to a group based upon the number of designated physicians)
Community Health Centre (CHC)	Blended salary
Aboriginal Health Access Centre (AHAC)	
Various specific organizations	Specialized models

Ontario has salaried models in primary healthcare (see Figure 2), including CHCs (54 in January 2006) and Aboriginal Health Access Centres (AHACs) (10 in January 2006). It also has alternative payment plans as the major form of payment in rural and northern areas (49 physicians in January 2006), at Queen's University and at Toronto's Hospital for Sick Children, as well as in many hospital emergency departments. The variety of models being implemented in Ontario, with rollout occurring at different times and places, provides a unique opportunity to study the effects of primary healthcare reform in Canada, one that is applicable across the country.

### **Equity Considerations in Primary Care**

The population burden of illness is not shared equally among all people, even within the same age and sex groups. People with lower educational attainment, less income, unemployment and food insecurity report more fair and poor health, disability, depression and chronic diseases than more advantaged populations (Glazier et al. 2006). For example, three times as many low-income men and women aged 45–64 report poor and fair health compared to those with high income. Despite greater healthcare needs, disadvantaged populations do not make greater use of primary care or specialist care and have much lower levels of preventive healthcare, including Pap smears, mammograms, influenza

immunizations, blood pressure checks and dental visits.

Equity in primary care can be considered in terms of the Equity Effectiveness Loop framework (Tugwell 2006). In that framework, community effectiveness of care is seen as the product of efficacy, access, diagnostic accuracy, provider compliance and consumer adherence. With the possible exception of efficacy, disadvantaged populations might do worse than more advantaged ones at every step. Access to care and consumer adherence are particular concerns for disadvantaged populations that may experience barriers to scheduling appointments, obtaining transportation and affording medications and devices. Lower levels of health literacy have also been linked to lower levels of disease control (Schillinger et al. 2002).

### **Attending to Equity**

Health system innovation that is meant to improve access to care has the potential to improve equity. That outcome is not certain, however, because more advantaged populations are often adept at learning about and using innovations. To be sure that primary healthcare reform does not worsen equity, equity will need to be articulated as a goal that is attended to during implementation and measured during evaluation.

Measurement of primary healthcare provision is challenging, however, due to incomplete

and fragmentary datasets and poor data quality. For example, data about the care provided at CHCs in Ontario are not available for evaluation and have not been linked to other aspects of primary healthcare utilization. Part of the CHC mandate is to look after underserved populations; therefore, this evidentiary gap is especially problematic for understanding equity. Residential addresses in Ontario are up to 15 years out of date in Ontario's healthcare registry, a shortcoming that greatly reduces the validity of data pertaining to geographical rates of primary healthcare.

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As new models of interprofessional care are rapidly adopted in Ontario, ways to track the care provided by non-physicians will be increasingly needed. Currently, it is impossible to measure the care provided by nurses, nurse practitioners, social workers, pharmacists, psychologists, dieticians and others working on primary healthcare teams. Available data also lack measures of socio-economic or immigration status. Adding these measures to routinely collected data will greatly enable the measurement of equity in primary healthcare utilization.

Capitation rates in Ontario are based on age and sex and do not take morbidity or comorbidity into consideration. Without adjust-

ment for these factors, providers who care for disadvantaged populations under capitation will be under-paid due to the higher burden of illness in these populations. This constitutes a moral hazard for physicians who face financial penalties for looking after disadvantaged groups.

### **Evaluation of Primary Healthcare**

The current level of innovations being introduced into Canada's health system at the provider level is virtually unprecedented. The degree to which these reforms will successfully address access and quality challenges, however, remains unclear. Each province is developing its own approaches to research and evaluation but there is no pan-Canadian approach to understanding which innovations are successful; nor is there a way to compare the impact of reform models across different provinces. Without a coordinated national approach to evaluating primary healthcare per se, there will be no cross-jurisdictional lessons learned and no external information available to policy-makers concerning the need for mid-course corrections or guiding the adoption of the most promising innovations.

At the national level, support for and organization of primary healthcare research has been fragmentary and uncoordinated. Researchers from different health disciplines have no common research community within which to network and no formal mechanism through which to interact. Some national research-funding agencies, including Health Canada and the Canadian Health Services Research Foundation, have had major primary healthcare initiatives; other key health research funders, however, have had none. The large initiatives have now ended, leaving the future direction of primary healthcare research unclear. Canada's national research-funding agencies have no history of collaborative

initiatives or strategies in primary healthcare research. The Canadian situation contrasts starkly with those found in the United Kingdom, Australia, New Zealand, the US and other countries that have established major national primary healthcare research initiatives, including appropriately focused research funding.

A national, coordinated plan to evaluate innovation in primary healthcare is essential. The first step must involve inter-agency agreement that primary healthcare is a shared research priority. Second, inter-agency action must be taken to develop a national primary healthcare research strategy. Elements of such a national strategy could include the following elements:

#### **Building Research Capacity**

While Canada has successful primary healthcare researchers, research is underdeveloped in relation to service provision. Targeted support for research training and ongoing career support are needed. Alternative models of outreach and mentorship, later career re-entry positions, support for teams and networks and attention to the needs of clinician scientists are especially needed in primary healthcare research.

#### **Developing and Supporting an Interdisciplinary Research Community**

Family medicine, nursing, pharmacy, social work, psychology and other disciplines are working together in new models of primary healthcare and should be conducting research together as well. Methodologists in biostatistics, qualitative methods, program evaluation, epidemiology, health services and systems research, health economics and policy analysis are also needed. National structures that foster interdisciplinary research and interaction are required to create a cohesive research community.

#### **Fostering a Set of Interdisciplinary Teams and Centres**

Research foci for primary healthcare studies should include the following:

- Access to care
- Quality of care
- Interdisciplinary practice
- Application of information technology
- Health human resources
- Organization of care
- Health economics and policy analysis

A network of interdisciplinary teams and centres, each focused on one or more of these topics, is one potential model for addressing national research needs in these critical areas.

#### **Data Initiatives to Facilitate Cross-Model, Cross-Provincial and International Comparisons**

Data sources for primary healthcare research are incomplete, fragmented and split across jurisdictions. While a set of performance measures for primary healthcare has been proposed, current data systems are entirely inadequate for measuring most of the proposed indicators within and across jurisdictions. Investments in harmonizing, linking and continually updating datasets are needed.

#### **Supporting Practice-Based Research Networks**

The most valuable data for primary healthcare research arise in the clinical setting, including clinical-encounter data, the functioning of interdisciplinary teams and the satisfaction of those using the health system. Canada already has a number of functioning, practice-based research networks; however, these networks work mostly in isolation from one another and lack interdisciplinarity, the ability to network with each other and, in many cases, the resources for long-term sustainability.

Such networks are an essential laboratory for primary healthcare research, have worked extremely well internationally and are ideally suited for research comparing models of healthcare.

### Building Capacity to Link and Use EHRs for Research

EHRs are a feature of most primary healthcare reform efforts. They are usually introduced to enhance information coordination and to improve the delivery of clinical care. Unfortunately, many EHR systems are not designed to facilitate research; however, they have the potential to become rich data sources for comparative and longitudinal primary healthcare studies. EHRs can also be linked with provincial and national data and can facilitate data collection in practice-based research networks.

### Conclusions

Primary healthcare is associated with better population health at lower cost and should be considered the cornerstone of Canada's health system. Serious challenges facing access to care, quality of care, uptake of information technologies, integration with other health sectors and attracting new trainees have become apparent. Policy initiatives to address these concerns include expansion of after-hours office care, telehealth, EHRs, new reimbursement models and new interprofessional team models of care.

Despite this high level of innovation in every province and territory, there is no coordinated national plan for evaluation. Innovations often attract those most able to learn about them and experience their benefits and there are concerns that the needs of disadvantaged and vulnerable populations are not being specifically addressed in most primary care reform efforts. Nationally coordinated strategies are needed to ensure that

primary care reform is appropriately evaluated and that mid-course corrections can be made to ensure effectiveness and equity.

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