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Issue Brief:
Supporting Quality Improvement in Primary Healthcare in Ontario

21 June 2010

McMaster Health Forum

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Merit review

The issue brief was reviewed by a small number of policymakers, stakeholders and/or researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

What's the problem?

- The overarching problem is that Ontario lacks a system-wide and sustained approach to supporting quality improvement in primary healthcare.
 - Chronic diseases now represent a significant share of the common conditions that the primary healthcare system must prevent or treat.
 - Cost-effective primary healthcare programs and services are not consistently being delivered with a high degree of quality and safety or with a high degree of patient-centredness and efficiency.
 - Quality-improvement programs in Ontario's physician-led primary healthcare practices are fragmented and limited in coverage, whereas the initiatives in Ontario's community-governed primary healthcare organizations are more coordinated and broader in coverage, but less specifically focused on quality improvement.
 - Many health system arrangements needed to support the delivery of high-quality primary healthcare, such as electronic health records and financial incentives, are also not in place.
 - The province-wide implementation of two agreed upon courses of action related to quality improvement – electronic health records and performance measurement and feedback in diabetes management – has progressed slowly.

What do we know (from systematic reviews) about three viable options to address the problem?

- Option 1 – Collaboratively develop principles for quality improvement in primary healthcare
 - Reviews were identified for only three of seven potential principles: 1) incorporation of performance measurement and feedback at the practice-/organization-level; 2) incorporation of quality-improvement initiatives that have shown promise; and 3) publicly releasing performance data.
 - The evidence of benefit was strongest for the first principle, however, none of the studies included in this review focused on quality improvement in primary healthcare.
- Option 2 – Develop coordinating structures and processes to support quality improvement in primary healthcare
 - Six of the nine processes that a quality improvement coordinating structure could oversee have at least some evidence to suggest that they may have benefit: 1) performance measurement and feedback at the practice-/organization-level; 2) continuing education to support the use of quality improvement methods; 3) quality improvement coaching / practice facilitation; 4) other provider behaviour-change strategies to support quality improvement; 5) electronic health records to support quality improvement; and 6) Chronic Care Model to support quality improvement.
 - No systematic reviews were identified about one process – target setting for quality improvement.
 - No clear messages were identified for two processes and for part of a third (continuing education): 1) public reporting of quality indicators (at least at the primary healthcare level); 2) financial incentives for quality improvement; and 3) interprofessional continuing education to support the use of quality improvement methods (which yielded a combination of positive, mixed and no impacts).
- Option 3 – Support the scaling up of existing quality improvement initiatives
 - No clear messages were identified for three potential starting points: 1) learning collaboratives versus other quality improvement models; 2) team-focused versus solo practitioner-focused quality improvement; and 3) self-management, supports-centred quality improvement versus quality improvement centred on all elements of the Chronic Care Model.
 - No reviews were identified for the other four potential starting points.

What implementation considerations need to be kept in mind?

- Little research evidence is available about implementation barriers and strategies.
- Studying successes and failures in pursuing similar options in other settings may prove useful in identifying strategies to overcome some of the identified barriers.

REPORT

Improving the quality of primary healthcare has garnered increasing attention in Ontario (and in Canada more generally) over the last few years. The most recent ‘wake-up call’ on this issue came from a Commonwealth Fund-supported 11-country survey conducted in 2009.(1) The survey identified that Canada ranked in the bottom three among the participating countries in terms of the following indicators:

- percentage of primary healthcare physicians reporting that their practice has a process for identifying adverse events and taking follow-up action (10%);
- percentage of primary healthcare physicians reporting that their practice has an after-hours arrangement to see a doctor or nurse without going to a hospital emergency room (43%);
- percentage of primary healthcare physicians using electronic medical records, which enable performance measurement and feedback (37%); and
- percentage of primary healthcare physicians reporting that their clinical performance was routinely compared with other practices (11%).(1)

Also, only 62% of Canadian primary healthcare physicians reported being offered any financial supports or incentives to improve the quality of care, and only 1% are offered incentives based on high patient satisfaction ratings, 16% for non-face-to-face interactions with patients, and 21% for achieving clinical care targets.(1)

Efforts have been made over the years by the Canadian federal government and the Ontario provincial government to improve the quality of primary healthcare. For example, the federal government:

- funded a number of time-limited primary healthcare-strengthening pilot projects between 2000 and 2006 through the Primary Health Care Transition Fund, a number of which had at least a partial quality improvement focus (and one focused specifically on developing a new curriculum to build knowledge and skills in continuous quality improvement and interdisciplinary collaboration);(2)
- invested and continues to invest in the infrastructure to support electronic health records through Canada Health Infoway, which could provide a basis for performance measurement and feedback as part of a quality improvement initiative in primary healthcare;(3) and

Box 1: Background to the issue brief

This issue brief mobilizes both global and local research evidence about a problem, three options for addressing the problem, and key implementation considerations. Whenever possible, the issue brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The issue brief does not contain recommendations.

The preparation of the issue brief involved five steps:

- 1) convening a Steering Committee comprised of representatives from the partner organization (Quality Improvement and Innovation Partnership) and the McMaster Health Forum;
- 2) developing and refining the terms of reference for an issue brief, particularly the framing of the problem and three viable options for addressing it, in consultation with the Steering Committee, members of a project planning group, and select key informants, as well as with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
- 3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, options and implementation considerations;
- 4) drafting the issue brief in such a way as to present concisely and in accessible language the global and local research evidence; and
- 5) finalizing the issue brief based on the input of several merit reviewers.

The three options for addressing the problem were not designed to be mutually exclusive.

They could be pursued simultaneously or elements could be drawn from each option to create a new (fourth) option.

The issue brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants’ views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary and the video interviews with dialogue participants.

- led negotiations among First Ministers to achieve agreement on a Health Care Accord that set a target of 50% of Canadians having 24 hour-a-day/7 day-a-week access to an appropriate primary healthcare provider by 2011.(4)

At the provincial level, the Ontario provincial government:

- created the Ontario Health Quality Council in 2005 to monitor access and outcomes, and support continuous quality improvement in Ontario’s health system, one targeted element of which appears to be family physician clinics;(5)
- established a unit and later an independent agency to oversee the development and implementation of an electronic health record and, in response to operational challenges and implementation shortfalls, re-organized the agency, which is now called eHealth Ontario and which works in partnership with OntarioMD (a subsidiary of the Ontario Medical Association) to support the adoption of electronic health records in physician offices;(6)
- funded several initiatives to support quality improvement in primary healthcare Ontario, including a primary healthcare ‘atlas’ by the Institute for Clinical Evaluative Sciences, decision support tools by the Centre for Effective Practice among others, and quality improvement efforts by the Quality Improvement and Innovation Partnership;(7;8)
- funded initiatives aimed at specific disease groups, including the Primary Care Asthma Program and the Provincial Primary Care and Cancer Network, the latter of which seeks to engage primary healthcare providers (specifically family physicians, nurse practitioners and pharmacists) more actively in their patients’ cancer care;(9-11) and
- introduced legislation, called the Excellent Care for All Act,(12) that gives significant attention to quality improvement (albeit with a more institutional focus than a primary healthcare focus).

Two recent McMaster Health Forum-convened stakeholder dialogues addressed primary healthcare strengthening in Canada. The evidence brief that informed the first dialogue described available data and research evidence about problems occurring at several levels: 1) the nature and burden of common diseases and injuries that the primary healthcare system must prevent or treat; 2) access to the cost-effective programs, services, and drugs that primary healthcare systems must deliver or prescribe; and 3) the health system arrangements that determine access to and use of cost-effective programs,

Box 2: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms and costs of options to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use “PROGRESS,” which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:

- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in “precarious work” arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

The issue brief strives to address all of those living in Ontario and hence actual or potential clients of the province’s primary healthcare system. As illustrative examples of equity considerations arising in the available data and research evidence, the issue brief gives particular attention to two groups:

- people living with two or more chronic diseases; and
- people obtaining care from providers working in solo practice or in teams that have no functional linkages across practices considered part of the team.

Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them.

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003;10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

services and drugs.(13) The issue brief that – together with the evidence brief – informed the second dialogue, described the views and experiences of 40 influential doers and thinkers in seven domains related to primary healthcare strengthening.(14) Participants in the second stakeholder dialogue identified performance measurement and feedback to support quality improvement as one of five key areas of focus to accelerate the strengthening of primary healthcare across Canada.(15) Dialogue participants also noted the need for management structures to be put in place between the practice/clinic level and the provincial government level in order to steer and support the process of strengthening primary healthcare, as well as the importance of funding agreements and change-management processes.(15)

More specific to the genesis of this issue brief, the Ontario provincial government funded a two-phase project entitled the Quality Improvement in Primary Healthcare Project, to accelerate quality improvement efforts in Ontario. The project is coordinated by the Quality Improvement and Innovation Partnership in collaboration with a multi-stakeholder planning group, which has representation from: the Association of Family Health Teams of Ontario; Association of Ontario Health Centres; Cancer Care Ontario – Primary Care Network; College of Physicians and Surgeons of Ontario; Ontario Ministry of Health and Long-Term Care – Performance Improvement and Compliance Branch; Nurse Practitioners’ Association of Ontario; Ontario College of Family Physicians; Ontario Health Quality Council; Ontario Medical Association; Quality Improvement and Innovation Partnership; Registered Nurses’ Association of Ontario; and from the Departments of Family Medicine in Ontario’s six medical schools. The first-phase of the project involved the commissioning of:

- an environmental scan and ‘capacity map’ to determine the nature and extent of quality improvement activities in primary healthcare in Ontario, and to map the related human resource capacity for quality improvement related work in this sector;(16) and
- an overview of systematic reviews to determine the current state of synthesized research evidence about the effectiveness of quality-improvement interventions in primary healthcare.(17)

Key messages from these reports are included in this issue brief.

The purpose of this issue brief, which will be used to inform a stakeholder dialogue that brings stakeholders’ views and experience to bear on the issue of improving the quality of primary healthcare in Ontario, is to review the research evidence about: 1) problems arising from and contributing to the lack of a system-wide and sustained approach to supporting quality improvement in primary healthcare in Ontario; 2) three options for addressing the problems and enhancing what is already being done; and 3) key implementation considerations for moving the options forward. The issue brief and dialogue summary will serve to inform the efforts of the planning group overseeing the Quality Improvement in Primary Healthcare Project and, through the planning group, the efforts of the Ontario Ministry of Health and Long-Term Care and key primary healthcare system stakeholders.

The scope of the issue brief was framed in two ways that warrant comment. First, while there is no widely accepted definition of primary healthcare, for the purpose of this issue brief we consider primary healthcare to be “first contact, continuous, comprehensive, and coordinated care provided to populations undifferentiated by gender, disease or organ system.”(18) Health Canada defines the list of primary healthcare programs and services as potentially including: “1) prevention and treatment of common diseases and injuries; 2) basic emergency services; 3) referrals to/coordination with other levels of care (such as hospitals and specialist care); 4) primary mental healthcare; 5) palliative and end-of-life care; 6) health promotion; 7) healthy child development; 8) primary maternity care; and 9) rehabilitation services.”(19) However, whether any given service is defined as a primary healthcare service per se, or as a service “co-ordinated” by primary healthcare providers, can vary by jurisdiction and even by organization within a jurisdiction.

Second, while there is also no widely accepted definition of quality improvement, particularly as it relates to primary healthcare, for the purpose of the issue brief we consider it to be “a sustained effort to improve the quality of primary healthcare delivery, which incorporates performance measurement and feedback and which may or may not include additional elements.” This definition covers both the primary healthcare programs and services that are delivered (i.e., access to them, their cost-effectiveness relative to one another and to

other programs and services that could be offered, and the quality and safety with which they are provided) and how the delivery of these programs and services is organized (e.g., its patient-centredness and efficiency).

The following key features of the health policy and system context in Canada were also taken into account in preparation of this issue brief:

- Ontario's publicly funded health system, like those of its provincial counterparts, is distinguished by a long-standing private delivery/public payment agreement between the provincial government and physicians;
- the agreement with physicians has historically meant that most primary healthcare is delivered by physicians working in private practice with first-dollar (i.e., no deductibles or cost-sharing), public (typically fee-for-service) payment (and without the service agreements with Local Health Integration Networks that are signed by most other healthcare providers, including community health centres);
- other healthcare providers such as nurses, physiotherapists and psychologists, and teams led by these providers, are typically not eligible for public fee-for-service payment on the same guaranteed terms as physicians (or at least not on terms that make independent primary healthcare practices viable), however, they may be paid to provide primary healthcare through targeted provincial or regional programs (as is the case for community-governed primary healthcare organizations, such as community health centres);
- similarly, for many Ontarians, prescription drugs and homecare services are not eligible for public payment and, if they are eligible, it is not with the same type of first-dollar coverage provided for physician-provided (and hospital-based) care, and hence must also be paid for out-of-pocket or by private health insurance plans; and
- the private practice element of the agreement has typically meant that physicians have been wary of potential infringements on their professional and commercial autonomy (e.g., directives about the nature of the care they deliver or the way in which they organize and deliver that care).(20;21)

THE PROBLEM

The overarching problem is that Ontario lacks a system-wide and sustained approach to supporting quality improvement in primary healthcare. The following considerations have arisen from and contributed to this situation: 1) the growing burden of chronic diseases that the primary healthcare system must prevent or treat; 2) the cost-effective primary healthcare programs and services that must be delivered with a high degree of quality and safety, and with a high degree of patient-centredness and efficiency, as well as the quality improvement programs needed to support primary healthcare providers and organizations; 3) the current health system arrangements that must be in place to support the delivery of high-quality primary healthcare; and 4) the degree of implementation of agreed upon courses of actions related to quality improvement.

The burden of chronic diseases is growing

Chronic diseases now represent a significant share of the common conditions that the primary healthcare system must prevent or treat. Chronic diseases constitute the leading causes of death in all Canadian provinces, including Ontario. According to Statistics Canada, and as outlined in an evidence brief on strengthening chronic disease management, in Ontario:(13)

- 23% of Ontarians in 2008 had one or more of four chronic conditions: diabetes, heart disease, stroke and high blood pressure;(22)
- 33% of Ontarians had at least one chronic disease in 2005, and 12% had two or more;(23)
- almost 80% of those over the age of 45 in Ontario in 2003 (3.7 million people) were living with a chronic disease, including 34% with arthritis, 30% with high blood pressure, 12% with osteoporosis, and 9% with diabetes;(22)
- although the prevalence of cancers in Ontario fell by 5% between 2001 and 2003, the prevalence increased for COPD (11%), arthritis (4%), and type 2 diabetes (7%);(22) and
- heart disease was the leading cause of death in Ontario in 2003 followed by cancers, stroke and COPD. (22)

A key challenge confronting those working in primary healthcare in Ontario is to manage successfully the transition from reacting to acute illnesses and injuries to providing coordinated and proactive chronic disease prevention and management.

High-quality primary healthcare programs and services are not being delivered to all Ontarians

Cost-effective primary healthcare programs and services are not consistently being delivered with a high degree of quality and safety or with a high degree of patient-centredness and efficiency. An 11-country survey conducted in 2009 (the same one cited in the introduction to this issue brief) found that in Canada:

Box 3: Mobilizing research evidence about the problem

The available research evidence about the problem was sought from a range of published and “grey” research literature sources. Published literature that provided a comparative dimension to an understanding of the problem was sought using three health services research “hedges” in MedLine, namely those for appropriateness, processes, and outcomes of care (which increase the chances of identifying administrative database studies and community surveys). Published literature that provided insights into alternative ways of framing the problem was sought using a fourth hedge in MedLine, namely the one for qualitative research. Grey literature was sought by reviewing the websites of a number of Canadian and international organizations, such as the Institute for Clinical Evaluative Sciences in Ontario, Ontario Health Quality Council, Canadian Institute for Health Information, Health Council of Canada, European Observatory on Health Systems and Policies, Health Evidence Network, Health Policy Monitor, and Organization for Economic Co-operation and Development.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Ontario or in Canada more generally), and that took equity considerations into account.

- only 76% of primary healthcare physicians reported that their practice uses written guidance to treat asthma or chronic obstructive lung disease (and a lower percentage was identified in only France and Germany);
- only 16% of primary healthcare physicians reported that their practice routinely gives chronically ill patients written instructions on managing care at home (although even lower percentages were identified in France, New Zealand, Norway and Sweden);
- only 10% of primary healthcare physicians reported that their practice has a process for identifying adverse events and taking follow-up action (and a lower percentage was identified only in the Netherlands);
- only 43% of primary healthcare physicians reported that their practice has an after-hours arrangement to see a doctor or nurse without going to a hospital emergency room (and a lower percentage was identified in only two countries, namely Norway and the United States);
- 47% of primary care physicians reported that their patients often have difficulty getting specialized diagnostic tests (and a higher percentage was identified in only two countries – Italy and New Zealand)
- 75% of primary healthcare physicians reported that their patients often face long waiting times to see a specialist (and only in Italy was a similarly high percentage identified).(1)

While the survey response rate in Canada was the third lowest among the 11 participating countries(35%),(1) these findings do suggest that there is room for improvement.

A survey of adults conducted in seven of the same 11 countries in 2007 found that 30% of respondents had to wait six or more days to get an appointment to see a doctor the last time they were sick or needed care, which was a much higher percentage than in the other participating countries (Australia, Germany, the Netherlands, New Zealand, U.K. and U.S.).(24) A survey of chronically ill adults in eight countries (the same seven, plus France) found that 34% of respondents had to wait six or more days to get an appointment to see a doctor the last time they were sick or needed care, which was again a higher percentage than in the other participating countries.(25)

Analyses of Ontario Health Insurance Plan (OHIP) billings also indicate that cost-effective primary healthcare programs and services are not consistently being delivered. A report on primary healthcare in Ontario by the Institute for Clinical Evaluative Sciences (ICES) found that:

- less than two-thirds of Ontarians aged 65 years and over who visited a primary healthcare physician in 2003/04 received a flu shot;
- just under 60% of women between 20 and 39 years of age received at least one Papanicolaou (Pap) test over a three-year time period from 1 April 2000 to 31 March 2003;
- four per cent of all children had no billings for vaccinations by two years of age;
- the proportion of people with diabetes mellitus who underwent an eye examination was 60% among 30- to 39-year-olds and just over 75% among those aged 65 years and older; and
- the proportion of adults having high continuity of care (as measured using the Usual Provider Continuity Index) was just under 40%.(26)

These findings, while having emerged from administrative database analyses that have inherent limitations, again suggest that there is room for improvement.

Another key problem is that the quality improvement programs supporting primary healthcare providers and organizations are not working optimally. A number of provincial quality improvement programs appear not to have primary healthcare providers and organizations as their principal focus:

- Cancer Quality Council of Ontario;
- Centre for Healthcare Quality Improvement
- Quality Healthcare Network, which also acts as the Ontario lead for the ‘Safer Healthcare Now!’ initiative; and
- Wait Time Strategy.

Nevertheless, these programs have implications for primary healthcare in Ontario and sometimes a secondary focus on primary healthcare.

The Quality Improvement in Primary Healthcare Project-supported environmental scan and ‘capacity map’ identified that the quality improvement programs in Ontario’s physician-led primary healthcare practices are fragmented and limited in coverage.(16) Twenty-four distinct programs were identified, some of which are disease- or condition-specific (e.g., colorectal cancer screening, pain management, and diabetes prevention and management), while others are team-specific (e.g., Queen’s University-affiliated Family Health Team), organization-specific (e.g., Group Health Centre), region-specific (e.g., Ottawa area), ‘sector’ specific (e.g., mental health and prescription drugs) or approach-specific (e.g., indicator measurement, e-learning, inter-professional education, web-based patient self-management and computerized decision support). Only a small number of the programs had a general focus on quality improvement (e.g., Centre for Healthcare Quality Improvement) or on quality improvement in primary healthcare (e.g., Quality Improvement and Innovation Partnership).(16) Importantly, many of these programs were established as pilot programs and with no clear statement about how they fit into a system-wide and sustained approach to supporting quality improvement in primary healthcare.

The environmental scan and ‘capacity map’ also identified that the initiatives in Ontario’s community-governed primary healthcare organizations are more coordinated and broader in coverage, but less specifically focused on quality improvement.(16) Sixteen distinct programs were identified, many of which intersected with quality improvement, but did not focus specifically on it.(16) Examples of topics included governance, community engagement, team-building, leadership support, measurement of client complexity, monitoring and evaluation, and dashboard implementation.(16) Some of the quality-improvement programs were one-off workshops, whereas others were performance management and quality oversight programs for community health centres.

Current health system arrangements do not fully support high-quality primary healthcare

Many health system arrangements needed to support the delivery of high-quality primary healthcare are not in place. The previously introduced 11-country survey conducted in 2009 found that in Canada:

- only 37% of primary healthcare physicians use electronic medical records, which can enable performance measurement and feedback – a rate lower than any of the 10 other countries participating in the survey;
- only 17% of primary healthcare physicians reported that their practice routinely receives and reviews data on the clinical outcomes of patient care (with a lower percentage identified only in France);
- only 11% of primary healthcare physicians reported that their clinical performance was routinely compared with other practices (with a lower percentage identified only in Norway);
- only 52% of primary healthcare physicians work with non-physician staff, such as nurses, to manage care (with a lower percentage only identified in France); and
- only 62% of primary healthcare physicians are offered any financial supports or incentives to improve the quality of care (with lower percentages identified in France, Germany, Norway, Sweden and U.S.), and only 1% are offered incentives based on high patient satisfaction ratings, 16% for non-face-to-face interactions with patients, and 21% for each of achieving clinical care targets and adding non-physician providers to their practice team.(1)

According to the Institute for Clinical Evaluative Sciences (ICES) practice atlas:

- in 2003-2004, the proportion of primary healthcare physicians who did not belong to a group (through any of their practice venues) and were only in solo practice was less than 20% for physicians under 40 years of age, but was more than three times higher in the oldest age group (65 and older);
- in the same year, however, solo practice was the main practice venue for the majority of primary healthcare physicians, and this proportion increased with physicians’ age (from 61% for men under age 40 to 87% for women 65 and older); and

- in 2003-2004, just over half of Ontarians (53%) received the majority of their primary care from a primary healthcare physician in solo practice, whereas 17% received their care from primary healthcare physicians in group practice.(26)

While there have no doubt been shifts away from solo practice and towards group practice over the last seven years, any efforts to support the delivery of high-quality primary healthcare would still need to reach a large number of primary healthcare physicians working in solo practice.

What is more difficult to determine is the proportion of primary healthcare practices and organizations that receive other types of supports for quality improvement, such as effective continuing professional development focused on quality improvement for their staff.

Key agreed upon courses of action related to quality improvement have not been implemented

The province-wide implementation of two agreed upon courses of action related to quality improvement – electronic health records and performance measurement and feedback in diabetes management – has progressed slowly. While Canada Health Infoway’s goal was “by 2010, 50 per cent of Canadians and by 2016, 100 per cent of Canadians will have their electronic health record available to their authorized professionals who provide their health care services,” by 31 March 2009 (the last date for which data are publicly available), only 17% of Canadians have their electronic health record available to their authorized professionals who provide their healthcare services.(3) As of October 2009, Ontario’s client registry and diagnostic imaging system were both estimated to be 95%-100% complete, its drug information systems and laboratory information systems partially complete, and its planning of provider registries still underway.(27) The Ontario provincial government’s original target date for the first release of the Diabetes Registry was April 2009, however, the release had not yet occurred by October 2009.(27) Also, while primary healthcare physicians can now bill the Diabetes Management Incentive and receive a bonus for registering patients with the Diabetes Registry, only 906,577 patient records had been added to the registry by the date of publication of Ontario’s eHealth strategy for 2009-2012,(6) and the baseline diabetes dataset initiative (BDDI) will initially include only three indicators related to diabetes management.(28)

Additional equity-related observations about the problem

Largely absent from this description of the problem is information specific to the groups serving as illustrative examples of equity considerations arising in the available data and research evidence (i.e., people living with two or more chronic diseases or obtaining care from providers working in solo practice or in teams that have no functional linkages across practices considered part of the team). The Primary Healthcare Project-supported environmental scan suggests that a number of the existing quality improvement programs focus on Family Health Teams and Community Health Centres and not on providers working in solo practice,(16) however, the extent to which these teams have functional linkages across practices considered part of the team is not clear.

THREE OPTIONS FOR ADDRESSING THE PROBLEM

Many options could be selected as a starting point for deliberations designed to inform future initiatives to improve the quality of primary healthcare in Ontario. To promote discussion about the pros and cons of potentially viable options, three have been selected for more in-depth review. They include: 1) collaboratively develop principles for quality improvement in primary healthcare; 2) develop coordinating structures and processes to support quality improvement in primary healthcare; and 3) support the scaling up of existing quality-improvement initiatives. The focus in this section is on what is known about these options. In the next section the focus turns to the barriers to adopting and implementing these options and to possible implementation strategies to address the barriers.

Option 1 – Collaboratively develop principles for quality improvement in primary healthcare

No agreed principles exist to guide quality improvement in primary healthcare in Ontario. Examples of principles might include:

- 1) a broad definition of quality improvement that incorporates both the primary healthcare programs and services that are delivered (i.e., access to them, their cost-effectiveness relative to one another and to other programs and services that could be offered, and the quality and safety with which they are provided) and how the delivery of these programs and services is organized (i.e., its patient-centredness and efficiency);
- 2) a system-wide orientation that covers the full range of primary healthcare, from physician-led primary healthcare practices on the one hand to community-governed primary healthcare organizations on the other hand;
- 3) the incorporation of performance measurement and feedback at the practice-/organization-level (with or without the explicit setting of performance targets);
- 4) the incorporation of quality improvement initiatives (such as learning collaboratives) that have shown promise in rigorous evaluations in Ontario’s health system or in other similar health systems;
- 5) a sustained and coordinated approach to the planning, funding, implementation, and monitoring and evaluation of primary healthcare-focused initiatives designed to support improvements in quality in primary healthcare;
- 6) a commitment to transition over time from a

Box 4: Mobilizing research evidence about options for addressing the problem

The available research evidence about options for addressing the problem was sought primarily from Health Systems Evidence, a continuously updated repository of syntheses of research evidence about governance, financial and delivery arrangements within health systems, and about implementation strategies that can support change in health systems. The reviews were identified by first searching the database for reviews containing “primary healthcare” (or “primary care” or “primary health care”) in the title and/or abstract. Additional reviews were identified by searching the database for reviews addressing features of the options that were not identified using the keywords. Only reviews for which the literature had last been searched in 2003 or more recently were included. Given time constraints, the NHS Economic Evaluation Database was not searched in order to identify evidence about costs and/or cost-effectiveness.

The authors’ conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were “empty” reviews), while others concluded that there was substantial uncertainty about the option based on the identified studies. Where relevant, caveats were introduced about these authors’ conclusions based on assessments of the reviews’ quality, the local applicability of the reviews’ findings, equity considerations, and relevance to the issue. (Please see the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned or an option could be pursued, and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular option may want to search for a more detailed description of the option or for additional research evidence about the option.

dependence on expensive supports designed for and based within other health systems (such as the Institute for Healthcare Improvement) to supports that are purpose-built for and based within Ontario; and

- 7) use of public reporting both to support patients in their efforts to navigate the primary healthcare system and to ensure accountability to the citizens who finance the system.

The development of a set of principles could be overseen by a group that builds upon the planning group for the Quality Improvement in Primary Healthcare Project. The augmented planning group would ideally broaden its academic disciplinary representation beyond departments of family medicine, which are its current sole source of such representation, and include patient/citizen groups.

A summary of the key findings from synthesized research evidence is provided in Table 1. For those who want to know more about the systematic reviews contained in Table 1 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 1.

Table 1: Summary of key findings from systematic reviews relevant to Option 1 – Collaboratively develop principles for quality improvement in primary healthcare

Category of finding	Summary of key findings†
Benefits	<ul style="list-style-type: none"> • Performance measurement and feedback (with or without performance targets) <ul style="list-style-type: none"> ○ A medium-quality review (which updated a search from 2006) found that audit and feedback, alone or in combination with other interventions, has a modest though significant positive effect on quality of care. The review also found that providing specific suggestions for improvement, written feedback and more frequent feedback strengthened this effect, whereas graphical and verbal feedback attenuated this effect. However, none of the studies included in the review focused on quality improvement in primary healthcare. For additional findings, see option 2. • Quality-improvement initiatives <ul style="list-style-type: none"> ○ See option 2.
Potential harms	<ul style="list-style-type: none"> • None identified
Costs and/or cost-effectiveness in relation to the status quo	<ul style="list-style-type: none"> • Not applicable (i.e., costs and/or cost-effectiveness were not addressed in the available systematic reviews)
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	<ul style="list-style-type: none"> • Uncertainty because no systematic reviews were identified <ul style="list-style-type: none"> ○ Principle development by a broad-based stakeholder group <ul style="list-style-type: none"> ▪ However, a recent high-quality review found that community champions used in planning/design or delivery of health-promotion interventions can increase their level of knowledge, skills and confidence following training and feel that they make the greatest impact in areas in which they have ownership and a stronger voice within their communities. ○ System-wide orientation ○ Sustained and coordinated approach ○ Independence from approaches built for and based within other settings • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review <ul style="list-style-type: none"> ○ No ‘empty reviews’ • No clear message from studies included in a systematic review <ul style="list-style-type: none"> ○ Quality-improvement initiatives <ul style="list-style-type: none"> ▪ A recent, medium-quality review found that the evidence underlying quality-improvement collaboratives is positive but limited, and the effects cannot be predicted with great certainty. Only one of the studies included in the review focused on quality improvement in primary healthcare. ○ Public reporting <ul style="list-style-type: none"> ▪ A recent medium-quality review found that publicly releasing performance data stimulates quality improvement activity at the hospital level, however, the review did not identify a clear message at the primary healthcare level.
Key elements of the policy option if it was tried elsewhere	<ul style="list-style-type: none"> • Not applicable (i.e., key elements were not addressed in the available systematic reviews)

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Stakeholders' views and experience	<ul style="list-style-type: none">• Not applicable (i.e., stakeholders' views and experiences were not addressed in the available systematic reviews)
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† We consider a review “recent” if the year of last search is within the past five years (i.e., 2006-2010) and “older” if the year of last search is more than five years ago. We consider the quality rating of each review as low quality if the AMSTAR score is between 0 and 3, medium quality if the AMSTAR score is between 4 and 7, and high quality if the AMSTAR score is between 8 and 11.

Option 2 – Develop coordinating structures and processes to support quality improvement in primary healthcare

If we take as a given a broad definition of quality improvement and the need for a system-wide orientation that covers the full range of primary healthcare, as outlined in option 1, the coordinating structures to support quality improvement in primary healthcare would need to have a far reach. However, the possible lead for coordination efforts could be one of the following:

- 1) the Ministry;
- 2) an arms-length agency with a general focus on primary healthcare strengthening;(29)
- 3) an arms-length agency with a general focus on quality improvement;
- 4) an arms-length agency focused specifically on quality improvement in primary healthcare; or
- 5) a formalized alliance focused specifically on quality improvement in primary healthcare.

A supplementary or complementary set of coordinating structures could exist at the regional level, either nested within Local Health Integration Networks or separate from them. Such regional structures might be better positioned to engage patient/citizen groups.

The processes that such a structure could oversee include:

- 1) performance measurement and feedback at the practice-/organization-level;
- 2) target setting for quality improvement;
- 3) public reporting of quality indicators;
- 4) continuing education to support the use of quality-improvement methods;
- 5) quality-improvement coaching / practice facilitation;
- 6) other provider behaviour-change strategies to support quality improvement.
- 7) electronic health records to support quality improvement;
- 8) financial incentives for quality improvement; and
- 9) Chronic Care Model to support quality improvement.

The Quality Improvement in Primary Healthcare Project-supported overview of systematic reviews examined the effectiveness of a number of these processes (1, 4, some of 6, and 9) in primary healthcare.(17) The overview included reviews about: 1) any intervention, program or strategy that incorporates performance measurement to support reflection, change and monitoring change over time (e.g., benchmarking and learning collaboratives); and 2) training in quality improvement methods (e.g., educational meetings).(17) The overview excluded single one-time interventions that did not involve performance measurement (e.g., reminder systems and financial incentives). Time limitations precluded: 1) having two independent raters determine the eligibility of reviews; 2) including reviews written in languages other than English; 3) retrieving missing data from original studies when the data were not presented in the review; and 4) grading the quality of the research evidence contained in the review. Twelve systematic reviews were included in the overview, 11 of which contained a total of 123 studies based in primary healthcare settings and one of which contained 112 studies that may have been conducted in a mix of primary healthcare and non-primary healthcare settings.(17)

The overview's authors identified six types of quality-improvement interventions, programs and strategies: 1) learning collaboratives/breakthrough series; 2) plan-do-study-act cycles/self-audit programs; 3) total quality management; 4) continuous quality improvement; 5) chronic disease management using the Chronic Care Model; and 6) a combination of Chronic Care Model elements and quality improvement (e.g., tests of small changes with feedback).(17) (These interventions, programs and strategies relate most closely to processes 6 and 9 in the above list.) They found that all reviews showed promising but mixed results, and that the Chronic Care Model had the most promising results based on consistency of positive effects across studies, and rigour of the methods used in the individual studies.(17) The overview's authors noted that a major limitation of all studies was a lack of follow-up to see if changes were sustained.(17) While they noted that a lack of detail about many studies precluded assessments of the applicability of findings to the Ontario setting, they did observe that most studies were undertaken in multidisciplinary teams, and cautioned that adaptations may be needed when engaging solo primary healthcare physicians and small practices with a limited number

of primary healthcare providers.(17) The authors concluded that any quality improvement efforts in Ontario need to use multifaceted approaches, which could include: 1) Chronic Care Model, including a strong self-management component; 2) expanding team composition or defining or expanding roles for team members already present; 3) collaboratives/breakthrough series for patients and providers; 4) plan-do-study-act cycles/self-audit programs; and 5) continuous quality improvement award programs for primary healthcare providers and organizations.(17)

As a complement to this work, particularly for the quality-improvement processes not addressed in the work, a summary of the key findings from synthesized research evidence is provided in Table 2. For those who want to know more about the systematic reviews contained in Table 2 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 2.

Table 2: Summary of key findings from systematic reviews relevant to Option 2 – Develop coordinating structures and processes to support quality improvement in primary healthcare

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> • Audit and feedback <ul style="list-style-type: none"> ○ As described in Table 1, a medium-quality review (which updated a search from 2006) found that audit and feedback, alone or in combination with other interventions, has a modest though significant positive effect on quality of care. The review also found that providing specific suggestions for improvement, written feedback and more frequent feedback strengthened this effect, whereas graphical and verbal feedback attenuated this effect. However, none of the studies included in the review focused on quality improvement in primary healthcare. A recent medium-quality review found that feedback improved the care for patients with type 2 diabetes mellitus (and two of 10 studies included in the review focused on quality improvement in primary healthcare). • Continuing education to support the use of quality-improvement methods <ul style="list-style-type: none"> ○ A recent medium-quality review found that most published quality improvement curricula demonstrate improvement in learners' knowledge or confidence to perform quality improvement, but noted that additional studies are needed to determine whether educational methods have meaningful clinical benefits. About one-third of the included studies focused on quality improvement in primary healthcare. ○ A recent high-quality review found that educational meetings for physicians (and other healthcare professionals), alone or combined with other interventions, improved professional practice and the achievement of treatment goals by patients. More than one quarter of studies included in the review focused on quality improvement in primary healthcare. • Quality improvement coaching/practice facilitation <ul style="list-style-type: none"> ○ A recent medium-quality review found that good quality practice facilitation showed a significant moderate overall effect size. Tailoring to the needs of the practice, using multiple intervention components, extending duration, and increasing the intensity of practice facilitation, were associated with larger effect sizes, whereas having more practices assigned to the practice facilitator was associated with a lower effect size. Most of the included studies focused on quality improvement in primary healthcare. • Other provider behaviour-change strategies to support quality improvement <ul style="list-style-type: none"> ○ Findings related to the full array of strategies are summarized on www.rxforchange.ca ○ Findings identified through three of the reviews included in the Quality Improvement in Primary Healthcare Project-supported overview of reviews included: <ul style="list-style-type: none"> ▪ A recent low-quality review found that the most effective quality-improvement initiatives were clinician-directed audit and feedback cycles, clinician decision support systems, specialty outreach programs, chronic disease management programs, continuing professional education based on interactive small-group case discussions, and patient-mediated clinician reminders (but none of the included studies focused on quality improvement in primary healthcare). ▪ A recent medium-quality review found that team changes and case management showed more robust improvements in glycemic control among type 2 diabetics (and almost one-third of included studies focused on quality improvement in primary healthcare). ▪ A recent medium-quality review found that a number of interventions (e.g., education of doctors and people with asthma, telephone reinforcement, partially completed action plans and postal prompts inviting patients for general practice

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	<p>review, school asthma clinics and asthma management systems) increased the ownership, use or facilitation of use of personal asthma action plans. Four of 14 included studies addressed quality improvement in primary healthcare.</p> <ul style="list-style-type: none"> ○ A recent medium-quality review found that the effectiveness of interventions tailored to address barriers remains uncertain (and more than one-third of the studies included in the review focused on quality improvement in primary healthcare). ● Electronic health records to support quality improvement <ul style="list-style-type: none"> ○ A recent high-quality review found that electronic health records that make available clinical information management and decision support tools (particularly those that translate data into context-specific information) improved provider performance. None of the included studies focused on quality improvement in primary healthcare. ● Chronic Care Model to support quality improvement <ul style="list-style-type: none"> ○ A recent medium-quality review found that incorporating most or all of the Chronic Care Model improved quality of care and outcomes for patients with various chronic illnesses. Only seven of 82 included studies focused on quality improvement in primary healthcare.
Potential harms	<ul style="list-style-type: none"> ● Continuing education to support the use of quality improvement methods <ul style="list-style-type: none"> ○ A recent high-quality review found that many of the 18 quality improvement curricula inadequately addressed quality improvement educational objectives and had relatively weak research quality. Only one of the included studies addressed quality improvement in primary healthcare.
Costs and/or cost-effectiveness in relation to the status quo	<ul style="list-style-type: none"> ● Electronic health records to support quality improvement <ul style="list-style-type: none"> ○ The same review on electronic health records described above found that costing studies of electronic health records predicted substantial savings.
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	<ul style="list-style-type: none"> ● Uncertainty because no systematic reviews were identified <ul style="list-style-type: none"> ○ Target setting for quality improvement ● Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review <ul style="list-style-type: none"> ○ No ‘empty reviews’ ● No clear message from studies included in a systematic review <ul style="list-style-type: none"> ○ Public reporting <ul style="list-style-type: none"> ▪ As described in Table 1, a recent medium-quality review found that publicly releasing performance data stimulates quality improvement activity at the hospital level, however, the review did not identify a clear message at the primary healthcare level. ○ Continuing education to support the use of quality-improvement methods <ul style="list-style-type: none"> ▪ A recent high-quality review found that interprofessional education interventions yielded a combination of positive, mixed and no impacts. None of the reviews focused on quality improvement in primary healthcare. ○ Financial incentives for quality improvement <ul style="list-style-type: none"> ▪ A recent overview of reviews found that there are few rigorous studies of pay-for-performance, and overall the evidence of its effects is weak. Financial incentives targeting individual healthcare professionals appear to be effective in the short run for simple and distinct, well-defined behavioural goals. There is less evidence that financial incentives can sustain long-term changes. Half of the included studies focused on quality improvement in primary healthcare.
Key elements of the policy option if it was tried elsewhere	<ul style="list-style-type: none"> ● Not applicable (i.e., key elements were not addressed in the available systematic reviews)
Stakeholders’ views and experience	<ul style="list-style-type: none"> ● Not applicable (i.e., stakeholders’ views and experiences were not addressed in the available systematic reviews)

Option 3 – Support the scaling up of existing quality improvement initiatives

A significant challenge facing those interested in improving quality in primary healthcare in Ontario is where to start. One approach might be to begin with quality improvement models with which at least some primary healthcare providers have some experience (e.g., learning collaboratives), a current priority area (e.g., diabetes), and those working in a primary healthcare model that is currently being actively promoted (e.g., Family Health Teams). Another approach might be to offer supports on a competitive basis, giving priority to applicants who have invested in primary healthcare managers with explicit accountabilities for primary healthcare improvement, emphasized supports for self-management as a key element of their quality improvement efforts, and adopted an electronic health record that enables performance measurement and feedback.

Deciding where to start means making strategic choices among one or more of the following starting points:

- learning collaboratives versus other quality improvement models;
- test case (e.g., diabetes) versus comprehensive quality improvement;
- early adopters (of quality improvement, electronic health records or other) versus late adopters;
- team-focused (e.g., Family Health Team-focused) quality improvement versus solo practitioner-focused quality improvement;
- region-focused quality improvement (with priorities and targets set by Local Health Integration Networks) versus province-wide quality improvement (with priorities and targets set by the Ontario Ministry of Health and Long-Term Care);
- management-focused quality improvement versus provider-focused quality improvement;
- self-management supports-centred quality improvement versus quality improvement centered on all elements of the Chronic Care Model; or
- legislative mandate versus negotiations- or competition-driven approaches.

A summary of the key findings from synthesized research evidence is provided in Table 3. For those who want to know more about the systematic reviews contained in Table 3 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 3.

Table 3: Summary of key findings from systematic reviews relevant to Option 3 – Support the scaling up of existing quality improvement initiatives

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> • None identified
Potential harms	<ul style="list-style-type: none"> • None identified
Costs and/or cost-effectiveness in relation to the status quo	<ul style="list-style-type: none"> • Not applicable (i.e., costs and/or cost-effectiveness were not addressed in the available systematic reviews)
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	<ul style="list-style-type: none"> • Uncertainty because no systematic reviews were identified <ul style="list-style-type: none"> ○ Test case versus comprehensive quality improvement ○ Early adopters (of quality improvement, electronic health records or other) versus late adopters ○ Local versus jurisdiction-wide quality improvement ○ Management-focused versus provider-focused quality improvement ○ Legislative mandate vs negotiations- or competition-driven approaches • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review <ul style="list-style-type: none"> ○ No ‘empty reviews’ • No clear message from studies included in a systematic review <ul style="list-style-type: none"> ○ Learning collaboratives versus other quality-improvement models <ul style="list-style-type: none"> ▪ A recent medium-quality review found that the evidence underlying quality improvement collaboratives is positive but limited, and the effects cannot be predicted with great certainty. One of the nine studies included in the review

	<p>focused on quality improvement in primary healthcare.</p> <ul style="list-style-type: none"> ○ Team-focused versus solo practitioner-focused quality improvement <ul style="list-style-type: none"> ▪ A recent high-quality review found that practice-based interprofessional collaboration interventions can improve healthcare processes and outcomes, but due to the limitations in terms of the small number of studies, sample sizes, problems with conceptualizing and measuring collaboration, and heterogeneity of interventions and settings, it is difficult to draw generalisable inferences about the key elements of interprofessional collaboration and its effectiveness. None of the nine studies included in the review focused on quality improvement in primary healthcare. ▪ A recent high-quality review found that shared-care health service interventions designed to improve the management of chronic disease across the primary-specialty care interface had no consistent impacts on outcomes. Half of the included studies focused on quality improvement in primary healthcare. ○ Self-management supports-centred quality improvement versus quality improvement centred on all elements of the Chronic Care Model <ul style="list-style-type: none"> ▪ A recent high-quality review found that lay-led self-management education programs may lead to small, short-term improvements in participants' self-efficacy, self-rated health, cognitive symptom management, and frequency of aerobic exercise. Three of 17 included studies addressed quality improvement in primary healthcare. However, the review did not compare self-management to other elements of the Chronic Care model
Key elements of the policy option if it was tried elsewhere	<ul style="list-style-type: none"> • Not applicable (i.e., key elements were not addressed in the available systematic reviews)
Stakeholders' views and experience	<ul style="list-style-type: none"> • Not applicable (i.e., stakeholders' views and experiences were not addressed in the available systematic reviews)

Additional equity-related observations about the three options

This research evidence suggests that little is known about the three options in relation to people living with two or more chronic diseases, and that much of the available synthesized research evidence, at least about option 2, was generated in a context of multidisciplinary teams.⁽¹⁷⁾ We found only four reviews that included studies that focused, at least in part, on people living with two or more chronic diseases,⁽³⁰⁻³³⁾ and we found no reviews that included studies that focused on people obtaining care from providers working in solo practice or in teams that have no functional linkages across practices considered part of the team.

IMPLEMENTATION CONSIDERATIONS

A summary of potential barriers to implementing the options is provided in Table 3.

Equity considerations also need to be borne in mind during implementation. For example, the two groups used as illustrative examples of equity considerations arising in the available data and research evidence – people living with two or more chronic diseases and people obtaining care from providers working in solo practice or in teams that have no functional linkages across practices considered part of the team – could be left behind by some approaches to the scaling up of existing quality improvement initiatives.

Studying successes and failures in pursuing similar options in other settings may prove useful in identifying strategies to overcome some of the identified barriers. Also, given the many gaps and limitations in the available research evidence about improving quality in primary healthcare, monitoring and evaluation will be important elements of any implementation plan.

Table 4: Potential barriers to implementing the options

Levels	Option 1 – Collaboratively develop principles for quality improvement in primary healthcare	Option 2 – Develop coordinating structures and processes to support quality improvement in primary healthcare	Option 3 – Support the scaling up of existing quality improvement initiatives
Patient/individual	Patient/citizen groups may resist principles that were developed without their active engagement	Patient/citizen groups may resist structures and processes that do not actively engage them	Patient/citizen groups may resist strategic choices that ‘leave behind’ some practices/ organizations in the short- to medium-term
Healthcare provider	Primary healthcare providers may resist principles that enshrine a system-wide orientation that is seen as a ‘one-size-fits-all’ approach, performance measurement and feedback (particularly if accompanied by performance targets), select quality improvement initiatives that they perceive infringe on their professional and commercial autonomy, and public reporting at the provider or practice level	Primary healthcare providers may resist coordinating structures and processes that they perceive infringe on their professional and commercial autonomy	Primary healthcare providers, particularly those who have not yet been engaged by quality improvement initiatives, may resist new initiatives Primary healthcare providers may resist strategic choices that ‘leave behind’ some practices/ organizations in the short- to medium-term
Organization		Organizational scale for some regional coordinating structures and processes may not be viable in northern regions	Organizational scale for some quality improvement initiatives may not be viable in many rural and remote communities
System	Provincial government and key stakeholders may be unwilling or unable to ‘live by’ the principles in a consistent way or to mandate and enforce their use	Provincial government and key stakeholders may be unwilling or unable to finance/support coordinating structures and processes, particularly during a recession	Provincial government and key stakeholders may be unwilling or unable to finance/support the scaling up of existing quality improvement initiatives for primary healthcare, particularly during a recession

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APPENDICES

The following tables provide detailed information about the systematic reviews identified for each option. Each row in a table corresponds to a particular systematic review and the reviews are organized by option element (first column). The focus of the review is described in the second column. Key findings from the review that relate to the option are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A Measurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered “high scores.” A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.)

The last three columns convey information about the utility of the review in terms of local applicability (with reviews containing a number of studies conducted in Ontario specifically or Canada more generally having a higher likelihood of being locally applicable), applicability concerning prioritized groups (people living with two or more chronic diseases and people obtaining care from providers working in solo practice or in teams that have no functional linkages across practices considered part of the team), and issue applicability (quality improvement in primary healthcare). The third-from-last column notes the proportion of studies that were conducted in Ontario or Canada, while the second-from-last column notes the proportion of studies included in the review that deal explicitly with one of the prioritized groups, and the last column notes the proportion of studies that deal explicitly with quality improvement in primary healthcare.

All of the information provided in the appendix tables was taken into account by the issue brief's authors in compiling Tables 1-3 in the main text of the brief.

Appendix 1: Systematic reviews relevant to Option 1 – Collaboratively develop principles for quality improvement in primary healthcare

Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
Principle development by a broad-based stakeholder group	Effectiveness of community engagement approaches and methods for health promotion interventions(34)	The evidence from one study suggests that community champions used in planning/design or delivery of health-promotion interventions can increase their level of knowledge, skills and confidence following training, and feel that they make the greatest impact in areas in which they have ownership and a stronger voice within their communities.	2007	9/10	4/21	0/21	0/21
A system-wide orientation that covers the full range of primary healthcare, from physician-led primary healthcare practices to community-governed primary healthcare organizations	No reviews were found						
Incorporation of performance measurement and feedback at the practice/organizational level (with or without performance targets)	Effectiveness of audit and feedback features on the quality of healthcare(35)	Audit and feedback has a modest, though significant, positive effect on quality outcomes. Providing specific suggestions for improvement, written and more frequent feedback strengthened this effect, whereas graphical and verbal feedback attenuated this effect.	Not reported (however, it updates the search from (36))	5/11	Not reported	0/19	0/19
	For additional reviews, see option 2						
Incorporation of quality improvement initiatives	Effectiveness of quality improvement collaboratives in improving the quality of care(37)	The evidence underlying quality improvement collaboratives is positive but limited, and the effects cannot be predicted with great certainty. Further knowledge of the basic components effectiveness, cost effectiveness, and success factors is crucial to determine the	2006	4/11	Not reported	0/9	1/9

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		value of quality improvement collaboratives.					
	For additional reviews, see option 2						
Sustained and coordinated approach to the planning, funding, implementation, and monitoring and evaluation of primary healthcare initiatives	No reviews were found						
Commitment to independence from approaches built for and based within other settings	No reviews were found						
Use of public reporting both to support patients in their efforts to navigate the primary healthcare system and to ensure accountability to the citizens who finance the system	Effects of publicly reported performance data on quality of care(38)	Evidence suggests that publicly releasing performance data stimulates quality improvement activity at the hospital level. Synthesis of data from eight health plan-level studies suggests modest association between public reporting and plan selection. Synthesis of 11 studies, all hospital-level, suggests stimulation of quality improvement activity.	2006	5/11	0/45	Not reported	0/45

Appendix 2: Systematic reviews relevant to Option 2 – Develop coordinating structures and processes to support quality improvement in primary healthcare

Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
Performance measurement and feedback at the practice/organizational level	Effectiveness of audit and feedback features on the quality of healthcare(35)	Audit and feedback has a modest, though significant, positive effect on quality outcomes. Providing specific suggestions for improvement, written feedback and more frequent feedback strengthened this effect, whereas graphical and verbal feedback attenuated this effect.	Not reported (however, it updates the search from (36))	5/11	Not reported	0/19	0/19
	Effect of feedback to general practitioners on the quality of care for patients with type 2 diabetes mellitus (30)	Feedback improved the care for patients with type 2 diabetes mellitus, particularly process outcomes such as foot exams, eye exams and HbA1c measurements. Clinical outcomes like lowering of blood pressure, HbA1c and cholesterol levels were seen in few studies. Many process and outcome measures did not improve, while none deteriorated.	2008	4/11	0/10	10/10	2/10
	Effectiveness of audit and feedback(36)	Audit and feedback may be effective alone and in combination with other interventions to improve appropriate care.	2006	8/11	9/118	0/118	32/118
	Feasibility of methods, psychometric properties of instruments that are especially important for summative assessments, and effectiveness of methods serving formative assessments used in routine practice to assess the performance of individual doctors(39)	Observed six different methods of evaluating performance: simulated patients, video observation, direct observation, peer assessment, audit of medical records and portfolio or appraisal. Peer assessment is the most feasible method in terms of costs and time. There is substantial potential to assess performance of doctors in routine practice. The long-term impact and effectiveness of formative performance	2006	7/11	Not reported in detail - Description states: 'Most studies had been conducted in the UK, Canada'	Not reported	55/58

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		assessments on education and quality of care remains hardly known. Future research designs need to pay special attention to unmasking effectiveness in terms of performance improvement.					
	Effectiveness of audit and feedback (40)	Audit and feedback may be effective alone and in combination with other interventions to improve appropriate care.	2003	7/11	4/66	0/66	0/66
Target setting for quality improvement	No reviews were found						
Public reporting of quality indicators	Effects of publicly reported performance data on quality of care(38)	Evidence suggests that publicly releasing performance data stimulates quality improvement activity at the hospital level. Synthesis of data from eight health plan-level studies suggests modest association between public reporting and plan selection. Synthesis of 11 studies, all hospital-level, suggests stimulation of quality improvement activity.	2006	5/11	0/45	Not reported	0/45
Continuing education to support the use of quality improving methods	Adherence of published quality improvement (QI) curricula for physician trainees to QI guidelines and standards for study quality in medical education research(41)	Many of the 18 QI curricula inadequately addressed QI educational objectives and had relatively weak research quality.	2008	8/11	0/18	0/18	1/18
	Effectiveness of published quality improvement curricula for clinicians and whether teaching methods influence the effectiveness of such curricula(42)	Most published quality improvement curricula apply sound adult learning principles and demonstrate improvement in learners' knowledge or confidence to perform quality improvement. Additional studies are needed to determine whether educational methods have meaningful clinical benefits.	2007	5/11	Not reported (33 U.S. and 7 other)	Not reported	14/39
	Effects of educational meetings(31)	Educational meetings (e.g., courses, conferences, lectures, workshops, seminars and symposia) for physicians (and other healthcare professionals),	2006	10/11	4/81	35/81	23/81

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		alone or combined with other interventions, improved professional practice and the achievement of treatment goals by patients.					
	Effects of continuing medical education(43;44)	Continuing medical education achieved and maintained objectives related to physician knowledge, attitudes and practice behaviour, as well as longer-term clinical outcomes.	2006	5/10	All of the 136 studies were from either Canada or U.S.	0/26	0/26
	Effectiveness of interprofessional education interventions compared to education interventions in which the same health and social care professionals learn separately from one another; and effectiveness of interprofessional education interventions compared to no education intervention(32)	Four of these studies indicated that interprofessional education produced positive outcomes in the following areas: emergency department culture and patient satisfaction; collaborative team behaviour and reduction of clinical error rates for emergency department teams; management of care delivered to domestic violence victims; and mental health practitioner competencies related to the delivery of patient care. In addition, two of the six studies reported mixed outcomes (positive and neutral) and two studies reported that the interprofessional education interventions had no impact on either professional practice or patient care.	2006	9/11	0/6	6/6	0/6
Quality improvement coaching / practice facilitation	Effectiveness of interventions targeted towards implementing evidence-based practice guidelines through practice facilitation, and factors that moderate implementation success(45)	Nineteen studies of good quality practice facilitation showed a significant moderate overall effect size. Tailoring to the needs of the practice, using multiple intervention components, extending duration and increasing the intensity of practice facilitation were associated with larger effect sizes, whereas having more practices assigned to the practice facilitator was associated with a lower	2006	7/10	1/38	0/38	35/38

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		effect size.					
Other provider behaviour-change strategies to support quality improvement†	Effectiveness of tailored interventions to address barriers to change in health professional performance(46)	Strategies to implement change in health professional performance face barriers in different settings and at different times. Interventions tailored to prospectively identify barriers may improve care and patient outcomes. The effectiveness of tailored interventions remains uncertain and more rigorous trials are needed.	2009	7/11	2/26	Not reported	9/26
	Effectiveness of quality improvement initiatives for optimizing health care(47)	The most effective strategies (>10% absolute increase in appropriate care or equivalent measure) included clinician-directed audit and feedback cycles, clinical decision support systems, specialty outreach programs, chronic disease management programs, continuing professional education based on interactive small-group case discussions, and patient-mediated clinician reminders. Pay-for-performance schemes directed to clinician groups and organizational process redesign were modestly effective. Other manager/policy-maker driven quality improvement strategies (QIS) including continuous quality improvement programs, risk and safety management systems, public scorecards and performance reports, external accreditation, and clinical governance arrangements, have not been adequately evaluated with regard to effectiveness. QIS are heterogeneous and methodological flaws in much of the evaluative literature limit validity and generalizability of results.	2008	2/11	Not reported	0/30	0/30
	Effects of quality-improvement (QI)	Most QI strategies produced small to	2006	5/11	2/66	0/66	19/66

Supporting Quality Improvement in Primary Healthcare in Ontario

Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
	strategies for type 2 diabetes on glycemic control(48)	modest improvements in glycemic control. Team changes and case management showed more robust improvements, especially for interventions in which case managers could adjust medications without awaiting physician approval. Estimates of the effectiveness of other specific QI strategies may have been limited by difficulty in classifying complex interventions, insufficient numbers of studies, and publication bias.					
	Effects of quality-improvement strategies on the processes and outcomes of outpatient pediatric asthma care(49)	Sixty-nine studies included at least some component of patient education, self-monitoring or self-management; 13 included some component of organizational change; and seven included provider education. Self-management interventions increased symptom-free days. Interventions of provider education and those that incorporated organizational changes were likely to report improvements in medication use.	2006	6/11	4/79	0/79	0/79
	Effect of interventions to encourage health professionals to promote, and for people with asthma to use, personal asthma action plans(50)	A number of interventions (e.g., education of doctors and people with asthma; telephone reinforcement; partially completed action plans and postal prompts inviting patients for general practice review; school asthma clinics; and asthma management systems) increased action plan ownership, use or facilitation of use. Two of the highest quality papers were conducted in primary care and demonstrate the effectiveness of interventions directed at the organization of asthma care in	2006	7/11	1/14	0/14	4/14

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		promoting action plan use.					
	Effect of psychiatric guideline implementation on provider performance(51)	Effects on provider performance or patient outcome were moderate and temporary in most cases. Studies with positive outcomes used complex multifaceted interventions or specific psychological methods to implement guidelines.	2006	5/11	1/18	0/18	12/18
Electronic health records to support quality improvement	Effects of electronic health records(52)	Electronic health records that make available clinical information management and decision support tools (particularly those that translate data into context-specific information) improved provider performance. Costing studies predicted substantial savings.	2007	8/10	0/183	Not reported	0/183
	Effects of electronic health records on quality of care(33)	Three major benefits on quality were demonstrated: increased adherence to guideline-based care, enhanced surveillance and monitoring, and decreased medication errors. The primary domain of improvement was preventive health. The major efficiency benefit shown was decreased utilization of care.	2005	4/11	Not reported	10/257	10/257
Financial incentives for quality improvement	(Overview of reviews of) Effects of pay-for-performance(53)	There are few rigorous studies of pay-for-performance, and overall the evidence of its effects is weak. Financial incentives targeting individual healthcare professionals appear to be effective in the short run for simple and distinct, well-defined behavioural goals. There is less evidence that financial incentives can sustain long-term changes.	2007 (Medline) or 2006 (CDSR, DARE, and EMBASE)	n/a (because it's an overview of reviews, not a review)	3/10	Not reported	5/10
	Effects of physician-level and provider group-level financial incentives(54)	Physician-level financial incentives had partial or positive effects on measures of quality in five of six studies and provider-level financial incentives had	2005	6/11	4/17	0/17	1/17

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		similar effects in seven of nine studies. Financial incentives had unintended effects in four studies. No studies examined the optimal duration of financial incentives or the persistence of their effects after termination.					
	Effects on drug use, healthcare utilization, health outcomes and costs (expenditures) of policies, that intend to affect prescribers by means of financial incentives(55)	No studies of the effects of performance-based payment for prescription drug prescribing were identified despite an exhaustive search.	2005	9/11	0/13	0/13	0/13
	Effects of pay-for-performance(56)	Pay-for-performance yielded no effects in all but two well-designed studies and positive effects in two well-designed studies.	2003	5/10	Not reported	0/6	0/6
Chronic Care Model to support quality improvement	Effects of incorporating most or all of the Chronic Care Model elements(57)	Incorporating most or all of the Chronic Care Model improved quality of care and outcomes for patients with various chronic illnesses.	2008	4/10	Not reported	Not reported	7/82
	Effectiveness and cost-effectiveness of multi-component chronic obstructive pulmonary disease (COPD) programs(58)	For the 17 unique COPD programs studied, there is little evidence for significant improvements in process and intermediate outcomes, except for increased provision of patient self-management education and improved disease-specific knowledge. Overall, the COPD programs generate end results equivalent to usual care, but programs containing three or more components show lower relative risks for hospitalization. There is limited scope for programs to break-even or save money.	2007	7/11	1/17	0/17	5/17
	Effects of chronic disease management models for depression in primary care(59)	Most studies of changes to systems of care delivery to support the more effective management of depression in	2006	1/10	Not reported	0/21	21/21

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		primary care have demonstrated improved outcomes in terms of symptom reduction, relapse prevention, functioning in the community, adherence to treatment, community and workplace involvement, and satisfaction with care received.					
	Effects of integrated quality management models, including the Malcolm Baldrige Quality Award (MBQA) criteria, the European Foundation Quality Management (EFQM) Excellence model (excellence award models) and the Chronic Care Model(60)	Seventeen studies (two for the excellence award model and 15 for the Chronic Care Model) reported one or more significant results. There is some evidence that implementing interventions based on the Chronic Care Model may improve process or outcome performances.	2006	5/10	0/37	0/37	13/37

† For the reviews of provider behaviour-change strategies, we included only the reviews identified in the overview of reviews,(17) as well as two reviews that dealt explicitly with the overview’s working definition of quality improvement.

Appendix 3: Systematic reviews relevant to Option 3 – Support the scaling up of existing quality-improvement initiatives

Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
Learning collaborative versus other quality improvement	Effectiveness of quality improvement collaboratives in improving the quality of care(37)	The evidence underlying quality improvement collaboratives is positive but limited, and the effects cannot be predicted with great certainty. Further knowledge of the basic components effectiveness, cost effectiveness and success factors is crucial to determine the value of quality improvement collaboratives.	2006	4/11	Not reported	0/9	1/9
Test case versus comprehensive quality improvement	No reviews were found						
Early adopters versus late adopters	No reviews were found						
Team-focused versus solo practitioner-focused quality improvement	Impact of practice-based interventions designed to change interprofessional collaboration, compared to no intervention or to an alternate intervention, on one or more of the following primary outcomes: patient satisfaction and/or the effectiveness and efficiency of the health care provided(61)	Five studies evaluated the effects of practice-based interprofessional collaboration interventions, categorized as interprofessional rounds, interprofessional meetings and externally facilitated interprofessional audit. Practice-based interprofessional collaboration interventions can improve healthcare processes and outcomes, but due to the limitations in terms of the small number of studies, sample sizes, problems with conceptualizing and measuring collaboration, and heterogeneity of interventions and settings, it is difficult to draw generalizable inferences about the key elements of interprofessional collaboration and its effectiveness. The extent to which different healthcare professionals work well together can	2007	9/11	0/5	0/5	0/5

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Option element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Ontario or Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on quality improvement in primary healthcare
		affect the quality of the health care that they provide.					
	Effectiveness of shared-care health service interventions designed to improve the management of chronic disease across the primary-specialty care interface.(62)	Overall there were no consistent improvements in physical or mental health outcomes, psychosocial outcomes, psychosocial measures including measures of disability and functioning, hospital admissions, default or participation rates, recording of risk factors and satisfaction with treatment. However, there were clear improvements in prescribing in the studies that considered this outcome.	2006	8/11	0/20	0/20	11/20
Local versus jurisdiction-wide quality improvement	No reviews were found						
Management-focused versus provider-focused quality improvement	No reviews were found						
Self-management supports-centred versus broader Chronic Care Model-centred quality improvement	Effectiveness of lay-led self-management programs for people with chronic conditions(63)	Lay-led self-management education programs may lead to small, short-term improvements in participants' self-efficacy, self-rated health, cognitive symptom management, and frequency of aerobic exercise.	2006	10/11	0/17	0/17	3/17
	Effectiveness of internet-based peer-support(64)	Internet-based peer support for people with chronic disease appears to have positive effects on knowledge, behaviour change, social support and clinical outcomes.	2003	10/11	0/24	0/24	2/24
Legislative mandate versus negotiations-or competition-driven approaches	No reviews were found						