Theme 2

Are There Sustainable Medical Workforce Innovations Leading to Greater Efficiency and Value in Health Care? One Canadian View from 10,000 Meters.

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Recently, Dixon published an editorial entitled 'Purchasing health care in a cold climate'.[1] As a Canadian, one's reaction was that it was written for insomniacs to read in bed on cold winter nights. In fact it addressed the purchasing policies of the NHS through its Primary Care Trusts (PCTs) in England, as compared with Scotland and Wales. Furthermore, it offered cogent insights that are very relevant to the long-term sustainability of many health care systems. Dixon suggests that with an aging population, the challenge for health care purchasers, such as PCTs, is to 'obtain better value from its money spent on health care'.[1] In 2010, any review of the health care literature would identify the ability of national and regional purchasers to obtain 'best value' as a front and center issue. It certainly is so in Canada.

The OECD's figures for 2008, indicate that Canada spent 10.1 % of its GDP on health, similar to France, Germany, Switzerland and Belgium.[2] On a per capita basis, that meant that an average Canadian paid $3895 for health care, based on public and private expenditures combined. Amongst the G-20, only the USA spends more. Is this good productivity? Smith has noted that is difficult to answer.[3] Yet productivity is a widely accepted framework for choosing service priorities; for choosing providers; for managing resources; and for addressing accountability to the public.

Value for What and for Whom?

In the management literature, Porter is a well known proponent of assessing value for money spent, and Collins has emphasized that the 'value' of social programs and that their outputs cannot be measure in services sold (dollars earned). [4, 5] Porter's and Collins' writings are often criticised as lacking empirical support and being based on carefully selected cases. The goal of this high level review is to use their perspectives to frame the tensions between value to society and what is being given up when the change or re-investment is being made (efficiency) and the tension between 'true' outcomes and inputs (productivity), in the context of recently funded health workforce innovations in Canada. Smith has suggested that this approach is in keeping with the WHO World Health Report 2000 where performance is synonymous with productivity, as measured by an index of 'valued outcomes;' in relation to expenditures.[3] However, Smith also questions if it is appropriate or even legitimate to 'impose one set of values when defining what is meant by valued outcomes'? Specific countries or regions or states or provinces could have very different 'views' of what value or outcomes their system should be achieving. Is efficient policy-making 'accounted' for adequately by considering outcomes divided by costs or by what was given up to permit the 'new' investment? Or is the investment in health about a population based value added per unit of cost, and if so, for whom and by whose criteria?

Using this perspective, the author sought to identify recent provincial (the macro view) or regional (the meso view) medical workforce innovations in Canada and searched for examples wherein value was seen in terms of efficiency (for governments and purchasers), or value to providers (correct incentives), or value to the public (outcomes for the whole process of care, not pieces of care), or instances of leadership in tackling these policy tensions in a sustainable manner. Within individual

communities (micro view), Canada is swimming in health care pilots, beyond the scope of this essay. Thus, the focus will be to identify regionally or provincially based innovations and ask if these policy tensions are being addressed in a sustainable manner.

Information Sources and Selection Criteria

As a search for recent innovations that might be relevant to the paper's goals, three levels of information seeking were used.

1. Since 2006, was there peer-reviewed, written literature or a collection of peer-screened presentations that could be recovered from SCOPUS or other primary database sources?
2. Cued by interviews with an informal sample of 20 nationally respected experts and organizational leaders, was there web-based information that could verify the innovation's elements and substantiate the program's activities?
3. Using 'leads' recommended by regional/provincial experts, and establishing contacts with local leaders, could the interviews or local grey literature verify the project's status?

The level 1 search was not productive for several reasons: few articles had emerged recently from Canada with adequate documentation; many projects were on-going and not new; and many projects were narrowly focused. SCOPUS, for example, cited primarily narrowly focused projects such as one disease or one risk factor, and based on abstract results, many were marginal in their documentation of achieved value added outcomes and cost data. The level 2 search was more helpful and up-to-date Web-based information sources were more numerous. Unfortunately, a large number of blogs or 'what's new' pieces varied in the standardization of their information, thus precluding comparisons or analyses. The information offered did enable one to create a list of patterns for classifying innovations. Finally, level 3 sources did yield initiatives that are too recent as to be classified as established or sustainable. Based on the results of these searches, exemplars of regional and provincial based innovations were grouped and discussed under seven headings.

Themes, Exemplars and Impact Findings

The scope of innovations, of necessity, will overlap between headings, especially in larger integrated systems. Thus innovations within established regional or provincial systems of care will be dealt with first, wherein multiple headings often are addressed simultaneously.

1. Evolving, sustained systems with recent innovations for value-added outcomes addressing to community health care needs.

Several regional or provincial integrated systems are responding to community input and are addressing community needs (see Table 1). They are sustained by provincial ministry budgets, within which significant changes have been introduced. What were the issues that led to the changes? Were they bottom-up innovations, or directed by political change, or fiscally driven?

1. Group Health in Sault Ste. Marie, ON, covers the health care of 60,000 of the 80,000 residents of their city's population. It is an integrated system that initiated a single electronic medical record in 1997 for all clinical and diagnostic services. Its EMRxtra program has expanded that system to community pharmacists that will yield service improvements for providers and patients, but now provides data on a major cost driver. [6]

2. Health care in New Brunswick (population 748,329) is administered regionally. They were reduced to two regions after the change of government in 2008. The new strategy builds on its 'bringing care home' approach (health care without walls, home care, etc.) proposing to 'transform' New Brunswick's health-care system 'by putting patients first.'[7] An extensive list of objectives are offered for 2008-2012, but its primary care strategy for a self-sufficient and sustainable health care will focus on four pillars: teams of providers working to improve care; information coordinated between providers; access to the right care at the right time; healthy living through prevention and self-care. The primary care activities include: new community health care initiatives; improved access to 24/7 care; primary care team pilots; chronic disease self-management; and improved knowledge and information transfer to users by web-based mechanisms, etc. [7]
3. Quebec changed its regional programs to pursue a better integration amongst health care and social programs in 2004. For example, the biggest region is Montreal (population 1,500,000). Montreal has 12 Health and Social Services Centers (HSSSs) that involved a merger of local hospitals, community service centers, long-term-care centers and rehabilitation centers.[8] They offer integrated services through the creation of local networks. The result has been that 2,223 family physicians, 3,293 specialists and 8,000 other health professions are now participating. Two features are financing based on population for primary care and public health, with specifically targeted programs and central management support programs and infrastructure support, and the organization of family practitioners into groups (FMGs), with the integration of existing associated medical clinics. They plan for 75-100 FMGs in groups of 8 to 12 doctors working with nurse-practitioners. By August 2009, 18 CSSSs and hospitals, including the University Health Networks, were active members of Montreal's Network.[9]
4. In 2009, Alberta reduced its regions to one! The political perception was that the existing regions were not dealing with regional disparities and that the two large urban regions, Edmonton (aka Capital Health) and Calgary Health Regions were seen as well run, but 'in competition', independent of the rest of the province. For example, the medical workforce density was average in Alberta, but like all means, there was huge variance in rural regions, with density being similar to rural Saskatchewan. The immediate results were a common workforce plan under Alberta Health Service (AHS) and the two large universities working closely with the Ministry of Health, the regulator, the College of Physicians and Surgeons of Alberta (CPSA), AHS and the Ministry of Higher Education.[10] After a rebuke of the CPSA over failure to protect the public from contaminated equipment in physician's offices and, the CPSA has put in place Canada's first full office inspection program, as opposed to quality 'checks'. It is overseen by a steering committee of infectious disease and public health experts, based on 124 standards.[11]
5. Ontario has begun the development of regions (Local Health Integration Networks or LHINs) [12] for program planning and introduced Family Health Teams (FHTs). Unlike Quebec, wherein the change was top-down, the FHTs originated with pressure from university departments of family medicine, and ultimately they obtained support from family physicians and the politicians. FHTs were it introduced in 2004, using a basket of services that family practices could offer in team formats, using incentives with a blended payment model, as opposed to high-volume practices. The Patient-Centered Medical Home model has resulted in 720 physicians and 150 FHTs serving 10% of the population to date. [13] This model has been adopted as a preferred model by the Canadian College of Family Physicians in a discussion paper, *Patient-Centered Primary Care in Canada: Bring It Home*, in October 2009.[14]

Comments and policy lessons

Three issues jump out. One is that regions can offer regional flavour to program choices but can also isolate certain less developed or rural areas. Secondly, shared central support may be a more effective way to manage costs and yet offer selective resources in localized areas of need. Finally, all regional programs need regular evaluation and quality improvement against common outcome standards. These are examples of system evolution versus the use of excessive management layers or doctrinaire based approaches, but their impact is yet to be documented, let alone assessed!

2. Innovations dealing with susceptible or high-risk regional populations

Innovations in this arena have often been reactive, rather than proactive and anticipatory. Collaborative programs with aboriginal communities and for isolated populations are becoming more frequent. In many cases, the determinants of health are major drivers, along with social and geographic isolation. Thus context is important and generalizations are not in order. Funded examples of innovation are emerging. A few regional or provincial examples are cited.

1. An aboriginal opiate addiction program in Manitoba has begun with the community, the College of Physicians and Surgeons of Manitoba, the College of Pharmacists and the Ministry of Health. It is a collaborative program in the early stages.[15]
2. Regional programs from the Northern Ontario School of Medicine (NOSM) are focusing on care in remote or isolated communities and on coordinated admission processes. [16]
3. University of Alberta (U of A) has run a successful aboriginal medical school admissions program for over a decade, with close community consultation. As of 2009, 56 aboriginal physicians have received their MD. Through the Association of Faculties of Medicine of Canada collaborative initiatives, many faculties have similar programs.[17]
4. A network of the University of British Columbia, the University of Northern British Columbia and the University of Victoria, is running longitudinal integrated clerkships in British Columbia (BC) in association with the Northern BC Southside and Island Health and Wellness Authorities, along with community-based clerkships in southern BC. [18]
5. The Pipeline to Labrador (organizational and e-communication support) program has been underway for many years. It has continued to expand support with new IT pipelines. (See Heading 7)
6. In Kahnawake, QC, a school diabetes awareness program for 600 grade school children has been run for years, with key input from the Diabetes Community Advisory Board. It is now reaching the second generation. [19]

Comments and policy lessons:

Unfortunately, only a handful of the many community based programs could be cited. The key insights are that the issues of the determinants of health are still dominant in many of the communities. In other communities, like the Labrador and British Columbia programs, the notion of pipelining and use of modern technology has become a very powerful tool. In the Kahnawake program, their socio-economic status is considerably better than other aboriginal communities. However, like the U of A medical school admissions program, and the Manitoba opiate program, community involvement and cultural respect are crucial to making an impact.

4. Task sharing and Inter-Professional Innovations

In searching for inter-professional innovation for efficiency or area variation, there were two points of interest: improving the outcomes of a given service by enhancement by other providers, via role substitution, delegation of acts or tasks, and innovation (new job for new type of worker), and skill authorization: transfer; relocation; and liaison. In Canada there is a rebirth of interest in what McCabe has called 'physician extenders'.[20] Major physician assistant efforts are underway in Manitoba (University of Manitoba) [21]; in Ontario (e.g. University of Toronto, McMaster, NOSM)[22], and in Nova Scotia, where PA penetration is higher due to their greater use in the military. [23] Preparatory programs for nurse practitioners have been underway in several provinces. Ontario was a leader. The final impact of these programs remains to be seen. Operationally, for example, in rural the New Brunswick and in remote or the far-northern locations of many provinces, the use of first contact nurse practitioners has been established for several years and decades respectively with ministry budgetary support.

Inter-professional education received two boosts in the recent years: major position papers on interdisciplinary educational models and major federal funding for pilots at educational institutions. [24-26] Activity does not equal sustained and truly integrated accomplishments. The university programs are of specific interest as they have both training and evaluation foci. Ho and colleagues from across the professions and provinces, has reviewed progress to date.[24] Four examples were cited that offer lessons learned based on this first cycle attempts. What are the faculties accomplishing at the regional level? What can faculties do at the provincial level? On the other hand, team-efforts within certain regions have covered physician-workforce 'short falls'. Peterborough, ON is a good example. [27] The Health Council of Canada Web-site posting offers other examples. [28]

Comments and policy lessons

Several impressive models are undergoing study across Canada. Significantly, their implementation may depend on the presence of pre-existing infrastructure and demonstration models or team-training environments. For the Physician Assistants (PA) and Nurse-Practitioners, the penetration into team-based primary care, community oriented structures, will become critical. Those sites are emerging, as noted under Heading 1. The appearance of 'salary slots' and the availability of malpractice insurance in many situations have been key levers. Outside of primary care, the use of extenders has been suspected of being dominated by high-earning specialties. According to one contact, the PA community has no way of tracing where their colleagues are working. The gap needs attention if Canada is to assess the success and impact of PAs. For example, data are available in Manitoba where PAs are licensed by the medical regulator.

5. Educational programs with greater flexibility to meet variation in geographic need.

An area where progress has been difficult over the years is flexibility in training requirements. On the one hand, standardization has positive value. On the other hand, needs are context driven and alignment of resources to 'need' and budget reality must be sufficiently flexible, that solutions can be found for unique and critical challenges. In the last 10 years, this issue has jumped to the foreground of the agenda for the medical certifying and regulatory communities. The recognition of opportunity combined with new examples of innovative thinking has resulted in new policies being evaluated iteratively and thus cautiously evolving. That change is evident in most under-graduate medical (UG) programs. Consider the following well documented trends in post-graduate clinical education (PG) and current dramatic changes in UG health sciences education.

a. CANMeds roles: now an international framework, being adopted by other professions

b. Competency based education: established at the UG level and now being used at PG level.
c. Improved use of educational technology and evaluation tools
d. Movement towards a community focus in work and learning at UG and now PG levels
e. Data driven policies and outcome studies
f. Impact of the collaboration amongst national medical bodies through the Canadian Medical Forum

Table 2 outlines the scope of change underway. [29, 30, 31]

Comments and policy lessons

The number of collaborations with more flexible approaches to education in the last five years is a testimony to change at four levels of implementation: UG and PG education; regulation; certification; and leadership from several collaborating groups. The impact of strong educational assessment and longer-term follow-up studies in Canada has helped deal with strongly-held 'beliefs' and rhetoric. [32] The model of the Canadian Medical Forum, now approaching 20 years of age, has been a positive force. It involves nine national medical organizations who meet to discuss future directions and co-ordinate activities. The collaboration around workforce data analyses and the coming of CIHI and new provincial recognition of the value of data have also been significant. The challenge is to see this phenomena extend to other professions. Recent contacts in Pharmacy indicate that this is now spreading, from within the professions, not imposed from outside. However, certain top-down policies have helped, as will be illustrated next.

6. Profession based innovation to improve labour mobility and access challenges.

The recent federal top-down push to finally implement the labour-mobility chapter of the Interprovincial Agreement on Free Trade is loosening a major log-jam. Progress is particularly good in medicine. We will cite one national example with 13 provincial/territorial partners and one locally driven regional example.

1. Federation of Medical Regulatory Authorities of Canada (FMRAC).

The 13 member FMRAC, with its individual medical regulatory authorities (MRAs) has developed a formal policy framework for improving labour mobility. Its focus is on clear definitions common to all members and a clear statement of the default standard for licensure in any of the 13 member jurisdictions, but also offering a common set of alternate pathways. These alternative routes establish more flexible routes, particularly for established practitioners that permit greater ease of mobility by common performance and knowledge based decision pathways. These new approaches are also completely compatible with and are greatly supported by changes at the level of the national physician certifying bodies. One notes the relevance of the RCPSC proposals in Table 2.[33]

2. University of Toronto peripheral vascular surgery site alignment

This initiative within Toronto illustrates a significant change resulting in efficiency and value-added benefits to several stakeholders. Basically, the societal needs for managing a chronic and costly illness, peripheral vascular insufficiency, was a challenge for hospitals (high cost; major co-morbidity, and several small scale sites) and for the public (poor access and waiting). The Department of Surgery at the University of Toronto was able to cut programs and with alternate funding incentives, move sparsely located specialty staff to fewer operating sites, improve coverage, and reduce waiting times and improve outcomes.[34]

Comments and policy lessons learned

The FMRAC initiative is an excellent example of a top-down stimulus in the form of a signed agreement for which compliance is required, wherein the profession has responded, rather than question it or side-step it, as it had for the previous ten years. The intervening years had led to changes, as we surmised in the previous section on educational change (Heading 5). Similarly, in Toronto, a combination of community pressure, fiscal nudges (incentives) via the Ministry, and senior leadership was able to 'undo' a log-jam and improve access but also reduce complications by more prompt action and, thereby, reduce post-operative care and patients' loss of function. The top-down support and public pressure, led to an intra-profession and institutional solution from which all parties were 'able to win'.

6. Innovations spreading the need for quality into the community

One of the most dramatic initiatives has taken place in Saskatchewan.[35] The Quality Council in that province grew out of the Utilization Review Committee of the Ministry in the 1990s. Known for their use of provincial data as evidence for policy-making, with the emergence of the Quality Council in the early 2000s, the organization has followed the same formula and broad vision. Of particular interest is the community-based physician quality initiative. There have been similar phenomena in other areas like Nova Scotia, Quebec, Ontario, and BC.

Comments and policy lessons learned

This is an 'N of one' event. It deserves attention because it is a typical Saskatchewan development, using real data, sensible discussion, key Ministry support and collaboration. Is this to be another sentinel event? Possibly. There are other signs that the profession is responding positively elsewhere to both quality of care outcomes and safety issues.

7. Use of Technology and Pipe-lining

The use of technology in care and education is not new. This is particularly true of e-technology and e-learning. Newfoundland, through its Memorial University (MUN) has been using the latest e-transmission technologies since the early 1980s. [36] With the coming of simulation and task training, in Anaesthesia, the whole field of deliberative practice has blossomed. The challenge is to find this approach integrated into quality and safety control based on real-time data and defined variances in quality or performance. But there are promising examples, with documented results, that have lead to change in educational practices and stream-lined training.

1. U of T Surgical selection and training simulation studies

The U of T program in Orthopedic training is running a special three (3) trainee pilot program which could lead to a major policy change for them and the certifying bodies. They are using deliberative practice via simulation and other new techniques to achieve more rapid training completion of the training program based on a competency based educational program. [37] It is an excellent pilot for the proposed RCPSC framework. They have also used simulation to eclude the 7-8 % of all trainees that never are able to master the motor and technical skills needed to practice surgical interventions. [38]

2. Adverse risk identification and team training

The need to identify risk much earlier and to train prospectively based on real in practice data is a major opportunity. Such a variant has been operating in several places. One pilot is at the University Health Network in Toronto is using simulation with deliberative practice to train clinical care teams to avoid high risk behaviours, but as yet, not driven by real-time data.

3. Memorial University of Newfoundland: technical support for remote communities

Returning to 'pipelines to practice', a sustained and effective program is the Northern Family Medicine Program (NorFam) which includes residency training and access to specialty care, but also technical and on-line video support for remote sites in Labrador. This integrated program has evolving out of MUN's original satellite education programs.[36]

4. Medical Office of the Twenty-first Century (MOXXI) at McGill with partners

Tambyn and colleagues at McGill have created a research network which uses real-time practitioner data in primary care settings across Quebec to investigate quality, patient safety (e.g. drug safety) and early surveillance of events to design interventions and educational strategies within the local programs and the Quebec regulatory framework.[39] This program is funded externally through innovation grants, but illustrates the power of real time data to improve outcomes.

Comments and policy lessons learned

The use of technology, in particular, and pipelining has led to exemplars and 'how not to do it' stories! There are similar contrasts which all countries have seen, according to the published literature. However, in contrast to Canada's struggle with the EMR, bottom-up approaches linked to actual users with the appropriate 'nudges' and incentives seem to be effective. Collaboration with the users is critical. That includes planning and identifying the incentives and other policy 'nudges'. The U of T program is an example of necessary collaboration. The MOXXI program illustrates the power of real time data, not only for quality and utilization review, but also surveillance for patient safety, treatment variances and illness outbreaks.

Discussion

To help categorize these developments and rationalize their significance in terms of a proposed framework of the tension between value-added change and what has been foregone, or has improved productivity been achieved, and not producing more pieces of care. Table 1 summarizes the 'findings' by macro system developments. The key observations are that the several foci of **potentially** more efficient care or better outcomes (not activities) are occurring in established but evolving regional or provincial programs. Furthermore, 'nudged' by minor or major policy changes, clusters of innovations are responding to outside political pressures **and** incentives, and are emerging from bottom-up actions by the regulatory, educational, or accreditation bodies. These are informal but to date, politically effective alliances. Another cluster of activities are arising from inter-professional or intra-professional activities that, again, have placed the regulators and certifying bodies in face to face involvement with local health care challenges. In short, as the tension of the need for change and greater value gained demands attention, and many parties have united or collaborated in seeking solutions. While not wanting imply complete success, significant signs of change in approach are evident. An example is the Canadian Medical Association sponsored Canadian Collaborative Center for Physician Resources (C3PR), where researchers and

data holders from many health disciplines and policy bodies meet yearly to examine opportunities and promote better collaboration on new data sources, evaluating potential solutions, and measuring outcomes, not outputs.

For many other innovations, it is too early to even begin to draw conclusions. Two come to mind: the electronic medical record and inter-professional education. These two examples have completely different incentive structures. One is top down with no priority-focused local incentives (Info-way-Canada) and the other is top-down but with priority-directed incentives (inter-professional education). The cited examples 'suggest' that policy makers might want to bet on a combination of incentives and legislative or regulatory 'nudges'. [40] Thus, many view Info-way as unnecessarily top down modelling, a 'dump a lot of money into the provinces and pray' approach. To date two provincial e-health innovations have crashed badly. The incentives are either absent at the user and provider interfaces, or so badly prioritized that common metrics cannot be applied. In the case of inter-professional education, and task-sharing, at least the nature of competitive funding has prioritized set of policy goals behind it and we will likely be able to assess the successes or gaps in some systematic way. [41, 42]

In light of the above comments, an Occasional Paper by the OECD on health care quality comes to mind as outlining some lessons learned from a four country study: *Improving the Performance of Health Care Systems: From Measures to Action* in 2002, where the issue of balance between professional self-regulation and accountability for monitoring and improving care was discussed. [43] That author suggested that finding a new balance is a priority for the policymakers health professions for many member countries. It offered three policy suggestions or directives: strengthen and modify the institutions for self-regulation, use improved information from external regulation, and provide consumers with more information about the performance of providers. In a sense, these suggestions are being met by some of the cited developments in this brief synopsis. The field in Canada is changing. There are examples of provinces strengthening or modifying self-regulatory institutions and certainly using information from external regulation and provincial sources to improve performance and ultimately efficiency and thereby adding value-added for the public. The area of consumer information still needs work – including metrics that are valid.

On the other hand, the professional groups are 'jumping in' as never before – and not in an adversarial manner. Has the chief impact of the Canadian Medical Forum in the late 1990s and 2000s been to demonstrate the benefits of finding a middle ground and singing with a common voice? These examples of collaborative intra-professional activities are now substantial and the examples of inter-professional clinical care are increasing – often nudged by central policy incentives or legislative policies with incentives or central support or pipelining support. Similarly, the community bottom-up initiatives are impressive, not in number, but in impact and reach, often with ministerial educational or operational support: Manitoba, Ontario, and Newfoundland come to mind, amongst others.

Finally, a comment is needed about Saskatchewan, its Quality Council and the medical profession. Does this initiative a represent a shift in thinking and assessing outcomes versus actions, upon which real change can be built? And if so, what are the incentives needed to build constructively on this newly discovered togetherness?

Summary Comments

Given the federal nature of Australia, USA, Canada, and the trusts in the UK, and the need for coordination of care policy at the national level, what lessons can be learned from Canada? In terms of the original intent of this review, namely, is there evidence of addressing the tension between value-added benefits from the new investments and cost reduction (efficiency or real productivity), there is clearly need to have two kinds of data on which to conduct analyses: costs and monies spent, plus real endpoint indicators, like patient reported outcomes. In almost all examples cited, it is not clear if there is systematic collection of outcome data or indicators. Documentation of global sums of monies spent may exist, but is it parsed enough to assign costs to any of these innovations? Are reviewing and reporting enough? No. Is documenting total money spent sufficient? No. Yet collaboration is essential, given a federal or a networked system. Thus the incentives and the policy 'nudges' will be critically important – and they must be linked directly to indicators of value added and real outcomes, plus documentation of productivity or efficiency. In Canada, it is fortunate that health is not viewed as a commodity nor should health be seen as pieces of care. However, most of these innovations have not offered hard evidence of better value and greater efficiency. This requires more than follow-up. A process to collect and evaluate the data around any innovation, in terms of real outcomes **and** efficiency, not pieces or outputs of care, is needed.[44]

Recent surveys indicate that Canadians 'value' the system but are frustrated with the leadership.[45] One sees evidence of leadership in these examples of change and progress. Maybe Canadians' concerns are being heard. If so, the payers and ministries must design data collection and evaluation plans, utilizing carefully crafted incentives, with provider and public input, and the use of top-down policy 'nudges', to encourage **and demonstrate** better value for dollars spent.

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Table 1. Documented and Funded Exemplars of Innovations: Status and Lessons Learned

Type of Innovation	Exemplars	Funded	Focus/Goal	Evidence	Expected System Impact or Goals
1. Evolving/Sustained system	i. New Brunswick	Ministry	Workforce & patient value	Level 2	Patient & primary care focus: self-sufficient & sustainable: teams, coordinated information; 24-7 access, Chr. Disease management.
	ii. Montreal	Ministry	Integration	Level 2	Integrate social & health services; create family doctor groups
	iii. Alberta	Ministry	Integration & Safety	Level 2	One region with Alberta wide planning and coordination. Improve safety (infection control) in physician offices
	iv. Ontario	Ministry	Medical homes	Level 3	First steps to regional planning; Family Health Teams;
	v. Group Health	Ministry	Information	Level 1	Integrated electronic medical record into Pharmacies: Rx savings
2. Susceptible/Hi Risk Pop'n.	i. U of Alberta's aboriginal admissions	Joint ministries	Aboriginal MDs	Level 1	Increased aboriginal MD enrolment and graduation
	ii. Pipeline to Labrador	Joint funding	Recruit, support & retention	Level 1	Improved recruitment and retention of professional staff and augment support services in very remote areas.
	iii. Northern BC/ON outreach & education programs	Ministry	Improved workforce & rural education	Level 2	Extended primary coverage with specialty back-up and expanded and integrated UG clerkships in rural areas
3.Task Sharing & I-P Care					
i. Physician extenders					Universities and colleges have increased production and several provinces have begun NPs into primary care teams; Pa use just beginning. Limited data on outcomes except local rural settings
a. Colleges & Universities	Many programs	Gov't/Fees	Extender training	Level 2	
b. In-practice use	Many provinces	Gov't/Priv.	Use initiated: few results	Level 2	
ii. Inter-professional teams					
a. Colleges & universities	Many programs	Gov't/Fees	Grant based pilots		Major federal funding has initiated large scale pilots
b. In practice use	Peterborough, ON;	Gov't/Priv.	Local success:	Level 3	Local success: not widely implemented. Outcome data pending.
	MB; NB; QC		early stages	Level 3	Some provinces have team set-ups in primary care teams
4. More Flexible Medical Educational Programs					
i. Post-graduate	RCPSC	In-system	Competency based; flexibility in requirements	Level 3	Small scale pilots and trials with encouraging results. Recent FMRAC policy changes helps. Change in evolution – but strong commitment at the policy level
ii. Undergraduate	Many Faculties	In system	Integrated clerkships	Level 1-2	Distributed learning well established. Rural integrated longitudinal clerkships are underway. Data on impact pending.
5. Profession-led Labour Mobility Improvement	i. FMRAC; MRAs	In-system	Standardize requirements	Level 2	New policy paper recommending preferred pathways to licensure but flexible entry points to licensure: based on performance & competency assessments. Push to standardize legal terminology.
	ii. Un. Of Toronto	In-system	Specialty site consolidation	Level 3	Pilot: use of simulation and feedback in competency framework
6. Improved Quality in Community	Saskatchewan Quality Council	In-system	Involves MD Ass's. & MDs	Early stage	Early stage of exploration: amazing collaboration & MD interest
7. Technology & Pipe-lining/Support	i. U of Toronto surgical selection	In-system	Better selection	Level 1	Well documented and outcome clear: needs wider adoption
	ii. MOXXI: Adverse Drug React'n. feedback	Seed funding	Better patient outcome: model data banking	Level 2	A demonstration project with good outcomes. Needs wider exposure. Large potential for: improved Rx improvement, outbreak detection, quality care CQI; and drug reconciliation.
	iii. MUN pipeline	Ministries	Established	Level 1	Established and initial outcomes are positive after 10 years.

Table 2

Scope of Changes since 2006:
Regulatory and Certifying Body Accreditation and Medical Education Initiatives

1. Major Policy Changes/Proposals: Royal College of Physicians and Surgeons of Canada

a. Foundations in Internal Medicine (FIM):
   i. proposal to restructure first 3 core year into competency-based examination attesting to eligible for further training
   ii. recognize General Internal Medicine as subspecialty of Internal Medicine

b. Study of competency based definitions versus time based definitions and a trials underway
   i. PG example: University of Toronto program in orthopaedic surgery
   ii. Many U/G and CME examples (see Item #3).

c. More flexible specialty practice eligibility routes: i. e. more than single 'optimal' route for established physician, based on practice performance and focused knowledge assessment.

d. New categories of specialty recognition: Diplomas, foundation programs, and special interest group for medical education (SIGMAs). Note: see Royal College Web-site: for implementation decisions: Royal College Publications Web-page: special projects and reports.

e. IMG's practice eligibility – practice review with temporary license - based on short practice based exam, and 360 degree – really part of item (b) above and FMRAC's new approaches. (See College of Physicians and Surgeons of Ontario (CPSC); College des medicins du Quebec).

f. Collaborative Actions Committee – discussions to avoid fragmentation

2. Royal College of Physicians and Surgeons & College of Family Physicians of Canada.

Joint Web-conferencing on further policies and collaboration and the accreditation standards have been harmonized around CANMeds roles

3. Canadian Accreditation Committee on Medical Schools & Association of Faculties Medicine of Canada.

Undergraduate medicine: distributed learning in BC; Quebec; Ontario; Newfoundland; Quebec; and New Brunswick.
   i. Well developed distributed learning sites: e.g. Northern and Island Medical Projects. Http://www.ubc.ca/nml/nml.hml.)
   ii. Integrated clerkships: examples
      1. Terrace in 2008-9 – 12 months - with preceptors.
      2. University of Calgary
      3. Dalhousie University in New Brunswick

4. Federation of Medical Regulatory Authorities of Canada (FMRAC).

FMRAC-based labour mobility innovations – also see CPSO and CMQ (see section 6).