HEALTH CARE

The Health Care Philosophy that Nearly Destroyed Medicare in Canada in a Single Decade

Ivan T. Beck, MD, Ph.D, FRCPC, FACP, MACG[1]
Matthew Thomson, Ph.D[2]

From the Department of Medicine and Physiology Gastrointestinal Disease Research Unit[1], Queen's School of Business[2], Queen's University, Kingston, ON, Canada

Submitted for publication:28th November 2005
Accepted for publication: 5th January 2006

Clin Invest Med 2006; 29 (2): 65–76.

Part of this study, before the Romanow report, was presented as a poster at the 2002 meeting of the Royal College of Physicians and Surgeons of Canada.[1]

Abbreviations:
CDMH: Federal/Provincial/Territorial Conference of Deputy Ministers of Health;
CIHI: Canadian Institute of Health Information;
CMA: Canadian Medical Association;
ER: Emergency Department;
GDP: Gross Domestic Product;
RCPSC: Royal College of Physicians and Surgeons of Canada

Abstract.

Background: In 1989, governments in Canada perceived an economic crisis in health care funding and commissioned two economists, Drs. Barer and Stoddart, to review policies. They indicated that major costs were caused by physicians and recommended cutting physician training and hospital facilities. In 1991 governments selectively implemented their recommendations. The Federally established Romanow Commission 're-reviewed' the problem and reported in 2002.
Objectives: To examine whether there was an economic crisis and to assess the effects of reductions in funding on the provision of health care in Canada.
Method: We analyzed data from Statistics Canada, the Association of Canadian Medical Colleges, and the Canadian Institute of Health Information, the Canadian Nurses Association, and Health Canada. We focus exclusively on public health care spending.
Results: Publicly financed health care spending remained stable as percentage of Gross Domestic Product in the five years leading up to the commissioning of the Barer-Stoddart report (1986-1990). An increase in the elderly population partly explained rising costs. By 2000, people over 65 accounted for 48% of overall health costs. Emerging from the report's recommendations, between 1990 and 2000 medical students and residents as a proportion of the population were cut by 17% and 12% respectively and hospital beds by a third. Nurses per 100,000 fell 12%. Home care remained under-funded, less than 4% of the total health budget.
Conclusion: There was no economic health care crisis in the early 1990s. Growing costs were principally due to increased patient need. Funding reductions resulted in inadequate care, including the creation of prolonged wait lists that have resulted in legalizing private care, thereby threatening the universal equal care principle.

Until the 1990s, Canada had a well functioning health-care system to look after sick patients.[2] Since then, there has been mounting stress on hospitals, physicians, nurses and a general deterioration of

the system. This crisis of sickness care centers on decisions made at the Federal/Provincial/Territorial Conference of Deputy Ministers of Health (CDMH), where it was proclaimed that an economic crisis existed in health care.

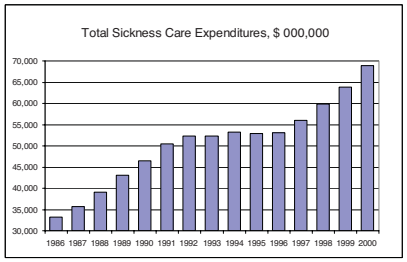
In 1990, the CDMH commissioned two economists to study medical resource policy. In 1991, their findings were released as the 'Barer-Stoddart' report[3] and subsequently published by the CMAJ.[4-15] They suggested that the provinces should review physician distribution, reduce training Canadian graduates, avoid licensing foreign physicians, increase the involvement of non-physician health care workers and cut hospital beds. Provincial Ministries of Health implemented many of these recommendations.

This paper made several assertions. First, there was no economic crisis in sickness care leading up to 1990. Rising costs were predominantly due to increased patient need that governments were obliged to accommodate.[2] Second, we review recommendations made to the CDMH and demarcate their consequences. Third, we compare the Barer-Stoddart and Romanow Commission[16] reports and, in light of their similarities and the reality that governments have reversed so many of their previous dictums, propose that governments still do not understand the problem facing health care in Canada.

Methods

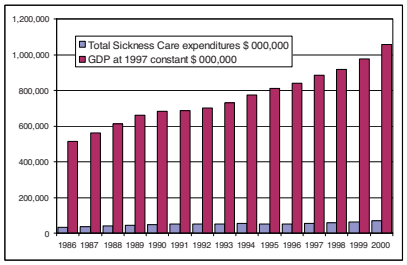
We used data on publicly supported health expenditures from 1986 to 1990 (adjusted to 2002 dollars) to assess whether there was an economic crisis and from 1990 to 2000 to review the events influenced by the implementation of the report. Information on population growth and Gross Domestic Product (GDP) was obtained from Statistics Canada. Data on publicly supported expenditures was retrieved from "Health expenditures in Canada by age and sex in 1980 – 1981 to 2000 – 2001"[17]; on hospital closures and home care expenditures from the Canadian Institute for Health Information's "Health Canada 2001"[18]; on physicians and trainees from the Association of Canadian Medical Colleges and the Southam Medical Database [18,20] on nursing from the Canadian Nurses Associations.[21] In order to account for the population growth that occurred during the time period covered in this paper, we converted the raw data to ratios (per capita or per 100,000 population) and calculated percent changes from these derivations.

Figure 1a



Sickness Care Spending, $Billion														
1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
33.3	35.7	39.1	43.0	46.5	50.1	52.3	52.2	53.2	53.0	53.1	56.0	60.0	63.9	69.0

Figure 1b



Sickness Care Spending as a Percent of GDP														
1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
6.5	6.4	6.4	6.5	6.8	7.4	7.4	7.2	6.9	6.5	6.3	6.3	6.5	6.6	6.5

Figure 1a: Total public sector health expenditures 1986 to 2000. Data obtained from "Health policy and communications branch. Health Canada" in "Health expenditures in Canada by age and sex 1980-1981 to 2000-20001" August 2001(17). All dates in this figure refer to the second date in the official table (1985-86 is referred in the figure and in the manuscript as 1986.) Total public health expenditures in 1986 were $30.6 billion and this rose to $68.9 billion in 2000.
Figure 1b: Comparison of Gross domestic product (GDP) obtained from Statistics Canada with public sector health expenditures. Note that public health expenditures prior to the Barrer Stoddart review stayed between 6.5. and 6.4%. After their review, between 1990 and 1994, this ratio increased to a maximum of 7.4%, because the country experienced a short economic downfall, not because health expenses increased. It finally steadied at 6.5%

1

Expenses versus increased need

The primary claim embraced at the CDMH was that health care costs in Canada had reached an economically indefensible position in the later 1980s. This claim is tenuous. In the five years before the commissioning of the report, public support of sickness care kept pace with the economic growth of the country at a rate between 6.4 to 6.8% of GDP (Figure 1a and 1b), suggesting there was no imminent crisis. Between 1990 and 1994, after the review, this ratio increased to a maximum of 7.4 because Canada experienced an economic downturn, not because of any increase in health spending. Subsequently, this ratio decreased to approximately 6.5%, indicating an unchanged level of health care funding relative to 1986-1990 despite an increase in demand.

While the population of Canada increased approximately 18% from 1986 to 2000, the population over 65 increased 41% and those over 85 by 79% (Figure 2a).

Table 1: Comparing Health Care Reports - Barer-Stoddart (1992) and Romanow (2002)

Topic	Barer-Stoddart, 1992	Romanow, 2002
An Imminent Pose	"Despite a lot of sound and fury, remarkably little has substantively changed since 1971. What is different now, perhaps, is the sense of urgency that things must change - in many cases dramatically - very soon" [146 (3), pp. 347-348]	"The malaise is widespread and, in some cases, it has moved from mere discontent to outright anger and frustration. Canadians are confronted with these problems on a regular basis both in their interactions with the health care system and through regular media reports of the latest "crisis" in health care." [p. 91]
National Solution	"Without some such attempt to oversee the coordination of policy change and monitor progress against the critical path, increased policy activity by each jurisdiction in the many areas requiring attention may simply lead to chaos." [148 (1), p. 31]	"Actions in one province or territory have spillover effects in other provinces and territories... It is impossible to escape the following conclusions... the current situation is serious and demands national solutions." [p. 104]
Ineffective Solutions	"Improvements in physician distribution will require a concerted assault along the entire spectrum of policy avenues articulated earlier... Until now most attempts to improve geographic distribution have amounted to a general "trickle down" policy of increasing supply or piecemeal approaches that concentrated largely on financial incentives... The results have at best been equivocal." [147 (5), pp. 619-620]	"There is little evidence that planning adequately considers population demographics and trends, the broader determinants of health, the specific needs of patients, or the unique and shared knowledge and skills of health care providers... Too often the emphasis is on quick fixes... We are currently paying the price for decades of patchwork vision." [p. 110]
		"The lack of adequate planning has contributed to the declining quality of work life for health professionals. Our over-reliance on part-time, casual and overtime work has created a health care workforce that is extremely dissatisfied with its work environment." [p. 110]
Encouraging Collaboration	"Cooperative solutions to problems in physician resources require reconciliation of competing professional and political ideologies regarding the manner in which physicians, as private participants, fit into the publicly financed system." [146 (5), p. 696]	"Addressing these issues will take a willingness on the part of all parties to set aside old grievances and entrenched positions, and begin to trust one another again." [p. 92]
Role Substitution	"The most difficult and threatening area of change will be that involving substitutions among types of physicians, between physicians and other health care professionals, and between health care professionals and other workers... [We] support the elimination of exclusive fields of practice and their replacement by a more circumscribed set of exclusive acts and reserved titles to address overlapping scopes of capability of physicians and other health care personnel" [147 (11), pp. 1654, 1658]	"An increasing emphasis on primary health care - where physicians are expected to participate in and share responsibilities with a team of different health care professionals - will also have an impact on patterns of practice...If Canada is to move ahead on major reform of its health care system, the mix and skills of health care providers and how they work together must be addressed..." [p. 107]
Nursing Roles	"Compelling evidence suggests that personnel less highly trained than physicians could be deployed in certain areas of medical service delivery and provide equally competent care... [Nurse practitioners] may be able to provide as many as one-third of general practitioner services..." [147 (3), p. 306]	"Canada has fewer nurses today than it did a decade ago and this is also negatively affecting some communities... Fewer nursing administrators and less administrative support have resulted in an increased burden for nurses, leaving less time for direct care... Nurse practitioners... can take on roles that traditionally have been performed only by physicians. This could even include providing nurse practitioners with admitting privileges to hospitals..." [pp. 93-94; 106]
A Lack of Consensus on Supply	"The needs-based evidence on which claims of shortage hinge is either nonexistent or circular... Furthermore, recent Canadian studies cast some doubt on the extent even of supply variance, at least for general or family practitioners in most provinces... Clearly, improved distribution is warranted in some situations." [147 (5), p. 618]	"While physician organizations... and many communities point to serious problems in meeting the need for physicians, other studies suggest that there is far less consensus about whether or not we have a crisis in the supply of physicians. A recent report... suggests that the apparent shortage is more perceived than real." [p. 97]
	The increasing physician supply in Canada may have impeded organizational and financial change and thus have adversely affected health as well as finances. [147 (3), p. 306]	
	"Virtually all Western industrialized nations continue to train physicians in far greater numbers than can be justified by the needs of their populations." [146 (9), p. 1551]	

Table 1 - *continued*

	"We disagree strongly with a commonly held (and not just Canadian) view that a shortage of doctors entails significantly greater social costs than does an excess... 'Undershooting'... is likely to be considerably less harmful than some parties would have us believe." [147 (3), p. 306]	
Access to Physicians	"There are serious problems with the geographic distribution of physicians in Canada." [147 (5), p. 617]	"Access to physicians is undeniably an issue in many communities across the country." [p. 96]
Coercion and Freedom of Movement	"If Canadian [medical] students continue to demonstrate a proclivity for practicing in areas of relatively ample supply, then one may be forgiven for asking why we should continue to train them." [146 (9), p. 1552]	"In the past, the Canadian Medical Association (CMA 2001) has resisted government action requiring physicians to practice in smaller communities, characterizing it as both punitive and coercive... The openness of the medical profession to change must begin to yield real results in the short term if the medical profession is to forestall the kinds of government action they see as coercive." [97, 99-101]
	"There are no existing practical means... for the public to ensure that more efficient deployment of health care personnel becomes embodied in public health care policy. The public, through its elected representatives, has assigned most of these responsibilities to the profession on the understanding that the public's interests will be paramount in the activities of self-regulation. But if the medical profession fails to execute this trust, it risks intrusion by others into an area in which public representatives may have no particular desire (or skills) but do have an obligation to tread." [147 (11), p. 1659	
	"The Commissioned study on policy experience in Quebec was intended to provide a detailed understanding of that province's policy history: the problems, effects, and potential generalizability across Canada of some of its more unique initiatives." [146 (3) 348-349]	"It is partially a myth to say that we are lacking doctors in the province of Quebec. Why? Because we don't have the courage to ask them to serve where and when we need them." [p. 106]
Rural Incentives	"It is well known that income is often not the deterrent to physicians' choosing to practice and stay in a rural area. Social, familial, cultural and lifestyle problems are significantly less tractable than income issues... Any policy package to improve distribution must be crafted as part of an integrated physician resource policy initiative..." [147 (5), p. 621]	"A portion of [the Rural and Remote Access Fund may have to go] to creating incentives, financial and otherwise, to attract and retain the right mix of professional skills in those communities." [p. 106]
Migration of Health Care Providers	These problems [relating to graduates of foreign medical schools] have been around for a long time... This issue... is characterized by fragmented jurisdiction and a remarkable lack of coordination." [146 (9), p. 1549	"Government and professional organizations need to streamline the process for recognizing foreign training and provide additional training for immigrant health care professionals where necessary." [p. 102]
Physicians Returning to Canada	"The policy options... should be a package of initiatives that will... use [Canadian and permanent resident] graduates from overseas more creatively than has been the case to date..." [146 (9), p. 1554]	"Recent efforts by Canadian health care institutions to "repatriate" Canadian health care providers working abroad have met with limited success since the system is not always able to guarantee the kinds of opportunities that are being offered south of the border." [p. 102]
Foreign Health Care Providers	"A key problem [is] the large numbers of graduates of foreign medical schools entering practice in Canada through various channels of "control." [146 (3), p. 349]	"There are serious concerns about Canada's practice of recruiting physicians from developing countries... provinces and territories should reduce their reliance on physicians from developing countries and take steps, instead, to recruit and retain more physicians within Canada." [p. 103]
Foreign Health Care Providers & Rural Supply	"It will be practically and politically almost impossible... to impose more stringent controls on selected entry of [foreign] graduates if rural areas continue to experience supply problems..." [146 (9), p. 1551]	"Provinces and territories have actively recruited medical graduates from developing countries in order to meet the needs for physicians in Canada, especially in rural and remote areas." [p. 103]
Foreign Graduates vs. Domestic Training	"Canada continues to recruit large numbers of postgraduate trainees and visa physicians... Selected entry of graduates from overseas creates problems in domestic training capacity policy." [146 (9), p. 1551]	"Provinces and territories should reduce their reliance on physicians from developing countries and take steps, instead, to recruit and retain more physicians within Canada." [p. 103]
Need for Information	"The problem is that "more and better information" is required on just about any aspect imaginable of medical care or physician resource policy." [147 (9), p. 1325]	"Comprehensive and national data on the state of the health workforce are critical. At the outset, the Council should take steps to address the serious gaps in information about Canada's health workforce." [p. 108]

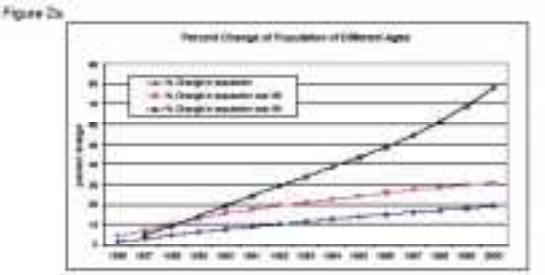
The per capita health cost for the general population was $1,274 in 1986, rising to $1,677 in 1990 and $2,243 by 2000. In contrast, for patients over 65 yr this cost was $5,204 in 1986 and $8,520 in 2000. Likewise, the care of a person over 85 increased from $14,717 in 1986 to $21,878 by 2000 (Figure 2b). In 1986, 42.5% of all public sector health expenditures were spent on Canadians over 65 yr, and this grew to 45.2% in 1990 and 47.6% in 2000, though they accounted for only 13% (in 2000) of the general population. Similarly, for those over 85, who accounted for less than 0.5% of the total population (in 2000), these figures were 10.5% in 1986, 10.9% in 1990 and 13.2% in 2000.

The economic data prior to the meeting of the CDMH indicated that there was no economic crisis of health care spending. However, there was an increased need for funds driven mainly by an aging population. If this genuine need was ignored, the foreseeable outcome was a future crisis in providing adequate care.

Recommendations of the Barer-Stoddart Report

Overall, the report suggested that 'health care' costs increased because of expenses created by physicians, who were portrayed as a generally uncooperative group that overused hospitals for their own benefit. It indicated that there was an oversupply of physicians and that much of their work could be done by less expensive substitutes such as nurse practitioners or midwives (see Table 1).

Regarding physicians, it stated[10] "*Medical care does not create new wealth: much of it is particular, individuals trained as and committed to being physicians are thereby unavailable for other productive purposes offering potentially greater collective benefit… In fact, the increasing physician supply in Canada may have impeded organizational and financial change and thus have adversely affected health as well as finances."* It cited one interviewee: *"doctors don't really know what they're selling, and government doesn't know what it's getting. How can they negotiate about anything, let alone what the product is worth?"*.[10] The report recommended cutting medical student enrolment [10], decreasing licensing of foreign medical graduates[7], and reducing specialist training[12]. The authors suggested that physicians should share their duties with other health care professionals: *"compelling evidence suggests that personnel less highly trained than physicians could be deployed in certain areas of medical service delivery and provide equally competent care… The greater the supply of physicians, the less likely we are to see constructive dialogue about policy initiatives that would capture this efficiency-enhancing substitution potential…"*.[10]



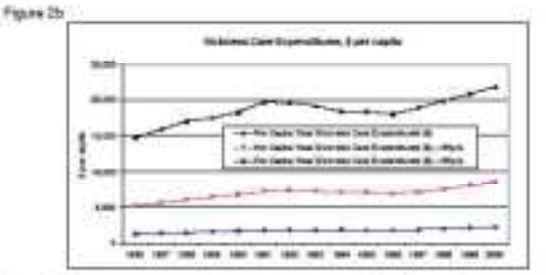


Figure 2a. General and age-specific population growth obtained from Statistics Canada, expressed as percentage growth from 1986 to 2000. The population was 26.16 million in 1986 and 30.77 million in 2000. Proportionally higher growth (+ 48.8%) occurred in the 65 and older cohort, from 2.74 million in 1986 to 3.88 million in 2000. The over 85 population grew 70.6% from 242,572 in 1986 to 413,997 in 2000.

Figure 2b. Percent change of public sector health expenditures per capita by age. Data were obtained from "Health policy and communications branch, Health Canada" [17]. Expenditures per capita for the general population were $1,274 in 1986 and $2,243 in 2000. Per capita expense for 65 and over was $5,204 in 1986 and $8,520 in 2000. Per capita expense for 85 and older was $14,717 in 1986 and $21,878 in 2000.

Regarding hospitals, the report sanctioned decreasing the number of beds and increasing spending on home-care. This policy made sense given their recommendation to cut the number of physicians who were driving the overuse of hospital beds: "*Physicians using the facilities to care for their patients incur no practice costs but do create costs for the hospital. There are usually no lines of cost accountability between the physicians and the institutions. In short, the incentives for physicians and hospitals are incompatible"*.[9] This statement seems to have contributed to a situation where hospital administrators made decisions that impacted patient care without adequate input by physicians.

Further, they stated that physicians were not ideally distributed and tended to resist more efficient deployment, but "*if the medical profession fails to execute this trust, it risks intrusion by others into an area in which public representatives may have no particular desire (or skills) but do have an obligation to tread*".[14]

In response to these recommendations, the Canadian Medical Association (CMA)[22] and the Royal College of Physicians and Surgeons of Canada (RCPSC) [2]

Figure 3a

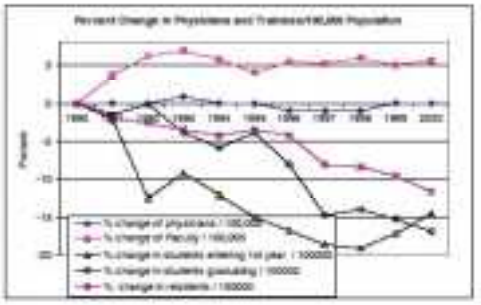


Figure 3b

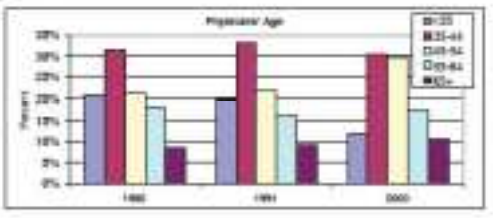


Figure 3a: Percent change in physicians and trainees per 100,000, 1990-2000. The total number of physicians was 44,164 in 1990 and 57,803 in 2000. In 1990, 1,812 students entered and 1,758 graduated from medical schools. In 2000, these numbers were 1,703 and 1,578, respectively. During the same period, the number of residents fell from 6,459 to 6,386. Considering population growth, the figures/100,000 population for 1990 and 2000 were as follows: physicians, 186 and 187; faculty 72 and 74; students entering 6.5 and 5.1; and residents 23.6 and 20.8. The figure shows percent changes in yearly intervals. Data obtained from the Association of Canadian Medical Colleges, Canadian Medical Education Statistics 2000[19,20]. The yearly changes represent the percent change between 1990 and 2000.

Figure 3b: Change in physician age structure, 1985-2000. In 1990, 20.7% of physicians were under 35, but this number fell to 19.9% in 1991 and 12.0% in 2000. Conversely, only 8.9% of physicians were over 65 in 1990, but this number rose to 9.2% in 1991 and 10.5% in 2000. In 1990, 21.3% of physicians were between 45 and 54, a number that remained stable in 1991 (+21.8%) but rose to 29.9% in 2000.

Figure 4a

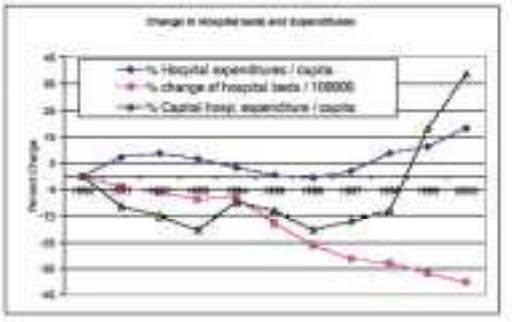


Figure 4b

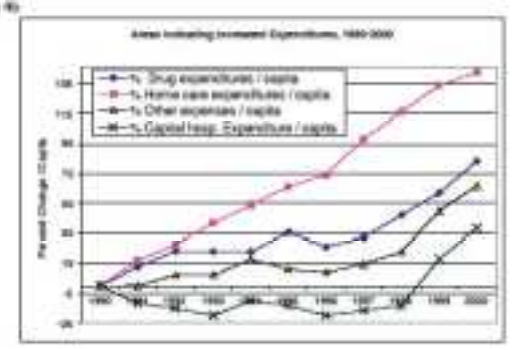


Figure 4a: Change in hospital beds and capital hospital expenditures, 1990-2000. In 1990, there were 647 beds per 100,000 but this number fell in 2000 to 380. The per capita hospital costs over the same period rose from $786 to $905. Overall capital expenses per capita were $80 in 1990 and $83 in 2000. Figure 4b: Of the categories of expenses that increased from 1990 to 2000, this figure shows the pattern of changes. Per capita home care expenditures were $26 in 1990 and $68 in 2000. Per capita drug costs were $79 in 1990 and $168 in 2000. Similarly, capital hospital expenditures were $80 in 1990, fell by approximately 33% from 1993 until 1998, rose to $83 in 2000. Per capita Administration i.e. "other expenses" rose from $171 in 1990 to $264 in 2000. Note: "Other Expenditures" according to CIHI's desegregated report includes a) administration of the health care program b) research on evaluation of delivery of health care.

[3] provided extensive comments. Largely ignoring their requests to establish dialogue, governments proceeded to act unilaterally on the Barer-Stoddart report by selectively implementing the recommendations of the report in a manner that may have been politically convenient in the near term but, as outlined below, that was also detrimental to health care over the next decade.

The Outcome Effect on Physician Supply

Without considering the lag period between students' entering school and residency positions, governments simultaneously cut undergraduate and residency slots. In 1990, 1,812 students entered medical school but these numbers fell to 1,703 in 2000 (Figure 3a).

Relative to the general population, these cuts caused a 15% decline in undergraduates from 6.5 to 5.5 per 100,000 population. Graduates decreased 16% from 6.2 to 5.1/100,000. Residents completing training decreased from 23.6 to 20.8/100,000. Numerous undergraduates did not find residency slots in Canada and proceeded to the United States where some stayed permanently. Also, since governments favoured residencies in family medicine, fewer specialists were trained.[12,20]

When governments pursued new contracts in the form of alternative funding payments at teaching hospitals, the number of physicians in teaching positions increased by 33%. In view of the unchanged number of physicians per 100,000 population (Figure 3a), this reduced physicians in private practice and decreased accessibility to private office care.[24].

Effect on Physician Age

With fewer medical graduates, the average age of physicians increased (Figure 3b). Between 1981 and 1990, there was little change in age distribution but during the following decade the number of physicians <45 yr decreased, while the number of older physicians increased. This shift occurred in spite of Quebec's 1996-2002 "End of Carrier Allowance" policy to encourage early retirement.

Effect on Hospitals and "Home Care"

Hospital beds were reduced from 647/100,000 in 1990 to 308/100,000 in 2000 (Figure 4a) while per

Table 2: The Changing Nursing Landscape in Canada, 1990-2000

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Nurses Registered / 100,000											
Number	925	938	929	921	910	882	878	866	843	841	828
Percent Change (1990 -)	-	1.2%	0.5%	-0.4%	-1.5%	-4.6%	-5.0%	-6.3%	-8.9%	-9.0%	-10.5%
Nurses employed / 100,000											
Number	809	812	825	821	808	791	770	763	753	749	756
Percent Change (1990 -)	-	0.5%	2.0%	1.5%	-0.1%	-2.1%	-4.7%	-5.7%	-6.8%	-7.3%	-6.5%
Nurses employed in hospitals											
Number ('000)	120.1	123.0	155.2	158.5	155.6	145.4	140.3	144.8	142.2	142.8	148.4
Percent Change (1990 -)	-	2.4%	29.2%	32.0%	29.6%	21.1%	16.9%	20.6%	18.4%	18.9%	23.6%
Hospital beds											
Number ('000)	179.2	173.6	171.9	169.4	172.2	156.5	142.2	133.4	131.7	125.1	119.2
Percent Change (1990 -)	-	-3.1%	-4.0%	-5.5%	-3.9%	-12.6%	-20.6%	-25.5%	-26.5%	-30.2%	-33.4%
Nurses employed / hospital bed											
Number	0.67	0.69	0.89	0.92	0.92	0.84	0.90	1.02	1.07	1.08	1.19
Percent Change (1990 -)	-	2.4%	33.4%	37.7%	37.1%	26.1%	33.8%	52.0%	59.1%	61.9%	77.2%

Between 1990 and 2000, the number of nurses registered and employed per 100,000 population fell 10.5% and 6.5%, respectively. During the same period, the number of nurses employed in hospitals rose 23.6% and the number of hospital beds fell 33.4% from approximately 179,000 to 119,000. The number of nurses employed per hospital bed rose 77.2% from 0.67/bed to 1.19/bed. Data from Canadian Nurses Association, 2002 (20).

capita hospital costs during the same period increased by 18% from $766 to $905 (Figure 4b).

The ratio of total health care expenses to hospital costs was 45.8% in 1990 but 40.4% in 2000, a savings of only 18% despite a 40% cut in hospital beds (Figure 5).

Attempts to reduce hospital expenditures by closing beds were partially offset by the cost of looking after sicker patients.

There was a sporadic pattern of capital investments. In 1990 capital hospital equipment per person was $60 but decreased to $50 eight years later. Only as serious strains on the system were observed in 1999 was there a surge in capital investment, reaching $83 per capita in 2000. Because of nearly a decade of cuts, overall hospital capital expenses fell by 15% (Figure 4b).

Part of the plan was to increase alternatives to hospital stays such as home-care. While home care expenditures increased 142% from 1990 to 2000, these monies represented a small fraction of total health spending (Figure 5) and were made available gradually (Figure 4b) while hospital beds were reduced rapidly (Figure 4a). Home care allotments, as a proportion of total health care spending, increased from 2.2% in 1990 to only 3.9% in 2000. "Other facilities" such as residential care facilities that provided an alternative to hospital beds did not experience a proportionate increase in funds (Figure 5).

The Effect on Nursing

The report proposed that nurses could assume some responsibilities customarily held by physicians.[10,14] An unanticipated result was that the nursing profession increased education requirements. Previously, most nurses were trained in two-year community college programs. Anticipating expanded roles, the profession adopted a preference for a four-year bachelor's degree. As a result, nursing faculties had to compete more directly with other undergraduate programs in order to attract potential entrants. Table 2 indicates that around 1992, when steps were taken by the profession to increase educational requirements, the number of nurses decreased. In 1990 there were 256,145 registered nurses (i.e. 925/100,000 population), a number that decreased to 254,765 (i.e. 828/100,000) by 2000. The number of employed nurses decreased by 6.5% from 809/100,000 in 1990 to 756/100,000 in 2000 (Table 2). Further, per 100,000 population, more nurses were employed by hospitals in 2000 (=148) than in 1990 (=120). Considering the reduc-

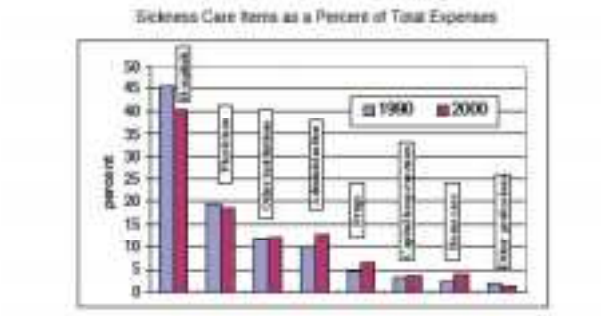


Figure 5: Change in Sickness Care Items as a Percent of Total Expenses, 1990 and 2000. Between 1990 and 2000, there was an overall drop in expenses related hospitals (13%), physicians and "other professions". Expenditures on Administration (see explanation of "other expenditures" in Figure 4.b) rose from 10.2% to 12.7%. Drug costs increased from 4.7% to 6.4% while Home Care costs increased from 2.2% to 3.8%. Physician costs dropped from 16.8% in 1990 to 16.5% in 2000. Capital hospital expenses stayed nearly the same, from 3.9% in 1990 to 3.7% in 2000. Expenditures related to Other Professions fell from 1.7% in 1990 to 1.1% in 2000.

tion of beds in this period, there were 0.67 nurses per hospital bed in 1990 and 1.19 in 2000, a 77% increase. Of the nurses who obtained a bachelor or higher degree, fewer worked in direct patient care with many entering administrative positions. Additionally, there were only 650 "Nurse Practitioners" in Canada in 2000 and 500 of these were in Ontario.[21]

Increasing Expenses

Several additional categories of costs increased (Figure 4b). Drug expenditures increased from 4.7% to 6.4% over the ten years ending in 2000 (Figure 5). This was partly caused by the availability of expensive new cytokine-specific or gene-devised drugs. "Other expenditures" increased by 67% from $171/capita in 1990 to $284/capita (Figure 4). According to CIHI's disaggregated report, "Other Expenditures" include (a) administration of the health care program and (b) research on evaluation of delivery of health care. Thus, administration of the system helped to account for the highest increase as a percent of total expenses, considerably counteracting any savings resulting from hospital closures (Figure 5).

Discussion

We suggest that there was not a genuine economic health care crisis in the early 1990s, a belief that was propagated at the CDMH but not empirically verified by the authors of the ensuing report. The increased costs identified at the time were predominantly due to increased patient need, not otherwise inflated costs, and thus represented a responsibility that governments were obliged to accommodate. Subsequent to the report, governments throughout Canada implemented changes that had a variety of negative effects including a shortage of physicians, nurses, hospital beds, and inadequate provision of homecare that in sum comprised an indisputable health care crisis.

The results calculated in this paper are based on publicly supported expenses, as these are more accurate than those comprising private expenditures.[25] Generally speaking, these two follow a similar pattern and the data including private funds is usually 25-30% higher than the public funds alone. In 1990, Huber and Orosz indicated that publicly supported expenses in Canada contributed approximately 75% and private insurance and out of pocket expenses 26%, while in 2000 the corresponding figures were 71% public and 29% private[26]. The pattern of the ratio of total health care spending versus GDP generally parallels the pattern for public expenditures in Figure 1b.[26]

The data on population growth and GDP were obtained from Statistics Canada, on health expenditures from "Health expenditures in Canada by age and sex in 1980 – 1981 to 2000 – 2001" published by Health Policy and Communication Branch 2001.[17] Data on hospitals and home care from the Canadian Institute for Health Information's "Health Canada 2001"[18]; on physicians and trainees from the Association of Canadian Medical Colleges (recently renamed Association of Faculties of Medicine of Canada) and from Southam Medical Database.[19] Nursing data were provided by the Canadian Nurses Associations.[21] To account for changes in the population, data are expressed in 'per capita' or 'per 100,000 population' terms where possible.

Up to the 1980s, Canada had an established and high-performing public health care system,[2,24,27,28] Due to governments selectively implementing the Barer-Stoddart report's recommendations, this changed after 1990.

The authors set out to identify the causes of the perceived health care crisis by interviewing many stakeholders. Their report provided a summary of feedback and a host of recommendations on how to correct the problem. A major difficulty of relying so heavily on the interview method is that it is not well suited at distinguishing causes from effects and mere correlates. This is because qualitative research methods generally are discovery-oriented – excellent at describing complex phenomenon, generating new theory or identifying under-explored factors – but they also provide a poor means of distinguishing root causes. Before publishing their report, the authors should have bolstered their conclusions by

complimenting their results with suitable quantitative methodologies, a process referred to as triangulation that would have provided more reliable evidence of causation.

More fundamentally, since the authors were commissioned to provide solutions to the 'crisis', they seem to have presumed that one existed. However, our data indicate that there was no crisis (Figure 1) but an increased need (Figure 2). We submit, therefore, that it is incumbent on those who make recommendations to explicitly challenge prevailing wisdom, to authenticate their commission by establishing that a problem exists and, given that one is revealed by empirical evidence, to both contextualize its scope and adopt methods that are capable of accurately assessing its causes. Decisions must be informed by and based on superior fact-based evidence [29-32] given the enormous practical and moral hazards involved in misunderstanding the problem. For example, literature suggests that seminal health reports such as Barer-Stoddart have enormous influence in governmental decision-making both in and outside departments of health in Canada.[33]

Given the health care problems that emerged during the 1990s, the federal government commissioned the Romanow Report, on "Future of Health Care in Canada", which was submitted in 2002.[16] Unfortunately, ten years after the Barer-Stoddart report, the Romanow report is remarkably similar to its predecessor (see Table 1). Both point out that prior policies have been ineffective and that a nationally coordinated solution is required. Both propose that there may not be a physician shortage but merely inadequate physician distribution and suggest that it may be necessary to re-locate physicians forcefully. Both propose that foreign physicians should not be licensed and that non-physician health care workers should become more involved.

It is routine for governments to be guided by political expedience. However, this approach is harmful as it does not provide rational answers. The Barer-Stoddart and Romanow reports seem to adhere to a 'political' model of research use, in which research findings are ammunition in an adversarial system of policy making, rather than the preferable 'knowledge-driven' and 'interactive' models that are superior at diagnosing problems and implementing rigorous and appropriate solutions.[34]

In reviewing methods of scientists' consulting with non-scientists (e.g. government or industry), progress has been made in terms of developing more effective means of conveying information.[35] Before such information can be shared, though, certain considerations must be established. For example, evidence should be harvested and reviewed using the scientific method and be inclusive of all stakeholders in the system.[29-32] Once on course, those charged with seeking to propose solutions should maintain their independence by ignoring their political overseers whose own motivations may not be aligned with identifying truths. The process itself may benefit from an arrangement similar to peer-review in order to ensure the merits of the methodologies, results and implications, as well as to minimize other potential sources of bias. The same people who helped to create the problem should not be subsequently involved in 'fixing' the mess to which they contributed.

Reflected in its aggressive language, the Barer-Stoddart report fixated on physicians and their misuse of resources without adequately considering other causes.[29-32] Its authors were optimistic about the extent to which alternative health care workers could replace physicians or be used effectively in smaller communities. Positive results have been constrained by a lack of resources such as the fact that there are fewer nurses (Table 2) and an insufficient numbers of Nurse Practitioners.[21] Further, based on the assumption that expenses due to facility overuse by physicians was at fault, the number of hospital beds was cut (Figures 4a and 5). Besides the fatuity of believing that cutting supply would reduce demand, this approach created three major problems. The first relate to difficulties caring for "less sick patients"[24], who in the past would have been admitted to hospital but were turned away for lack of space and added to the burgeoning waiting lists. Second, emergency departments became overcrowded.[36] Third, for lack of capital investments in modern equipment[37], patient care lagged the level of contemporary technology.

Governments also gave voice to plans to replace considerable portions of hospital care with home care. This move required large infusions of money for high quality home care in advance of hospital closures. But the increase in home care was small, gradual and did not take place until hospitals were already being shuttered (Figure 4). Home care dollars represented the second smallest component of the budget (Figure 5). When one course of action (e.g. hospital closures) is embraced without adequate offsets to meet the genuine needs of the system (e.g. number of nurse practitioners, home care funding), this betrays an underlying lack of commitment by decision makers.

The prolonged waits in emergency departments (ER) were foreseeable and had several causes.[36] With the increasing population and a disproportional rise in the elderly (Figure 2), there were more seriously ill patients but fewer practicing physicians (Figure 3), providing less screening to keep patients away from ER's. Because of hospital closures, there were fewer beds to accommodate acute patients who were overflowing the ER department,[36] The delay in purchasing capital equipment[37] meant that the remaining hospitals were less efficient.

As stated by Altman[38] *"The wide range and sharp periodic cycles in spending growth produce disproportionate strains that contribute to the perception of a health system in constant crisis."* This is what happened when governments first cut and then increased physician training, when they first discouraged then supported foreign graduates, when they first demolished then rebuilt hospitals and when they promised but did not provide home care. Due to this crisis of delivering appropriate patient care, the Supreme Court of Canada ruled in 2005 that the waiting lists had become so long that they violated patients' rights under the Quebec charter*: "delays in the public health care system are widespread" and "in some serious cases, patients die as a result of waiting lists for public health care."* Therefore, *"the prohibition on obtaining private health insurance is not constitutional where the public system fails to deliver reasonable services"*.[39-41] Due to political incompetence and under-funding in the preceding decade, the original principle of Medicare in Canada [2] may now be lost to a more expensive, less egalitarian privatized solution.[42-45] .

The similarities between the Barer-Stoddart and Romanow reports imply that decision-makers failed to understand the causes and scope of the intervening health crisis. That governmental decision-making has been haphazard is apparent in the fact that after years of decreasing medical enrolments and discouraging hiring of foreign-trained physicians, medical schools have now been asked to increase enrolment and the 2005 federal budget provides $75 million to help foreign graduates to enter the system.

We remain concerned that decision-makers continue not to comprehend the core issues. They should realize that the present crisis is due to their health care philosophy in which money more than need has been the driving force for change and where the opinions of those who deliver it, physicians and nurses, has been considerably overlooked. This resulted in the destruction of the primary principle of Canadian Medicare. Perhaps, when budgets are appropriated by need and not determined by politicized processes, and when adequate equipment to support hospitals and sufficient new physicians are trained to replace the aging practitioners, the system might start to return to its previous excellence, nullifying the need to bypass the system by adopting privately-funded solutions.

Acknowledgement
The authors would like to acknowledge Dr. Cynthia A. Beck, Departments of Psychiatry and Community Health Sciences, University of Calgary and Dr. John McHale, Queen's School of Business, for their helpful suggestions. Any errors or omissions remain the authors'.

References

1. Beck IT. Decrease of Funds for "Sickness Care" in the "Health Care" Budget. Annals - The Royal College of Physicians and Surgeons of Canada 2002; 35(Supl 6):3.
2. Department of Justice. Canada Health Act (R.S. 1985, c. C-6). 1985.
   Ref Type: Bill/Resolution
3. Barer ML, Stoddard GL. Toward Integrated Medical Research Policies for Canada. 1991. Canada, Report prepared for Federal/Provincial/Territorial Conference of Deputy Ministers of Health, 1991.
   Ref Type: Generic
4. Barer ML, Stoddart GL. Toward integrated medical resource policies for Canada: 1. Background, process and perceived problems. CMAJ 1992; 146:347-51.
5. Stoddart GL, Barer ML. Toward integrated medical resource policies for Canada: 2. Promoting change--general themes. CMAJ 1992; 146:697-700.
6. Stoddart GL, Barer ML. Toward integrated medical resource policies for Canada: 3. Analytic framework for policy development. CMAJ 1992; 146:1169-74.
7. Barer ML, Stoddart GL. Toward integrated medical resource policies for Canada: 4. Graduates of foreign medical schools. CMAJ 1992; 146:1549-54.
8. Stoddart GL, Barer ML. Toward integrated medical resource policies for Canada: 5. The roles and funding of academic medical centres. CMAJ 1992; 146:1919-24.
9. Stoddart GL, Barer ML. Toward integrated medical resource policies for Canada: 6. Remuneration of physicians and global expenditure policy. CMAJ 1992; 147:33-8.
10. Barer ML, Stoddart GL. Toward integrated medical resource policies for Canada: 7. Undergraduate medical

training. CMAJ 1992; 147:305-12.
11. Barer ML, Stoddart GL. Toward integrated medical resource policies for Canada: 8. Geographic distribution of physicians. CMAJ 1992; 147:617- 23.
12. Barer ML, Stoddart GL. Toward integrated medical resource policies for Canada: 9. Postgraduate training and specialty certification. CMAJ 1992; 147:999-1005.
13. Stoddart GL, Barer ML. Toward integrated medical resource policies for Canada: 10. Information creation and dissemination. CMAJ 1992; 147:1325-9.
14. Stoddart GL, Barer ML. Toward integrated medical resource policies for Canada: 11. Improving effectiveness and efficiency. CMAJ 1992; 147:1653-60.
15. Barer ML, Stoddart GL. Toward integrated medical resource policies for Canada: 12. Looking back, looking forward. CMAJ 1993; 148:29-32.
16. Romanow RJ. Building on values. The future of Health Care in Canada. 2002. Ottawa, Government of Canada.
17. Health Policy and Communication Branch HC. Health expenditures in Canada by age and sex, 1980 - 81 to 2000 - 01. H21-172/2001. 2001. Ottawa, Canada, Minister of Public Works and Government Services Canada, 2001.
18. Canadian Institute of Health Information 2. Statistics on health care. 2001.
19. Association of Canadian, Medical Colleges. Candian Medical Education Statistics. 2000.
20. Association of Canadian Medical Colleges. Canadian Post-M.D,.Education Registry CAPER. 2002.
21. Little L. Canadian Nurses Association. 2002.
22. Canadian Medical Association. Let's get it right - The CMA's action plan. Response to the Barer/Stoddard report. 1991.
23. Royal College of Physicians and Surgeons of Canada. Towards integrated medical resource policies for Canada. Response to the Barer/Stoddard report. 1991.
24. Sanmartin C, Houle C, Tremblay S, Berthelot JM. Changes in unmet health care needs. Health Reports 2002;13:15-21.
25. Moore R, Mao Y, Zahng J, Clarke K. Economic burden of illness in Canada 1993. 1997. Canada, Health Canada. Published by authority of the Minister of Health Minister of Public Works and Government Services,Canada.
26. Huber M, Orosz E. Health expenditure trends in OECD countries, 1990-2001. Health Care Financing Review 2003;25:1-22.
27. Banks PJ. Osler Oration. Medicine in the 80s-can we afford it? CMAJ 1980;123:1247-56.
28. Crichton A. Equality: a concept in Canadian health care: from intention to reality of provision. Social Science & Medicine - Medical Economics 1980;14C:243-57.
29. Bodenheimer T. High and rising health care costs. Part 1: seeking an explanation. Ann Interna Med 2005; 142:847-54.
30. Bodenheimer T. High and rising health care costs. Part 3: the role of health care providers. Ann Intern Med 2005; 142(12 Pt 1):996-1002.
31. Bodenheimer T, Fernandez A. High and rising health care costs. Part 4: can costs be controlled while preserving quality? Ann Intern Med 2005;143:26-31.
32. Bodenheimer T. High and Rising Health Care Costs. Part 2: Technologic Innovation. Ann Intern Med 2005; 142:932-7.
33. Lavis JN, Ross SE, Stoddart GL. Do Canadian civil servants care about the health of populations? Am J Pub Hlth 2003;93:658-63.
34. Weiss C W. The many meanings of research utilization. Publ Admin Rev 1979; 39:426-31.
35. Lavis JN, Robertson D, Woodside JM, McLeod CB, Abelson J, Knowledge Transfer Study Group. How can research organizations more effectively transfer research knowledge to decision makers? Milbank Quarterly 2003;81:221-48, 171-2.
36. Canadian Association of Emergency Physicians, National Emergency Nurses Affiliation. Joint position statement on emergency department overcrowding [position statement]. CEMJ 2001; 3:82-4.
37. Zelmer J, Leeb K, Lacroix J, Lewis S, Alvarez R. Medical imaging in Canada: bringing the picture into focus. Hosp Q 2003;71:49-52.
38. Altman SH, Tompkins CP, Eilat E, Glavin MP. Escalating health care spending: is it desirable or inevitable? Health Affairs Suppl Web Exclusives:W3-1-14, 2003;-Jun.
39. SUPREME COURT OF CANADA. Chaoulli *v.* Quebec (Attorney General), 2005 SCC 35. 9-6-2005. Ref Type: Bill/Resolution
40. Barlow M. "Health Care Ills". Globe and Mail 2005 Jun 11;-A.16 .
41 Kraus C. Canadian Court Chips Away at National Health Care. The New York Times 2005 Jun 9.
42. Woolhandler S, Campbell T, Himmelstein DU. Costs of health care administration in the United States and Canada.[see comment]. N Engl J Med 2003;349:768-75.
43. Himmelstein DU, Woolhandler S, Wolfe SM. Administrative waste in the U.S. health care system in 2003: the cost to the nation, the states, and the

District of Columbia, with state-specific estimates of potential savings. Int J Health Serv 2004;34:79-86.
44. Woolhandler S, Campbell T, Himmelstein DU. Health care administration in the United States and Canada: micromanagement, macro costs. Int J Health Services 2004;34:65-78.
45. Woolhandler S, Himmelstein DU. The high costs of for-profit care. CMAJ 2004,170:1814-5,.

Address correspondence to:

Ivan T. Beck, MD, Ph.D, FRCPC, FACP, MACG
Queen's University
Division of Gastroenterology
Hotel Dieu Hospital
Kingston, ONK61 5G2
E-mail: becki@HDH.KARI.NET