

Canada's physician supply

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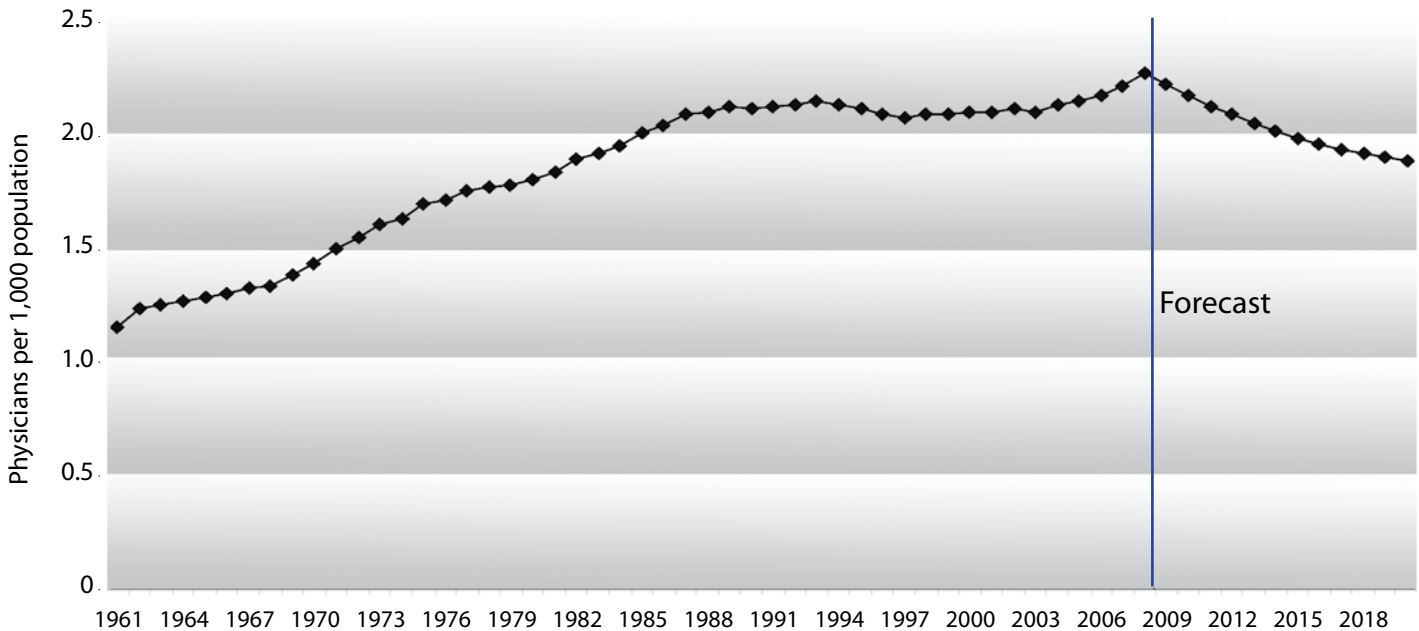
Discussions regarding health care in Canada regularly return to the supply of medical practitioners in this country. Canadians' focus on physician supply has been driven by the publication of numerous reports and commentaries on this issue produced by research organizations, professional associations, government committees, and others. Importantly, most of these discussions and papers have generally arrived at the same conclusion: there are too few physicians practicing in Canada today.

That conclusion is supported by the available evidence on Canadians' unmet health care needs. For example, in 2007, almost 1.7 million Canadians (6%) aged 12 or older reported being unable to find a regular physician (Statistics Canada, 2008). More recent Statistics

Canada data show that 6.6% of Canadians aged 12 or older reported being without a regular doctor and unable to find one (Statistics Canada, 2010a; calculation by author). Similarly, a research poll completed in 2007 found that 14% of Canadians (approximately 5 million) were without a family doctor, more than 41% of whom (approximately 2 million) were unsuccessful in trying to find one (CFPC, 2007).

Further, after accounting for the fact that most other developed nations have a greater proportion of seniors (aged 65 and older) (OECD, 2010)¹, and thus a greater demand for health care services, Canada's physician-to-population ratio in 2006 ranked 26th among the 28 developed nations that maintain universal access health insurance programs for which data were available (Esmail,

Figure 1: Canadian physician-to-population ratio, 1961 to 2020



Sources: AFMC (2010); McArthur (1999a); OECD (2010); Statistics Canada (2010b); and Ryten et al. (1998); calculations by author.

2008). These facts, when combined with evidence that increased spending on physicians has been related to reduced wait times for treatment in Canada (Esmail, 2003; Barua and Esmail, 2010), clearly suggest that the supply of physician services in Canada is not meeting demand. This article seeks to add to the current understanding of Canada's physician shortage and how Canada's physician supply may evolve in the coming years.

The evolution of Canada's physician supply

In the early 1970s, Canadians enjoyed one of the highest physician-to-population ratios in the developed world (Esmail and Walker, 2008).² Such generous relative access to doctors was, in light of recent evidence from studies showing the health benefits of greater access to doctors, unquestionably beneficial for Canadians. Unfortunately, in the early- to mid-1980s, some government officials voiced concern about the growing number of physicians, and recommended that governments reduce the number of medical school admissions and training positions available (Tyrrell and Dauphinee, 1999). While their calls for reform were not met with a specific policy on physician supply, medical school admissions did fall slightly in the years that followed (Tyrrell and Dauphinee, 1999; Ryten et al., 1998).

In the early 1990s, however, specific policies on physician supply were introduced following the publication

of what has come to be known as the Barer-Stoddart report. In 1991, researchers Morris L. Barer and Greg L. Stoddart published a discussion paper for the Federal/Provincial/Territorial Conference of Deputy Ministers of Health. Their report recommended, among other things, reducing medical school enrollment by 10%, reducing the number of provincially funded post-graduate training positions by 10% to meet the needs of students graduating with M.D.s in Canada, and reducing Canada's reliance on foreign-trained doctors over time (Barer and Stoddart, 1991). Governments responded in 1992 by accepting all three of these recommendations, with the goal of maintaining or reducing the physician-to-population ratio in Canada (Tyrrell and Dauphinee, 1999).

Figure 1 reveals the effect of these decisions: a physician-to-population ratio that increased steadily from the early 1960s to the late 1980s, peaking in 1993 at 2.15 physicians per 1,000 people. Until the mid-2000s, Canada's physician supply grew just fast enough to maintain a ratio of between 2.07 and 2.15 physicians per 1,000 people with some slight growth to a peak of 2.27 occurring between 2005 and 2008.³ (The projections included in this figure will be discussed later in this article.) In other words, Canada's policies restricted the growth rate of the physician-to-population ratio in order to remain at a level that is now below what other nations provide through their universal access health programs, and below the current demand for physician services in Canada.

Vitality, potential health benefits associated with having a higher physician-to-population ratio, including

longer lives and lower rates of mortality (see, for example: Or, 2001, and Starfield et al., 2005), were lost as a consequence of these restrictions.

While it is clear that the current physician supply is insufficient, the numbers to the left of the projections marker in figure 1 tell us nothing of the future. According to recent statistics published by the Association of Faculties of Medicine of Canada, provincial governments have been increasing the number of medical school admissions markedly in recent years (figure 2). In order to better understand how Canada's physician supply will evolve over the coming years, it is important to consider the impact these changes in school admissions will have on the number of physicians entering the workforce over the next 7 to 10 years. It is also important to consider what will happen to the physician supply over that time in order to more fully understand the impact of government controls on physician training.

Graduation rates and physician supply to 2020

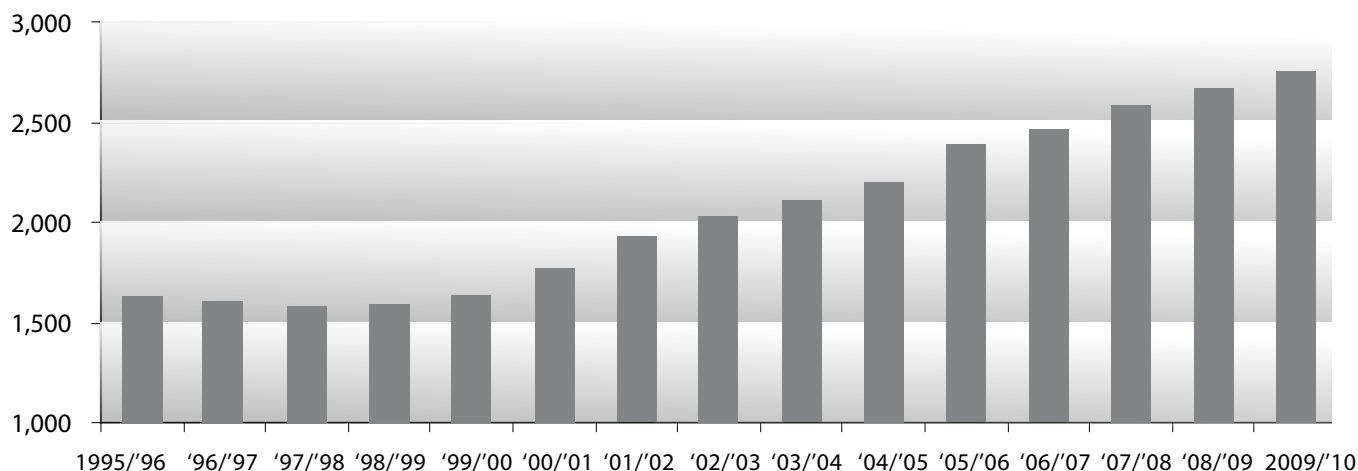
Extrapolating from Canada's medical school graduation rates, it is possible to estimate the number of new doctors who will be entering the workforce in the coming years. To estimate the future supply of doctors accurately,

however, it is important to take into account the number of physicians currently working in Canada who will die, retire, or leave for employment in other nations, as these physicians must be replaced in order to maintain a constant supply of physicians over time. An article by Ryten et al. published in the *Canadian Medical Association Journal* sheds some light on both issues.

In early 1996, the authors followed up with 1,722 medical school graduates who received their degree in 1989 (leaving them sufficient time to complete post-graduate medical training). They found that only 1,300 of the graduates were actively practicing in Canada 7 years after graduation. A further 216 were still training to practice in Canada, while 13 students remained in Canada, but were not in active practice. Meanwhile, 193 had left the country (figure 3). In total, only 88% of those who graduated in 1989 were practicing, or training to practice, as Canadian physicians in 1996.

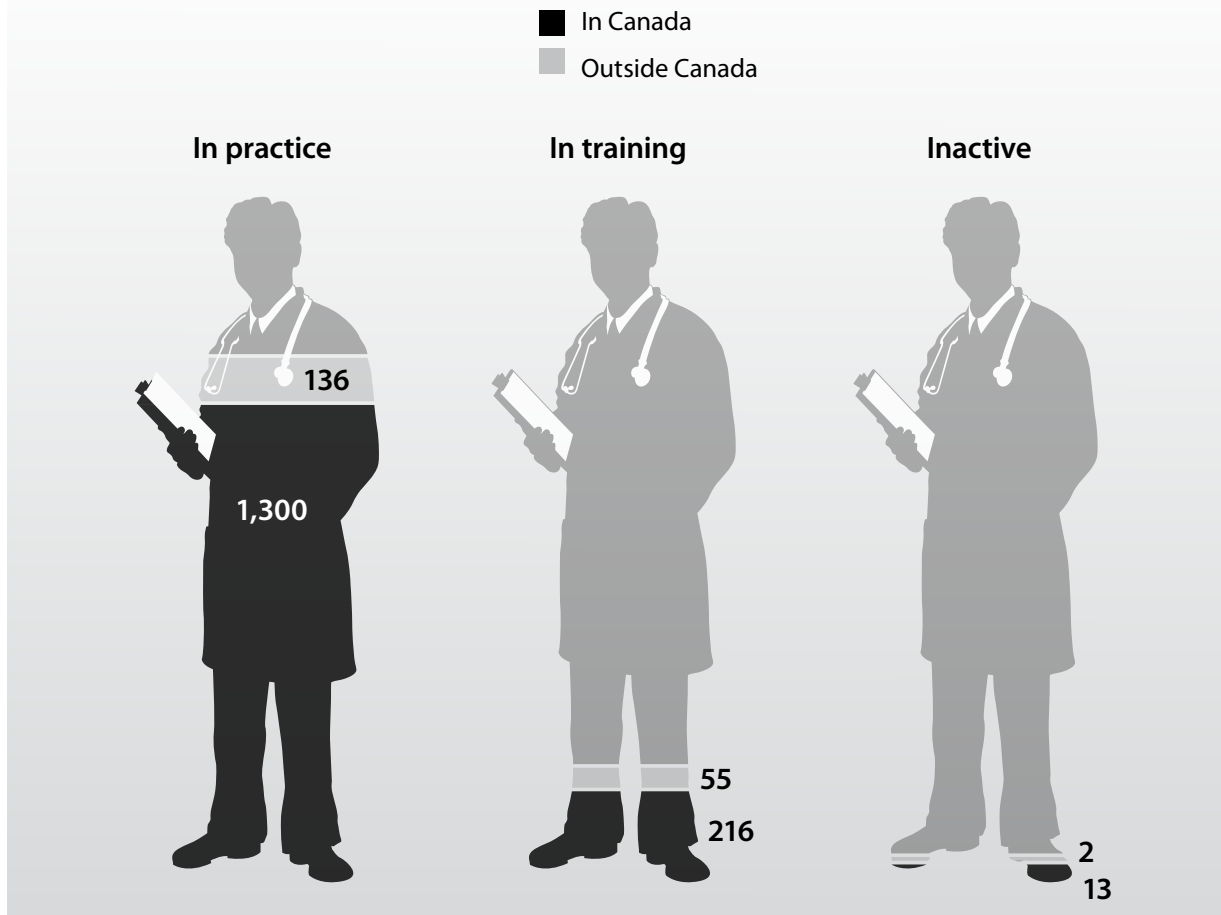
Ryten et al. also found that the number of Canadian-trained physicians entering the workforce was insufficient even to maintain the current supply of doctors at that time. In the mid-1990s, the authors estimated that approximately 650 to 750 new physicians would be needed each year in order to keep up with historical rates of population growth (the physician supply must grow with the population in order to maintain a constant ratio). The authors also determined that a further 900 to

Figure 2: First-year enrollment in Canadian faculties of medicine, 1995/96 to 2009/10



Source: AFMC (2010).

Figure 3: Location and professional activity of Canadian medical school graduates from 1989, as of 1995-1996



Source: Ryten et al. (1998).

1,100 physicians would be needed to replace those who either retired or died, and that roughly 300 to 350 new physicians would need to be added in order to replace those physicians who left the country. In other words, maintaining the physician-to-population ratio in the mid 1990s would require adding 1,900 to 2,200 new physicians to the workforce every year (between 3.1% and 3.6% of the 1996 physician population)—a substantially greater number than the 1,516 new Canadian-trained additions who were either in practice or still training to practice in Canada from the class of 1989.

By applying the proportions determined by Ryten et al., as has been done previously by McArthur (1999a),⁴ to the number of students who enrolled in medical schools in Canada and the number of students who were awarded M.D.s from 2000 onwards, it is possible to estimate the number of new Canadian-trained physicians who will be entering the workforce up to 2020.⁵ As figure 4 illustrates, if 88% of medical school graduates are part of Canada's

physician supply 7 years after graduation, and if 97% of those admitted to medical school graduate (as was the case for the class of 1989), then current enrollment and graduation rates suggest that 2,336 Canadian-trained students will be added to the physician supply in 2020.

Figure 4 also shows the estimated number of new physicians required to maintain the physician-to-population ratio. This number exceeds the estimated number of Canadian trained physicians entering the workforce every year through 2018. For 2019 and 2020, the number of Canadian trained physicians estimated to be entering the workforce exceeds slightly the estimated number of physicians required to maintain the physician-to-population ratio. This number of physicians required assumes that the number needed to replace those lost to death, retirement, or emigration, and to keep up with population growth is a constant 3.2% of the current physician population over time (which is equal to the addition of 2,000 new physicians in 1996, the low-middle point in the

Ryten et al. estimates above).⁶ It also assumes that only Canadian-trained doctors will be added to the physician supply between 2008 and 2020.⁷

This replacement rate is a conservative estimate: at present approximately 38% of Canada’s physicians are aged 55 or older (CMA, 2010), which suggests that the number of physicians needed to replace those who retire or die (900 to 1,100 doctors in the mid-1990s) will rise significantly in the coming years. In addition, this estimate does not take into account the effects of demographic changes in the physician workforce, the consequence of which may be that, in the future, more physicians will be required to deliver the same volume of services being provided today (Esmail, 2007). Furthermore, this is only the number of new physicians required to *maintain* the stock of physicians, which is clearly insufficient to meet current demand and will likely fall well short of demand in the future given that Canada’s health needs can be expected to increase as our population ages.

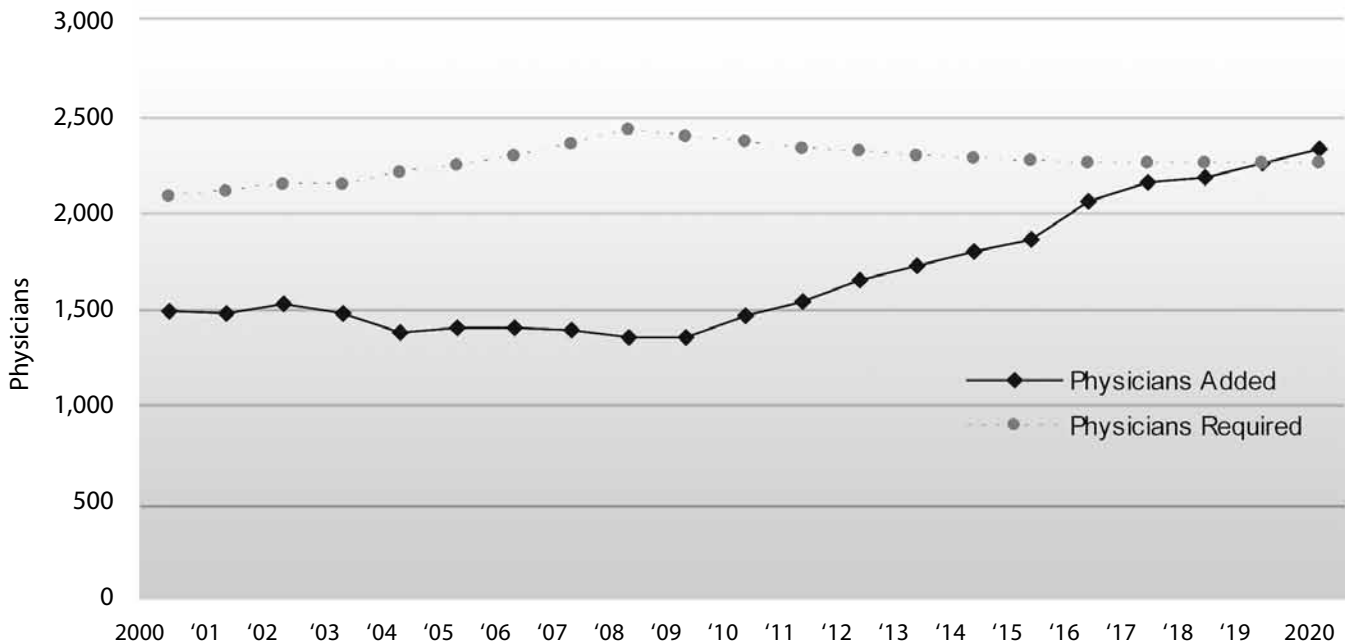
Making one additional assumption—that the Canadian population will increase at the medium growth rate forecast by Statistics Canada (Statistics Canada, 2010b)⁸—allows us to estimate how the physician-to-population ratio will evolve in Canada in the coming years (figure 1). Clearly, without a significant addition of foreign-trained

doctors, the Canadian physician-to-population ratio will decline between now and 2020,⁹ just as it would have through the 1990s and 2000s if foreign physicians had not made up for the shortfall caused by insufficient medical school admissions.

Conclusion

The current physician supply in Canada is insufficient to meet the demand for physician care under the present structure of Medicare,¹⁰ and falls well short (in terms of the supply of physicians relative to population) of what is being delivered in other developed nations that also maintain universal approaches to health care insurance. Without a significant intake of foreign physicians, the physician-to-population ratio will fall in the coming years because there are not enough new doctors being trained in Canada. It would seem that a government-imposed limitation on the number of physicians being trained in Canada is a policy choice that is not serving the best interests of Canadians, be they patients in need of a physician, or capable students who wish to become doctors, but who are unable to access medical training in this country.

Figure 4: New Canadian-graduated doctors in practice compared to the number of new doctors required to maintain physician-to-population ratio, 2000 to 2020



Sources: AFMC (2010); McArthur (1999a); OECD (2010); and Ryten et al. (1998); calculations by author.

The physician-to-population ratio will fall in the coming years



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Notes

1 In 2008, 13.6 percent of Canadians were aged 65 and older, ranking Canada 20th among 28 developed nations that maintain a universal access health insurance program (list of nations from Esmail and Walker, 2008). The three oldest nations (Japan, Italy, and Germany) all had over 20% of their population aged 65 and older. The average for these 28 nations was 15.3% (OECD, 2010).

2 In 1970, Canada had an age-adjusted ratio of 1.8 doctors per 1,000 population, the second highest ratio among 20 developed nations for which data were then available (Esmail and Walker, 2008).

3 The differences between historic physician supply data presented here and those presented in Esmail (2008) result from a change in the data series used to measure physician supply. In Esmail (2008), the data series employed was “Practicing Physicians” from OECD (2008). In OECD (2010) Canadian data is not available for the “Practicing Physicians” series, but is instead available for the “Professionally Active Physicians” series. The calculations in this article employ data from this latter series. It should be noted that “Practicing Physicians” is defined as “practicing physicians who provide services

directly to patients”, while “Professionally Active Physicians” is defined as “practicing physicians and other physicians for whom their medical education is a prerequisite for the execution of the job” (OECD, 2010).

4 Esmail (2006) and Esmail (2008) also employ this projection methodology.

5 This estimate uses graduation rates for students awarded M.D.s between 2002 and 2010 (who, between 2009 and 2017 will be at the same point in their careers as the students studied by Ryten et al.), and enrollment rates for students entering medical school between 2007/2008 and 2009/2010 who will, in general, be at the same point in their medical careers between 2018 and 2020 as the students studied by Ryten et al. were in 1996 after graduating in 1989. All graduation and enrollment rates are from AFMC (2010).

6 This replacement value is smaller than the 3.5% estimate of physicians leaving practice in Canada annually (not counting the number of physicians required to account for population growth) used by Tyrrell and Dauphinee (1999) to estimate changes in the physician supply.

7 This second assumption may seem questionable since significant numbers of foreign-trained physicians have been added to the Canadian workforce in order to maintain the existing

physician-to-population ratio. However, the precise number of foreign-trained doctors who will be added in the future is difficult to estimate. This assumption does not, however, affect the conclusions of this examination. Since the main purpose of this article is to consider the effect controls have on the supply of Canadian-trained doctors, this simplifying assumption serves to clarify the effect these training restrictions have on the future supply.

8 This analysis uses the M1 medium population growth forecast from Statistics Canada (2010b).

9 This decline in the ratio is seen in Figure 4 as the decline in the number of physicians required to maintain the physician-to-population ratio between 2008 and 2020.

10 Shortages can only occur when prices are not permitted to adjust. Prices will naturally rise in any functioning market where goods or services are in short supply relative to demand, thus encouraging new supply and reducing demand simultaneously. The outcome is equilibrium of supply and demand (no shortage or excess). In the Canadian health care marketplace, such adjustment is impossible because of restrictions on both the prices and supply of medical services. The optimal solution to Canada's shortage is obviously to remove restrictions on training, practice, and pricing, and to introduce user charges. This would increase the supply of services while simultaneously encouraging more informed use of medical practitioners' time (thus reducing the demand for treatment overall and improving the allocation of physician manpower and effort). Such a change in policy would bring Canada more in line with some of the world's top-performing universal access health care programs (Esmail and Walker, 2008). Unfortunately for Canadians, the introduction of user fees and extra billing are not permitted under the current federal legislation guiding Medicare. The analysis here takes the current legislation as given and discusses only the supply of physicians.

References

- Association of Faculties of Medicine of Canada [AFMC] (2010). *Canadian Medical Education Statistics 2010*. <www.afmc.ca>, as of January 28, 2011.
- Barer, Morris L., and Greg L. Stoddart (1991). *Toward Integrated Medical Resource Policies for Canada*. Centre for Health Services and Policy Research, UBC.
- Barua, Bacchus, and Nadeem Esmail (2010). Spend More, Wait Less? *Fraser Forum* (February): 16-17, 26.
- Canadian Medical Association [CMA] (2010). *Percent Distribution of Physicians by Specialty and Age, Canada, 2010*. <www.cma.ca>, as of January 28, 2011.
- College of Family Physicians of Canada [CFPC] (2007, October 11). The College of Family Physicians of Canada Takes Action to Improve Access to Care for Patients in Canada. News Release. <www.cfpc.ca>, as of January 28, 2011.
- Esmail, Nadeem (2008). Canada's Physician Supply. *Fraser Forum* (November): 13-17.
- Esmail, Nadeem (2007). Demographics and Canada's Physician Supply. *Fraser Forum* (December/January): 16-19.
- Esmail, Nadeem (2006). *Canada's Physician Shortage: Effects, Projections, and Solutions*. Fraser Institute.
- Esmail, Nadeem (2003). Spend and Wait? *Fraser Forum* (March): 25-26.
- Esmail, Nadeem, and Michael Walker (2008). *How Good is Canadian Health Care? 2008 Report*. Fraser Institute.
- McArthur, William (1999a). The Doctor Shortage (Part 1). *Fraser Forum* (June):15-16, 18.
- McArthur, William (1999b). The Doctor Shortage (Part 2). *Fraser Forum* (July):20-21.
- Or, Zeynep (2001). *Exploring the Effects of Health Care on Mortality across OECD Countries*. Labour Market and Social Policy – Occasional Papers No. 46. OECD. <www.oecd.org>.
- Organisation for Economic Co-operation and Development [OECD] (2010). *OECD Health Data 2010*. Version 10/21/2010. CD-ROM. OECD.
- Organisation for Economic Co-operation and Development [OECD] (2008). *OECD Health Data 2008: Statistics and Indicators for 30 Countries*. Version 06/26/2008. CD-ROM.
- Ryten, Eva, A. Dianne Thurber, and Lynda Buske (1998). The Class of 1989 and Physician Supply in Canada. *Canadian Medical Association Journal* 158: 732-38.
- Starfield, Barbara, Leiyu Shi, Atul Grover, and James Minko (2005). The Effects of Specialist Supply on Populations' Health: Assessing the Evidence. *Health Affairs* (Web exclusive). www.healthaffairs.org, as of January 28, 2011.
- Statistics Canada (2010a, June 15). Canadian Community Health Survey. *The Daily*.
- Statistics Canada (2010b). *Population Projections for Canada, Provinces and Territories*. Catalog No. 91-520-X.
- Statistics Canada (2008, June 18). Canadian Community Health Survey. *The Daily*.
- Tyrrell, Lorne, and Dale Dauphinee (1999). *Task Force on Physician Supply in Canada*. Canadian Medical Forum Task Force on Physician Supply in Canada. <http://www.physicianhr.ca/reports/Physician-SupplyInCanada-Final1999.pdf>, as of January 28, 2011. ■