



CANADA'S PHYSICIAN SUPPLY

Doctor-to-population ratio will decline unless Canada becomes more reliant on foreign-trained physicians

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In recent years, Canadians have been paying a significant amount of attention to the supply of physicians in Canada. Reports and commentaries on the issue of physician supply appear regularly in the nation's news media, while studies on the issue have been produced by research organizations, professional associations, and government committees across the country. Most of these discussions and studies have come to the conclusion that there are too few physicians practicing in Canada today.

That conclusion is supported by the available evidence regarding Canadians' unmet health care needs and the relative supply of physicians in this country. For example, in 2007 slightly less than 1.7 million Canadians aged 12 or older reported being unable to find a regular physician (Statistics Canada, 2008). Similarly, a research poll completed in 2007 found that 14% of Canadians (approximately five million) were without a family doctor, more than 41% of whom (approximately two million) were unsuccessful in trying to find a family doctor (CFPC, 2007).

UPDATE

In 2013, Canada's physician to population ratio was 2.6 per 1,000 population, ranking Canada 24th among the 28 countries included in Table 1. Canada's rank does not change after adjusting data for age.

Source: OECD 2015, calculations by Bacchus Barua

Table 1: Age-adjusted comparison of physicians per 1,000 population for select OECD countries, 2006

Rank of 28	Country	
1	Iceland	4.5
2	Greece (2005)	4.4
3	Netherlands	4.0
4	Czech Republic	3.8
4	Norway	3.8
6	Belgium	3.7
6	Ireland	3.7
6	Slovak Republic (2004)	3.7
6	Switzerland	3.7
10	Denmark (2004)	3.6
11	Austria	3.4
11	Spain	3.4
13	France	3.2
13	Sweden (2005)	3.2
15	Australia (2005)	3.1
15	Italy	3.1
15	Germany	3.1
18	Portugal (2005)	3.0
19	Hungary	2.9
19	Luxembourg	2.9
21	New Zealand	2.7
22	Finland	2.6
23	Korea	2.4
23	Poland	2.4
23	United Kingdom	2.4
26	Canada	2.3
27	Japan	1.7
28	Turkey	1.6

Note: Figure for Turkey was not age adjusted due to a low 65+ population not conducive to meaningful adjustment.
Sources: OECD (2008); Esmail and Walker (2007); calculations by author.

Further, after accounting for the fact that most other developed nations have a greater proportion of seniors (aged 65 and older), and thus a greater demand for health care services (nations with younger populations naturally require fewer health services),¹ 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 (table 1) (OECD, 2008; Esmail and Walker, 2007; calculations by author).

These facts, when combined with evidence that increased spending on physicians has been related to reduced wait times for treatment in Canada (Esmail, 2003), clearly suggest that the supply of physician services in Canada is not meeting the demand.

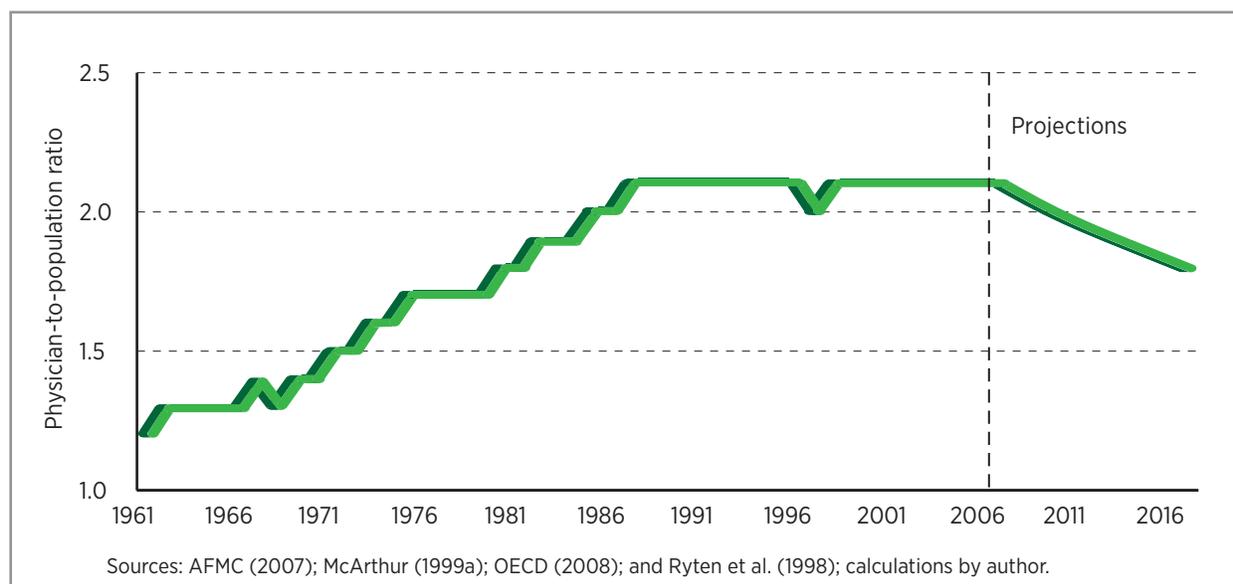
This article seeks to add to the current understanding of Canada's physician shortage and show how

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 (OECD, 2008). Such generous relative access to doctors was, in light of recent evidence, unquestionably beneficial for Canadians. Unfortunately, in the early to mid-1980s some government officials voiced concern about the generous and 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 were reduced slightly in the years that followed (Tyrrell and Dauphinee, 1999; Ryten et al., 1998).

Figure 1: Canadian physician-to-population ratio, 1961 to 2017



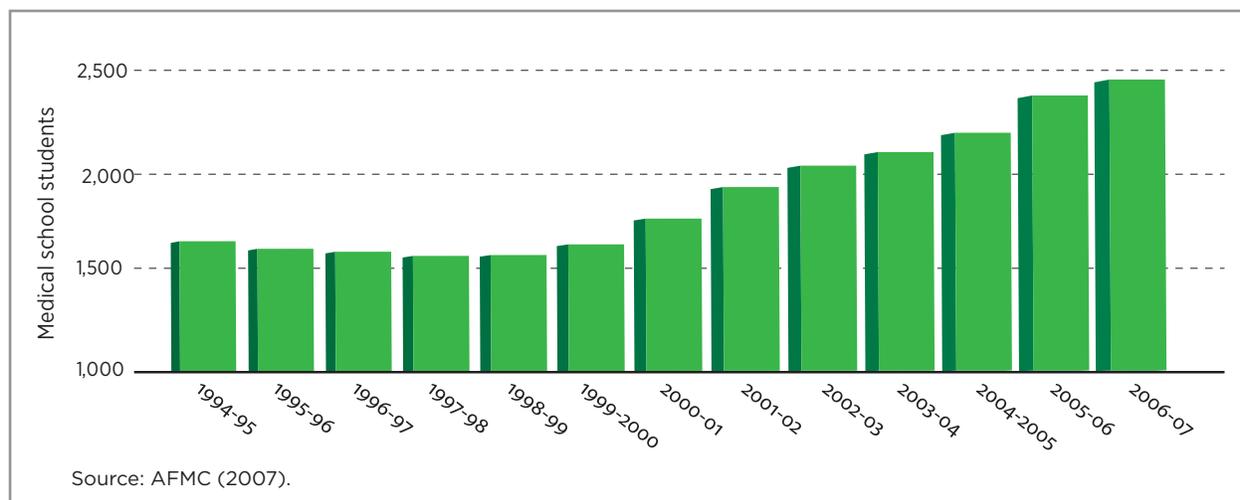
In the early 1990s, however, specific policies on physician supply were introduced following the publication of what has come to be known as the Barer-Stoddart report. In 1991, researchers Morris L. Barer and Greg L. Stoddart published a discussion paper for the Federal/Provincial/Territorial Conference 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 continuously from the early 1960s to the late 1980s, peaking in 1993 at 2.1 physicians per 1,000 people. (The projections included in this figure will be discussed later in this article.) Since then, Canada's physician supply has been growing just fast enough to maintain a ratio of 2.1 physicians per 1,000 people (except in 1997, when the ratio fell to 2.0), now one of the lowest ratios among nations that guarantee their citizens access to health care insurance regardless of ability to pay (table 1). In other words, Canada's policies have restricted the growth rate of the physician-to-population ratio in order to maintain 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.

The potential health benefits associated with having a higher physician-to-population ratio (see, for example, Or, 2001, and Starfield et al.,

Figure 2: First-year enrollment in Canadian faculties of medicine, 1994-95 to 2006-07



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 significantly over the last six or seven 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

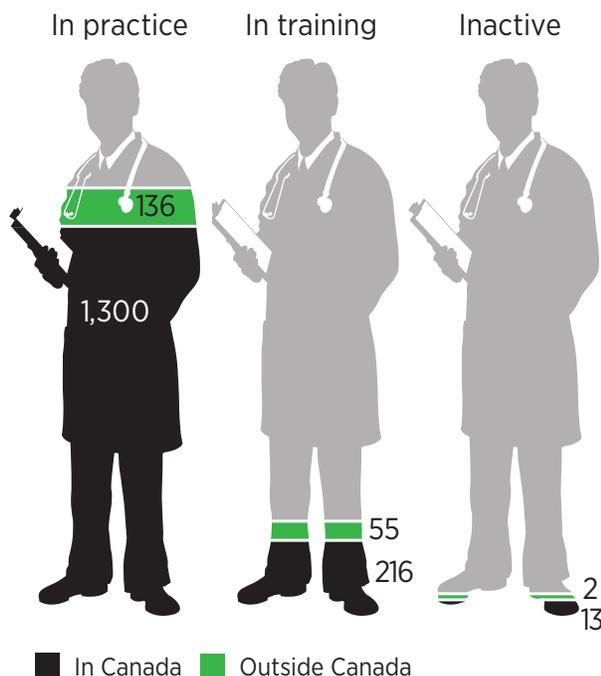
the number of physicians entering the workforce over the next seven to 10 years (the amount of time it will take for these students to become practicing doctors in Canada). It is also important to consider what will happen to the physician supply over that time in order to better understand the impact that government controls have had on medical school admissions and post-graduate training during the late 1990s and the early part of this decade.

GRADUATION RATES AND PHYSICIAN SUPPLY TO 2017

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 published in the *Canadian Medical Association Journal* sheds some light on both issues.

In early 1996, Ryten et al. followed up with 1,722 medical school graduates (from an entry class of approximately 1,780) 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 seven

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



Source: Ryten et al. (1998).

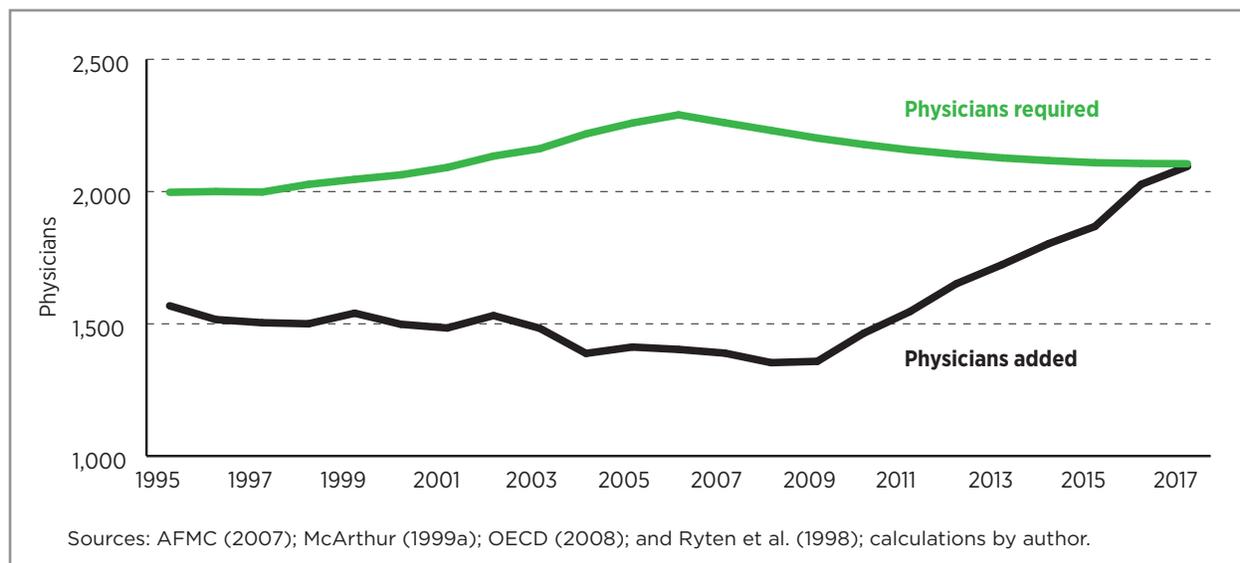
years after graduation. A further 216 were still training to practice in Canada, while 13 students remained in Canada but were not in active practice. Meanwhile, 193 had left the country (figure 3). In total, only 88% of those who graduated in 1989 were practicing or training to practice as Canadian 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 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), 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

Figure 4: New Canadian-graduated doctors in practice compared to the number of new doctors required to maintain physician-to-population ratio, 1995 to 2017



will be entering the workforce up to 2017.² As figure 4 shows, if 88% of medical school graduates are part of Canada's physician supply seven years after graduation, and if only 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 only 2,095 Canadian-trained students will be added to the physician supply in 2017.

Figure 4 also shows the number of new physicians required to maintain the physician-to-population ratio. This number exceeds the number of Canadian-trained physicians entering the workforce every year through 2017, though this difference is small in 2017. 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 3.3% 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).³ It also assumes that only Canadian-trained doctors will be added to the physician supply between 2006 and 2017.⁴

This replacement rate is a conservative estimate: at present approximately 35.9% of Canada's physicians are aged 55 or older (CMA, 2008), 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 (see, for example, Esmail, 2007). Furthermore, this is only the number of new physicians required to *maintain* the stock of physicians, which is clearly insufficient Canada's physician supply to meet current demand and will fall well short of demand in the future given that Canada's health needs will increase as our population ages.

Making one additional assumption—that the Canadian population will continue to increase at its average growth rate since 1990 (-1.0%)—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 2017,⁵ just as it would have through the 1990s if foreign physicians had not been used to make up for the shortfall caused by insufficient medical school admissions.

CONCLUSION

The current physician supply in Canada is clearly insufficient to meet the demand for physician care under the present structure of Medicare,⁶ 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 are unable to access medical training in this country. 



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NOTES

- 1 The methodology used for age-adjustment here is that employed by Esmail and Walker (2007).
- 2 This estimate uses graduation rates for students awarded M.D.s between 2000 and 2007 (who, between 2007 and 2014 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 2004/2005 and 2006/2007 who will, in general, be at the same point in their medical careers between 2015 and 2017 as the students studied by Ryten et al. were in 1996 after graduating in 1989. All graduation and enrollment rates are from AFMC (2007).
- 3 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.
- 4 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.
- 5 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 2006 and 2017.
- 6 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, 2007). 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.

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