



# MEDICARE, THE MEDICAL BRAIN DRAIN AND HUMAN RESOURCE SHORTAGES IN HEALTH CARE



**BRETT J. SKINNER**

AIMS Health Care Reform  
Background Paper #7

December 2002

## **Atlantic Institute for Market Studies**

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Brett J. Skinner

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## ABOUT THE AUTHOR

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## EXECUTIVE SUMMARY

The design of medicare as a monopoly provider of publicly-financed health insurance and as a coercive regulator of the health services industry creates incentives to exploit the labour services of medical professionals in order to contain costs. This exploitation is apparent in the artificial suppression of wages paid to health professionals relative to what they could earn in a free market.

The wage differentials between Canadian and American health professionals create a powerful incentive for Canadian medical personnel to immigrate to the US. As a result, there has been a net migration loss of Canadian doctors and nurses caused by the exploitative nature of medicare.

The continuing loss of our doctors and nurses is contributing to a labour shortage in our health care system and reductions in public access to health services that may be negatively affecting health outcomes. Moreover, the limitations of public spending are making it obvious that a centrally planned medical system is unable to provide the same opportunities and rewards for doctors and nurses as a more market-oriented system. As Canadian medical professionals begin to realize the degree to which the public health care monopoly exploits their services and suppresses their earnings, the more likely it is that they will leave this country for the US.

Some degree of privatization in health care is becoming imperative in order to ensure that the medical system will have adequate supplies of highly skilled professionals to provide for the health and well-being of Canadians. Only the private sector can provide the new financial and capital resources necessary to compete for human resources in health care.

The future recruitment and retention of health professionals at acceptable levels of competence requires the gradual restoration of market pricing for health care services and the introduction of consumer co-payment mechanisms to control demand for publicly insured services. These goals can be accomplished while maintaining universal access to medically necessary services by targeting public subsidies toward low-income people.





# SECTION 1

## INTRODUCTION

If specific employment groups are studied apart from the aggregate migration statistics, a convincing picture emerges of a net loss of human capital among certain key occupations in Canada. Two of the most obvious and important groups of highly skilled professionals to emerge from this analysis are medical doctors and nurses. This trend can be dubbed the “medical brain drain.” But, what is the scope and significance of the medical brain drain for public policy makers?

This question will be answered initially by looking at the absolute numbers of immigrants and emigrants over the period 1990 to 2001 for two important health occupations in Canada: doctors and nurses. To be more specific, doctors will include both general practitioners – family doctors – and specialists. Nurses will be defined to include Registered Nurses only due to their higher educational and skill requirements relative to Registered/Licensed Practical Nurses or Nurse Assistants.

This focus is justifiable because it seems obvious that any decline in the labor supply among doctors and nurses is bound to have a significant impact on health care delivery. As highly skilled front-line health service providers, these professionals are vital to the health care system and cannot be easily replaced. The purpose of the comparison between numbers of immigrants and emigrants is that this calculation will provide an estimate of the net balance for Canada of international human capital flows among these occupations. However, there are important considerations that must be taken into account when analyzing the scope of any migration trends among health care professionals in Canada.

One is the qualitative characteristic of recent migration trends. This will be examined by looking at the numbers of immigrants and emigrants among two of the most important health occupations in Canada over the period of the last decade. In order to maintain comparability, these figures will be adjusted to compare only equally qualified migrants as determined by existing Canadian certification standards. According to the Canadian Medical Association (CMA):

“In most fields, highly qualified immigrants from other parts of the world compensate for the loss of professionals to the US. Immigrants with doctorates in chemistry, physics or engineering, or managers with MBAs, can enter Canada with little difficulty and dive into the employment pool as soon as they arrive. But physicians trained in foreign medical schools face the hurdle of Canadian qualifying examinations. Since only 21% of foreign medical graduates pass these exams on their first attempt, compared with 95% of



Canadian-trained graduates... (health-care professionals) are reluctant to fling open the doors to them.”<sup>1</sup>

Therefore, a qualitative adjustment for physician migration statistics will be made on the basis of recognized standards for practice among physicians in those years for which data is available. Quality adjusted data is not available for nurses.

Yet a simple calculation of quality-adjusted migration flows does not itself explain the significance of the medical brain drain for Canadians. If Canada is experiencing a net loss of its health professionals from migration, why is it important? Part of the answer to this question lies with the fact that there are broad macro-economic factors to consider in relation to a potential brain drain in health care. When Canadian-trained health care professionals emigrate, the public investment made in educating and training them becomes a de-facto subsidy to the receiving country’s health care industry. Taxpayer-subsidized education also represents an investment of social capital that is wasted when these professionals leave for other destinations. In fact, even the privately paid costs of higher education become wasted capital when not employed in the domestic market. Finally, the value of the human capital contained in the skilled services rendered by health professionals is equal to their incomes, or the price that Canadians are willing to pay for these services. One may even make the argument that the real value of their services should be considered equal to the income they will receive in the country they immigrate to. In the case of Canadians moving to the US, this could dramatically increase estimates of the economic value of human capital losses from their migration south of the border.

It is also important to consider how persistent and continual losses of highly trained medical personnel might affect the quality and accessibility of health care for Canadians. A shortage of equally qualified immigrants to replace the perennial outflows of Canadian-trained professionals could negatively affect the quality and accessibility of health care services for Canadians.

Empirical evidence indicates that human resource shortages are already a serious problem in the Canadian health care system. According to an issue survey paper released by the Romanow Commission on the Future of Health Care in Canada, “Two years ago, Halifax’s Capital District Health Authority announced that it urgently needed 175 more nurses to meet the demands in its hospitals. It also cancelled a successful liver-transplant program because there were no surgeons to do the operations. Similar tales are heard across the country.”<sup>2</sup> A survey of the literature confirms that shortages of medical professionals are not limited to specific regions of the country. A case in point is Windsor, Ontario. The Windsor region is experiencing serious and long-term shortages and its unique location on the US border makes it a good laboratory for the study of cross-border labour flows among health professionals.

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<sup>1</sup> C. Gray. 1999. How bad is the brain drain. *Canadian Medical Association Journal (CMAJ)*. Oct. 19 161: 1028-9.

<sup>2</sup> R. Romanow. 2002. *Health Human Resources in Canada’s Healthcare System*. Commission on the Future of Health Care in Canada.

Anecdotal evidence from this region will be discussed to provide insights into the linkages between the medical brain drain and human resource shortages in health care.

But will shortages of health professionals necessarily affect the overall health of people who live in underserved regions? As one way to answer this question, this study hypothesizes that health outcomes could be affected by a lack of early diagnosis and treatment for diseases that respond to early medical intervention. Furthermore, early diagnosis and treatment depends on timely access to primary care doctors.

In order to test this hypothesis, a statistical analysis will be performed on recent national data from all of Canada's health districts comparing various health indicators and the number of doctors per population for possible correlations. In this test, a large number of variables will be considered and controlled for. The working hypothesis is that, in the case of diseases like heart disease, for which early diagnosis and treatment can be a major factor in lowering death rates, the actual death rates are negatively correlated to the level of access to medical doctors in a region. That is, as the level of access to doctors *decreases*, the rate of death from these diseases *increases*. Primary care access to general practitioners (GPs) or family practitioners (FPs) is considered especially important in this regard.

In order to prescribe public policy solutions, this study intends to discover the factors that influence health care professionals to leave from, remain in, or return to Canada. This study speculates that the reasons professionals emigrate from Canada may be related to the same factors that are discouraging graduates from seeking entry into health care occupations. These reasons are largely economic in nature. In order to discover the factors influencing international migration, a summary of the current consensus regarding the suspected causes of the medical brain drain in Canada will be provided. This will include recent studies that have been conducted to look at the factors affecting emigration trends among nurses and doctors in particular. This study will discuss the results of my own qualitative research into this question as it applies to medical doctors and nurses in Windsor and Essex County.

Finally, various policy solutions to the problem of the brain drain as it relates to health care professionals in Canada will be considered. The primary focus of these policies will be to address the economic factors that draw health professionals away from Canada. However, this section will also include a brief discussion of the ethical or moral considerations associated with various policy choices.



## SECTION 2

# QUANTIFYING THE MEDICAL BRAIN DRAIN

In order to draw objective conclusions about the nature and scope of the brain drain among health care professionals, this study will first look at the data in terms of the net balance of immigrants versus emigrants in specific occupational categories, namely medical doctors and nurses. These specific groups represent highly skilled and educated front-line service providers who are not easily replaced. Any significant net loss or gain in their numbers will significantly affect the delivery of health care services.

This first stage of quantification will use only the absolute numbers of immigrants and emigrants with no adjustment for qualitative differences. This raw calculation will be made in the context of global migration to and from Canada. The argument of some researchers that the bilateral flow of migrants between Canada and the US is irrelevant seems valid only as long as qualitative differences and economic costs are comparable between all immigrants and emigrants. Once the raw numbers of immigrants versus emigrants are tabulated, these will be adjusted to account for comparability of qualifications between Canadian and foreign-trained health professionals.

Once recent trends in the migration of health professionals are placed in the global context, they will also be looked at relative to the history of these human capital flows in Canada since 1990. Placing the data in this context and correlating variances with past events may help to determine whether recent trends are being influenced by factors that are beyond the policy effectiveness of government. Specifically, the effect of liberalized labour mobility provisions implemented under the North America Free Trade Agreement (NAFTA) in 1993 will be looked at.

## SECTION 3

# THE SCOPE OF RECENT MIGRATION TRENDS AMONG HEALTH PROFESSIONALS

The recent debate over the brain drain in Canada surfaced because of the popular perception throughout much of the 1990s that large numbers of skilled professionals were suddenly moving to the US. However, aggregate migration statistics show that Canada has consistently drawn far more highly skilled and educated immigrants than it loses through emigration. In general, if only absolute numbers of immigrants versus emigrants is considered, Canada is actually enjoying a brain gain instead of a brain drain.

However, this is not the case among health care professionals as a group. Consequently, in order to understand the scope of migration flows among health professionals, it is good to begin with the absolute numbers comparison between immigrants and emigrants. However, the matter is complicated by the fact that there are questions about which type of data is an accurate source for estimating the net balance of migration. For instance, it is true that the vast majority of emigrant health professionals migrate to the US. Few, if any, of these professionals move to other international destinations. This fact only slightly simplifies the comparison of immigration and emigration because emigration to the US must include not only those health professionals officially admitted as permanent residents, but also those who are admitted under employment preferences provisions.

Under the 1988 Canada-US Free Trade Agreement (FTA) and NAFTA in 1993, immigration rules between the two countries were relaxed for highly skilled and educated migrants. These migrant professionals can gain temporary (often semi-permanent) employment and residency status in the other FTA/NAFTA countries. In the US, these entries are referred to as TN visa immigrants. Therefore, for the purposes of estimating any medical brain drain, total emigration from Canada must include both those granted permanent resident status and those granted TN visas.

On the other side of the ledger, counting only landed immigrants understates the yearly inflow of health professionals to Canada. In addition to these foreign migrants, brain drain researchers must also include those Canadian health professionals who have returned from abroad.

Finally, the best way to analyze this data is to break it down between medical doctors and registered nurses.

Table 1 shows a comparison between total immigration and total emigration with breakdowns for the number of permanent residents admitted to the US and Canadian physicians returning to Canada between 1990 and 2001. Canadian Institute for Health Information (CIHI) data includes counts of all emigration among physicians from Canada as recorded on the Southam Medical Database (SMD).

**Table 1. Net Migration of Physicians in Canada, 1990-2001, Raw Data<sup>3</sup>**

Year	(1) Number of Active Canadian Doctors Admitted as Permanent Residents to the USA	(2) Total Emigration of Active Canadian Doctors	(3) Total Immigration of Doctors to Canada	(4) Number of Canadian Doctors Returning from Abroad	(5) = (2) + (3) + (4) Net Loss/Gain of Physicians to/from Canada
1990	-157	-478	445	263	234
1991	-192	-479	487	256	264
1992	-240	-689	462	259	32
1993	-314	-635	525	278	168
1994	-319	-777	351	296	-130
1995	-348	-674	313	256	-105
1996	-522	-731	339	218	-174
1997	-398	-658	272	227	-159
1998	N/A	-568	258	319	9
1999	N/A	-584	243	340	-1
2000	N/A	-420	N/A	256	N/A
2001	N/A	-609	N/A	334	N/A

Data Sources: CIHI

Notes: Total immigration to Canada includes all foreign-trained doctors regardless of qualifications to meet Canadian certification standards. Data in columns 1, 2 and 4 does not include interns and residents.

<sup>3</sup> Canadian Institute for Health Information (CIHI), Southam Medical Database (SMD). 1997. *International and Interprovincial Migration of Physicians Canada, 1970-1995*; 2000. *Supply, Distribution and Migration of Canadian Physicians, 1996-1999*. Benjamin T. B. Chan. 2001. *From Perceived Surplus to Perceived Shortage: What Happened to Canada's Physician Workforce in the 1990s?*

It is noteworthy that when the data are compared, the number of total emigrants reported by CIHI exceeds the number of permanent residents accepted to the US by a significant margin. As mentioned earlier, it is reasonable to assume that emigrating doctors are almost exclusively leaving for the US. This may mean therefore, that many emigrant doctors (approximately equal to the difference between permanent residents and CIHI data for total emigrants) are likely in the US under the TN visas allowed under the FTA.<sup>4</sup> This conclusion would support the arguments of Iqbal (1999), that TN visas are becoming alternate routes to achieving permanent residency.<sup>5</sup>

As the table indicates, total emigration among physicians from Canada peaked in 1994 at 777. After 1994, total emigration moved up and down but remained high overall. The latest data for 2001 puts annual emigration among physicians at 609. The total number of doctors who left Canada during the period 1990-2001 is 6,776. The table also shows data for total immigration to Canada. Looking at the numbers of immigrant physicians coming to Canada throughout the 1990s, an upward trend emerges in the early part of the decade. This reached a peak in 1993 at 525 immigrant physicians. Thereafter, annual immigration to Canada among physicians declined dramatically, reaching a decade low total of 243 in 1999, the last year for which data was available.

If one were to calculate the net balance of the human capital flow among doctors from the raw immigration and emigration figures alone, Canada would show a significant net loss in every year. The greatest annual net loss occurred during 1994. In this year, emigrants outnumbered immigrants 777 to 351 for a net loss of 426 physicians.

However, comparing the numbers of emigrants and immigrants does not capture the whole picture of migration among health professionals. The data for total immigration includes all foreign doctors immigrating to Canada but does not include Canadian nationals resident in other countries who returned from abroad. It seems reasonable that returning Canadian doctors should be part of the calculation to give a proper net balance of migration in absolute terms.

Once Canadian doctors returning from abroad are included, the magnitude of the loss changes significantly. The previous peak net loss of 426 in 1994 is reduced to only 130. In fact, the declining number of immigrant doctors after 1994 is countered by the increasing number of returning Canadian doctors. The increase in those returning from abroad also exacerbates the effect on the balance of migration caused by declining numbers of emigrant doctors. The result is a declining net loss of doctors and specialists after the peak in 1994. In fact, according to this calculation, by 1998 Canada actually experienced a net brain gain of nine physicians. This gain changed to a loss again in 1999.

Merely including those Canadian doctors who returned to Canada does not give a complete understanding of the scope of migration trends over the last decade. In order to reach a final, accurate conclusion about whether recent trends indicate that there is a medical brain drain or brain gain among doc-

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<sup>4</sup> J. Simpson. 2000. *Star-Spangled Canadians*. Toronto: Harper-Collins. 146.

<sup>5</sup> M. Iqbal. 1999. Are We Losing Our Minds? *Policy Options*. Institute for Research on Public Policy September: 35-36.





tors, adjustments must be made to include only comparable data. That is, only equally qualified migrants should be counted. The requirement for equal qualifications is justifiable because, according to the CMA, only 21 per cent of foreign-trained graduates are able to pass Canadian qualifying exams on their first attempt. For Canadian-trained graduates, the corresponding figure is 95 per cent.<sup>6</sup> Therefore, counting raw immigration data toward the final calculation of the net flow of doctors in Canada is going to overstate the replacement effect of these immigrants. To be accurate, we must only count those immigrants who can *immediately* replace the doctors who leave. Table 2 below contains this comparable data.

**Table 2. Net Migration of Physicians in Canada, 1990-99, Adjusted for Comparable Qualifications of Migrants<sup>7</sup>**

Year	(1) Total Emigration from Canada	(2) Total Immigration to Canada of Doctors with Arranged Employment	(3) Total Number of Canadian Emigrants Returning from Abroad	(1) + (2) + (3) = Net Loss/Gain of Physicians to/from Canada
1990	-478	*107	263	-108
1991	-479	123	256	-100
1992	-689	158	259	-272
1993	-635	184	278	-173
1994	-777	98	296	-383
1995	-674	93	256	-325
1996	-731	61	218	-452
1997	-658	57	227	-374
1998	-568	125	319	-124
1999	-584	67	340	-177
2000	-420	N/A, est. based on change IMG data = 45	256	N/A, est. = -119
2001	-609	N/A, est. based on change IMG data = 45	334	N/A, est. = -230
Totals	-7,302	1,163	3,302	-2,837

Data Sources: CIHI. Notes: \*Total immigration to Canada is based on the assumption that foreign-trained doctors arriving without arranged employment are unlikely to have the qualifications to meet Canadian certification standards immediately. Data does not include interns and residents. Estimates for missing data are provided.

<sup>6</sup> Gray 1999.

<sup>7</sup> CIHI SMD. 1997. *International and Interprovincial Migration of Physicians Canada, 1970-1995; 2000. Supply Distribution and Migration of Canadian Physicians, 1996-1999.*



One way to obtain comparable data for foreign-trained immigrants is to count only those who arrive in Canada with arranged employment. CIHI has formerly published data on this type of immigration. It should be noted that this approach assumes that those immigrants arriving in Canada without arranged employment do not have the qualifications to meet Canadian certification standards. Another assumption, of course, is that all emigrants from Canada are qualified to meet Canadian medical standards because they were active when they left.

In any case, the annual average number of immigrants with arranged employment as a percentage of the average total annual number of immigrant doctors for the five most recent years of available data spanning 1995-1999 is 20.9 per cent, approximately equal to the 21 per cent figure cited by CMA of those foreign-trained graduates who pass Canadian qualifying exams on their first attempt. (The percentage for the entire period of the 1990s is actually closer to 28 per cent.) It is unclear if the CMA's 21 per cent figure is calculated from the CIHI data as well. If not, then it would seem that the coincidence in the two numbers helps to confirm the validity of using the data for those with arranged employment to estimate the number of immigrants who meet Canadian certification standards.

Table 2 compares the numbers of immigrant and emigrant doctors in Canada with adjustments made for equal qualifications. This new calculation of the net balance of migration among doctors shows a much more drastic loss of human capital than the unadjusted calculation. In summary, the total scope of the brain drain among doctors for the period 1990-99 was a net loss of 2,488 Canadian physicians.

While data on doctors arriving with pre-arranged employment was not available for the years 2000-01, data on international medical graduates (IMGs) entering the workforce in Canada indicates that the number of foreign-trained doctors becoming actively employed has consistently and dramatically declined since 1998.<sup>8</sup> The reason that IMG data is not a good approximation of equally qualified immigrants is that it contains entries for those doctors who have entered Canada in previous years and may count Canadians who went outside Canada for their training and returned from abroad to complete medical residencies. Therefore, IMG data risks double counting if substituted for data on pre-arranged employment status. However, if the entries with pre-arranged employment figures are projected to change in similar proportion as changes to IMG data, the total net loss of doctors from Canada between 1990 and 2001 equals 2,837.

It should also be noted that while unadjusted physician-to-population ratios seemed to improve through the 1990s, the real ratio of doctors to population actually declined once considerations for an aging population and the gender composition of the physician workforce are incorporated into the calculations. According to a report by CIHI in 2001, after taking into account the fact that the population is aging and growing in size (and the elderly use more services) while the physician workforce has

<sup>8</sup> Benjamin T.B. Chan. 2001. *From perceived surplus to perceived shortage: What happened to Canada's physician workforce in the 1990s?* (CIHI).



more women and elderly physicians, who tend to work less, the supply of doctors rose steadily in the 1980s, peaked in 1993 and fell thereafter.

In fact, physician supply in 2000 was 5.1 per cent below its peak in 1993 and at the same level as 1987. Furthermore, accounting for aging of the population and changes in physician demographics makes the physician-to-population ratio appear not to grow as quickly even during the 1980s. For example, the unadjusted ratio rose by 27 per cent from 1981 to 1993. Adjusting for population aging decreased this growth rate to 21 per cent. After further adjusting for physician workforce changes, this growth rate was 17 per cent. Furthermore, the post-1997 rebound in the unadjusted physician supply changed into a slight decline in the adjusted analysis. The real physician-to-population ratio was 185 physicians per 100,000 population in 2000. This was equivalent to the level in 1987 and represented a 5.1 per cent decline from the 1993 peak.<sup>9</sup>

The scope of migration trends for nurses from 1990 to 2001 is somewhat harder to tabulate than for doctors. This is because the data for emigration understates the total number of nurses leaving Canada and the data for immigration is probably inaccurate as well. First, the only available emigration data my research turned up was based solely on statistics supplied by US Immigration and Naturalization Service (INS) and published by CIHI, Statistics Canada and the Canadian Nurses Association (CNA). The problem is that this data only counts the number of nurses admitted as permanent residents to the US. Basing emigration estimates on this data will naturally understate the total actual numbers of nurses leaving Canada because, for nurses as for doctors, the TN visa is becoming a preferred means of gaining quasi-permanent admission to the USA.<sup>10</sup> Therefore, without knowing the total number of nurses admitted under both the permanent resident and TN visa classes, an accurate count of total emigration cannot be made.

Second, the data for immigration is probably significantly inaccurate as well because the figures do not count the numbers of nurses who return to Canada from other jurisdictions. Furthermore, the data is not adjusted to count only those immigrants who have arranged employment on arrival. Adjusting this data allows for comparability between the qualifications of immigrants and emigrants when calculating net migration flows. This was one way of determining whether immigrant doctors as qualified as Canadian-trained physicians.

However, in his book on the general issue of the brain drain, Jeffrey Simpson does include data on the number of requests by Canadian nurses for verification of credentials. As he states, these figures may be closer to the actual scope of the medical brain drain as the only reason for such requests is to prepare for employment in the US.<sup>11</sup> Therefore, Table 3 below shows both the number of Canadian nurses

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<sup>9</sup> Chan 2001.

<sup>10</sup> D. DeVoretz and S. Laryea. 1998. *Canadian human capital transfers: The USA and beyond*. RIIM Working Paper Series 98-18: October.

<sup>11</sup> Simpson 2000.

granted permanent resident status in the USA and the number of Canadian nurses requesting verification of credentials. It is assumed that the latter figure may include some of the nurses in the former category.

**Table 3. Potential Net Migration of Nurses in Canada, 1990-2001**

Year	(1) Total Requests for Verification of Credentials <sup>12</sup>	(2) Number Admitted to the US as Permanent Residents <sup>13</sup>	(1) - (2) = Estimated Number of TN Visa Nurses in US	(3) Total Raw Immigration Excluding Returning Canadians <sup>14</sup>	(2) - (3) = Estimated Net Minimum Loss/Gain of Nurses	(1) - (3) = Estimated Net Potential Loss/Gain of Nurses
1990	-1639	-[373]	1266	[1,270]	897	-369
1991	-1931	-[531]	1400	[1,163]	632	-768
1992	-4833	-704	4129	[1,012]	308	-3,821
1993	-2124	-971	1153	[872]	-99	-1,252
1994	-4097	-1068	3029	[827]	-241	-3,270
1995	-4260	-881	3379	[634]	-247	-3,626
1996	-5433	-1103	4330	[421]	-682	-5,012
1997	-4789	-545	4244	**528	-17	-4,261
1998	-3638*	-772*	2926	**528	-244	-3,110
1999	-3638*	-772*	2926	**528	-244	-3,110
2000	-3638*	-772*	2926	**528	-244	-3,110
2001	-3638*	-772*	2926	**528	-244	-3,110
Totals	-43,658	-9264	34,394	8,839	-425	-34,819

Data sources: US INS, CIHI, Statistics Canada, CNA.

Notes: CIHI data is used first unless there is not data available.

\*Average of available years.

\*\*Average of recent trend based on nearest two years. Statistics Canada data in square brackets.

<sup>12</sup> Simpson 2000.

<sup>13</sup> Statistics Canada data for 1990-91, from a report entitled *Brain Drain or Brain Gain? What do the data say?* October 1, 1998. CIHI data is used for 1992-97, from CIHI, SMD. 2000. *Supply Distribution and Migration of Canadian Physicians*, 1996-1999.

<sup>14</sup> CIHI, SMD. 2000.



As with doctors, the difference between the number of nurses requesting verification of credentials and the number gaining permanent resident status may approximate the number of nurses entering the US with the TN visas. In any case, the number of requests for the verification of credentials does, at least, indicate the *potential* for a brain drain among nurses during the 1990s. It also most certainly estimates the actual *demand* to emigrate.

The data from Table 3 produces an overall estimate of the *potential* scope of the brain drain among Canadian nurses through the period of the 1990s. The estimated total net *potential* loss of nurses from Canada during this period of ten years could have reached over 28,000. Without any published data on the actual numbers, this is the best estimate that can be produced for the worst-case scenario of a brain drain among nurses during this period.

In any case, given the strict government controls on health spending across Canada during this period, it does not seem unreasonable to use these requests for verification of credentials to estimate the total level of emigration during this period. There were few jobs available for nursing graduates during the 1990s and most of these were part-time or casual work. In fact, this figure seems to fit quite well with the anecdotal evidence from my qualitative research in the Windsor, Ontario area. This research found that US health organizations employ aggressive recruitment campaigns to attract Canadian nurses to dozens of large American states. This finding tends to confirm the larger estimates, especially if similar recruitment efforts were occurring in the rest of the country as well.

## SECTION 4

# THE ECONOMIC COSTS OF THE MEDICAL BRAIN DRAIN

When the term “human capital” is used in reference to international migration flows among health professionals, it indicates the inherent economic value of the services rendered by doctors and nurses. The price paid by health care consumers for the services of doctors and nurses represents the value of these services to our economy in the same way that the value of automobile production is quantified by summing all the money spent to purchase cars in Canada.

In Canada, health care consumers only pay doctors and nurses indirectly; that is, Canadians are taxed to support health care. Professionals, for the most part, are then paid directly by the various institutions that are supported by these taxes. The simplest way to calculate the total economic value of the health care services provided in our economy by doctors and nurses is to find the aggregate sum of their incomes. This includes wages and salaries from intermediate institutions as well as fee-for-service work in clinical practice. The logic of this approach matches the reasoning used by economists to include the value of the services provided by self-employed professionals like lawyers in the calculation of Gross Domestic Product (GDP). Therefore, this monetization of the value of the services performed by health professionals is one way of describing their economic value.

Monetizing the value of the services provided by health professionals in this way helps to give a clearer understanding of the overall scope and significance of the net balance in international human capital flows. That is, in order to fully understand the total impact of any potential brain drain, the economic consequences and costs must be considered in addition to the overall net balance of immigrants versus emigrants.

However, there remains some difficulty in assigning values to the services provided by immigrants and emigrants. Immigrants, for example, offer their services in Canada. It is easy to total their incomes in terms of what they earn for their services in Canada. Therefore, the value of the health care services provided by them is equal to the price paid for those services in Canada. In the case of emigrants though, the circumstances are different. Emigrant health professionals offer their services in foreign markets. Therefore, it might be reasonable to value their services in term of the price they are paid in the market in which they practise. This is the same logic applied to the calculation of GDP for goods that are produced and consumed domestically versus those that are exported and consumed outside Canada.



The final value of the goods consumed domestically is equal to the price paid for them here while the final value of the goods that are exported is equal to the price paid for them in the foreign market.

However, this approach is problematic for the following reasons. First, using the different average incomes from the domestic and foreign markets is not exactly analogous to the valuation of goods used to calculate GDP. Because the Canadian health care system is not operating in a free market, Canadian incomes do not accurately reflect the value of the services provided here. The actual value of the services would be equal to the incomes that could be obtained in a free market for health care services. For the purposes of the comparative study of health care systems, the US comes closest to a free market in health care services and, therefore, should be the benchmark for the valuation of the services of health professionals.

Therefore, comparing the economic value of the services provided by immigrant health care professionals in terms of their average Canadian incomes to the average US incomes for emigrants is logically invalid. This methodology would underestimate the value of the services provided by doctors and nurses in Canada.<sup>15</sup>

However, it is unreasonable to say that doctors and nurses perform fewer procedures or see fewer patients than those in the US. Furthermore, it cannot be said that the quality of their skills is not equal to their American counterparts because Canadian-trained doctors and nurses are immediately accepted to the US on the basis of their Canadian credentials. Given that Canadian doctors and nurses produce as much in health services as their American counterparts, it seems that Canadian health professionals provide more bang for the buck than those south of the border because, the quantity of services being equal, Canadians are paid much lower incomes. Therefore, the Canadian health system receives far more in services than it actually pays for. The actual value of the savings to the system is equal to the difference between the incomes paid to health care professionals in the Canadian socialized system and those paid in the relatively freer American market.

However, it must be said that the savings to the system are brought about because the Canadian health care system uses its government-enforced monopoly over health care to exploit the services of doctors and nurses and suppress their wages. If the Canadian system were operating in a free market, these professionals would be paid based on the quality and quantity of the services they provided as measured by consumer demand for those services and their incomes would be an accurate measure of their economic value. The average incomes paid to health professionals in the US are a better approximation of what this economic value is, with the caveat that US doctors, like their Canadian counterparts, enjoy monopoly control over entry into their fields through medical practice licensing laws.

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<sup>15</sup> This caveat was pointed out to me by Ronald Meng, Department of Economics, University of Windsor.

Therefore, there are two ways to approach the quantification of the economic costs of the medical brain drain in Canada. One way is to look at the issue from the perspective of replacement costs.<sup>16</sup> This approach seeks to calculate the value of the net balance of migration in terms of what it costs the Canadian system (ultimately, taxpayers) to replace the services of doctors and nurses who leave the country. The replacement cost approach uses only the Canadian average incomes to measure emigration losses, as this is the cost to Canada of replacing these professionals.

Another way to view the issue is in terms of the actual value of the services being lost because of the brain drain, based on the understanding that the replacement costs do not account for the full value of the services rendered in health care. The Canadian system artificially suppresses the wages of health professionals by prohibiting a free market. Therefore, when Canadian doctors and nurses leave, the actual value of the services they take with them is a lot more than the average Canadian income would indicate. Therefore, the actual value approach uses the American average income as a benchmark to indicate the actual value of the services provided by health professionals (if they were in a free market) that is lost through emigration. While the US system is not a true free market in health care, it comes closest to approximating one for comparative purposes.

In order to place an economic value on the medical brain drain, the services of health professionals will be calculated first on the basis of the average incomes received in Canada. This will provide a total estimate of the replacement costs of the medical brain drain. This estimate will then be adjusted to account for the premium that is placed on the value of the services provided by those professionals who emigrate (almost exclusively to the US) compared to the value of compensation in the Canadian market. Equating the value of the human capital we lose through emigration to the price it can achieve on the open market provides an accurate estimate of the actual value of health services being lost on an annual basis. This two-pronged approach will form the first part of the calculation of the economic costs of the medical brain drain. The second part of the cost calculation will include not only the value of the services of immigrants and emigrants as defined by income, but also a number of less obvious economic considerations, including settlement costs and social capital.<sup>17</sup>

There are some costing concepts applied to other occupational groups that do not easily transfer to studies of human capital flows for health professionals. For instance, some studies refer to the costs of the value of services lost as “deadweight productivity costs.”<sup>18</sup> Deadweight productivity costs refer to performance efficiencies lost due to the adjustments immigrants must make to working in Canada because of language, cultural or technical obstacles that make them less productive than their Canadian-trained colleagues.

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<sup>16</sup> DeVoretz and Laryea 1998.

<sup>17</sup> DeVoretz and Laryea 1998.

<sup>18</sup> DeVoretz and Laryea 1998.





However, it is unclear how this concept could apply to health care professionals. The nature of health care practice is such that the productivity gap between immigrants and Canadian residents never exists in a way that can be measured. Any serious deficiency in productivity would result in an inability to become certified, as indicated by the CMA statistics cited earlier that show only 21 per cent of foreign-trained doctors pass Canadian certification on their first attempt versus 95 per cent for Canadian-trained MDs. This inability to practice leaves no way to compare the productivity of these immigrants to their Canadian colleagues, as their productivity is effectively equal to zero. Although it is reasonable to expect some degree of productivity loss even with new immigrants who can pass certification here, there is still no way to use relative incomes or earning power<sup>19</sup> to account for it.

This is because the earnings of health professionals are not significantly tied to proficiency in their field due to fixed pay schedules for doctors and collective agreements for nurses. Therefore, this study will not replicate this type of methodology to calculate productivity losses as it remains unclear how to apply the concept to comparisons between immigrant and Canadian health professionals. Instead, the approach used here seems to be a more complete and accurate way of accounting for the differences between the values of the health care services provided by immigrants versus emigrants.

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<sup>19</sup> DeVoretz and Laryea 1998. (51).



## SECTION 5

# REPLACEMENT COSTS VERSUS THE ACTUAL VALUE OF HEALTH SERVICES LOST

The way to account for the replacement costs of emigrants is simply to sum the average incomes they receive for their services in the Canadian health system. This indicates the value of the costs to replace them with immigrant doctors or new graduates. By multiplying this value times the number of emigrants, we arrive at a summation of the replacement costs of the brain drain.

According to CMA statistics, the average net earnings for Canadian physicians were \$105,200 (all figures in Canadian dollars except as indicated) per year in 1995.<sup>20</sup> This is the latest data available on the subject and so it will be used as a base figure for calculations. If this average figure for income is converted to current dollars (by adding two per cent inflation per year from 1995 to 2002 and assuming that physician incomes have not grown faster than inflation) and then multiplied by the net balance of migration for the period, we can calculate a rough estimate of the replacement costs associated with Canada's brain drain among doctors from 1990 to 2001. If the net loss of doctors is projected for the years 2000 to 2001 (for which data was not available), it would take over \$342 million per year in extra wage costs to replace the doctors lost from the brain drain between 1990 and 2001. This figure represents the annual economic value (under medicare's value for services) of the net loss of health care services formerly provided by the doctors who left during the 1990s.

These calculations can also be made for the migration of nurses although the data for actual emigration among nurses was not available for this study. Even so, as mentioned in the previous section on overall migration trends, the upper and lower ends of emigration can be estimated respectively from the total number of requests for verification of credentials and from the number of nurses granted permanent resident status in the US.

Prior to the implementation of NAFTA immigration provisions in 1993, immigration more than compensated for the loss of nurses from Canada. However, beginning in 1993 there is a definite trend toward emigrants exceeding immigrants.

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<sup>20</sup> Statistics Canada. 1996. Income Statistics Division, 1996 Census. Cited in *CMAJ* 2000 162: 860.



Using the median/average income of \$44,086 as calculated from data published by the Canadian Federation of Nurses Union for 2001,<sup>21</sup> (converting to current dollars at two per cent inflation) the minimum replacement costs, based on data for emigration taken from statistics on permanent residents only for the 1993-2001 period, total more than \$101 million annually. This figure represents the minimum value of the net loss of health care services formerly provided under medicare by the nurses who left during that period. If the upper end estimate is considered, the losses are much higher.

The upper end estimate, based on requests for the verification of credentials, shows that the replacement costs for the brain drain among nurses in the 1990s was much higher. Rough calculations show that for the period 1990 through 2001 this loss totaled over \$1.5 billion. This figure represents the maximum annual potential value of the net loss of health care services provided by the nurses who left during the 1990-2001 period.

As mentioned earlier in this study, many, maybe even most nurses enter the US under the temporary work provisions of NAFTA. Therefore, the data for permanent resident emigrants is probably much less than the actual numbers of nurses leaving Canada. Furthermore, the data for immigrants to Canada used in both tables is based on the assumption that all of these nurses can meet Canadian certification standards immediately. This may not actually be the case. On the other hand, returning Canadian nurses are not included and this omission contributes to an underestimation of the number of nurses entering Canada. In sum, the actual total replacement costs of the brain drain of nurses from Canada falls somewhere between these two estimates, but it might be speculated that it is closer to the upper end than to the lower.

There is an important theoretical caveat to calculating the replacement costs of the brain drain among nurses. Throughout most of the 1990s, it can be argued that there were no real replacement costs from nurses leaving Canada because in spite of the net balance of migration being negative, there was still a large surplus of nurses in the health care sector. That is, nurses were leaving because there were not jobs available for them here. Therefore, one can legitimately claim that the real replacement costs of this negative net migration were zero because these nurses were not needed in our health care system anyway.<sup>22</sup> However, given that demographic trends are creating a retirement bulge, the extent of the brain drain has apparently reached the point where the surplus of nurses experienced in the 1990s has now become a deficit. This situation gives more credibility to using replacement costs as one means of evaluating the economic costs of the brain drain among nurses.

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<sup>21</sup> Canadian Federation of Nurses Union. Website, June 2001.

<sup>22</sup> This caveat was pointed out to me by Ronald Meng, Department of Economics, University of Windsor.

## SECTION 6

# THE ACTUAL VALUE OF SERVICES LOST

Another way to value the net loss of medical professionals from the brain drain is to consider the value of the services they provide to the health care system. This approach uses the average incomes earned by doctors and nurses in a free market as a standard for the value of the services actually rendered by these professionals. Considering that doctors and nurses produce much more than they are paid for in the Canadian system due to their exploitation by the monopoly power of our socialized medical system, the market value of their services is better defined by the incomes they would receive in the US, the closest thing to a free market in health care that exists. Therefore, American incomes come closest to representing the actual value of the health services Canadians receive from doctors and nurses. This method can be applied to net migration flows in order to understand the economic costs of the medical brain drain from a different perspective.

From the qualitative research conducted for this study in the Windsor area, doctors consistently reported that they could routinely expect to receive a nominal income double that of their Canadian income if they moved to the US. This research focused on doctors in the Windsor area who had direct experience working in the US or knew someone who had done so. Add to this the exchange rate between the US and Canadian dollar and doctors' incomes are much higher in the relatively freer health care market of the US. The actual premium on US incomes for doctors is confirmed by data published by the CMA, which states that the 1993 average US income for doctors was equal to \$265,000 per year.<sup>23</sup> The American Medical Association (AMA) says the average income for US physicians (GPs and specialists combined) was US\$194,400 in 1998, down from US\$199,600 in 1997.<sup>24</sup>

This number comes very close to an estimate based on the findings of this study's interviews with doctors about their earning potential in the US. Taking the most recent published data from the AMA and converting to Canadian dollars at a conservative 40 per cent exchange rate puts the average annual income for a Canadian doctor practicing in the US at US\$194,400 plus 40 per cent equals \$272,160. Based on this conservative estimate, the total of the actual annual value of the services lost from the brain drain of Canadian doctors 1990 through 2001 is more than \$835 million in current dollars.

<sup>23</sup> V. Dirnfeld, 1998. *Canadian Physicians and the Brain Drain*. CMA website 2001.

<sup>24</sup> American Medical Association (AMA). 2002. *Physician Socioeconomic Statistics, 2000-2002*.



The same approach can be taken to estimate the actual value of the services lost among Canadian nurses. Qualitative research indicates that American nurses can expect to make the same nominal incomes as Canadian nurses. As mentioned earlier, the median/average income for nurses in Canada is calculated at \$44,086 per year. Converting to current dollars and adding a conservative 40 per cent exchange rate brings the salaries to approximately US\$62,955 per year. Once again, this represents the actual value of the services provided by nurses. The 40 per cent exchange rate, taken together with the underestimation of the number of nurses emigrating makes the estimate seem quite conservative.

Since the actual level of emigration probably falls somewhere between the number of nurses granted permanent resident status and the overall demand for emigration as evidenced by requests for verification of credentials, the real estimate of the value of the medical services lost from the brain drain of Canadian nurses also falls somewhere between the upper and lower ends. In any case, the minimum estimate of the actual annual value of services lost reaches as high as \$145 million in current dollars during the period 1993-2001. The maximum estimate puts the overall actual annual value lost at the much higher figure of nearly \$2.2 billion in current dollars for the same period. While the actual loss of the value of nurses' services lies somewhere between these two estimates, it is not unreasonable to speculate that it might be closer to the maximum than the minimum.

## SECTION 7

# SOCIAL CAPITAL COSTS

The value of the investment made in educating and training health care professionals must be considered when calculating the economic costs associated with the medical brain drain. DeVoretz and Laryea (1998) refer to these costs as social capital costs. The social capital costs include not only the value of the public investment made through tax-subsidized education, but also the private investment made by professionals in their own education. If these professionals are employed in Canada, then the investments pay off in terms of the services provided to the economy. If these professionals emigrate, the value of their skills and education is not available to benefit Canadians and the money invested, both public and private, is wasted and represents a real transfer of wealth out of Canada. Of course, the value of the education embodied in immigrants to Canada represents a transfer of real wealth as well. Therefore, a calculation of the net balance of the transfer of social capital based on the net flow of migration among health professionals will help provide a clearer picture of the significance of the losses associated with the medical brain drain.

DeVoretz and Laryea (1998) made a calculation of social capital lost accounting for emigration only using 1996/97 data, the latest available to them. For doctors, the 1996/97-period represented the largest outflow of Canadian-trained professionals. The raw number of emigrants was 522, according to DeVoretz and Laryea's figures. This number differs somewhat from both the figures cited by the CMA below and my own data, due to different time periods for reporting, but is close enough to retain its validity. According to their calculations, the total value of social capital lost through the emigration of doctors during the 1996/97 period reached almost \$203.5 million.<sup>25</sup>

1996/97 is also the period with the highest level of emigration among nurses (1,103 permanent resident emigrants). According to DeVoretz and Laryea, the figures for this period show that the total value of social capital lost through the emigration of nurses was \$184.7 million. The tax subsidy portion of this figure totaled almost \$85 million.<sup>26</sup>

DeVoretz and Laryea also calculated the value of Canada's net transfer of highly skilled professionals with the US as well as the rest of the world. Using a balance of payments approach, their figures show that Canada receives a net benefit in the value of education transferred in all categories except the health

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<sup>25</sup> AMA 2002. Table A 2.

<sup>26</sup> AMA 2002. Table A 3.



sciences. Among medical professionals, there was a total deficit of \$1.2 billion from 1989 (the passage of NAFTA) to 1996 (latest data available).<sup>27</sup>

Using updated data, this calculation of net social capital costs can be reproduced. The CMA has published data that estimates the average total cost of undergraduate and post-graduate medical training per student for physicians to equal, in 1994 dollars, \$1,462,220 (\$532,230 and \$929,990 respectively). These costs are all-inclusive and cover teaching salaries, building costs, administration, etc.<sup>28</sup> Therefore, a complete summary of social capital costs for physicians will be calculated using this figure converted to 2002 dollars at a conservative two per cent annual inflation rate. Data on the costs of nursing education were obtained from Statistics Canada.<sup>29</sup> These are calculated as the total national expenditures on university education (\$14.5 billion in 1999/2000) divided by the total number of graduates (172,076 in 1998) to reach a total cost per university graduate of \$84,550. This number is inflated by the cost of graduate education but will provide a rough estimate of the costs per graduate. While many nurses are graduates of college programs, it is becoming a standard requirement that university degrees must be obtained for certification as a registered nurse; therefore, data for nurses will assume university education. Figures also account for both full-time and part-time enrolment of students.

Multiplying the net loss of physicians between 1990 and 2001 (2,837) by the 1994 costs of education per medical graduate (\$1,462,220) gives a net social capital loss from the migration of physicians of over \$4.1 billion. Converting to current dollars puts the total at over \$4.8 billion. The same calculation of costs (\$84,550) for nurses based on the minimum estimated net loss through migration since the beginning of the most recent trend in 1993 (2,262) would be over \$191 million in 1999/2000 dollars. Converting to current dollars puts this total at nearly \$195 million. The estimate of social capital losses for nurses since 1990 based on the maximum estimate of migration losses pushes the total in current dollars to nearly \$3 billion.

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<sup>27</sup> DeVoretz and Laryea 1998. Table 17.

<sup>28</sup> W. McArthur. 1994. *Fraser Forum* citing L. S. Valberg et al in *CMAJ* Dec. 1 151: 11.

<sup>29</sup> Statistics Canada CANSIM II, tables 478-0004, 478-0005, 478-0007, 478-0015 and CANSIM cross-classified table 00580602.

## SECTION 8

# SIGNIFICANCE OF ECONOMIC COSTS OF THE MEDICAL BRAIN DRAIN

All is not well with Canada's ability to be competitive with the US in retaining and attracting highly skilled professionals to work in our health care system. Even if policy makers ignore the maximum estimates provided by this study, they must ask themselves what would occur if the US relaxed its immigration rules even further than the NAFTA provisions already allow. If the requests for verification of credentials totals do not, in fact, closely estimate actual total emigration (including permanent residents as well as TN visas), then it certainly represents latent demand. This latent demand for emigration among nurses will likely be realized to the degree that US INS allows it to. It does not seem to be reasonable for the Canadian government simply to maintain the status quo in the hope that the US will not suddenly relax restrictions on Canadian immigration. Without the implementation of strategies to encourage health care professionals to stay in Canada, the next wave of American demand for medical minds will inevitably lead to an even more serious brain drain than the one occurring now. If Canadian health professionals start to become aware of the personal costs they are enduring under the exploitation of medicare, the attraction of working in a free market may become irresistible.

Furthermore, the impact from the net loss of human capital among health care professionals is not just economic. Consider the worst case: if the maximum potential brain drain occurred, what would happen to access to care? Such a situation would surely lead to labour shortages in the health care sector of a magnitude that would leave the system in ruins. While this may seem like an unlikely scenario if the actual levels of net migration observed through the 1990-2001 period continue, it seems reasonable to expect significant shortages of doctors and nurses in our health care system. This could be expected to have a negative impact on access to diagnosis and treatment and the overall quality of health care in Canada.





## SECTION 9

# IS THE BRAIN DRAIN AFFECTING HEALTH CARE?

In order to understand how the brain drain among medical professionals may be affecting the delivery of health care services, this paper will first use a qualitative approach to investigate the case of Windsor, Ontario. The Windsor area has been experiencing a serious and long-term shortage of physicians' services as measured by a number of comparative statistics. The area may also now be in the midst of a shortage of nurses in local hospitals. It seems reasonable to assume that the brain drain among medical professionals is, in part, contributing to reductions in the overall stock of doctors and nurses in this region. Admittedly, demographic trends such as the mass retirement of baby boomers from the system are also contributing. It should be noted that smaller communities are disproportionately bearing the brunt of the problem because of the internal migration of health care professionals to larger urban centers.

An important question related to this issue is whether having fewer doctors practicing in an area has any real effect on the overall health of people in the area. Shortages among doctors are usually defined as situations that fall below provincial or national averages of doctors per population. However, this definition is somewhat inadequate, as it does not measure whether having higher doctor-to-population ratios actually improves the health of people living in the region. Having more doctors practicing may improve access, but this may be only a matter of convenience and perception. So this study will attempt to look quantitatively at all public health regions in Canada to see if there is some correlation between the number of doctors practicing in an area and the overall health outcomes for people living there.

For certain diseases like heart disease, early diagnosis and treatment is crucial in determining whether the outcome is successful. From my research, it seems that the technical ability to effect health outcomes for heart (cardio-vascular) disease is greater than for other diseases, like cancer, due to greater medical advances in medications and surgical procedures. Therefore, this study will discuss only the links between access to medical services and outcomes for heart disease.

The number of doctors (GPs) per population practicing in an area is a good measurement of access to early diagnosis and treatment, because fewer doctors mean longer waiting lists for both diagnosis and treatment. If these physician-to-population ratios are compared to data for death rates from diseases that can be affected by early diagnosis and treatment like cardio-vascular disease, then statistical correlations become apparent between the two. This study will investigate the possible statistical links



between the numbers of GPs practicing in a health region as well as other variables in order to control for the possibility of spurious correlations.

These statistics can be measured for GPs and specialists as separate groups and for physicians as a whole. My understanding is that the number of GPs is likely to affect early diagnosis and the number of specialists is likely to effect early treatment. However, specific data breakdowns for cardio-vascular specialists were not available across each of the health districts studied, so the effect of access to specialists is not demonstrated fully from this analysis.



## SECTION 10

# CASE STUDY: THE DOCTOR SHORTAGE IN WINDSOR, ONTARIO

Throughout the latter part of the 1990s, stories surfaced in the Windsor media regarding the area's chronic shortage of health care staff. A local committee for physician recruitment reported that as of the summer of 2000, Windsor was short 50 to 60 general practitioners and up to 50 specialists.<sup>30</sup> By the spring of 2001, this committee reported the results of a three-year campaign to recruit doctors to the area. It concluded that the doctor shortage was much worse than reported less than one year earlier. New estimates in the April 2001 Regional Physician Human Resources Planning Report said the Windsor area needed a total of 250 new physicians. The figure for GPs was almost triple earlier estimates, 136 compared to 55. For specialists the number increased from 55 to 114.<sup>31</sup>

The effects of these shortages on access to health care were evident from the same media reports. Among the symptoms of the Windsor-area health system were reports of doctors burning out from excessive patient loads and time demands. This led to an increasing number of doctors advising their patients to look for medical care outside the Windsor area. Some patients were reportedly traveling to Toronto, a four-hour drive away, just for family medicine. According to local print media, local health officials were even giving anecdotal accounts of patients dying while on waiting lists for treatment.<sup>32</sup>

Windsor's story is not just the creation of the local media. In the summer of 2001, Maclean's magazine published its annual rankings of the quality of health care in communities across Canada.<sup>33</sup> According to this report, the Windsor area ranked last among 54 Canadian communities with populations greater than 125,000 in terms of the number of GPs per population. Windsor's ratio of family doctors per population was 56:100,000 whereas the national average was 94:100,000. However, when specialists were included in the calculation, Windsor's ranking improved to 32nd overall among the 54 communities studied. The ratio of specialists was 54:100,000 compared to the national average of 91:100,000. This earned Windsor a rank of 36th for the number of specialists.

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<sup>30</sup> B. Cross. 2000. Free tuition to lure MD's. *The Windsor Star*. 25 July; A. Jarvis. 2000. Medical school would be partner. *The Windsor Star*. 25 Sept.

<sup>31</sup> B. Cross and V. Mandal. 2001. Doctor search 'dismal failure.' *The Windsor Star*. 16 April.

<sup>32</sup> Cross and Mandal 2001.

<sup>33</sup> *Macleans*. 2001. 11 June.

In October 1999, *Canadian Living* magazine reported that Windsor had approximately 30,000 people without the services of a family doctor. It is unclear where their figures come from, but anecdotal evidence from my research confirms that many family doctors are no longer accepting new patients in Windsor. However, those people without a regular family doctor probably use walk-in clinics as a substitute for access to a general practitioner. The magazine also reported waits of up to six months for a routine cervical cancer test (pap smear) for women. They also cited statistics from the Ontario Ministry of Health recommending that an average family practice have 1,600 patients while some doctors in Windsor have 6,000.<sup>34</sup>

Anecdotal accounts of the effects of this doctor shortage also surfaced in my qualitative research as well. Interviews with local nurses indicate that the shortage is affecting access to doctors in many specialty areas. Obstetrics, oncology and cardiology are all areas where waiting lists appear to be growing. Nurses report that, because of excessive patient loads, local obstetricians increasingly rely on epidural pain medication to facilitate quick deliveries. While hard data on this issue was not available, the nurses I talked to perceive Windsor's rate of epidural use to be far above that for the rest of the province of Ontario. Moreover, these nurses report that the use of Caesarean section surgery is extraordinarily high in Windsor. Finally, the use of delivery-inducing drugs like oxytocin is reportedly very high. According to these nurses, all of these procedures are relied upon to provide care quickly.

Other communities have also suffered the symptoms of under-servicing. One such community is Campbellford, ON. A report in the local media in 1999 documented that the shortage of doctors is putting staffing of the emergency department in jeopardy. According to local officials, this shortage was directly related to the internal migration of doctors from smaller communities to larger urban centers. They cited cases where doctors were lured to cities like Toronto with offers of higher earnings from innovative pay arrangements with institutions there. Furthermore, the use of incentives to attract doctors to places like Toronto was attributed to the overall loss of physicians to the US.<sup>35</sup> In fact, more than 70 Ontario communities have been designated as "under-serviced by doctors" by the provincial Ministry of Health.<sup>36</sup>

Other communities and provinces have suffered similar difficulties. By the fall of 1999, Kitchener-Waterloo was short 50 GPs, Thunder Bay 29 GPs and Montreal 250 GPs, leaving 300,000 people without services. At the same time, the Province of Newfoundland requested the military to send medical teams and Alberta hired a recruitment firm to search for doctors outside the country.<sup>37</sup>

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<sup>34</sup> M. Kaye. 1999. Is There a Doctor in This Town? *Canadian Living*. October.

<sup>35</sup> E. Kuglin. 1999. Doctor shortage may force temporary closings. *The Independent*. 30 June.

<sup>36</sup> Kaye 1999.

<sup>37</sup> Kaye 1999.



The anecdotal evidence, that there are significant shortages occurring among health care professionals, especially doctors, is happening at the same time as statistical evidence appears of a significant brain drain among medical professionals. This may indicate that the brain drain is having some impact on access to health care services by contributing to labour shortages.

## SECTION 11

# DEATH RATES FROM HEART DISEASE AND THE SUPPLY OF GPs

Having established that there is indeed a significant brain drain occurring among medical professionals that is both economically costly and adversely affecting access to health care in Canada, there remains one question. Is this reduction in the level of access to health care affecting the overall public health of under-served communities? Anecdotal evidence, like the case of Windsor, does not adequately address this question but it does provide insights on how to study the issue further. Another method is to compare data on the numbers of doctors practicing in each of the country's health regions with mortality rates from diseases that can be affected by early diagnosis and treatment.

For example, some statistics that came up in local reporting on the situation in Windsor regarding health care, referred to the survival rates following a heart attack. These figures indicated that 14 per cent of those taken to a hospital after a heart attack die within one month. The national average ranges between 12 and 13 per cent. Furthermore, Windsor's overall life expectancy rate is 78 years compared to 79 nationally.<sup>38</sup> A local investigative report also claimed to have found "significant links" between the poor health of Windsor residents and scarce medical resources. According to local physician Dr. J. Kopstein, quoted in the report, "Windsor is becoming a dangerous place to live, and I don't see that changing any time soon."<sup>39</sup>

Furthermore, the Windsor-Essex District Health Council also sees a connection between access to physicians and overall health outcomes. They confirm that the Windsor-Essex region has a heart disease death rate among the highest in Ontario and link that rate to long waiting times for treatment.<sup>40</sup>

Therefore, it seems reasonable that a national comparison of statistics<sup>41</sup> from all 62 Canadian health regions on mortality rates from heart disease (a disease that can be affected by early diagnosis and treatment), and access to health services (as defined by the number of doctors per population) is an appropriate test of correlations between these two variables. To eliminate the possibility of spurious relationships arising, this analysis included a number of other independent variables that are normally consid-

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<sup>38</sup> D. Lajoie. 2001. Area has fewest family MD's. *The Windsor Star*. 5 June.

<sup>39</sup> Cross and Mandal 2001.

<sup>40</sup> B. Cross. 2001. More surgeries demanded. *The Windsor Star*. 11 June.

<sup>41</sup> CIHI/Statistics Canada. 2000. Health Indicators Cat. 82-221-XIE. Website [www.statcan.ca](http://www.statcan.ca): December.



ered potential influences on the rates of incidence of these diseases. These were controlled for in a regression model to test the relative significance of the main independent variable, the number of doctors. The independent variables are those identified by CIHI and Statistics Canada as likely public health indicators. Furthermore, death rates from heart disease are identified by these organizations as being influenced by early detection and treatment.<sup>42</sup>

The data used were adjusted for age-standardized comparisons so that the percentage of elderly people living in a region does not artificially inflate mortality rates. The data are also based on flat per-population ratios to allow for comparability between regions with different population bases. The independent variables do not include environmental factors; however, given the apparent wide-ranging differences in geographic location and industrial bases between communities that show similar data, it is unlikely that these factors are at play.

The independent variables included in this particular model are:

- The percentage of the population in each region having secondary education;
- The percentage of the population in each region having post-secondary education;
- The percentage of households classified as low income;
- The average income of households in the region;
- The current unemployment rate;
- The long-term unemployment rate;
- The percentage of the population over 65 years of age;
- The percentage of the population classified as urban; and
- The number of doctors per 100,000 population (for both GPs and specialists).

The results of this analysis showed that the overall model (including all variables) explains almost 50 per cent of the variation in the mortality rate for heart disease across all Canadian health regions. In other words, nearly half the difference in the mortality rates among health regions is explained by the variables included in the model.

The results indicate that the number of doctors practicing in a region is in a statistically significant relationship with the death rate from heart disease at the 99 per cent confidence interval. Furthermore, the data confirm that the doctors-to-population ratio is negatively correlated to the death rate from heart disease. That is, as the number of doctors per population ratio in a region decreases, the death from heart disease increases, and vice versa. Overall, the ratio of doctors to population is also the most significant of all of the variables tested. Other variables that resulted in statistically significant relationships with mortality from heart disease were the level of secondary education and the average income of the region but neither of these variables ranked as high as the number of doctors for explanatory power in the model.

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<sup>42</sup> Ibid.

The results of similar tests on the relationship of the same independent variables but with the number of doctors broken down by specialty to analyze the effect of GP-to-population and specialist-to-population ratios on mortality rates from heart disease indicate this new model improved the percentage of the variance in death rates by region explained to nearly 58.5 per cent and reduces the overall standard error of the estimate. Finally, it was the number of GPs practicing that was crucial in accounting for the statistical significance of any correlations between this and mortality from heart disease.

The statistical analysis conducted on the data indicates that the number of doctors practicing in a given health region is negatively correlated to mortality rates for heart disease. As the number of doctors in an area decreases, the death rate for heart disease climbs, indicating that access to health care is a significant factor in overall public health outcomes for a community. The data also indicated that access to GPs is especially important to the early detection and diagnosis of disease. This finding is supported by a study conducted by researchers at the Johns Hopkins University Bloomberg School of Public Health. Their research found that the health of national populations was directly correlated to the strength of a country's network of primary care providers.<sup>43</sup>

It may be that the geographic centralization occurring with the migration of specialists to major urban locations is less likely to have a negative impact on overall health outcomes than the migration of GPs. However, it must be noted that the aggregate data on specialists do not allow a valid comparison because not all specialists treat the diseases we tested. Therefore, comparing the actual number of specialists in heart disease and, perhaps, general surgery may provide a more accurate analysis.

There are other reasons to be cautious with this analysis. Before anything conclusive could be said about these findings, it would be important to include data on the varying incidences of heart disease in each community to see if this better explains the variance in death rates.

While any conclusions based on this statistical analysis are properly placed in the realm of speculation, the coincidence between this data, other studies in the literature and the qualitative information mentioned earlier appear to indicate some sort of relationship between doctor shortages and overall health outcomes, at least those affected by acute care. It also seems clear that the medical brain drain is a contributor to the shortages of doctors occurring in Canada. Therefore, it becomes vital for policy makers to know what factors are leading Canadian health professionals to leave, remain in, or return to Canada.

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<sup>43</sup> B. Starfield and L. Shi. 2002 *Policy-Relevant Determinants of Health: An International Perspective*. Johns Hopkins University Bloomberg School of Public Health.



## SECTION 12

# WHY DO HEALTH CARE PROFESSIONALS LEAVE, REMAIN IN, OR RETURN TO CANADA?

There have been numerous anecdotal accounts published of Canadians who have left for the US during the 1990s.<sup>44</sup> These stories may not have any statistical significance but are, nonetheless, useful in providing insights into the subtle factors that influenced these Canadians to emigrate. However, as most of the anecdotal accounts published around this issue deal almost exclusively with the reasons why professionals leave Canada, it seems good to add to this base of knowledge accounts of those who have thought about leaving but have not, as well as those who have left but then returned. This research was based on 13 structured, focused, one-on-one personal interviews conducted with Windsor area doctors and nurses for this study over the summer of 2001. The interviews included case examples for each of these three migration scenarios mentioned above. The results are not scientifically significant but provide anecdotal insights into the factors informing the migration decisions of health professionals.

In summary, it is overwhelmingly the tremendous economic and quality-of-work incentives offered in the US that are drawing Canadian health care professionals across the border. Other research supports this finding. A study produced by Robert J. R. McKendry et al (1996) indicated that 59 per cent of Canadian physicians working in the US cited remuneration as a reason for moving south of the border. Other reasons reflected health-funding concerns and were therefore also economic in nature. Among these reasons were: the availability of academic or research opportunities (40.2 per cent), job availability (66.8 per cent) and the availability of medical facilities and services (60.5 per cent). Other reasons cited indicated a dislike of the Canadian health care system, including government involvement (53.5 per cent) and concerns about professional autonomy (55.5 per cent).<sup>45</sup> This research seems to buttress the qualitative findings of this study.

The Windsor research also supports the view of many academics that the TN visa is the most common method of entry for Canadian medical professionals seeking to live or work in the US. Finally, this study confirmed that the reasons these professionals return has more to do with social relationships with friends and family than with anything particularly attractive about Canada's tax regime, social programs or health care system. In fact, these interviews indicate that those who return do so in spite of these factors, not because of them.

<sup>44</sup> Simpson 2000.

<sup>45</sup> R. J. R. McKendry et al. 1996. Factors Influencing the Emigration of Physicians from Canada to the United States. *CMAJ*. 15 Jan. 154: (2).



## SECTION 13

# CONCLUSIONS

What does all this mean for policymakers? First of all, it means that the medical brain drain is real. Second, its economic costs to both taxpayers and the economy are significant. Third, the impact of the brain drain on labour shortages is also significant and has the potential to affect not just the quality of health care itself but also public health outcomes, at least as far as acute medical conditions are concerned. Fourth, the brain drain is not a fad. In fact, it appears to be an ongoing trend that is related to the relaxation of US immigration rules and is gaining impetus from the incentives to leave (pull factors) and corresponding disincentives to stay (push factors).<sup>46</sup> Fifth, these factors are largely economic in nature.

There are some points that need clarification. One involves the assumption of labour shortages among nurses. Until recently, the labour shortages among health care professionals did not include nurses. It is generally understood that Canadian schools graduate more nurses than there are jobs in this field. Therefore, up until now there were no actual replacement costs attached to those nursing professionals who leave Canada. However, the most recent data indicates that shortages among nurses may be occurring. The CIHI published statistics showing that Canada had 80.3 nurses per 10,000 population in 1994 compared to 75.4 to 10,000 in 2000.<sup>47</sup> This data contradicts previous trends in the supply of nurses. Prior to these reports, it seems that nurses had been leaving because there were simply no jobs available for them.<sup>48</sup> Government cutbacks to funding levels in health care may have been the cause of nurses leaving throughout the 1990s. However, it appears that replacing those nurses who are leaving as part of the brain drain is now becoming an important policy issue.

As for physicians, the shortage caused in part by the medical brain drain is projected to get even worse than is already the case. The CMA estimates that the physician-to-population ratio will widen from one doctor for every 541 people in 1997 to one for every 740 in 2011.<sup>49</sup> Therefore, the labour shortages among health professionals that are being caused in part by the brain drain are not going away.

To make matters worse, future demographic trends show that a bulge of retirements is looming on the horizon as the baby boom generation leaves the work force. Action must be taken immediately on all

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<sup>46</sup> These terms are used by McKendry et al 1996.

<sup>47</sup> M. Seal. 2001. More RN's working, but shortage still looms. *The Globe and Mail*. 23 May.

<sup>48</sup> Registered Nurses Association of Ontario. 2001. Earning their return: when and why Ontario RN's left Canada, and what will bring them back. *RN Journal*. 23 Feb.

<sup>49</sup> L. Buske. 1998. Projected physician supply. *CMAJ*. 158: 1584.



fronts to ensure that Canada maintains an appropriate supply of health care professionals. Stopping leakage through the brain drain is just one factor. Interestingly, the same policy solutions that may serve to stop the medical brain drain may also attract newcomers to the health care professions to fill the gaps left through retirements.

One policy solution touted recently involves the expanded recruitment of immigrant doctors. There are several reasons why this approach might not be successful. First of all, as this study has pointed out, the CMA reports that only 21 per cent of foreign-trained medical graduates are able to pass Canadian qualifying exams on their first attempt compared to 95 per cent for Canadian-trained graduates. Therefore, attempting to replace Canadian doctors through immigration is bound to be very inefficient compared to relying on Canadian graduates. It would require nearly five times the level of immigration we currently experience to get enough qualified doctors here. With the addition of immigration settlement costs, plus the continuing social capital loss from the public and private investment in the education of emigrants, the overall economic cost to Canada of replacing a medical brain drain through immigration is significant.

Given the lack of qualifications most immigrant physicians bring with them to Canada, it seems clear that the loss of Canadian-trained physicians to the US cannot be properly redressed through immigration. This is not to say that Canada should close its doors to immigration. It is just that relying on immigration as a policy solution to the medical brain drain is impractical and expensive. Having professional immigrants pay for settlement costs would alleviate some of the public expense of immigration but it would still require extraordinary efforts to find and recruit doctors of the caliber necessary to meet Canadian standards. This seems like an absurd waste of effort when we already produce excellent doctors in our own schools.

In fact, some health analysts have proposed that medical school enrolments be expanded in this country to produce our own replacements for emigrating or retiring doctors. According to estimates from 2000, Canada needs to graduate about 650 to 700 more doctors annually than it currently produces. At the moment, governments are filling the spaces with foreign doctors while about 700 qualified Canadians are being denied admission to medical school every year. Statistics show that there has been a 30 per cent decline in medical school enrolments between 1983 and 1997.<sup>50</sup>

As Dr. William McArthur of the Fraser Institute points out:

“The training of doctors is in disarray. The number of physicians graduating from medical schools falls short of the number required to fill the vacancies, while at the same time hundreds of young Canadians who are well qualified and eager to pursue a career in medicine are being denied the opportunity. Meanwhile, for those who gain access to

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<sup>50</sup> W. McArthur. 2000. The doctor shortage: Part 1. The Fraser Forum. The Fraser Institute October.

medical school, the economic and professional circumstances that face them upon graduation are so unattractive that many leave the country... While there is a need for at least 2,000 graduates a year, the country's medical schools are producing fewer than 1,600 new doctors, only about 1,388 of whom will stay in Canada... The government's approach to these problems has been twofold. First, ignore them... The second approach to the problem has been to permit, and even encourage, the immigration of foreign medical graduates."<sup>51</sup>

McArthur points out that previous eras characterized by the influx of foreign-trained doctors were not the same as today's situation. Previous waves of immigrants came from countries with similar medical standards. The recent waves of immigrants are coming from countries that have significantly inferior standards from those of Canada. My own research in the Windsor area found that some officials think that Canadian standards are too high and should be lowered to allow a higher percentage of foreign-trained immigrants to pass the qualifying exams. However, accepting inferior medical credentials is hardly a way to improve the quality of health care for Canadians. Furthermore, it is doubtful that Canadian medical graduates are going to accept having to meet higher standards than foreign medical graduates.

There are also serious moral and ethical considerations with proposals to use immigration as a policy solution instead of increasing enrolment spaces for Canadian medical students. As McArthur states:

“Rectifying the Canadian shortage of doctors with immigration poses two problems. First, immigration has been, and should continue to be, one of the important backbones for building our country. But is it fair to deny young Canadians the opportunity to pursue careers in medicine, or other areas of scholastic endeavor, because of our historic commitment to immigration? Second, there is a moral argument. Some physician immigrants are coming from developing countries where their skills are urgently needed. This is seen by some as a form of reverse foreign aid where those of us who are prosperous promote the migration of skilled and scarce workers from countries where they are desperately needed.”<sup>52</sup>

On the other hand, some have proposed that measures could be taken to discourage medical professionals from leaving Canada in the first place. This could be accomplished through some form of financial penalty like an exit tax. DeVoretz and Laryea (1998) suggest this as a policy solution.<sup>53</sup> However, trying to eliminate the social capital loss from the brain drain by taxing emigrants when they leave is also a poor public policy option. This idea would do nothing but discourage Canadian students from

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<sup>51</sup> McArthur 2000.

<sup>52</sup> McArthur 2000.

<sup>53</sup> DeVoretz and Laryea 1998.



pursuing careers in medicine in the first place, especially if the low salaries and long working hours relative to the US persist in the profession. A Berlin-wall style tax regime is not the answer from either a practical or moral perspective.

So, what can or should be done to stop the continuing loss of Canada's doctors and nurses to the US? The answer lies in a proper understanding of the nature of the reasons why medical professionals are leaving the country and a realization of the limitations of public policy measures to influence these factors.

What stands out from my research is that the factors drawing doctors and nurses to the US are basically economic in nature. The US offers vastly higher incomes, lower taxes and a much richer health care system compared to Canada. Greater opportunities for professional development and freedom in America also influence the decision, if not to migrate, then to remain in the US. Therefore, any policy solution should attempt two things. First, the income gap between American and Canadian medical professionals must be closed. Second, Canada must bridge the quality gap between Canadian and US health care in substantial ways. Obviously, then, this becomes an issue of money.

Lower US tax rates were cited by the doctors interviewed for this study as one of the things that increased their overall disposable incomes versus what they would have received in Canada. It seems obvious then that lowering taxes in Canada is one thing that can be done to encourage medical professionals to stay here. Some researchers have discouraged this idea because it is either unlikely to have any major effect or because it is too universal in its application. That is, a net loss of human capital is occurring only among specific sectors of the labour force; therefore, changing the whole tax system just to accommodate doctors and nurses would be too blunt a policy instrument.<sup>54</sup>

On the other hand, Don Wagner of the University of British Columbia researched the overall effect of tax rate differentials on the decision to immigrate to the US. His research found that if Canadian taxes had been at American levels in the early 1990s, six per cent fewer Canadians would have moved to the US.<sup>55</sup> This indicates that lowering taxes would have had some impact. Therefore, the argument that general tax relief is not necessary because there happens to be a net gain of professionals in non-medical sectors is hard to swallow. Surely, it would lead to an even greater positive balance for these groups. One cannot celebrate the fact that Canada is benefiting from a brain gain in other occupations without recognizing that even greater positive balances would be better. In other words, if tax reductions would help keep medical professionals in Canada while also encouraging highly skilled professionals from other occupational categories to remain, the bluntness of the policy instrument is hardly a reason to reject it.

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<sup>54</sup> R. Finnie. 2001. *The brain drain - myth and reality, What it is and what should be done*. Queen's University, School of Policy Studies Working Paper 13: January.

<sup>55</sup> D. Wagner. cited in W. Watson. 2000. US taxes do speed the brain drain - a bit. *National Post*. 4 July.

However, taxes are only a very small part of the equation when calculating what it would take to boost the remuneration for medical professionals. The incomes paid directly to doctors and nurses are largely where the problem exists. However, this is not just a simple matter of increasing compensation paid to doctors and nurses to levels comparable to their American counterparts because the Canadian health care system is publicly funded. Given that doctors can routinely expect to receive, a 150 per cent increase in their incomes and nurses a 50 per cent increase simply by moving to the US, the costs to Canadian taxpayers of matching this compensation will be huge. Similarly, trying to equal the levels of access and technology employed in the US health care system would require massive capital investments from public finances. This is just not going to be acceptable to Canadian taxpayers.

The deficit crises of the 1990s have made both voters and governments aware of the limitations of social spending. It is now obvious that Canadian governments did not fund the expansion of the welfare state through the 1970s and 1980s with current revenues. Instead, social programs were supported with debt financing. It is easy to see now that it was government borrowing that artificially propped up the Canadian standard of living. Tax rates climbed quite high in order to help finance a portion of the welfare state, but never matched the growth in spending. This was certainly the case with the national health care system.

When annual budget deficits piled up to the point where interest on the accumulated debt was the single biggest budget item, governments were faced with a choice: raise taxes or cut spending. Some did a little of both but it is noteworthy that, for the most part, raising taxes to cover deficits is no longer an option. It appears that Canadian taxpayers have reached the limit of their willingness to pay ever-higher rates of taxation to support the welfare state. Politically, it has become impossible to allow the past growth in public spending to continue. Therefore, any solution designed to raise the incomes of Canadian medical professionals to competitive levels, or to make major investments in the health care system itself, will have to come from the private sector. The political problem for governments will be to find a way to introduce the principles of the free market to health care without withdrawing public funding all at once. There are several ideas that are gaining popularity among analysts of health care reform in the US that may actually work better in Canada as a means of adjusting to private medicine.

The most recent reform being pushed in American health care is the introduction of medical savings accounts (MSAs). Similar to Canadian Registered Retirement Savings Plans (RRSPs), these plans allow individuals to receive tax deferrals on money invested in the accounts for the purpose of funding non-catastrophic medical services. The balance of funds not used can be redirected or spent in retirement. Regular health maintenance organization (HMO)-style insurance would cover catastrophic services. MSAs would drastically lower premiums for individuals and answer the problem of portability for those who have employer-paid plans. Furthermore, it is estimated that this measure would put health care coverage within the reach of those Americans not covered under the current system. The new system would also re-introduce elements of direct, consumer payment that were lost under the HMO system. MSAs will introduce price and demand controls on the costs of health care, while preserving patient choice.<sup>56</sup> Furthermore, if an individual were to save enough in these accounts, being part of an HMO



might no longer become necessary

This idea is in good currency in the US but, ironically, it may be the perfect solution to allow the re-introduction of a quasi-free-market in health care in Canada. If government played the role of the HMO, universally covering only catastrophic insurance, while private hospitals and health care providers were allowed to operate and set market prices, the introduction of MSAs could be a solution to help Canadians afford the private costs of ordinary medical expenses. Given Canadians' familiarity with the concept of RRSPs, it seems likely that such an idea may be attractive to the public. Furthermore, the deregulation and privatization of health care services would introduce the same free-market dynamics that allow US medical professionals to receive remuneration more commensurate with the actual value of the services they provide.

It must be emphasized that there are serious consequences from ignoring the medical brain drain. As this paper has demonstrated, the continuing loss of our doctors and nurses is contributing to a labour shortage in our health care system, reductions in public access to health services and may be negatively affecting health outcomes. Moreover, the limitations of public spending are making it obvious that a socialized medical system is unable to provide the same opportunities and rewards for doctors and nurses as a free-market system. The more Canadian medical professionals begin to realize the degree to which socialized medicine exploits their services and suppresses their earnings, the more likely it will be that they will leave this country for the US. Some degree of privatization in health care is becoming imperative in order to ensure that Canada will have adequate supplies of highly skilled medical professionals to provide for the health and well being of Canadians.

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<sup>56</sup> Brink Lindsey. 1993. *Patient power: The Cato Institute's plan for health care reform*. The Cato Institute Briefing Paper No. 19. 4 October.



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