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**FROM THE TRANSVAAL TO THE PRAIRIES:
THE MIGRATION OF SOUTH AFRICAN
PHYSICIANS TO CANADA**

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FROM THE TRANSVAAL TO THE PRAIRIES: THE MIGRATION OF SOUTH AFRICAN PHYSICIANS TO CANADA

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One feature of the effort to reform South Africa's health care system is a 'medical carousel' of physicians, with an outflow of South African-trained doctors and an inflow from Cuba. Canadian immigration data is used to consider the extent of the out-migration to Canada and examines the factors influencing this movement. Since it is unlikely that countries such as Canada will voluntarily agree to stop "poaching" doctors, the policy options available to South Africa are considered.

The current South African government faces the enormous task of trying to democratize a health care system that, under apartheid, "managed to be at once inequitable, corrupt and inefficient" (*The Economist*, May 1998: 347:42). The inequality stemmed not only from the access that wealthy white South Africans had to private health care (which accounted for roughly 60 per cent of total health expenditures in the country), but also from an allocation of public resources that favoured state-of-the-art hospitals for residents of Cape Town and Durban at the expense of basic services in the former homelands. Public subsidies to private health care also took the form of generous tax treatment of medical insurance schemes. Restructuring has focussed on redirecting resources away from acute and tertiary care hospitals in urban areas toward basic nutrition, sanitation and primary care clinics in the most underserved regions (Bloom and McIntyre, 1998).

A "medical carousel" has accompanied this reallocation of resources. At the same time as the government faces problems in staffing new provincial facilities, a large number of physicians are leaving the country for positions in Australia, Canada, New Zealand and the United States. Among the reasons cited are falling incomes

Keywords: Physicians; South Africa; Canada; Migration.

and fewer complementary resources because of public cost cutting measures, the possibility of mandatory service in understaffed rural areas, and a rising crime rate. In their place, the public health sector in South Africa has been forced to rely upon foreign doctors to fill a growing list of vacancies. It is no small irony that the same issue of the *South African Medical Journal* that announces the impending arrival of Cuban doctors to staff rural clinics (van der Linde, 1996: 15-16), carries advertisements seeking physicians for such far-flung remote Canadian communities as the Burin Peninsula, Newfoundland; Thompson, Deloraine, Reston and Pine Falls, Manitoba; North Battleford, Saskatchewan; rural Alberta; and the North West Territories.

The peculiarity of this migration is that there are no apparent benefits to either country: while it constitutes a significant loss of human capital to South Africa at a time when it faces a critical shortage of medical personnel, the advantages to Canada are, at best, ambiguous. Since 1975, Canadian immigration policy has been generally hostile to an inflow of physicians, largely because additional physicians are seen as the major cause of the rapid increase in the cost of maintaining Canada's publicly-funded health care system. Their admission, therefore, has been highly selective and largely restricted to the graduates of medical schools in former Commonwealth countries where academic standards are compatible with those in Canada. The difficulty arises from the tendency of many immigrant physicians, originally recruited by one province to address a shortage of physician services in remote and rural communities, to relocate to larger urban centers in another province. For some Canadian provinces, struggling to keep the burgeoning cost of their public health system in check, more physicians, from South Africa or elsewhere, in already over served areas is an unwelcome prospect.

This paper considers the extent of the migration of physicians from South Africa to Canada, and aspects of organization of the health care profession in each country that influence the rate of migration. It then considers the policy options available in light of the increasing pressure in Canada to accept more foreign-trained doctors.

The Number and Characteristics of South African Physicians in Canada

The outflow of physicians from South Africa, particularly in anticipation of the break up of the apartheid regime and in the wake of the first democratic elections in 1994, is well

known. Less apparent is the extent of the outflow. Official emigration data are notoriously suspect, and South Africa's is no exception: Brown, Kaplan and Meyer (2001) estimate that South Africa's reported emigration understates the actual number of departures by as much as 60 per cent.¹ In the case of physicians, official statistics report the loss of 813 doctors since 1986 (Sullivan, 2001); however, a recent study of the graduates of Witwatersrand's medical school provides a more alarming picture with roughly 45 per cent of graduates since 1975 located outside of the country (Weiner *et al*, 1998).

It is often more informative, therefore, to look at the immigration data of receiving countries to obtain a picture of a country's emigration. Canada's *Landed Immigrant Data System (LIDS)* is a useful source for documenting the number and characteristics of South African physicians emigrating to Canada. The LIDS data records all arrivals of landed immigrants in Canada according to a host of variables, including immigration entry class, gender, age, education level, intended occupation and country of origin.

Table 1 and Figure 1 display the annual number of immigrant physicians entering Canada between 1986 and 2000. A total of 5,761 physicians was admitted, but only half entered under the "independent" (or skilled workers) class and were destined for the labour force.² Of this smaller group, roughly one-fourth was from South Africa: 817 South African physicians emigrated to Canada between 1986 and 2000, and 602 did so as skilled workers. The timing of these arrivals is also noteworthy. In the latter half of the 1980s, Canada accepted an average of 35 South African physicians annually. The number gradually increased to reach a peak of 107 in 1993, but by 1997 had declined to 35. This pattern might suggest that the large outflow was a temporary phenomenon that had abated following the election of 1994; however, with greater recruitment efforts by Canadian provinces, the number rose to 60 in 2000 and this trend is likely to continue.

Four characteristics of South African physicians migrating to Canada (outlined in Table 2) can be observed:

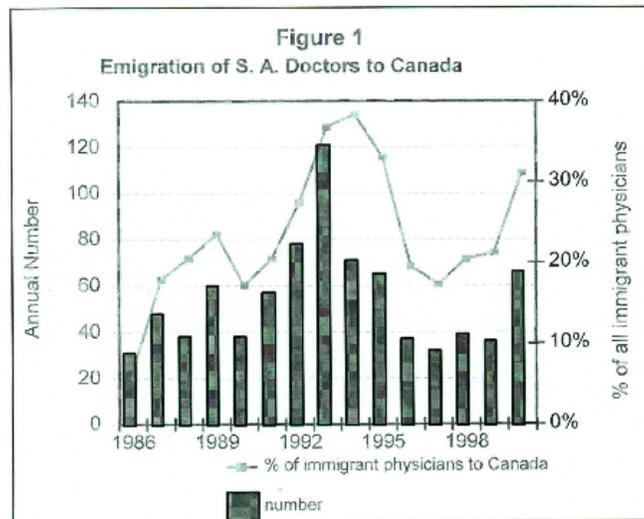
- 19 percent were women. This corresponds to the gender representation of physicians in the South Africa (in 1994, women composed 20 per cent of all physicians on the registry in South Africa (Pick, 1995: 3)); but is well below the recent percentage of women graduating from South African medical schools (in 1998, women were over half all of first-year medical school students (Moomal and Pick, 1998: 5)).
- migrants tended to be extremely young, especially with respect

Table 1: Immigrant Physicians to Canada, 1986-2000

Year of Arrival	All Immigrant Physicians			Destine for the Labour Force*		
	From all Countries	From S. Africa	Percent S. Africa	From all Countries	From S. Africa	Per Cent S. Africa
1986	419	31	7.4%	119	8	6.7%
1987	427	48	11.2%	240	43	17.9%
1988	339	38	11.2%	171	35	20.5%
1989	460	60	13.0%	234	55	23.5%
1990	450	38	8.4%	163	28	17.2%
1991	489	57	11.7%	240	49	20.4%
1992	466	78	16.7%	244	67	27.5%
1993	531	121	22.8%	291	107	36.8%
1994	361	71	19.7%	185	66	35.7%
1995	337	65	19.3%	172	57	33.1%
1996	340	37	10.9%	169	33	19.5%
1997	251	32	12.7%	156	27	17.3%
1998	306	39	12.7%	186	38	20.4%
1999	257	36	14.0%	151	32	21.2%
2000	348	66	19.0%	196	61	31.1%
1986-2000	5,781	817	14.1%	2,917	711	24.4%
1991-2000	3,686	602	16.3%	1,990	537	27.0%

Note:*Includes those entering under the independent (skilled worker) class and special programs.
Source:Derived from Citizenship and Immigration Canada, *Landed Immigrant Data System* (LIDS), 1980-2000 (Ottawa, 2001).

to the medical profession. The average age was 42 years, with 70 percent less than 45 years old. Moreover, the average annual age has steadily fallen, from 44.5 to 38 years between 1991 and 1999. - 87.5 percent were born in South Africa, with the remainder fairly evenly divided between Europe, other African countries and the rest of the world. Since this data do not refer to citizenship, it is not strictly comparable to data on South Africa's stock of physicians. It is noteworthy, however, that foreign doctors compose only 5.8 percent of South African physician workforce.



- 32 percent of migrants were Specialists as opposed to General Practitioners. This compares to a South African physician workforce of which 28 percent are specialists (van Rensburg and van Rensburg, 1999: 16).

That the majority of out migrants are young, male and tend to have more years of education is consistent with the general traits of international migrants. These characteristics also reflect the turnover of physicians with the South African health care system, with a significant outflow of European and South African physicians from the public sector exacerbating the shortage of physician services in rural areas (van Rensburg and van Rensburg, 1999).

Canadian immigrant data, therefore, presents a more troubling picture than the findings of Weiner et al (1998). Where the latter suggests that the outflow of physicians

**Table 2: South African Physicians Emigrating to Canada
Selected Characteristics of (1991-2000)**

	Number	Per Cent
1. Gender		
Male	485	80.6%
Female	117	19.4%
	602	
2. Age		
<35	33	5.5%
35-39	185	30.7%
40-44	205	34.1%
45-49	108	17.9%
50-54	40	6.6%
55-59	15	2.5%
60+	16	2.7%
	602	
3. Country of Birth		
South Africa	527	87.5%
Other	75	12.5%
Europe	31	5.1%
Other Africa	34	5.6%
All Other Regions	10	1.7%
	602	
4. Specialization*		
General Practice	312	67.8%
Family Practice	299	65.0%
Community Medicine	13	2.8%
Specialists	148	32.2%
Gastroenterologist	29	6.3%
Obstetrician-Gynaecologist	13	2.8%
Radiologist	15	3.3%
Anaesthetist	20	4.3%
Psychiatrist	26	5.7%
Other	35	7.6%
	460	

Note: *Because of data availability, refers to the period 1991-1997 only.

Source: Derived from *LIDS*, 2001.

from South Africa may have slowed after 1994, the increase in 2000 suggests that this is not to be the case. Moreover, the declining average age of migrants implies that recent medical school graduates compose a significant portion of the outflow.

Part of the explanation for the recent increase in migration also rests with changes in Canada's supply of physician services. After years of seeking to curtail the number of physicians, and foreign-trained physicians in particular, practising in the country, there is growing support for the view of an impending shortage. Despite a relatively high and stable physician/population ratio (Canada has some 200 physicians per 100,000 people, or roughly four times more than South Africa), with an aging population increasing the demand for medical services, and demographic changes in the physician workforce (both in terms of aging and gender) resulting in a decline in the average hours worked by physicians, talk of a "crisis" in Canada's health care system is more frequent. It is important, therefore, to consider the implications of changes within the Canadian health care system for the supply of physician services in South Africa.

Canada's Ambivalent Welcome

Given the pressing need to dampen the outflow of physicians from South Africa, it is ironic that there is significant institutional opposition in Canada to accepting foreign-trained physicians. The Canadian Medical Association, in particular, is committed to the principle of "physician self-sufficiency," so much so that the acronyms of "GOFM" (graduate of a foreign medical school) and "IMG" (international medical school graduate) have gained a pejorative connotation. The hostility towards IMGs increased during the mid-1970s when the prevailing view of physician supply shifted from one of shortage to oversupply. Slower than anticipated population growth meant that physician density (the number of physicians per 100,000 population) rose from 100 to 140 between 1964 and 1975. At the same time, the perception of "supplier-induced demand" gained greater acceptance: utilization of health care services increased with the level of physician services. As public expenditures on health care grew at an accelerated pace, the number of physicians became the primary target for cost containment. In the face of a powerful lobby from the Canadian medical community, the politically expedient solution to the apparent oversupply of physicians was to restrict the flow of graduates of foreign medical schools. Accordingly, the immigration

tap was turned off: the occupation of physician lost its priority status under the Canadian immigration point system, and the number of landed immigrants with the intended occupation of physician fell from over 1,300 in 1969 to under 530 in 1976 (see Evans, 1976; Grant and Oertel, 1997; and Barer and Webber, 1999).

Barriers to entry into the Canadian medical profession have been the subject of much scrutiny. The Medical Council of Canada establishes and regulates the qualifications required to practise medicine in the country, while provincial Colleges of Physicians and Surgeons set the conditions for accreditation and licensure. While ostensibly open to all applicants from approved medical schools who pass the requisite qualifying examinations, the critical gateway to the profession--obtaining the necessary clinical training in a residency position--remains largely closed to physicians trained outside of Canada and the United States. Under the operation of the Canadian Residency Matching Service (CaRMS) in 1997, only 8 per cent of IMGs who applied received a residency position; or stated differently, only 16 out of 1,214 post-graduate training positions throughout the country (or less than 1 percent) were matched to IMGs (Health Canada, n.d.).

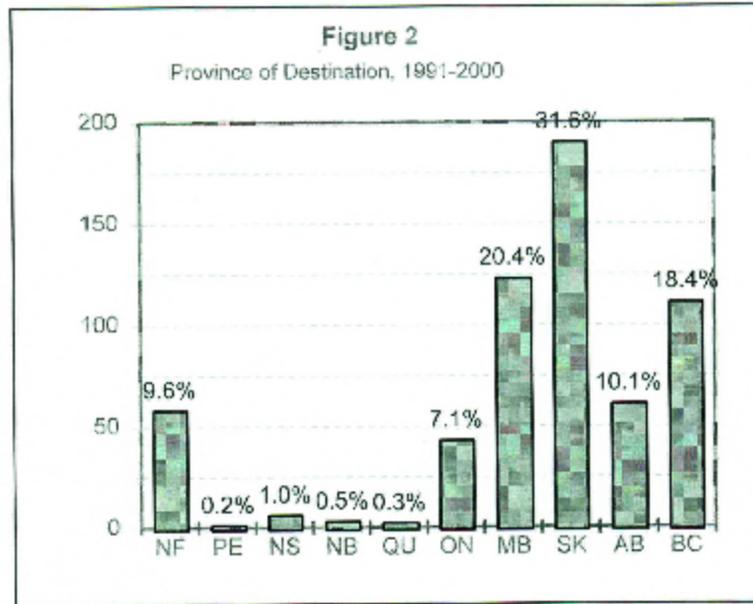
The shortcoming of this singular focus on physician self-sufficiency is that IMGs are a crucial safety valve for certain provinces to fill vacancies in rural and remote regions otherwise shunned by locally-trained physicians.³ The peculiarities of this aspect of Canadian health care and immigration policies are most apparent in the large presence of South African doctors on the Canadian prairies. Table 3 displays the composition of physicians services in selected Canadian province according to their place of medical training. Reliance on IMGs varies significantly: for instance, over 80 percent of physicians in Quebec received their MD from a Canadian university, while in Saskatchewan less than half graduated from a Canadian medical school. Remarkably, over half of the physicians practising in Saskatchewan were trained outside of the country, while over 17 percent graduated from a South African medical school. To circumvent normal licensing requirements, a form of "permanent exceptionalism" has emerged, with a proliferation in the granting of temporary licences to IMGs. Between 1993 and 1997, the recruitment of foreign-trained physicians on the basis of "temporary employment authorization" more than doubled from 388 to 790 per year (Canadian Medical Task Force, 1999).

Table 3: Stock of Physicians in Canada, 2000

Province	Total Physicians	Canadian MDs	Foreign MDs	S. African MDs	Per Cent Foreign	Per Cent S. African
Newfoundland	912	521	391	46	42.9%	5.0%
Manitoba	1,984	1,364	620	124	31.3%	6.3%
Saskatchewan	1,560	754	806	263	51.7%	16.9%
Alberta	4,971	3,622	1,349	195	27.1%	3.9%
Ontario	21,160	15,880	5,280	305	25.0%	1.4%
British Columbia	7,942	5,737	2,205	378	27.8%	4.8%
Others	19,097	16,488	2,609	26	13.7%	0.1%
Total	57,626	44,366	13,260	1,338	23.0%	2.3%

Sources: Derived from the Canadian Institute of Health Information (2001) and Sullivan (2001).

Of the 602 South African physicians entering Canada between 1991 and 2000, 351 (66 percent) were destined for Manitoba, Newfoundland and Saskatchewan, and half initially settled in rural areas.⁴ (See Table 3 and Figure 2.) This reflects two factors: a) the capacity of Canadian provinces to “nominate” for immigration individuals who might otherwise not gain entry under general Canadian immigration rules; and b) the extent to which these provinces discriminate between graduates of medical schools in the United Kingdom, Ireland, Australia, New Zealand and South Africa and those of other foreign (non-Canadian and non-American) medical schools in granting a license to practise. Physicians with post-graduate training in these English-language countries can obtain provisional licenses which bypass the normal barriers to accreditation. In Saskatchewan, for instance, conditional and provisional licenses are extended to family practitioners who have not met the normal accreditation requirements, as long as they remain in a named community for 3 to 5 years. Subsequently, they are eligible for a full license (Midget, 1997). Armed with these exemptions and with financial incentives, all three provinces have recruited extensively in South Africa in order to meet the needs of rural communities.



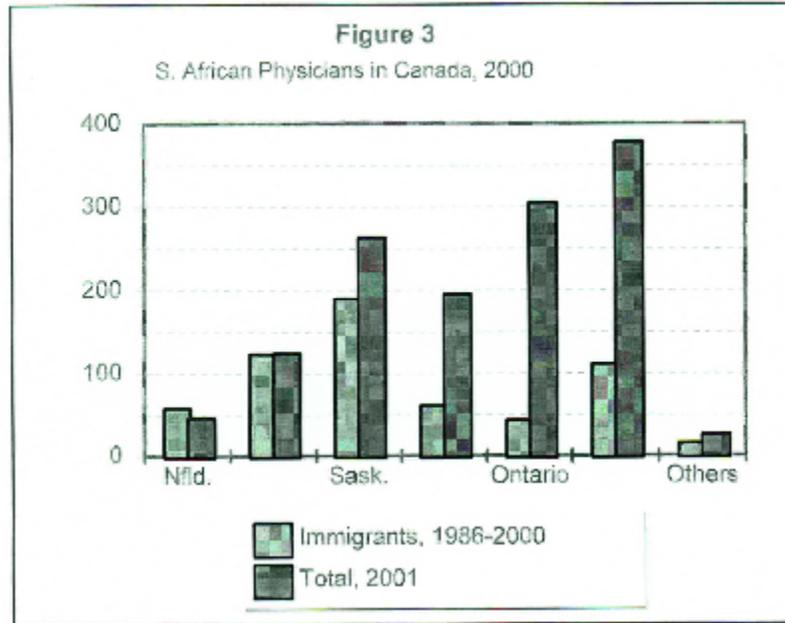
The situation in the Province of Alberta is illustrative. Seeking to fill 113 vacancies in rural and remote communities, the province was unable to attract graduates of its two provincial medical schools to fill these positions despite offering \$20,000 (approximately 120,000 Rand) bonuses. Accordingly, \$2 million (12 million Rand) was secured to hire a professional recruiter, who travelled to South Africa in 1997. Interested doctors were invited to investigate the opportunities in up to three Alberta communities and “eighty per cent . . . signed on after the first visit. We were able to recruit more than 40 South African doctors. Other communities followed up on our initiative by going out and recruiting their own doctors. In total 86 new doctors, Canadian and South African, have been recruited for northern Alberta” (Love, 1999).

To place the extent of the outflow from South Africa to Canada in perspective, consider two points of comparison. The population of the Canadian province of Saskatchewan and South Africa’s Northern Cape have roughly the same population of one million; in 2000, there were 263 South African trained physicians

practising in Saskatchewan and 332 in the Northern Cape. Alternatively, the three Canadian prairie provinces of Alberta, Manitoba and Saskatchewan have a population of 5.4 million, roughly equal to that of South Africa's Northern Province; however, there are more South African trained physicians in these three Canadian provinces (582) than there are in the Northern Province (545).

Foreign-trained physicians, however, have not provided a long-term solution for provinces seeking to address the needs of under served areas. Recruited under provincial nominee programs, they gain full accreditation and landed-immigrant status after completing a 3-5 year contractual obligation, and are then free to practise anywhere in the country. Policy measures designed to encourage physicians to remain in remote areas have, in large part, been unsuccessful. Administrative interventions, such as restricting a physician's access to a billing number unless establishing a practice in a certain area, were challenged in the courts as a violation of the Canadian *Charter of Rights and Freedoms*. Nor have special bonuses, differential fees, travel allowances, contracts guaranteeing a minimum income, or a host of other financial incentives significantly improved access to physician services in remote areas (Barer and Stoddart, 1999: 11-14). The leakage of foreign-trained physicians into the general population of physicians likely exacerbates the problems faced by other provinces in controlling an apparent oversupply of physicians in larger urban centres (Barer and Webber, 1999). Indeed, the widely-held perception is that a large percentage of South African physicians, initially recruited to the prairies, end up in Vancouver and Toronto after meeting their contractual obligations in Manitoba and Saskatchewan. Figure 3 tends to support this view. It compares the original province of destination of South African physicians immigrating to Canada between 1986 and 2000 to the distribution of all South African-trained physicians practising in the country in 2001. While the latter number obviously exceeds the former, the extent of the movement from provinces of initial recruitment—particularly Newfoundland, Manitoba and Saskatchewan—to Ontario and British Columbia is readily apparent.

An example of Canada's own miniature "medical carousel" can be found in the Province of Manitoba, where South African-trained physicians compose one-third of the physician workforce in rural areas. Over the past several years, it is generally held that for every three new South African registrants, two are deleted. The President of the Manitoba Medical Association commented that: "Sure the government has been



able to import South African physicians, but it is a very short-term fix because a lot of these guys leave. . . If you move halfway across the world, it does not take a great stretch of the imagination to see how easy it is for those physicians to then move again to another province where their remuneration and their lifestyle is going to be better” (Skelly, 1999). But until some long-term solution is found to the tendency for Canadian physicians to concentrate in urban areas, IMGs remains the second-best solution.

An ominous spectre, in so far as South Africa is concerned, is increasing pressure to alleviate a perceived shortage of physicians in Canada. Despite the continued commitment to self-sufficiency voiced by various regulatory authorities, the Canadian Medical Forum Task Force (1999) cites the proliferation of temporary licenses as evidence of a shortage of physicians.⁵ Economic pressures are forcing several provinces to reconsider their stance on IMGs despite the opposition of the physician organizations. Ontario, for instance, Canada’s largest and wealthiest province, has recently stated that it requires an additional 1,600 physicians and has identified IMGs as the fastest way to

remedy the shortfall. Accordingly, it expects to add 350 physicians immediately by easing restrictions on IMGs (*Toronto Star*, 22 November 2002). It is likely, therefore, that South Africa will face more, rather than less, recruitment efforts from Canada's provinces.

Implications for Policy

In 2001, André Jaquet, South Africa's high commissioner to Canada, called upon Canada's health ministers to stop recruiting doctors and other health professionals from South Africa: "the whole point was not to try to limit peoples' freedom of movement but to start a debate in the medical community on the ethical aspects of such aggressive medical recruiting." This appeal to ethics, however, fell largely upon deaf ears. Only Nova Scotia, a relatively small province with little dependence on upon foreign-trained physicians, displayed any willingness to comply; the rest, as Jaquet laments, "effectively told me to get lost" (Suleman, 2001).

International discussion of the ethics of foreign recruitment is long overdue. In the interim, however, it is unlikely that other countries, under pressure to meet a perceived shortage of physicians in rural and remote communities, will voluntarily restrict their overseas recruitment efforts. This being the case, any policy initiatives to increase the level of physician services and foster a more equitable distribution will devolve largely to South Africa.

An obvious option is to produce more doctors, and doctors of a different type. In the latter regard, it is possible that efforts to remedy the racial imbalance among medical personnel may indirectly result in a slower rate of emigration and a greater propensity to locate in under served areas. Weiner *et al* (1998) conjecture that it is "plausible" that white students, more familiar with overseas travel and with "the cultural and social environment of Anglophone countries" are more likely to emigrate than black students. Concurrently, changes in the "medical curricula need to be assessed to ensure that those who are produced, have skills appropriate to the public health system and are not groomed for migration" (Moomal and Pick, 1998: 6) It is unclear, however, how an increased emphasis on primary care at the expense of academic and tertiary care services (Kales, 1995) would alter the suitability of new graduates for overseas positions. Arguably, physicians with a strong training in community health will be particularly attractive to other countries seeking to fill vacancies in rural communities.

The more salient point is that the necessary expansion in the number of seats in medical schools to remedy the shortfall in physicians would be enormous, particularly if the rate of emigration continues unabated. With the cost of training a medical student is in the range of one million Rand, and with as many as half ending up outside of the country, the strain on the state's budget would be staggering. As long as South Africa's medical schools maintains a high standard of training, their graduates will continue to be sought after by other countries and the benefits of this training will be exported.

A second option is to provide greater financial incentives to remain in the country and, in particular, to locate in rural areas. Again, however, the cost of doing so may well be prohibitive. South Africa remains part of an international market for physicians, and the economic impetus to migrate will continue unless rates of remuneration match those in OECD countries. With annual earnings in Canada in the range of 750,000 Rand for a General Practitioner and 900,000-1,000,000 Rand for a Specialist (and roughly 50 per cent higher in the United States), the cost of addressing the income shortfall in South Africa would redirect substantial resources away from other health care priorities. And as the South African Medical Association alleges, other policies designed to influence the location of physicians within the country—such as only licensing new graduates to work in rural areas or a period of compulsory service—may simply provide greater encouragement to emigrate.

A third possibility is to rely more heavily upon foreign-trained physicians, and to place conditions upon their decisions over where to practice. For instance, doctors with qualifications from countries outside South Africa now must serve a minimum of two years in public hospitals before they can enter the private sector (Sidley, 2000). To its credit, however, South Africa has rejected the policy of seeking to recruit physicians from other African countries.

A fourth alternative is to lessen the dependency of the health care system on physicians. A long-standing criticism of the physician-centred model of health care delivery is that the physician often performs tasks for which nurses and other health care professionals are adequately trained. Moreover, there is mounting evidence that the physician-population ratio and direct medical intervention has only a modest influence upon the overall health of a population: where health indices such as infant mortality and life expectancy are concerned, improvements in social infrastructure such as housing and sanitation, and a more equitable distribution

of income play a much more significant role than the number of physicians. In this event, community-based delivery of primary health care services, with greater reliance on nurses and other para-professionals, may be more appropriate. But this does not vitiate the immediate and acute need for more physicians in South Africa.

In the short term, then, it would appear that the most compelling policy choice is for the state to assert its entitlement to its share of the human capital “embodied” in physicians trained in South Africa. There are various methods for estimating the extent of the human capital loss due to emigration, but the most straightforward is to consider the replacement cost. A conservative estimate places the cost of training a medical student at 900,000 Rand. With respect to Canada, with an average annual inflow of 40 physicians from South Africa over the period 1986-2000, this implies the annual transfer in human capital of 36 million Rand.⁶

In a traditional neo-classical model, the mobility of labour results in an optimal social outcome for both donor and recipient country. An individual’s migration is seen as a form of human capital investment: if the expected future stream of personal benefits (defined in both monetary and non-monetary terms) exceed the cost of moving (both financial and psychic), the individual undertakes the move. A corollary is that the individual’s decision results in the optimal social outcome: the mobility of labour from the low-wage to the high-wage country results in an appropriate allocation of resources and wages will adjust until they are equalized between the two countries.

This simple parable, however, is complicated when there are significant externalities associated with the individual’s private decision. The externalities associated with a physician’s migration are twofold. First, while physicians are well compensated relative to other members of society, they also yield a non-private benefit (or positive externality) to the country in which they are employed: as a crucial input into the production of health care, physicians enhance the productivity of complementary resources. This implies that a physician’s productivity exceeds his/her personal remuneration, and that these non-private benefits accrue to the health care system generally. When a physician migrates, therefore, these non-private benefits are transferred as well. Second, because of the positive externalities associated with physicians, the state typically subsidizes the cost of medical education to ensure that there is a sufficient social investment in the stock of physician human capital. If the physician leaves the

country, the country not only forfeits any return on its investment, but suffers a one-time loss equal to the amount of the subsidy. The distribution of benefits and costs of migration, therefore, involve the individual's own private net benefit; the recipient country's gain in terms of the future non-private benefits; and the donor countries double loss, or the lost future non-private benefits and the its share of the cost of training.

This is not a new issue and harkens back to the international attention paid to the "brain drain" of the 1970s when both developed and developing countries were experiencing a significant loss of scientists and engineers to the United States. International discussion reached its zenith with a conference, sponsored by the Rockefeller Foundation in 1975, to discuss the viability of a "brain drain tax," imposed on the migrant, and collected in developed countries with the revenues transferred to developing countries (Bhagwati, 1976; Bhagwati and Partington, 1976). While such a tax would reimburse the donor country and create a disincentive to migrate, it fails to address the transfer of non-private benefits. And, needless to say, it hardly seems viable in today's climate of the freer movement of capital, labour and final commodities across international boundaries.

Instead, Weiner *et al* (1998) recommend that tuition fees for medical studies be raised such that students pay the full cost of their education. This would be accompanied by a government-financed student loan program to avoid imposing a financial barrier to medical studies. The novelty of the suggestion is that the loan could be forgiven after a set number of years of practice in the country; however, if a graduate emigrated before this threshold year was reached, a portion of the loan would have to be repaid, depending on the years of service in the country. Accordingly, the state would at least be compensated for the cost of training and a disincentive to emigration is created (Weiner *et al*, 1998).⁷

This leaves unaddressed the fact that the non-private benefits generated by physicians are still transferred with the migrant. Whether the state has a valid claim to this portion of the physician's human capital is open to debate; however, it remains appropriate for South Africa, as its ambassador to Canada has stated, to advance the "debate in the medical community on the ethical aspects of such aggressive medical recruiting" (cited in Spurgeon, 2001).

Notes

1. Between 1987 and 1997, South African data reports that 82,811 people emigrated to either Australia, Canada, New Zealand, the United Kingdom or the United States, while statistics for these receiving countries counts 233,609 immigrants from South Africa (Brown et al, 2001: 3).
2. Physicians entering under other immigration categories (family reunification, business or refugee) would not be eligible for accreditation under provincial Colleges of Physicians and Surgeons.
3. This is also the case in the United States, where IMGs constitute a greater percentage of the primary care physician workforce in rural areas facing a shortage and have been important in filling staff vacancies in publicly funded community health care centers. See L.D. Baer, T.C. Ricketts, T.R. Konrad & S.S. Mick, "Do International Medical Graduates Reduce Rural Physician Shortages?" *Medical Care* (1998) 36: 1534-44; and L.D. Baer, T.R. Konrad & J.S. Miller, "The Need of Community Health Centers for International Medical Graduates," *American Journal of Public Health* (1999) 89: 1570-74.
4. Calculated from Citizenship and Immigration Canada, Landed Immigrant Data System (LIDS), 1980-2000 update. "Rural" is defined here as a non-Census Metropolitan areas.
5. To meet an anticipated shortage of physicians in the near future, both the Ontario Ministry of Health and Long-Term Care and the Ontario Medical Association favour expanding the number of seats in Ontario's medical schools rather than a significant increasing in the number of IMGs. See Ontario Medical Association (2000); McKendry, 1999); and Ontario's Expert Panel on Health Professional Human Resources (2001).
6. An alternative method of calculating the capital, human or physical, is to consider the present value of the expected future income stream. The average General Practitioner in Canada earns an annual after-tax income of roughly \$75,000 (450,000 Rand) compared to \$40,000 for the average university graduate. This implies a return on a medical degree of \$35,000 per annum. If the representative South African physician migrating to Canada is 40 years of age and works until the age of 65, and assuming a discount rate of 5 per cent, the estimated present value of a medical degree is roughly \$0.5 million (or 3 million Rand). This would place that annual transfer of human capital associated with 40 physicians migrating from South Africa to Canada at \$20 million or 120 million Rand. This method, however, considers only the private return, or that captured by physicians themselves, and excludes the non-private returns.
7. The only caveat to this suggestion is that it may interfere with the government's capacity to create a more racially-balanced physician workforce. If a student were to finance the full cost of a medical education through loans, it would imply an indebtedness in the range of 1 million Rand by the time of graduation.

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