



How many doctors are enough?

Dr. Robert G. Evans, in his editorial "New bottles, same old wine: right and wrong on physician supply" (*CMAJ* 1998;158[6]:757-9) attempts to answer the question "How many doctors are enough?" The argument is that in health care, unlike commodity economics, supply induces demand.

In the early 1970s studies showed a correlation between number of physicians per capita and cost of medical care per capita.^{1,2} This information pointed to a way of controlling health care costs: restrict the number of doctors. This hypothesis was subsequently enshrined in the Barer-Stoddart report on medical human resources in Canada.³

However, there are other data that do not support this theory of supplier-induced demand. In my study of physician supply and costs in Saskatchewan over a 30-year period dating from the initiation of government medical insurance,⁴ I found a correlation between number of doctors per capita and cost per capita. However, over the period of the study the proportion of patients seeking medical care at least once (a variable that depends on the patient, not the physician) rose about one-third, to over 90%. After adjustment for this increase in the patient population the correlation disappeared. Furthermore, the mean number of physicians per patient (the average practice size) remained virtually constant. Thus the advent of government-sponsored universal medical insurance did not affect physician supply when supply was measured in relation to market size.

Thus if Saskatchewan is overpopulated by physicians today under medicare, it was similarly overpopulated when medical care was delivered under a free market system. This seems

highly unlikely, because the supply of doctors in Saskatchewan is among the lowest in Canada. In addition, if we had instituted medical human resources policy on the basis of the number of physicians per capita at the time of initiation of medicare in Saskatchewan, the province would have one-third doctors fewer than it has today.

The US literature supports these views and criticizes earlier support for a correlation between doctor supply and cost on methodological grounds.⁵ Furthermore, there is a suggestion that better-informed consumers use more medical care.^{6,7}

Since the number of physicians has no overall negative economic influence and a lack of regulation does not increase the number to a level in excess of what it would be in an unregulated market and does not raise costs, there is no need for regulation. In short, the evidence suggests that an unregulated market will provide the "right" number of doctors.

Finally, if the profession takes this position, its members cannot be accused of advocating their own interests.

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Caring for an aging population

The article "How many physicians does Canada need to care for our aging population?" (*CMAJ* 1998;158[10]:1275-84), by Dr. Noralou P. Roos and colleagues, is both enlightening and disturbing. It provides a glimpse into the complex considerations required to address physician human resource requirements for a population. However, we are concerned that the conclusions proposed are simplistic and that planners may implement the results at face value.

Several essential pieces of information are missing from the analysis. First, the premise that adequate physician services were provided to elderly patients in 1986 should be validated. Second, meaningful conclusions about adequate specialist services for the elderly in the future cannot be drawn without a breakdown of the care given by geriatricians, geropsychiatrists and specialists such as rheumatologists, who provide a large proportion of their services to this patient group. Third, because most geriatricians, as well as many physicians who work with the elderly (including family physicians), are not remunerated on a fee-for-service basis, the quantity of services provided may be underestimated. Although salaried physicians were included in the analysis of the Manitoba figures, it is unclear how the data were analysed with specific regard to the elderly. Fourth, validation of physician human resources with data from sources other than the Canadian Institute for Health Information is lacking. For example, a subsequent brief report in *CMAJ* showed figures that do not match.¹



Our major concern is the assumption that increases in the number of physicians lead to commensurate and therefore adequate services. Other factors that must be taken into account include the choice of individual physicians as to whether they will work with elderly patients; geographic distribution of physicians;² the “feminization” and greying of physician ranks, both of which may affect “full-time equivalent” values;^{3,4} and the reality that, as the elderly cohort ages, the old old will require more physician services per capita than the young old (people over 80 years of age represent the fastest-growing segment of the population, and the number of frail elderly people,⁵ who are most likely to need health services and physicians’ time, is growing disproportionately).

Despite its title, the article by Roos and colleagues is limited to discussing physician numbers and does not address meeting population needs, an immensely broader, more complex issue in the elderly population. Although the authors recognize the limits of “purely technical means” to determine optimal physician numbers, the question of physician resources for elderly patients cannot be answered by this study.

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While thought provoking in delivery and content, the article by Dr. Roos and colleagues does not spell out several important caveats. The period of review was before the 10% drop in medical school enrolment, a change that will undoubtedly affect the future number of physicians and the population they serve. Equally important is that approximately 25% of specialists were excluded from the analysis, including anesthetists, who make up the fourth-largest specialty group after “other medical specialties,” psychiatry and pediatrics.

In 1986 and 1996 the Canadian Anaesthetists’ Society did direct tallies of the number of specialist anesthetists in Canada. Over the 10-year period, this number increased by 10%, whereas the general population increased by 18%. The Society believes that the current shortage of anesthetists will worsen as the number of elderly people (over 65 years of age) in Canada’s population increases. Given that the delivery of surgical services is inextricably linked to the number of anesthetists, it is difficult to agree with the conclusion that care to our aging population will not be compromised.

Quality research into the issues of physician resource planning is clearly needed in Canada. However, it is essential that limitations in methodology and interpretation of data be provided in articles such as this one.

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The article by Dr. Roos and colleagues represents an important contribution to discussions about

physician human resource planning. However, its conclusions must be regarded with caution, given that the database upon which the calculations are based is inaccurate.

Two years ago, the Canadian Neurosurgical Society reported a significant discrepancy between the number of neurosurgeons in clinical neurosurgical practice and the numbers in databases that were being used for physician human resource planning.¹ For example, on Dec. 1, 1994, there were 174 neurosurgeons in active clinical practice in Canada — not the 211 used in this study. The numbers for other specialties and for the year 1986 are likely also inaccurate.

Research and policy development on physician human resources is hampered by such discrepancies. In this era of specialization, databases of physician numbers should include definitions of specialties and domains of practice, including proportions of time allocated to clinical activities in several subspecialties if necessary, to allow accurate description of what the numbers represent and determination of present and future physician resources. The database of the Canadian Institute for Health Information does not discriminate between practising neurosurgeons and retired certified neurosurgeons. Furthermore, for the purposes of research and policy development on physician human resources, certified surgical specialists who confine their practice to research or disability examinations should not be counted as “practising surgeons.” If they are, the number of physicians in clinical practice will be overestimated.

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[Jill Strachan, of the Canadian Institute for Health Information, responds:]

The Canadian Institute for Health Information (CIHI) maintains 2 databases on physicians in Canada. The Southam Medical Database contains information on the supply of physicians in Canada and includes physicians who are engaged in clinical and nonclinical practice (e.g., teaching, research and administration). The second database is the National Physician Database, which contains information on Canadian physicians and their activity levels. Information derived from both of these databases can play a role in physician resource planning.

The Southam Medical Database is useful for this purpose because it allows for the identification of supply, distribution and migration trends at both provincial and national levels for all physicians, not just those engaged in clinical practice. This database has been validated,¹ and the counts by province and specialty are consistent with those of other national databases such as the Canadian Medical Association Masterfile, counts provided by the Royal College of Physicians and Surgeons of Canada and the IMS Canada Database. All specialty allocations are based on the physicians' most recent certified specialty. This database does identify physicians who are retired and semi-retired, and these records were excluded from the data provided for the study by Dr. Roos and colleagues.

Dr. Hugenholz is correct in stating that the information derived from this database should be interpreted with caution when it is used for physician resource planning in relation to clinical practice, because it does not take into consideration whether the physician is engaged in clinical practice and if so, his or her associated type and level of activity. The National Physician Database

would have been a better source for the study by Roos and colleagues, since it is based on physician claims data provided by the provincial medical insurance plans. However, timely data from this database were not available when the study was undertaken.

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[One of the authors responds:]

We compared the counts of different specialists provided by the CIHI with counts of Manitoba specialists using both billing data and lists of practitioners provided by the Manitoba Medical Association and others. We also compared counts of practitioners with full-time equivalent estimates derived from billing data and other sources. In other words, we carefully constructed Dr. Hugenholz's requested measure of clinical activity and paid close attention to the issues that concern Dr. Nazerali and associates. We found that the CIHI data (over the 6 years examined) underestimated by 2% the number of specialists in the province, although for some of the smaller specialties the discrepancies were larger. The physician counts tended to overestimate specialist clinical activity (as judged by full-time equivalents) by 11%; the percentage varied across specialist groups. Therefore, for our purposes, the database seemed adequate.

We share Dr. Donen's frustration at being unable to include approximately 25% of specialists in our analyses, but Canadian data collection for anesthesiologists, radiologists, patholo-

gists and other hospital-based specialists is particularly poor and we could not include them. Similarly, individual subspecialists (e.g., geriatricians and geropsychiatrists) are not well served by our existing data systems.

We also agree that it is difficult at this juncture to predict the future. There are many factors in addition to the decrease in class sizes that influence specialty numbers, including the closing of the US border to Canadian specialists.

Given the figures quoted by Donen, it would appear that, had we included anesthesiology in our analysis, this specialty would have had an annualized growth in the range of 1%, lower than most of the surgical groups except general surgeons (Table 1 of our article). This would have translated to a slower-than-predicted growth to keep pace with population change (Table 3 of our article). Yet the number of specialists is the wrong indicator on which to focus; many other issues warrant attention. In the case of anesthesiology, for instance, there are no certified or noncertified specialist anesthesiologists practising in Manitoba's rural south, and the number of rural family practice anesthesiologists decreased sharply over the period 1986–1996. Despite the appearance of a critical shortage of these specialists, residents of the rural south undergo more surgery than other Manitobans.

We take no issue with the observation of Nazerali and associates that our assumption about the provision of adequate levels of service to the elderly in 1986 needs validation. Likewise, any assumption that current levels are correct must also be validated. Our work clearly supports the contention that physician numbers are the wrong matter about which to worry, which is 1 of the 2 main points we tried to make. However, Nazerali and associates seem to have missed our second main point: the aging of the population per se places few de-



mands on specialist physicians. The group they mention — the oldest old — is growing rapidly, yet even if their numbers were to double or triple, they would have little impact on specialist services (although for some specialist groups, including geriatricians, the impact will be greater).

The issue is not the numbers of specialists but how specialist care is delivered. For example, how does Alberta manage with so many fewer specialists than Ontario or Quebec? Rather than being bewitched by numbers, we need to focus on what specialists do and ask what it is they really should be doing. What surgical or medical innovations might affect the need for particular specialists? These are difficult questions. But they need to be posed for all specialist groups.

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Health care needs versus health care wants

After reading the articles by Eva Ryten and colleagues, “The Class of 1989 and physician supply in Canada” (*CMAJ* 1998;158[6]:723-8) and “The Class of 1989 and post-MD training” (*CMAJ* 1998;158[6]:731-7), and the accompanying editorial, “New bottles, same old wine: right and wrong on physician supply,” by Dr. Robert G. Evans (*CMAJ* 1998;158[6]:757-9), I have decided that neither Ryten and colleagues nor Evans is totally correct.

The most telling comment was from Evans: “It may in this new environment become possible to give more serious consideration to a wider range of ways to ensure that Cana-

dians get the medical care they need.” Unfortunately, he has forgotten that Canadians not only need medical care but want it. Whether they get what they want is different from whether they get what they need.

I suspect that Evans is discussing what people need, while Ryten and colleagues are dealing with what people want. I think this is also why you will find a huge discrepancy among various providers of medical services, as Ryten and colleagues suggest. If we provide only care that is sufficient for people’s needs, we will no doubt become a 2-tier medical system: their wants will still have to be satisfied.

Personally, I have no problem with either system, but we have to be realistic and pragmatic about the wants of Canadians and not focus on what health economists or health care providers perceive those wants to be.

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[One of the authors responds:]

Dr. Rosenquist is puzzled by the striking difference between the conclusions we reached in our articles and the views expressed by Dr. Evans in his editorial. He speculates that these differences arise because my coauthors and I are concerned with the number of physicians required to satisfy patients’ “wants,” whereas Evans is concerned with meeting patients’ “needs.”

The conclusions we reached were based exclusively on the demographics of new physician supply, the demographics of the practising physician stock (age structure) and the projected population change in Canada. We concluded that Canada is educating far too few physicians.

I have always steered clear of discussing health care “needs” and “wants” because in the context of a fully publicly funded health care sys-

tem this is a sterile debate. Almost the first lesson of economics is that if price is reduced, demand increases. Although all publicly provided health care must eventually be paid for through taxation, to the consumer of health care the price at the point of consumption is essentially zero.

When the price of a good is zero, demand will be unconstrained. No wonder health care budgets are regularly exceeded, and how easy it is to blame this on physicians for inducing demand merely to meet their income targets. Where there are no prices, any distinction between needs and wants is meaningless. That economists should advocate that the health care system be funded in such a way as to eliminate any incentives for sensible use of resources strikes me as bizarre. Rosenquist should ask the economists how they are going to ensure that, in the absence of price mechanisms of any kind, only health care “needs” are going to be met.

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Corrections

In the article “Reporting of gender-related information in clinical trials of drug therapy for myocardial infarction” (*CMAJ* 1998;159[4]:321-7), by Dr. Paula A. Rochon and colleagues, the affiliation information for coauthor Malcolm A. Binns was omitted. Mr. Binns is with the Rotman Research Institute, Baycrest Centre for Geriatric Care, Toronto, Ont.

In the article “Survivors of sexual abuse: clinical, lifestyle and reproductive consequences” (*CMAJ* 1998; 159[4]:329-34), by Drs. T. Kue Young and Alan Katz, an incorrect mathematical symbol was given in Table 1. For the number of sexual partners (lifetime), the first category should have been ≤ 5 .