

# Physician Payment Options: A Policy Discussion for New Brunswick<sup>†</sup>

*Mengxuan Xu and Weiqiu Yu\**

*Department of Economics  
University of New Brunswick*

## Abstract

Under the pressure of escalating health care costs, physician remuneration has become an important policy issue. During the past decade, several physician payment arrangements have been applied across Canada. This report critically reviews the literature on physician payment options. In particular, it presents the pros and cons of several alternative payment methods including fee-for-service (FFS), capitation, salary, and blended payment system (BPS), with respect to quality of care, accessibility and cost containment. We argue that while none of the single payment methods is optimal in all circumstances, a BPS may promise better performance in achieving overall health care objectives. We suggest that, in New Brunswick where physician shortage is a severe problem due to rural population and population aging, alternative payments should be expanded and a certain proportion of FFS must be maintained to secure adequate services, especially in rural areas. Furthermore, given the constant changes in both the demand for and supply of physician services, physician payment system should be made flexible to reflect these changes.

## 1. Introduction

Health spending is one of the largest components of government spending in Canada. It has been increasing steadily over the past two decades. In 2001, health spending passed the \$100 billion mark. Even after inflation and population growth are taken into account, health expenditure in 2001 was about 80% higher than 1975 (CIHI, 2002). Physicians are the major health care providers. Paying for physician services is a major component of total health expenditure. In 2000, almost \$13 billion was spent on physician services in Canada, representing 13.3% of the total health expenditures (CIHI, 2001). How physicians are paid and how physicians react to their payment arrangements will directly influence the quality and efficiency of health care.

In New Brunswick where population is aging at a faster rate and where recruiting and retaining physicians have been difficult due to its large rural populations, maintaining adequate and equitable physician services is especially challenging. The objective of this paper is to provide a policy analysis for the physician payment system in New Brunswick by reviewing and assessing the physician remuneration methods applied in Canada. We argue that while none of the single payment

---

<sup>†</sup>Financial support from NB Department of Health and Wellness is gratefully acknowledged. The views expressed in this paper are those of the authors and should not be construed as the opinions of NB Department of Health and Wellness.

\*Contact: Weiqiu Yu, Department of Economics, University of New Brunswick, P.O. Box 4400/Fredericton, N.B. E3B 5A3, Tel: (506) 447-3211, Fax: (506) 453-4514, E-mail: wyu@unb.ca.

methods is optimal in all circumstances, a blended system may promise better performance in achieving overall health care objectives. We suggest that while alternative payments should be expanded or developed, a certain proportion of FFS must be maintained to secure adequate services, especially in rural areas. Furthermore, given the constant changes in both the demand for and supply of physician services, physician payment system should be made flexible to reflect these changes.

The paper proceeds as follows: First, we provide a brief overview of the current physician payment system in Canada and introduce a framework for assessing physician payment methods. Second, we review the literature on the pros and cons of the predominant payment scheme – fee-for-service (FFS). Third, we summarize and discuss the research progress in several alternative payment arrangements including capitation, salary and blended systems. Finally, we examine the New Brunswick situation and provide some recommendations for designing a more efficient physician payment system in New Brunswick.

## **2. Overview of Physician Payments in Canada**

Canada has a federally coordinated system of provincially designed and administered health care plans. Under Canada's Medicare system, physician payment funds are from both the federal and provincial governments. Every year, the federal government makes significant funds available to each province. The proportion applied to physician payment is then decided through negotiation between the provincial government and the provincial medical association.

Physicians are paid in a variety of different ways. The most common physician payment is FFS, representing 90% of total payments for clinical physicians' services, which is approximately \$10 billion in the fiscal year 2000/2001 (CIHI 2002). Any other payment modes different from FFS are called alternative payments (CIHI, 2001). There has been a widespread view among government planners and academics that FFS remuneration may not be the most efficient way to fund physicians. With the advent of plans for health system reforms in 1990's, alternative payments started to emerge due to a variety of reasons. First, since the mid 1990's, increasing health expenditures has lead provincial governments to find alternative approaches to contain costs. Such strategy includes paying physicians by Capitation and Salary. The second reason is to promote access to physician services in rural areas. As the Fyke Commission Report (2001) from Saskatchewan points out, FFS itself may not be appropriate or sufficient to provide fair remuneration for physicians in rural areas. Instead, some alternative payments, such as sessional fees, salary, northern and under-serviced areas, are designed for rural practices. The third reason for the emergence of alternative payment plans reflects academic and research needs. Block funding is such a payment. It frees academic physicians from volume-based service provision.

Although FFS is still the most common payment arrangement in Canada, alternative payments have become more and more popular. Between 1995/1996 and 1999/2000, all provinces except Quebec and British Columbia have increased their spending on physician services on alternative payment plans. Moreover, substituting FFS for alternative payment plans has been widely investigated as a policy option to reform the physician payment system. To provide a framework for evaluating FFS and its alternatives, we start with the Canada Health Act:

...the primary objective of Canadian health care policy is to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers.

The above primary objective of health care can be broken down into the following specific goals: (1) quality of care, (2) accessibility, and (3) efficiency. Achieving these individual objectives of health care depends on a broad range of factors and conditions. Physicians, as a part of the entire health care system, play an important role. Not only have physician services accounted for a large portion of total health care cost, physicians' practice manners also directly influence the quality and efficiency of health care. How physicians are paid, then, is an important determinant of how these objectives are achieved. In the next two sections, we evaluate the performance of various payment methods with respect to these three objectives, given the incentives provided to physicians by each payment mechanism.

### **3. Fee-for-service**

Under FFS, physicians bill their province or territory for each service they provide. There are several advantages associated with FFS. First, FFS payment promises better accessibility for patients compared to other payment mechanisms since FFS provides physicians with the financial incentive to be willing to accept patients and to provide more services. A better access under FFS compared to alternative payments is well documented in many empirical studies.<sup>1</sup> Second, governments can introduce specific fee-service codes into the current fee schedule to encourage health promotion and disease-prevention activities. Third, comparing FFS to alternative payments, literature has documented a much higher satisfaction level for both patients and physicians,<sup>2</sup> indicating better quality of care.<sup>3</sup>

However, as measures to contain escalating costs became the focus of health care reform, many studies have examined the problems associated with the current health system in general and FFS in particular. Under FFS, physicians are paid in accordance with the number of services provided, regardless of the expected effect of providing that service on the patients' health status. This type of payment creates an incentive for physicians to generate additional services to enhance income. This phenomenon is called Supplier-Induced-Demand (SID).

There is strong empirical evidence that physicians under FFS tend to provide more services.<sup>4</sup> However, there seems to be evenly matched literature against it.<sup>5</sup> Whether SID exists depends on the market dynamics of health care services. In particular, SID exists only when there is excess supply of physician services.<sup>6</sup> When there is excess demand for physician services, there is no need for physicians to induce further demand.

---

<sup>1</sup> Helfinger and Northrup, 2000; Brudevold et al., 2000.

<sup>2</sup> Brudevold et al., 2000; Nadler et al., 1999.

<sup>3</sup> Tarlov et al. 1989.

<sup>4</sup> Ferrall et al., 1998; Rice, 1983; Hickson et al., 1987; Coyte's, 1994.

<sup>5</sup> Herbert Emery et al., 1999; Hurley et al., 1996; Woodward et al., 1984; Evans, 1983; Coyte, 1995; Ferrall et al., 1998.

<sup>6</sup> Deber et al., 1998

If SID indeed exists, FFS will display a number of disadvantages. First, FFS has a strong impact on the total health care cost. Using cross-section data of nineteen OECD countries and an econometric model, Gerdtham et al. (1992) examine the impact of FFS on the total health care expenditures. They found that, other things being equal, FFS increases health spending by 11%. When SID exists extensively, cost containment becomes an important issue. For example, five provinces (British Columbia, Saskatchewan, Manitoba, Ontario, and Quebec) have incorporated control mechanisms such as caps and thresholds in their fee schedule negotiations to contain costs without any success. Those hard caps have been described as “blunt instruments” in contrast to the strategy of moving from FFS to alternative reimbursement methods. Third, although FFS is believed to offer a universal access to health care to patients, some patients’ right to access health care would be bereaved if physicians do use their discretionary power to induce services, especially those that deserve less time and effort. Indeed, given time constraints physicians under FFS do have an incentive to provide quicker and more frequent services, which will distort the overall quality of health care and lead to unequal access to health care: sicker patients and seniors who demand for more physician services are potentially in receipt of less accessibility to health care.

In summary, the main concern of FFS is that it has a significant impact on health care cost by providing physicians with incentives to induce demand, which will reduce the efficiency of the payment system. In terms of quality and accessibility issues, FFS performs well on some aspects such as health promotion, patient accessibility and physician autonomy. We now turn to the alternative payment schemes.

#### **4. Alternative Payments**

As briefly reviewed in the second section, while FFS remains the predominant payment scheme, a number of alternative payment methods have been used in Canada. In this section, we evaluate three important alternative remuneration methods: capitation, salary and blended systems.

##### **A. Capitation**

Capitation, sometimes called rostering, involves assigning patients to physicians: instead of free choice of physicians, as under FFS payment, patients would receive services from physicians on whose list they are placed; physicians would receive a flat fee for each patient on their lists regardless of how much or how little care is provided (Ferguson, 2001). We discuss the advantages as well as the disadvantages of capitation over FFS with respect to overall health care objectives in this section.

First, since physician expenditures are determined generally by the level of capitation fee and the size of the resident population, control of physician expenditures requires only control of the level of capitation fee. This formula also reflects that capitation payments allow health resources to be allocated on the basis of population size rather than physician activity. Birch (1994) argues that:

...population-based payments (capitation) seem to provide major advantages over the other methods of payment from the perspective of managing physician expenditure (p.20).

Second, in contrast to FFS, capitation has an inherent incentive to reduce services. Under the assumption that some services are “unnecessary” due to SID under FFS, this reduction of service constitutes an efficiency gain. A large body of literature attempts to show empirically that physicians under capitation indeed provide fewer services than those under FFS.<sup>7</sup>

Third, literature shows that capitation has the potential to encourage physicians to communicate and cooperate with other health care providers to provide the best practices based on clinical evidence.<sup>8</sup>

Finally, since the loss of a dissatisfied patient to another physician leads directly to the loss of income under capitation, the competition for patients should generate a strong incentive to promote and maintain a better relationship between a physician and his/her patients. Moreover, since physicians under capitation maintain a relatively stable patient base, they tend to provide better continued-care for their patients.

On the other hand, there are also problems associated with capitation. First, as mentioned previously, capitation eliminates the incentive to over-service. But, it may lead to the other extreme, i.e., to provide fewer services than the population’s real need. Grignon et al. (2002) point out that:

While lump sum payments [capitation] offer a structural means of resolving the problem of increased volumes of services delivered by physicians, it raises the risk that the physician will provide too few services (consultations, examinations) and too few non-material resources (shorter consultations, less attention) to the patient. ...If the physician is paid to manage a patient and is not sanctioned in any way, he has an incentive to collect the lump sum payment and not provide the corresponding services and effort (p. 6).

Second, Grignon et al. 2002 argue that physicians under capitation have incentives to transfer his/her own work to others by referrals and increase the volume of prescriptions so as to cut down on unremunerated effort. This argument is supported by several empirical studies.<sup>9</sup>

Third, capitation encourages physicians to choose their roster patients based on the patients’ health status. They tend to select only patients with less health service demand, and avoid those who require more time-intensive care. This so-called cream-skimming is one of the most intractable problems associated with capitation. One possible solution is to increase the capitation fee for the population that demand for more health care.

In summary, physicians under capitation are not reimbursed proportionally to their services delivered, and so have no interest in multiplying his/her services. Thus, while this payment scheme

---

<sup>7</sup> Monrad, 1995; Birch et al., 1994; Hillman et al., 1989; Grignon et al., 2002; Krasnik et al., 1990; Ransom et al., 1996.

<sup>8</sup> Robinson, 2001; Coyte, 1995.

<sup>9</sup> Krasnik et al., 1990; Cooke et al., 1998; Ostbye et al., 1997.

may be associated with a lower cost, its impact on health care quality is uncertain. As Hurley et al. (1999) conclude:

advocates of capitation payment argue that it will improve quality compared to traditional fee-for-service methods of funding; detractors emphasize the potential for capitation to reduce quality. At a conceptual level, capitation contains conflicting incentives with respect to quality, some of which can be expected to enhance quality and others to reduce quality; at an empirical level, problems in measuring quality and isolating the differences in quality attributable to differing funding arrangements are extremely difficult (p.53).

## **B. Salary**

Salary is the payment of a negotiated amount of money for an individual's time in exchange for that individual's commitment to provide services during the hours of employment. It is neutral in terms of services since it is neither directly dependent on the number of services provided nor on the cost of the services.

There are at least two advantages associated with salary payment scheme. First, it provides more predictable physician expenditures. The expenditure on physician payment is determined by the salary rate per physician and the number of physicians. These two elements are both within the scope of government control.

Second, it eliminates the possibility of cream-skimming under capitation and biased selection under FFS since physicians on salary are paid the same contract amount regardless of the size and health status of patients' population. This should lead to a more equitable access to health care.

On the other hand, literature has identified a number of problems associated with Salary payment, which may result in a lower quality of care. First, the biggest problem with Salary payment is the lack of incentive to do more. Many empirical studies have shown that the service volume provided by salaried physicians is consistently lower than that by FFS physicians.<sup>10</sup> Although under-servicing is also a problem under capitation, the difference is that physicians under capitation would have to provide relatively reasonable amount of services to keep their patients from leaving.

Second, since salary payments are not linked to patient population, physicians have little incentive to maintain a stable patient population. This poses a problem on the continuity of care for patients.

Finally, salary payment scheme reduces physician autonomy since more government control is expected under Salaries than under FFS or capitation. The reduced autonomy may reduce physician satisfaction.

---

<sup>10</sup> Gosden et al., 1999; Ferrall et al.; 1998.

In summary, salary is a payment that basically promotes cost containment but undermines health care quality. In terms of accessibility, equity is better ensured in the sense that it eliminates the incentives to select patients. The biggest problem with this payment is its potential negative effect on health care quality. Three reasons have contributed to the lower quality: reduced work effort, lack of care continuity, and loss of physician autonomy.

### **C. Blended Payment Systems**

A good payment system should be able to reward physicians in line with health care objectives. But the question is how to best achieve the objectives of expenditure control, quality of health care and universality of health care access. The difficulty comes from the fact that these objectives are not only difficult to measure but also potentially contradictory.

One solution is to use a combination of two or more individual physician options. This leads us to the third alternative – blended payment systems. Blended payment systems can take many different forms, such as capitation supplemented with FFS or salary components. In this paper, we consider a blend of capitation and FFS because it is the most investigated form in the literature.

As we discussed above, FFS has been criticized for its inefficiency in controlling health care costs due to the possibility of over-servicing and capitation for creating incentives to under serve. To avoid these disadvantages, Blomqvist (1997) proposes a blended system in which physicians receive a guaranteed capitation base payment, combined with a FFS element. Using a standard economic model, he shows that under certain conditions, blending the two can be superior to either one in terms of physicians' as well as patients' welfare. In particular, he starts with an optimal service level and shows that FFS leads to over-servicing and capitation results in under-servicing and that there exists a payment system that provides the optimal level of service. This model offers a theoretical basis for proposing FFS-Capitation blended systems. This conclusion has been generally supported by several empirical studies conducted in many different countries.<sup>11</sup>

However, further theoretical and empirical investigations are needed to identify the optimal physician service level. Due to the lack of an accurate measurement of what the appropriate service level is, any empirical studies comparing physician service level under different payment schemes could be evidence of over-servicing under one scheme or under-servicing under another, or even both. Since studies have shown that FFS physicians tend to provide more services than physicians under capitation, and even more than physicians under salary do, we could probably assume that the optimal physician service level is somewhere between FFS and salary, which makes blended systems more desirable than individual payment schemes.

## **5. Conclusion and Policy Discussion**

Under the pressure of increasing health care expenditures in Canada, physician payment mechanism has been recognized as a critical and central component in health care reform. In this paper, we have reviewed and discussed the pros and cons of FFS and capitation, salary and blended payment

---

<sup>11</sup> Birch et al., 1994; Rosenthal et al., 1996; Ostbye et al., 1997; Robinson, 2001.

systems. Table 1 contains a summary of these evaluations. The main conclusion of our investigation is that there is not a physician payment scheme that is optimal in all situations. In light of the literature reviewed, we conclude the paper by providing a policy discussion for New Brunswick in physician remuneration.

New Brunswick faces serious physician resource problems due to a number of factors. First of all, on the demand side, New Brunswick has one of the oldest populations among the provinces in Canada. As shown in Table 2, between 1991 and 2001, the median age of the province's population grew 5.4 years from 33.2 years to 38.6, just below Nova Scotia and Quebec of 38.8, and much higher than the national level of 37.6. In addition, while the province's population of children and young people declined, the number of elderly people increased (Statistics Canada, 2001).

Second, as shown in Figure 1, New Brunswick had the lowest physician/ population ratio in Canada from 1986-2001. Recently, due to tremendous recruitment efforts by the Provincial government, the physician resource problem has been to a certain degree alleviated.

Third, the geographical distribution of physicians is another major problem. In 2001, New Brunswick had 49.8% of its population residing in rural areas (Statistics Canada) compared to the Canadian average of 20.4%. Since as shown in Figure 2, rural areas are much more under-served compared with urban areas, the physician shortage problem is greater in New Brunswick.

Forth, as shown in Figure 3, while New Brunswick has a predominantly male-physician labour force, there has been a steady increase in the proportion of female physicians during the past few years. The number of female physicians has increased from 243 (accounting for 19.7% of the total physicians) in year 1994/1995, to 388 (accounting for 26.5% of the total physicians) in year 2001/2002. Studies have shown that male physicians and female physicians have different preferences in lifestyle, practice and payments. For example, Ellsbury et al. (1987) and Maheux et al. (1988) find that female physicians in the United States and Canada are more likely than their male counterparts to work in salaried practices. Roter et al. (1991) find out that, compared with male physicians, female physicians engage in more positive talk, partnership building, question-asking, and information-giving concerning both biomedical and psychosocial issues. However, female physicians are found to work fewer hours than male physicians and they are more likely to work in urban areas.

In summary, New Brunswick is faced with an increasing demand and relatively insufficient supply of health care service. To address these problems, we make the following broad recommendations.

### **A. Pecuniary Options**

Literature suggests that, physicians do respond to financial incentives as everyone else does. Physician payment policies with properly designed incentives will solve many of the physician supply problems. We suggest the following:



Table 1. Evaluating Alternative Physician Payment Options

| Payments   | Advantages   | Disadvantages   | Health care objectives  |
|------------|--|---|---|
| FFS        | <ul style="list-style-type: none"> <li>a. Improves accessibility</li> <li>b. Improves health promotion</li> <li>c. Improves physician autonomy</li> <li>d. High service volume</li> </ul>  | <ul style="list-style-type: none"> <li>a. Restricted access for sicker and less able patients</li> <li>b. Over-servicing</li> <li>c. Encourages quick, frequent services</li> <li>d. SID</li> </ul>                                   | The nature of the payment and the physicians' willingness to provide more services may lead to a greater accessibility and quality, but at a higher cost. |
| Capitation | <ul style="list-style-type: none"> <li>a. Improves Physician cooperation</li> <li>b. Improves Physician-patient relationship</li> <li>c. Expenditure formula promises better cost control</li> <li>d. Lower utilization level</li> </ul> | <ul style="list-style-type: none"> <li>a. Under-servicing</li> <li>b. Cost containment effects offset by physician referral and prescription behaviour</li> <li>c. Cream-skimming</li> <li>d. Lacks compensation mechanism</li> </ul> | Removes incentive to over-servicing and reduces costs; restricts access due to cream-skimming; effect on quality is uncertain.                            |
| Salary     | <ul style="list-style-type: none"> <li>a. Better cost control</li> <li>b. Eliminates over-servicing</li> <li>c. Eliminates cream-skimming</li> </ul>   | <ul style="list-style-type: none"> <li>a. Under-servicing</li> <li>b. No incentive for continuity of care</li> <li>c. Loss of physician autonomy</li> </ul>   | Removes incentive to over-servicing and reduces costs; improves access by eliminating incentives for patient selection; may reduce.                       |
| Blended    | <ul style="list-style-type: none"> <li>a. Attenuates under-servicing</li> <li>b. Reduces health care costs</li> <li>c. Attenuates cream-skimming</li> </ul>  | Difficult to set combination proportions  | Combines the advantages of blending elements, e.g. Capitation and FFS.  |

Table 2. Selected Age Distribution Indexes, Canada, New Brunswick, 2001

|        | Median age | Age group distribution (%) |       |      | Age group ratio |             |
|--------|------------|----------------------------|-------|------|-----------------|-------------|
|        |            | 0-19                       | 20-64 | 65+  | 20-39:40-59     | 15-24:55-64 |
| Canada | 37.6       | 25.9                       | 61.1  | 13.0 | 1.0             | 1.4         |
| NB     | 38.6       | 24.8                       | 61.7  | 13.6 | 0.9             | 1.3         |

Source: 2001 Census, Statistics Canada.

Figure 1 Physician/ 100,000 population in NB, Atlantic Canada, Canada, 1986-2001

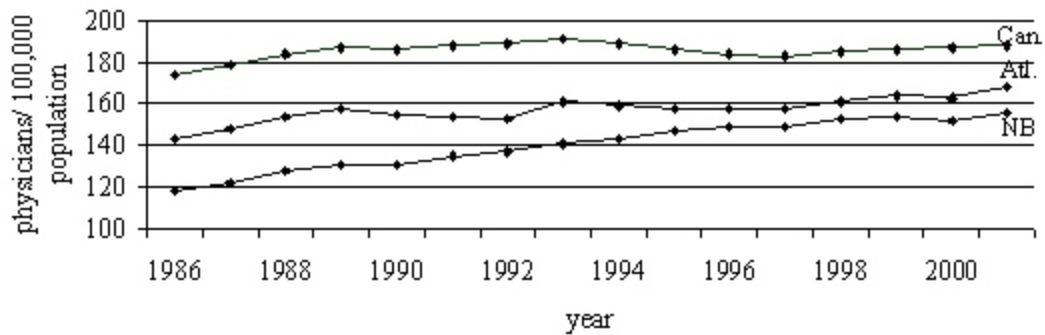


Figure 2 Urban/Rural physician FTE, NB, 1994/1995-2001/2002

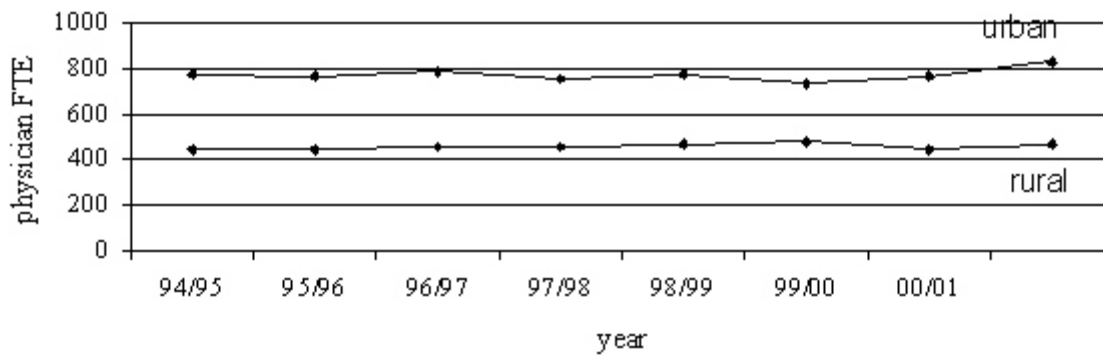
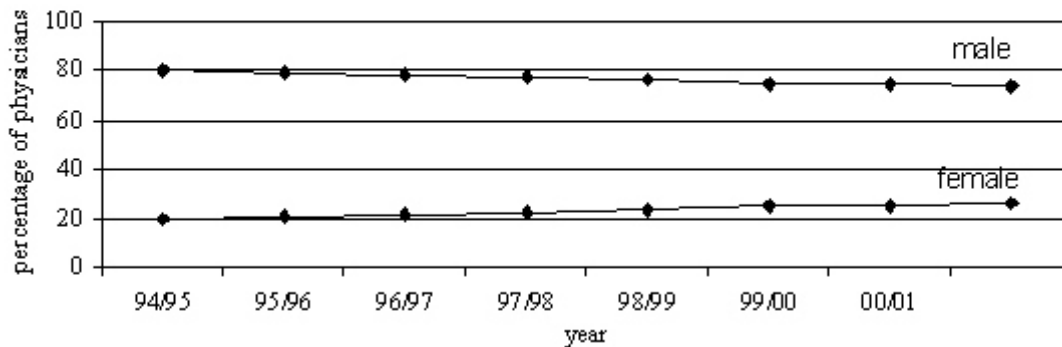


Figure 3 Percentage of physicians by sex, NB, 1994/1995-2001/2002



First, given the large rural areas in New Brunswick, Salary and Sessional payments should be expanded. As we discussed in this paper, alternative payments provide potential benefits, especially for population as they compensate physicians for the inconvenience of rural practice, remunerate physicians for extra hours that may not be covered under FFS. However, effective strategies will have to be designed to avoid the incentive for under-servicing. Any policies promoting alternative payments without addressing this problem would worsen the physician shortage problem. There is a range of policy options to address this issue. For example, according to Ferral et al. (1998), salaried physicians organized in small groups choose to have more patient contact hours and total work hours compared to those in large groups. Therefore, encouraging small group practice or solo practice could be an option to adjust for the low provision level under Salary.

Second, the major problems of FFS are associated with the presence of SID. As discussed before, SID only exists under certain circumstances, such as high physician competition and small number of patients. In New Brunswick where there is an excess demand for physicians, SID is less likely to be a problem. Thus FFS should be maintained as the primary payment scheme to secure adequate services.

Third, as capitation tends to reduce service volume, it should not be an option for a province with a physician shortage. However, it could play a role in rural areas as part of a blended system. For example, rural physicians could be paid on a capitation basis, and supplemented with a FFS element, which would increase physicians' effort when the demand for services increases. If properly set, the result would be that a physician could earn more in a rural setting than in urban areas, doing basically the same amount of work. Since physicians' rejection for rural practice partly results from the concern that they might earn less income than their counterparts in urban areas, this blended payment could be an option to encourage physicians to set up in rural areas.

Finally, location grant is another option for a rural physician recruitment plan. The province has conducted the Location Grant Program providing grants for newly recruited physicians and specialists who agree to establish their practice in hard-to-recruit areas. Medical specialists who move to areas that have been under-serviced are also eligible for the grant. This program should be

continuously provided for newly recruited physicians and physicians who agree to establish their practice in rural areas.

## **B. Non-pecuniary Options**

To address the physician supply problem, payment arrangement reforms are not sufficient by themselves. The solutions should encompass a broad range of comprehensive plans, focussing not only on physician payment, but also on many other aspects such as medical education, academic research, policy restriction, and technical support.

First, medical education is a strategy to enhance rural physician supply. The care of people in rural areas partly depends on the quality of education medical students receive and the number of students who choose to specialize in rural practice. The province should encourage and support medical education that increases the flow of physicians to rural areas. The summer employment program for medical students in New Brunswick designed to encourage first and second year medical students to consider rural practice is a good example. It offers opportunities for students to see first hand how physicians practice as well as how they relate to specialists and rural and district hospitals. This program should be retained and further developed.

Second, to address the physician shortage problem, considerations to increase the reserved physician workforce may be proven effective. Such policy options include increasing the number of qualified international medical graduates and immigrated practitioners accepted by the province; eliminating rules and policies on retirement; luring expatriate Canadian physicians, physicians moved to other provinces, as well as medical students studying elsewhere to come back for practice; and developing incentives like financial bonuses and pension plans to retain physicians.

Third, for female physicians, more opportunities should be explored that could provide a balance for female physicians between home and work. Parental leave, child-care assistance, predictable call schedules, and part-time work or job-sharing all are conducive to a flexible atmosphere.

Fourth, there are alternative options other than payment arrangements that could solve the physician resource problems in New Brunswick. One such option is the use of another form of health care provider---Nurse Practitioners (NPs). McGrath (1990) argues that NPs can deal with about 70% of the cases that come through a GP's office door. Moreover, one NP can substitute for 63% of a GP at 38% of the cost. Introducing NPs into health care practices would allow GPs to focus on more demanding and complicated services, and result in more efficient use of GPs' time and a better access to care.

Another option that has been presented in most proposals for health care reform is the establishment of new health clinics, such as collaborative health clinics and community health clinics in New Brunswick. The newly established clinics will not only ensure the enrolled patients receive appropriate care but also provide opportunities to test new payment arrangements.

Finally, since both the demand for and supply of health care services change over time due to changes in many factors including demographic, institutional, environmental, and educational factors, we suggest that the physician payment system and health care delivery system should be made flexible to respond to these changes. Given the problems associated with each payment method and current fiscal and political climate, maintaining a mixed but flexible physician payment system is perhaps the best way to go.

## REFERENCES

Barer M, Stoddart G. *Toward integrated medical resource policies for Canada: background document*. Center for Health Economics and Policy Analysis, McMaster University, Hamilton, Ontario, 1991.

Birch S, Goldsmith L, Makela M. *Paying the piper and calling the tune: principles and prospects for reforming physician payment methods in Canada*. Center for Health Economics and Policy Analysis, McMaster University, Hamilton, Ontario, 1994.

Birch S, Abelson J. Is reasonable access what we want? Implications of, and challenges to current Canadian policy on equity in health care. *International Journal of Health Services*. 1993; 34, 629-653.

Blomqvist A. *Monopolistic competition and supply-side cost sharing in the physician services market*. University of Western Ontario, Department of Economics, working paper 9705. 1997.

Brudevold C, McGhee SM, Ho LM. Contract medicine arrangements in Hong Kong: an example of risk-beating provider networks in an unregulated environment. *Social Science and Medicine*. 2000; 51(8), 1221-1229.

CIHI. *Alternative payments and the national physician database (NPDB), the status of alternative payment programs for physicians in Canada, 1999/2000*. October 2001.

Cooke L, Davenport ES, Anderson P. Changes in the referral pattern of child patients from the GDA to the CDS following the introduction of capitation in October 1990. *British Dental Journal*. 1998; 185, 586-590.

Coyte PC. Review of physician payment and service delivery mechanisms. *Ontario Medical Review*, Spring 1995; 23-37.

Coyte PC, Wright JG, Hawker GA, Bombardier C, Dittus RS, Paul JE, Freund DA, Ho E. Waiting times for knee-replacement surgery in the United States and Ontario. *New England Journal of Medicine*. 1994; 331, 1068-1071.

Deber R, Narine L, Baranek P, Sharpe N, Duvalko KM, Zlotnik-shaul R, Coyte P, Pink G, Williams P. *The public-private mix in health care*. National forum on health (Canada), 1998.

Evans RG. Health Care in Canada: Patterns of Funding and Regulation. *Journal of Health Politics, Policy and Law*. 1983; 8(1), 1-43.

Ferrall C, Gregory AW, Tholl WG. Endogenous work hours and practice patterns of Canadian physicians. *Canadian Journal of Economics*. February, 1998; 1-27.

Ferguson BS. *An introduction to some basic microeconomics of physician practice*. 2001

Gerdtham UG, Sogaard J, Andersson F, Jonsson B. An econometric analysis of health care expenditure: a cross-section study of the OECD countries. *Journal of Health Economics*. 1992; 11, 63-84.

Gosden T, Sibbald B, Williams J, Petchey R, Leese B. Paying doctors by salary: a controlled study of general practitioner behaviour in England. *Health Policy*. 2003; 64, 415-423.

Grignon M, Couffinal A, Pierrard B. *Influence of physician payment methods on the efficiency of the health care system*. Commission on the Future of Health Care in Canada. Discussion paper no. 35. November 2002.

Helfinger CA, Northrup DA. What happens when capitated behavioural health comes to town? The transition from the Fort Bragg Demonstration to a capitated managed behavioural health contract. *The Journal of Behavioural Health services and Research*. 2000; 27(4), 390-405.

Hemenway D. Financial incentives for childhood immunization. *Journal of Policy Analysis and Management*. 1995; 14, 133-139.

Herbert Emery JC, Auld C, Lu M. *Paying for physician services in Canada: The institutional, historical and policy contexts* Institute of Health Economics Working Paper. 1999; 99-6.

Hickson B, Altemeier A, Perrin M. Physician reimbursement by salary and FFS: effect on physician practice behaviour in randomized prospective study. *Pediatrics*. 1987; 80, 344-350.

Hillman A, Pauly M, Kerstein J. How do financial incentives affect physicians' clinical decisions and the financial performance of Health Maintenance Organizations? *New England Journal of Medicine*. 1989; 321(2), 86-92.

Hurley J, Hutchison B, Giacomini M, Birch S, Dorland J, Reid R, Pizzoferrato G. *Policy considerations in implementing capitation for Integrated Health Systems*. McMaster University Center for Health Economics and Policy Analysis, Policy Commentary Series. 1999; #C99-01.

Krasnik A, Groenewegen P, Pedersen P, Scholten PV, Mooney G, Gottschau A, Flierman H, Damsgaard M. Changing remuneration systems: effects on activity in general practice. *British Medical Journal*. 1990; 300(6741), 1698-1701.

Lomas J, Fooks C, Rice T, Labelle RJ. Paying physicians in Canada: minding our Ps and Qs. *Health affairs*. Spring 1989; 80-102.

Monrad Aas IH. Incentives and financial methods. *Health Policy*. 1995; 34, 205-220.

Nadler ES, Sims S, Tyrance PH, Fairchild DG, Brennan TA, Bates DW. Does a year make a difference? Changes in physician satisfaction and perception in an increasingly capitated environment. *The American Journal of Medicine*. July 1999; 107, 38-44.

Naylor CD. *Private practice, public payment: Canadian medicine and the politics of health insurance*. Kingston and Montreal: McGill-Queen's University Press. 1986; 1911-1966.

Ostbye T, Hunskaar S. A new primary care rostering and capitation system in Norway: lessons for Canada? *Canadian Medical Association Journal*. 1997; 157(1), 45-50.

Pauly MV. Editorial: A re-examination of the meaning and importance of Supplier-Induced Demand. *Journal of Health Economics*. 1994; 13(3), 369-372.

Ransom SB, McNeeley SG, Kruger ML, Doot G, Cotton DB. The effect of capitated and fee-for-service remuneration on physician decision making in gynecology. *Obstetrics and Gynecology*. May 1996; 87(5), 707-709.

Rice TH. The impact of changing Medicare reimbursement rates on physician-induced demand. *Medical care*. 1983; 21, 803-815.

Robinson JC. Theory and practice in the design of physician payment incentives. *The Milbank Quarterly*. 2001; 79(2), 149-177.

Rosenthal TC, Horwitz ME, Snyder G, O'Connor J. Medicaid primary care services in New York State: partial capitation vs full capitation. *Journal of Family Practition*. Apr 1996; 42(4), 362-368.

Taylor MG. *Insuring national health care: The Canadian experience*. Chapel Hill and London: University of North Carolina Press. 1990.

Tarlov AR, Ware JE, Greenfield S, Nelson EC, Perrin E, Zubkoff M. The Medical Outcomes Study: an application of methods for monitoring the results of medical care. *Journal of the American Medical Association*. 1989; 262, 925-930.