Beyond the Medical Marketplace: 
Expenditure, Utilization, and Pricing of Insured Health Care in Canada

THE ORGANIZATION OF NATIONAL HEALTH INSURANCE IN CANADA

To understand the structure of health care legislation in Canada, one must begin with federal-provincial relations. The division of powers between the federal government in Ottawa and the ten provincial governments is Canada's longest and most carefully defended border, and this division of powers (based on sections 91 and 92 of the British North America Act) clearly designates health

This paper owes a great deal to initial discussions with Uwe Reinhardt. At the conference, Herbert Klarman and Anne Scitovsky, the discussants, were both very helpful, as were Victor Fuchs, Lee Soderstrom, and other participants. Their improving influence should be obvious; the rest is mine.

Data used in the text are not separately referenced; a detailed discussion of sources is given in the appendix.
as a matter for provincial jurisdiction. In a strict sense, there cannot be "national" health insurance in Canada; rather, there are ten separate "provincial" health insurance plans. Federal jurisdiction is limited to Indians, Eskimos, sick mariners, and the Armed Forces, and to a variety of specific services such as quarantine, immigration, food and drug control, and many other small areas.

And yet quite obviously there is a national health program covering hospital and medical care (with minimal specific exclusions) for almost all Canadian residents. It came about through a constitutional subterfuge whereby the federal government contributes a significant share of the total operating costs to any provincial plan meeting certain specified federal standards. The constitutional niceties thus are preserved, and indeed no province was forced to follow the federal lead and set up a conforming plan. Since the formulas for cost sharing cover roughly 50 per cent of each provincial plan's total operating costs, however, the financial pressures on the provinces to set up qualifying plans were irresistible. The Hospital Insurance and Diagnostic Services Act of 1957 specified July 1, 1958, as the earliest date on which federal cost sharing for hospital care became available. Newfoundland, Saskatchewan, Alberta, and B.C. already had operating hospital plans that qualified for cost sharing and Manitoba initiated a plan on that date. The pressure on the remaining provinces brought in Prince Edward Island, Nova Scotia, New Brunswick, and Ontario in 1959, and finally Quebec in 1961. A similar scenario followed the passage of the Medical Care Act; B.C. and Saskatchewan had qualifying plans on July 1, 1968, and Manitoba, Nova Scotia, Newfoundland, Alberta, and Ontario initiated plans at various dates during 1969. Quebec and Prince Edward Island set up plans toward the end of 1970, and New Brunswick joined at the beginning of 1971. Thus 1971 is the first complete year of Canadian experience with both hospital and medical insurance. It is also the latest year for which expenditure data of all forms are currently available.

The federal standards/shared funding/provincial administration structure that is required by the Canadian constitutional structure is very clearly a mixed blessing. On the positive side, national average-based cost sharing makes possible a more uniform level of service availability insofar as the federal contribution rises proportionately in the poorer provinces. Relating the federal contribution to national averages of expenditure brings it up over 60 per cent of hospital spending and over 80 per cent of medical spending in the poorest provinces, thus permitting a national standard of health services that would have been quite out of reach of the provinces acting alone.

In brief, income, unemployment, sickness, retirement, immigration, food and drug control, and many other areas are acutely pressured by the federal government's revenue-sharing program. The provincial revenue formula for cost sharing is based on comprehensive non-shareable revenue for spending on hospital and medical insurance. Since the formulas for cost sharing cover roughly 50 per cent of each provincial plan's total operating costs, however, the financial pressures on the provinces to set up qualifying plans were irresistible. The Hospital Insurance and Diagnostic Services Act of 1957 specified July 1, 1958, as the earliest date on which federal cost sharing for hospital care became available. Newfoundland, Saskatchewan, Alberta, and B.C. already had operating hospital plans that qualified for cost sharing and Manitoba initiated a plan on that date. The pressure on the remaining provinces brought in Prince Edward Island, Nova Scotia, New Brunswick, and Ontario in 1959, and finally Quebec in 1961. A similar scenario followed the passage of the Medical Care Act; B.C. and Saskatchewan had qualifying plans on July 1, 1968, and Manitoba, Nova Scotia, Newfoundland, Alberta, and Ontario initiated plans at various dates during 1969. Quebec and Prince Edward Island set up plans toward the end of 1970, and New Brunswick joined at the beginning of 1971. Thus 1971 is the first complete year of Canadian experience with both hospital and medical insurance. It is also the latest year for which expenditure data of all forms are currently available.

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acting alone.5 But the total effects of the minimum criteria for eligibility are much less clear.

In brief, these criteria are portability of coverage across provinces, universal access on equal terms and conditions to all, comprehensive coverage, and administration by a nonprofit public agency.6 Portability clearly works to the general interest by preventing cost-conscious provincial agencies from finding ways of dropping migrants out of the system, while the requirement of public, nonprofit administration specified the initial form of organization believed most likely to achieve the other objectives with minimal overhead cost.7 Universal access is becoming less relevant as provinces are recognizing that "premiums" represent a rather regressive poll tax and are shifting over time to total general revenue financing. But "equal terms and conditions" and "comprehensive coverage" do in fact impose significant limitations on the modifications that can be made on the supply side, insofar as they can be interpreted as prohibiting incentives directed at consumers to choose one form of delivery over another. A user of a closed panel plan, for example, could not receive a premium rebate if his plan were shown to use fewer hospital days, nor could one earn such a rebate by signing up with a well-baby clinic and agreeing not to use a pediatrician unless referred by the clinic.

Furthermore, cost sharing both distorts the structure of care delivery and dilutes incentives to economize. Provincial agencies are acutely aware of what services are or are not cost shareable; no provincial bureaucrat worthy of the name would allocate funds for a non-shareable program if the same result could be attained through a shareable route, even if the former were cheaper. This problem creates steady pressure to expand the coverage of the provincial plans—ambulatory care in hospitals must be insured since otherwise the insurance plan leads to excess hospitalization; extended care facilities should be covered in order to reduce acute care hospital use. Home care programs should also be subsidized with federal cost sharing. Thus, the open-ended nature of the federal commitment to currently covered services, combined with the steady pressure to "rationalize" utilization by expanding coverage, has stimulated interest in ways of dismantling the cost-sharing system and transferring full fiscal responsibility to the provincial governments. In return, the federal government would release to the provinces a larger share of personal income tax revenues, and/or revenues from other federal taxes (alcohol and tobacco). As yet, however, no package acceptable to both sides has been worked out.8
The provinces finance their share of the cost of hospital and medical care by a mix of taxes. Many provinces introduced retail sales taxes at the time the hospital plans were set up, and in some cases these were initially labeled hospital taxes. This revenue is not earmarked, however, and merely flows into general revenue. All provinces receive a share of the federal personal and corporate income tax collected from their residents. Quebec also levies its own personal income tax as well as an 0.8 per cent payroll tax introduced along with Medicare. The federal income tax was augmented by a “Social Development” surtax of 2 per cent ($100 maximum) when Medicare was introduced.

Revenue sources specifically associated with the hospital and medical insurance plans include “premiums” in some provinces and in a few, “utilization charges,” but the universal access condition of federal participation restricts the role of such charges. Thus the premium must not interfere with the requirement that 99 per cent of the population be insured—this requirement can be achieved by compulsion (making the premium a poll tax), by setting premiums well below expected cost per family (which would exclude nonpayers who have already paid most of the cost through other taxes), or by relatively high premiums combined with subsidies to low-income families (making the poll tax less regressive but more costly to administer). The regressiveness, expense of administration, and general pointlessness of the premium system is slowly leading provincial governments toward full general revenue financing of integrated medical and hospital “insurance.” There are still a few voices raised arguing that premiums are desirable as a utilization control; if people are aware of the costs of the plans they may use less. No evidence for this argument has ever been adduced, however, any more than for the contrary position that visible premiums lead people to “get their money’s worth.” In any case, current premiums in no way reflect plan costs and could not be made to do so. They appear to be a transitional feature only.

A scattering of utilization charges persists, without clear rationale. Thus, B.C. charges $1.00 per day of hospital inpatient stay, and $2.00 per visit to a hospital outpatient department. Saskatchewan experimented with a $2.50 physician office visit fee and $2.50 per day hospital charge in 1968 but dropped both in 1971. It appears that the result of the medical charge was to reduce utilization on balance by lowering use by lower-income groups and raising use by upper-income groups. In general, the purpose of the public plans is to reduce the inequality of access to services by income class. And the “universal access on equal terms and conditions” significant circumstances does not apply to most of the charges are, although the province knows.

There is, however, a discount for the reduced cost per cent or allowed to more, some physicians in the province for where they might practice. Quebec also levies its own personal income tax as well as an 0.8 per cent payroll tax introduced along with Medicare. The federal income tax was augmented by a “Social Development” surtax of 2 per cent ($100 maximum) when Medicare was introduced.
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without clear hospital inpatient department. n office visit fee d both in 1971. was to reduce some groups and the purpose of s to services by qual terms and conditions" principle is not consistent with utilization fees having a significant effect on use. Thus they are restricted to specific circumstances; it is proposed, for example, that elderly patients in B.C. extended care facilities should be charged a daily rate sufficient to mop up their monthly federal old age pensions rather than cumulating these payments for their heirs. But most utilization charges are said to cost as much to collect as they return in revenue, although of course the costing has never been done, so no one knows.

There is, however, a patchwork of arrangements, differing in each province, governing physician bills to the patient. When the plans were introduced, many provinces reimbursed physicians at a discount from the fee schedule (90 per cent or 85 per cent) to allow for the reduced uncollectable ratio. Treatment of the remaining 10 per cent or 15 per cent varied. In some provinces the physician was allowed to try to collect these amounts from the patient. Furthermore, some provinces permit physicians to bill the patient above the fee schedule—in Ontario physicians began after 1969 to bill the province for 90 per cent and then to bill the patient for whatever they might get. This practice was prohibited in 1971. Now if a physician submits a bill to the plan, he is not permitted to bill the patient as well. If he chooses, he may bill the patient directly and let the patient bill the plan. In Quebec, physicians may bill the plan or the patient at plan rates; in the latter case the patient is reimbursed. Only "nonparticipating" physicians may bill patients above plan rates, and their patients will not be reimbursed at all. In B.C. the physician may bill the patient directly, up to or above the fee schedule, if he has notified the patient in advance and obtained written consent. Otherwise the patient is not obligated to pay, and the B.C. Medical Association must disallow the bill if challenged. But the patient doesn’t know this! It is not known how significant the practice of extra-billing direct to the patient is in those provinces where it is permitted, but informed opinion is that it is trivial. This would seem to agree with the public perception of Canadian medical care as "free."

If the economic relationships between third-party and consumer are relatively uninteresting in the Canadian insurance system, those between payment agency and provider are the heart of the whole system. Initially, it appears to have been the intent of the designers of both hospital and medical insurance plans to intervene as little as possible in the process of health service supply and merely to pay legitimate charges arising from an independent transaction between patient and provider. This may be an over-
simplified view of the hospital insurance plan, since the federal requirements went beyond mere audit to ensure legitimacy of charges and included inspection and supervision to upgrade the quality of hospital services. However, the belief appears to have been that as long as hospitals and paying agencies were organized as not-for-profit entities, their economic behavior could safely be disregarded. In establishing the medical care plan, economic behavior of providers seems to have been ignored without even the safeguard of not-for-profit providers!

The implicit model of the delivery system underlying this approach was the naive medico-technical view of disease conditions arising independently in the population, requiring necessary care as defined by medical technology, and generating costs, again according to a fairly well-defined production technology and price structure. Expenditures for medical and hospital care were of course expected to rise insofar as it was believed that in the pre-insurance period patients were failing to seek “needed” care because they could not afford it, or providers were giving “charity” services on a volunteer basis. But nowhere in the legislation or procedures establishing either insurance plan was there any recognition that all three components of the delivery process—care seeking, choice of technique, and input costs—might shift in response to insurance coverage.

Care seeking in response to health status stimuli is likely to increase. This is the obvious response of demand to price, but appears to be a relatively small component of the Canadian insurance experience. Shifts also occur in definitions of best-practice health technology—more is performed at greater expense for any given disease state. And most difficult of all to deal with, health providers at all levels, from physicians down through hospital janitors, seem to have revised their income aspirations upward in response to the observation that the payment process was opened. If medical care payments were to be made according to fee schedules promulgated by medical associations alone, what besides adjustment lags limits physicians’ fees and incomes? If hospital budgets are increased as required to cover wages negotiated by an increasingly unionized labor force, what besides the public spirit of trustees and administrators limits wage levels? And so it has turned out that the single most prominent influence of health insurance in Canada has been to increase the earnings of health providers.12

If one examines the net earnings of physicians, comparing their first full year of experience under insurance with their last year of
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earnings prior to insurance (a two-year span, except for New
Brunswick, which began its plan on January 1, 1971), the following
picture emerges.

<table>
<thead>
<tr>
<th>Province</th>
<th>Time Period</th>
<th>Change in Net Physician Earnings</th>
<th>Change in Weekly Wages and Salaries</th>
<th>Relative Income Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saskatchewan</td>
<td>1961–63</td>
<td>36.5%</td>
<td>6.6%</td>
<td>28.0%</td>
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<tr>
<td>B.C.</td>
<td>1967–69</td>
<td>14.5</td>
<td>13.0</td>
<td>1.3</td>
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<tr>
<td>Newfoundland</td>
<td>1968–70</td>
<td>36.3</td>
<td>18.7</td>
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<td>Nova Scotia</td>
<td>1968–70</td>
<td>45.2</td>
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<td>Ontario</td>
<td>1968–70</td>
<td>21.5</td>
<td>15.9</td>
<td>4.8</td>
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<tr>
<td>Manitoba</td>
<td>1968–70</td>
<td>48.1</td>
<td>15.3</td>
<td>28.4</td>
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<td>Alberta</td>
<td>1968–70</td>
<td>19.4</td>
<td>18.6</td>
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<td>Quebec</td>
<td>1969–71</td>
<td>51.0</td>
<td>15.6</td>
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<td>P.E.I.</td>
<td>1969–71</td>
<td>70.1</td>
<td>11.2</td>
<td>53.0</td>
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<tr>
<td>New Brunswick</td>
<td>1969–71</td>
<td>34.6</td>
<td>17.1</td>
<td>14.9</td>
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</table>

SOURCES: Data appendix.

The final column adjusts for changes in the overall rate of
flation, which was accelerating in the late sixties, and brings out
the dramatic gain in the relative income status of physicians that
occurred in the insurance period. As will emerge below, the same
pattern of dramatic income gains has also been true for hospital
workers but over a longer time perspective.¹³

In fact, the peculiar federal-provincial structure of the Canadian
insurance scheme militates against expenditure controls. In adopt-
ing a policy of "pay the bills," the federal government merely
recognized its lack of constitutional authority to engage in regula-
tory activity with respect to the provincial plans. It could of course
impose requirements to check fraud or raise quality standards as
conditions for federal funding, and it went further to permit
disallowance of claims for "medically unnecessary" procedures.
But other than placing some limits on elective surgery, this
provision has been empty. There is no payment limit for removal of
healthy appendixes or for ritual tonsillectomies, for example.

The uniform standards of accounting for hospitals required by the
federal participation agreement have, however, led to the gener-
ation of a formidable data base detailing the operations of each of the
"budget review" hospitals in Canada whose services are reim-
bursed by the provincial agencies. This set of data is remarkable,
not only for the vast amount of detailed information that it provides on the activities of hospitals, levels and patterns of output, utilization and cost of inputs, and so on, but also for the surprisingly weak management and control tool it has turned out to be. When the need arises to make estimates of the full costs of particular activities in Canadian hospitals, or the relative costs of hospitals engaged in similar activities, the data require vigorous massage to yield approximate answers. The reporting systems installed at the time hospital insurance was initiated are descriptive and epidemiological rather than managerial control systems—suitable for a strategy of minimal intervention by the public agency—in spite of their level of detail.

Standard hospital reports in Canada are of several types. Each hospital returns annually federal reports HS-1 and HS-2 providing information on facilities, services, and finances. In addition, each patient discharged generates a form documenting the episode for reimbursement purposes which is returned to the provincial agency. The basic content of these returns is standardized nationwide. Each provincial payment agency may impose its own budgetary returns, overlapping or extending the HS-1 and HS-2. Finally, hospitals may participate in a quarterly federal survey of major hospital indicators (partial HS-1 and HS-2) or return data to nonprofit agencies such as PAS or HMRI. But the federal statistical returns and the patient discharge forms, covering the whole population of hospitals and patients, respectively, form the backbone of the system.

The discharge forms report patient name, age, address, dates of admission and discharge, attending physician, discharge diagnosis (primary and secondary), and surgery and/or anesthesia if any. They provide a comprehensive picture of the in-hospital morbidity patterns of the Canadian population, as well as of the case-mix structure of each hospital. Unfortunately, none of this data can be directly linked either to ambulatory care or to the cost structures of specific hospitals. Much work can be done on the age and regional structure of morbidity, regional patterns of patient flow, etc., but it is only within the past five years that provinces have seriously tackled the problems of machine processing these data. Within another five years most provinces will have established common patient and physician identifiers linking ambulatory and hospital records, but current ambulatory reporting is by fee schedule item and thus is procedural rather than diagnosis-specific.

The hospital statistical returns are institution-specific, keyed to line-item input budgets. They have been modified over time, but in their present form they divide all hospital expenditure into nursing services (w supply, lab services, diagnostic services, educational services, or students general set plant, and expense for supplies and surgical supplies, and supplies and surgical supplies. Report, but also a strategy, adm standard un and published medical provider/p partial contacts and grew out of management plans. These grew out of and paid.

These are some of procedures. Thus one of particular interest is to establish first and second and third partial expenditures, data are not out, although data at all except for age, residence and some others, but billing eligible to reimbursed.
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educational services (direct costs only of salaries or stipends to staff
or students in medical, nursing, or other educational programs); and
general services (administration, laundry, linen, records, physical
plant, and all other nonclinical services). Each area reports direct
expense for salaries and paid hours (medical and nonmedical) and
supplies and other expenses. Separate totals for drugs and medical
and surgical supplies are reported hospital-wide but are not allo-
cated. Reports include not only cost and personnel input by area,
but also a range of physical outputs—patient days (short and long
term), admissions, discharges, deliveries, lab tests done (on a
standard unit basis), radiological films taken, visits to each class of
clinic, pounds of laundry processed, meal days produced, etc. (Not,
however, stamps licked by administrative staff.)

Compared to this vast array of data, much of which is tabulated
and published and all of which is now on tape, the records of the
medical plans are relatively sketchy. Medical data are generated by
provider/patient contacts only, whereas hospital data report both
contacts and annual descriptions of providers. The medical plans
grew out of private, nonprofit, often physician-sponsored prepay-
ment plans (see Shillington, 1972) in which participating physi-
cians had agreed to accept payment according to uniform provincial
fee schedules promulgated independently by the provincial medi-
cal association. These plans recorded only who did what to whom
and paid accordingly.

These schedules vary from province to province, and definitions
of procedures tend to shift both over time and across provinces.
Thus one can be fairly sure about how many surgical operations of a
particular type were performed; but, for example, the line between
first and subsequent office visits (same condition), or general and
partial examinations, is very blurred and seems to shift over time.
Data are not generally collected on why procedures were carried
out, although some provinces also request diagnostic data. And no
data at all are collected on provider units (employees, capital, etc.)
except for the information required by medical associations (name,
age, residence, date and place of medical graduation, specialty) and
some additional data on billing (whether solo practice, grouped
but billing separately, or grouped but billing jointly, whether or not
eligible to bill as a specialist) required by the payment agency in
reimbursing claims.
The weakness of both of these data collection systems is that they provide no link between costs and inputs, and any meaningful measure of output. Hospitals measure direct costs by department, but departmental services are not independently costed out or related back to patients and overhead cost is not allocated. Thus one can calculate direct laundry cost per pound of laundry processed for any hospital in the land, but in no hospital can one do more than estimate (rather crudely) the division of budget into inpatient, outpatient, and educational expense. Moreover, linkages between cost structure and patterns of patient output seem to have been examined only by academics; the public reimbursing agencies have not generally tried to relate cost to diagnostic mix in any systematic way in spite of the fact that they are consequently unable to make any but very crude cross-hospital or cross-time comparisons.  

“Similarities” among hospitals for budget review purposes are assumed on the basis of indicators like size and location, rather than specific information on workload. Budgetary over-runs or requests for further funding are difficult to evaluate since changes in output patterns (diagnostic mix, length of stay or occupancy) are not related to changes in cost patterns. Thus when the initial relatively permissive attitude toward hospital expenditure began to harden in the mid-sixties, adequate informational tools to interpret and control cost escalation were simply not available.  

A similar problem underlies medical care statistics. At first glance it might appear that fee schedules provide a firm price fixed to levels of output. Initially it was argued that fee schedules should remain the prerogative of medical associations, with government carrying on the “hands off” policy of its private, physician-sponsored predecessors. The enormous increases in physician incomes and effective (though not list) prices before and during the introduction of Medicare eliminated that idea rather swiftly. In most provinces now, fee schedules are de facto negotiated with provincial governments although the process is often obscure to preserve the appearance of professional autonomy.  

The weakness in the process, of course, is that fee schedules price procedures, not care episodes. The mix and definition of procedures used during an episode can be and are varied at the discretion of the physician. Thus rates of payment to physicians tend to climb steadily over time, even given constant fee schedules; prior to Medicare this phenomenon could be explained by changing collection ratios but it has persisted since. Moreover, levels of procedures seem to depend on the available supply of physicians, as much as on the demographic structure of the population. The profession advances by doing procedures of similar pattern; why has more than this been done? Could we draw all unanswered questions on quality and procedure mix? Are apparent misuses of resources detectable?  

The spectrum of care in Canada can thus be the legitimate concern of the insurance councils; the supply of care on which it can be analyzed for apparent abuse is national in scope. The discussion here are now relevant to national planning.
systems is that they can be costed out or allocated. Thus the costs of laundry procedures can be more accurately identified and linked to specific inpatient stays.

These monitoring systems identify practitioners with unusual billing patterns (rates more than two standard deviations away from norm) and thus help to draw all providers toward uniform patterns. But they leave unanswered crucial questions such as: How well are procedures performed? Should they be performed at all? What is happening to patterns over time? Profile monitoring provides information neither on quality of care nor on the benefit from steady increases over time in procedural volume. It merely isolates a very few cases of apparent malfeasance. Like hospital audit, it is an instrument to detect fraud, not to manage performance.

The spectacular movements in hospital and medical expenditures in Canada, which we will now move to discuss in some detail, can thus be related, first, to a relatively naive initial policy of paying the legitimate bills and minimizing management intervention on the supply side, and second, to an inadequate information structure on which to base efforts at management. The statistical record can be analyzed to try to observe what did (and did not) happen as national insurance was introduced; this will provide a backdrop for discussing the policy responses that have been attempted and that are now recommended.

THE QUANTITATIVE IMPACT OF NATIONAL HEALTH INSURANCE

Historical Patterns of Health Care Expenditure

The interpretation of patterns of use of and expenditure on health care in Canada, before, during, and after the introduction of the two national health insurance plans, is a complex problem that must be pursued at the level of particular classes of institutions and often of individual provinces. But an initial overview of the industry is provided by the data in tables 1 to 3, showing the distribution of personal health care spending from 1953 to 1971 in current dollars, current dollars per capita, and percentage of personal income. The effects of introducing first hospital and then medical insurance show up in the expenditure series for general and allied special
hospitals and for physicians, which dominate personal health care spending. Personal health care spending in turn makes up about three-quarters of national health expenditures in Canada. The conceptual differences are discussed in the appendix.

The first thing that commands attention in the Canadian health care industry is the rapid growth in its level of expenditures. This increase is, of course, an international phenomenon, but in Canada the pattern of increase correlates well with extensions in insurance. The insured components—hospital and medical care—are the

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TABLE 1

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<thead>
<tr>
<th>Year</th>
<th>General and Allied Special Hospitals</th>
<th>Other Hospitals</th>
<th>Physicians</th>
<th>Dentists</th>
<th>Prescription Drugs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953</td>
<td>280.4</td>
<td>123.6</td>
<td>176.6</td>
<td>60.5</td>
<td>48.8</td>
<td>689.9</td>
</tr>
<tr>
<td>1954</td>
<td>314.0</td>
<td>132.8</td>
<td>188.6</td>
<td>66.4</td>
<td>52.1</td>
<td>753.9</td>
</tr>
<tr>
<td>1955</td>
<td>342.4</td>
<td>137.6</td>
<td>206.5</td>
<td>68.6</td>
<td>59.5</td>
<td>814.6</td>
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<tr>
<td>1956</td>
<td>380.8</td>
<td>149.0</td>
<td>240.1</td>
<td>81.5</td>
<td>71.8</td>
<td>923.2</td>
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<tr>
<td>1957</td>
<td>422.9</td>
<td>164.5</td>
<td>271.8</td>
<td>85.0</td>
<td>103.2*</td>
<td>1047.4*</td>
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<tr>
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Annual % change
1953–1959 11.7 7.6 10.7 8.6 12.3 11.0
1959–1965 13.2 8.7 9.0 8.3 8.4 10.7
1965–1971 14.6 9.8 14.6 11.0 12.2 13.6
1953–1971 13.2 8.7 11.4 9.3 10.6 12.0

*The definitions underlying the prescription drug expense series changed in this year. Annual average rates are from 1957 on.

---

TABLE 2

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<th>Year</th>
<th>General and Allied Special Hospitals</th>
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<th>Physicians</th>
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Annual % change
1953–1959 8%
1959–1965 11%
1965–1971 12%
1953–1971 10%

*See note to Table 1.
TABLE 2 Per Capita Expenditure on Personal Health Care in Canada, 1953–1971 ($ million)

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<th>Total</th>
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Annual % change

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<td>8.6</td>
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*See note to Table 1.

largest and fastest growing. Moreover, in each case the introduction of the national insurance plan is associated with significant increases in expenditure. In 1959 hospital insurance covered all provinces except Quebec—in 1959 and 1960 hospital expenditures were up nearly 18 per cent in each year. No other year in the period matches these. Medical care insurance was phased in province by province from 1968 to 1971—in 1969 and 1970 annual expenditure increases were over 14 per cent. In 1971 they jumped to 20 per cent. If we look only at these “leading sectors” and compute the
TABLE 3  Expenditure on Personal Health Care in Canada, 1953–1971 (as a percentage of personal income)

<table>
<thead>
<tr>
<th>Year</th>
<th>General and Allied Special Hospitals</th>
<th>Other Hospitals</th>
<th>Physicians</th>
<th>Dentists</th>
<th>Prescription Drugs</th>
<th>Total</th>
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<tr>
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<td>0.26</td>
<td>3.82</td>
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<tr>
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<td>1.61</td>
<td>0.65</td>
<td>0.97</td>
<td>0.32</td>
<td>0.28</td>
<td>3.83</td>
</tr>
<tr>
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<td>1.02</td>
<td>0.35</td>
<td>0.31</td>
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<td>0.34</td>
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Annual % change

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*See note to Table 1.

The share of total hospital and medical expenditures going to hospitals over this period, the movements in this share correlate precisely with the introduction of the two national plans. The hospital share drifted from 61.4 per cent in 1953 down to 60.5 per cent in 1958, then began a steady rise until 1968, when it peaked at 69.4 per cent. By 1971 it was down to 67.7 per cent.

The same coincidence of timing appears in Table 3. The total expenditure and expenditure per capita data are muddled by accelerating general inflation trends but the personal income share series corrects for this condition. Hospital spending increased its share of income spending more rapidly in the mid-1950s than at any other time. The price item was a major force in pushing hospital spending to expanded levels.

But the explanations are not so simple. As noted earlier, price increases reflect the national plans. The hospital share drifted from 61.4 per cent in 1953 down to 60.5 per cent in 1958, then began a steady rise until 1968, when it peaked at 69.4 per cent. By 1971 it was down to 67.7 per cent.

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But the explanations are not so simple. As noted earlier, price increases reflect the national plans. But the 1953–1959 period was characterized by relatively inelastic demand, and the 1959–1965 period was characterized by accelerating general inflation trends. The personal income share series corrects for this condition. Hospital spending increased its share of income spending more rapidly in the mid-1950s than at any other time. The price item was a major force in pushing hospital spending to expanded levels.
share of income fastest in the 1959—1965 period, whereas medical spending moved up fastest in the 1965—1971 period. From 1958 to 1961 the hospital share rose 38.7 per cent, or 11.5 per cent per year; from 1953 to 1958 and from 1961 to 1971 it rose about 4 per cent per year. The physician series is less dramatic, but it is clear that the upward trend accelerated after 1966. Clearly, public insurance has been closely associated with significant jumps in spending.21

But the mechanism is less obvious. Conventional economic explanations might focus on the pressure of increased demand on relatively inelastic supply, leading to a combination of utilization and price increase. There is reason to believe that demand-driven adjustments were not very important in the Canadian experience; this will emerge from the more detailed discussion below. A suggestion that supply-side factors may be of considerable importance emerges, however, if we point out that the relative availability of physicians and hospital beds also shifted over this period. General and allied special beds per fee-practice physician reached a peak of 7.18 in 1966, having drifted up slowly from 7.00 in 1958. From 1968 to 1971, however, they dropped over 10 per cent, from 7.12 to 6.38. The increase in physician share was associated with a rapid increase in the relative availability of physicians, far too rapid to be a response to insurance-induced demand. Noting also that the mid-1950s saw a rapid increase in the relative availability of hospital beds (Table 4 below), it rather looks as if plans were made to expand the supply of beds in the 1950s and of physicians in the 1960s (recalling that these are to a large degree policy variables in Canada) in anticipation of insurance. The mere observation of increased expenditure may be telling us more about supplier behavior than about increased demand, and we cannot resolve the issue without more detailed data.

### Table 3. The total

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</tbody>
</table>

The Response of the Hospital Industry—Administered Inflation

Expenditures on general and allied special hospitals dominate Canadian health spending. This sector is also the first to have been covered by universal health insurance. The dramatic increase in expenditures, from $280.4 million in 1953 to $2,594.6 million in 1971, or nearly 10 times, is the product of a combination of many factors that may or may not be associated with insurance coverage. It is thus of some interest to sort out the quantitative effects of population growth, utilization, general price inflation, sectoral...
<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Hospitals</th>
<th>No. of Beds</th>
<th>Beds per 000 Pop.</th>
<th>Expense per Patient Day</th>
<th>Patient Days per 000 Pop.</th>
<th>Admissions per 000 Pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953</td>
<td>857</td>
<td>76224</td>
<td>5.13</td>
<td>12.47</td>
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<tr>
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<td>870</td>
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<td>5.51*</td>
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<td>6.41</td>
<td>61.58</td>
<td>1896.6</td>
<td>164.9</td>
</tr>
</tbody>
</table>

% Change
- 1953—1959: 14.6
- 1959—1965: 3.0
- 1965—1971: 3.2

*The beds total for this year appears to be too low because of a classification error; neither beds nor beds per capita appears reliable.
price inflation, and changes in service mix over this period. It is not possible, owing to changes in the reporting procedures and reliability of data, to present a detailed picture of what happened, but several major trends are evident.

First of all, the 9.25 ratio of 1971 expenditures to 1953 is the outcome of a 45.3 per cent increase in population and an increase from $18.89 to $120.15 in expenditure per capita (Table 2). Moreover, patient days per thousand population rose from 1,473.1 in 1953 to 1,896.6 in 1971, or 28.7 per cent. Thus the expenditure per patient day implicit in these data increases from $12.82 to $63.35, or by 9.3 per cent per year. The reported data are $12.47 and $61.58 (Table 4; see also appendix), also yielding a 9.3 per cent increase annually. The increase of 13.2 per cent annually in hospital expenditure in Canada between 1953 and 1971 thus resolves into increases of 2.1 per cent in population, 1.4 per cent in patient day utilization, and 9.3 per cent in expenditure per patient day.

This increase has, of course, several sources. Ideally, one would like to trace out its shifts through the full accounting detail provided in present-day hospital statistics; but that would be a major paper in itself and in any case could not be carried back to 1953 because the detail is missing. Certain clear trends, however, emerge. In 1953 the cost per patient day of $12.47 was divided into $7.20 gross wages and salaries, medical and surgical supplies, drugs, and $4.23 other supplies and expense. By 1971 these components were $41.82, $1.93, $1.78, and $16.06, or had increased by 10.3 per cent, 7.7 per cent, 7.0 per cent, and 7.7 per cent annually. Wages and salaries rose from 57.7 per cent of the hospital budget to 67.9 per cent.22

The wage and salary component can be split into “price” and “quantity” components (if we assume that hours are a homogeneous commodity) since in 1953 9.18 hours were worked per patient day and in 1971 this figure had risen to 13.29 paid hours per patient day. A difficulty is that in 1953, 1.62 hours per patient day were worked by student nurses or interns who were then paid little or nothing. If these are treated as part of hours worked in both years, the increase in wages and salaries is made up of a 44.8 per cent increase in hours worked and a 303.8 per cent increase in wages and salaries per hour worked (from 78¢ to $3.14 at an average of 8.1 per cent per year).

Comparing these shifts with general trends in the Canadian economy, we find that over the period 1953–1971 the Consumer Price Index rose 2.2 per cent annually, the G.N.E. deflator rose 2.5
per cent, and average weekly wages and salaries (industrial composite) were up 5.0 per cent. Price indexes are not available for the various components of hospital expenditure, now or in 1953, but if we assumed that prices of hospital goods rose more or less in line with the rest of the economy, we would estimate quantity increases of 5.4 per cent annually for medical and surgical supplies, 4.7 per cent for drugs, 5.4 per cent for supplies and other expense, and about 2.1 per cent annually for labor input. These figures should not be taken too seriously, however, as no real price indexes exist. Still, they suggest a tendency for real resource use in hospitals to have increased fastest in supplies and drugs, less rapidly in labor input. The single largest component of the cost increase is clearly the change in levels of remuneration of hospital workers.

If we take the increase in average weekly wages of 139.2 per cent and assume that because of changes in hours worked per week a “true” hourly index might have increased 150 per cent, then assuming that hospital workers had merely moved up in line with workers generally, the wage bill in 1971 would have been $25.92 per patient day instead of $41.82. Out of expense per patient day of $61.58 in 1971, $15.90, or 25.8 per cent, is attributable to the increase in average hourly wages of hospital workers relative to all other workers. This observation, of course, says nothing at all about the division of this increase into differences in skill mix, “catch-up” effects left over from the period of charity hospitals, or pure inflation.

There are, of course, certain other effects that one can look for in the longer-term data. One might expect that changes in the pattern of the care episode, or in the mix of hospitals examined, might affect these results. Yet in fact such shifts in the relation between patient day and care episode have not had much effect. Average lengths of stay per separation and occupancy rates have both fluctuated somewhat, but stays were 10.9 days in 1953, 11.3 in 1971, and occupancy rates were 81.2 per cent and 81.3 per cent. Corresponding to these sluggish movements, admissions per bed fell from 26.3 to 25.7. Thus changes in patient day costs are clearly not explicable by changes in short-run capacity utilization.

Changes in hospital class of activity are a bit more complex. General and allied special hospitals include chronic and convalescent, specialty, and teaching hospitals, all of which exhibit relatively different activity patterns and cost experience. Chronic and convalescent hospitals are too small a portion of the total for shifts in their share to affect costs; for general (acute care) hospitals alone costs per day rose from $12.79 to $65.58, or 9.5 per cent annually. It is more difficult, however, to grow in educational departmental distribution, relatively loose. School; outpatient radiology, the factors of outpatient expenditure. The "unattributable" spread over all data, 1.27 per cent. By 1971 nursing budget, and total costs; even that education costs per day rose from direct $27g to $3.99, or a small a budget cost. Education and special hospitals in 1971 compared with special hospitals in 1953. Even assuming a 14 per cent increase in education per patient day in 1971, the increase in educational costs is less than their direct effects of expand.

In 1971, teaching hospitals had a patient day of $83, whereas in 1953, $15.93. If we assume that education costs have risen annually compared with other hospitals with full-teaching. No hospitals with fully such hospitals in their educational programs in 1953 to 1971 do educational programs. Turning to outpatient care surgery.
is more difficult, however, to sort out the effects on patient day costs of growth in educational and outpatient expense since the departmental distribution of reported expenditure in 1953 was still relatively loose. Separate expenditures were reported for nursing schools; outpatients, emergency, and social service; laboratory; and radiology, the latter two departments having a significant proportion of outpatient work. These groups accounted for 1.76 per cent, 1.05 per cent, 2.49 per cent, and 3.34 per cent of total hospital expenditure. The difficulty is that 17.44 per cent of total expenditure is “unattributed” in 1953; if that component were equally spread over all departments, the above percentages become 2.13 per cent, 1.27 per cent, 3.02 per cent, and 4.05 per cent.

By 1971 nursing education had increased to 3.41 per cent of total budget, and total education was up to 6.48 per cent. If one assumed that education costs other than nursing were zero in 1953, the increase in direct educational costs per patient day would be from 27¢ to $3.99, or an increase of nearly 15 times. But in fact this is too small a budget component to matter, patient day expense net of education and special research projects is reported as $58.44 in 1971 compared with $12.20 expense net of nursing schools in 1953.

Even assuming medical education and research at zero in 1953, the increase in expense net of education is 9.1 per cent annually. This line of argument, however, ignores the high indirect costs associated with education. Thus one could be underestimating the effects of expanding the educational sector.

In 1971, teaching hospitals of 500 beds or more had expenses per patient day of $83.70 if full teaching and $67.56 if partial teaching, whereas in 1953, all 500+ bed hospitals had costs per patient day of $15.93. If we assume that 500-bed full-teaching hospitals in 1971 are roughly equivalent to 500+bed hospitals in 1953, it appears that costs have risen somewhat faster for this group—9.7 per cent annually compared with 9.3 per cent. But the difference is not large and is probably biased upward since not all 500+bed hospitals are full-teaching. Nor has there been any major shift in the numbers of hospitals with full or partial teaching programs, and the share of such hospitals in total patient activity has not expanded significantly. Hence we may tentatively conclude that although educational programs are undoubtedly much more expensive to operate than their direct costs would indicate, the increase in costs from 1953 to 1971 does not seem to be traceable to the expansion of educational programs.

Turning to outpatient clinics (which include short stay patients or day care surgery where relevant) we find that in 1971, outpatient
clinics, emergency, and social service account for $1.82 per patient day. This compares with 16¢ per patient day in 1953, confirming the widespread view that such activity has increased in importance substantially faster than the regular inpatient service. These data also show clearly, however, that quantitatively the effects of this increase are trivial. Even after due allowance is made for indirect costs and overheads associated with an outpatient department, it appears that this sort of activity, like education, does not affect the conclusions reached above.

The above discussion suggests that the reported increases in expenditures per patient day really do reflect shifts in the cost of providing inpatient services, rather than being a result of shifts in the heterogeneous mix of hospital activities that are reflected in "per diems." To relate these increases to changes in insurance coverage, we must examine the behavior of expenses by subperiods and draw on some additional data on wages and hours worked. For this purpose we have divided the eighteen-year span into three equal subperiods: a pre-insurance phase 1953–1959, a "digestion" phase, 1959–1965, and a post-insurance phase, 1965–1971. The initial period is not really pre-insurance, since several provincial plans were in operation during that period; but the two largest provinces, Ontario and Quebec, began their plans in 1959 and 1961, respectively, so that 1959 rather than 1958 may be treated as a transitional year. This is supported by the observation that cost per day rose at an average rate of 7.2 per cent annually from 1953 to 1959 but only 5.8 per cent from 1958 to 1959. In 1960 it took off, to 12.9 per cent.

In these three subperiods, costs per day rose at average rates of 7.2 per cent, 9.2 per cent, and 11.6 per cent. Relative to the Consumer Price Index, these figures reduce to 5.6 per cent, 7.5 per cent, and 7.6 per cent. There is of course no particular rationale for using the CPI as a deflator, except that no hospital price index exists. This pattern suggests that the apparent cost surge after 1966 is in fact tied in with the general rate of inflation, but that a break in behavior did occur at the time national insurance was introduced. Hospital costs per day were rising substantially faster than general inflation rates prior to national health insurance, but their relative increase speeded up both during and after the period of introduction of the public plans. The fact that the share of personal income going to hospitals increased much faster in the 1959–1961 period than subsequently, in spite of the observations that both utilization and (price-adjusted) costs per day increases are relatively similar from 1959–1965 to 1965–1971, may be traced to the recession in

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Salaries and Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953</td>
<td>$ 7.20</td>
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<tr>
<td>1959</td>
<td>11.72</td>
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<tr>
<td>1965</td>
<td>20.77</td>
</tr>
<tr>
<td>1971</td>
<td>41.82</td>
</tr>
</tbody>
</table>

Relative wages and salaries are thus subject to downward pressure from the national insurance. This tabulation of the behavior of wages and salaries shows a clear break in behavior that is consistent with the introduction of national insurance in 1948. The pattern suggests that the apparent cost surge after 1966 is in fact tied in with the general rate of inflation, but that a break in behavior did occur at the time national insurance was introduced. Hospital costs per day were rising substantially faster than general inflation rates prior to national health insurance, but their relative increase speeded up both during and after the period of introduction of the public plans. The fact that the share of personal income going to hospitals increased much faster in the 1959–1961 period than subsequently, in spite of the observations that both utilization and (price-adjusted) costs per day increases are relatively similar from 1959–1965 to 1965–1971, may be traced to the recession in

1961 that has followed the pre-insurance downturn, or through the progressive measures taken in 1948. The pattern suggests that the apparent cost surge after 1966 is in fact tied in with the general rate of inflation, but that a break in behavior did occur at the time national insurance was introduced. Hospital costs per day were rising substantially faster than general inflation rates prior to national health insurance, but their relative increase speeded up both during and after the period of introduction of the public plans. The fact that the share of personal income going to hospitals increased much faster in the 1959–1961 period than subsequently, in spite of the observations that both utilization and (price-adjusted) costs per day increases are relatively similar from 1959–1965 to 1965–1971, may be traced to the recession in
61.82 per patient 1953, confirming in importance vice. These data are preliminary results of this 1961 that held down personal income growth. Whether national insurance served to insulate the hospital sector against this downturn, or whether hospital expenditures would have climbed through the recession without public insurance, we do not know.

What is fairly clear from Table 4 is that national insurance did not have any observable effect on utilization. Patient days and admissions per thousand population rose almost twice as fast annually in the pre-insurance period 1953–1959 and have generally been slowing down since the public plans were introduced. Increases continue, but are now less than 1 per cent per year. If not correlated with insurance, utilization does move very closely with bed availability. It seems in fact to be responding to new bed construction, partially stimulated by a federal building subsidy program started in 1948. This program provided a fixed dollar grant per bed, so was progressively eroded by inflation and finally terminated in 1970, although it had some effect in the 1950s.

More information emerges if we look at the components of cost per day by subperiods. The share of total expense accounted for by gross wages and salaries, and its relation to hours worked, is as follows:

<table>
<thead>
<tr>
<th>Per Patient Day</th>
<th>Gross Salaries and Wages % of Total Budget Change</th>
<th>Hours Worked % Change</th>
<th>Implicit Wage Change Gain %</th>
<th>Relative Wage Change Gain %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953</td>
<td>$ 7.20</td>
<td>57.7</td>
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<td>41.82</td>
<td>101.3</td>
<td>67.9</td>
<td>13.3</td>
</tr>
</tbody>
</table>

Relative wage gain is the percentage increase in hospital wages relative to the average weekly wage (industrial composite); it measures the improvement in the relative income status of hospital workers.

This table suggests that there were some differences in behavior over these subperiods. The share of hospital budget going to wages and salaries has been rising but at a diminishing rate; the relative earnings of hospital workers have grown at an accelerating rate; and inputs of hours worked have first increased rapidly and then slowed down. In fact, hours worked per patient day rose after 1965 and then fell to its present level.
This suggests a behavior pattern of a rapidly expanding hospital sector in the 1950s, perhaps driven by the new funds made available through private and provincial insurance plans. Hospital workers were making income gains, labor inputs were rising, federal funds were adding new beds, and physicians were generating patients to fill them. Since the nonlabor budget share rose from $5.27 to $7.16 over this period, or 35.9 per cent, and prices generally rose only 9.5 per cent, it would appear that nonlabor inputs rose even faster than labor inputs. But our lack of any sort of hospital nonlabor price index is a hindrance here.

During the introduction of national insurance, all cost increases speeded up whereas utilization increases slowed down. Labor input increased 22.6 per cent compared with 15.2 per cent in the previous six years; relative hospital workers' wages rose 16.2 per cent faster than the general wage rate, and nonwage expense rose from $7.16 per day to $11.15, or 55.7 per cent, compared with general price increases of 9.7 per cent. It would appear that the initial impact of insurance was to increase substantially the real inputs to the hospital sector as well as to increase slightly the rate of increase in hospital workers' income status.

In the third phase, 1965—1971, increasing rates of cost increase have begun to generate official concern and reaction. Utilization increases are slowing down still more and labor inputs per patient day are nearly static. Nonlabor inputs have risen from $11.15 to $19.76, or 77.2 per cent; relative to the general price level increase of 24.2 per cent, this amounts to a 42.7 per cent increase (compared with 24.1 per cent, 1953—1959, and 41.9 per cent, 1959—1965), so it may be that nonlabor inputs are still accelerating. But it may also be that their prices have outstripped the CPI—we do not know. What is most striking about the 1965—1971 period is the dramatic increase in hospital workers' wages per paid hour—96.3 per cent, or 29.9 per cent faster than wages generally. This amounts to a rate of wage status gain of 4.5 per cent annually, sustained for six years. On a base of $20.77, 29.9 per cent yields $6.21; or 10 per cent per year of total hospital costs is attributable to the relative wage gains of hospital workers during the last six years. Over the whole span, if hospital wages had just kept pace with industry generally, they would have risen to $1.87 per hour.

Of course, whether this is attributable to national health insurance is another question. Relative wage gains did speed up during the period when insurance was being introduced but became much more rapid in the later period. One could argue that this is a delayed effect of insurance—it took time for employees to absorb the implications of the rate of workers lea an industry cost-pass-th- anational insur question; s however, the way of estab ers must be cost inflation.

It is, of course identified as an increase in the rate of shifts in respond to machines, Nel. Thus increase in change.

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The implications of cost-pass-through and unionization for them to apply the lesson. On the basis of this argument, insurance shifted the rate of expansion of hospital costs to a new higher trend, and workers learned to exploit this fact. But one could also argue that in an industry with inelastic demand and growing private insurance, cost-pass-through would have been discovered regardless of national insurance. Canadian experience alone cannot answer this question; some U.S. comparisons might be helpful. It is clear, however, that if future cost increases are to be moderated, some way of establishing appropriate relative incomes for hospital workers must be found. If they try to play catch-up with physicians, the cost inflation is only beginning!

It is, of course, true that the above line of argument still has not identified and pinned down the process of hospital expenditure increase in a fully satisfactory manner; there exists the major issue of shifts in labor force composition. It may well be that hospitals respond to insurance, not just by adding more personnel and machines, but by adding more complex and highly trained personnel. Thus the wage change series might include a significant increase in human capital input rather than merely input price change.

It turns out that this is a remarkably difficult proposition to test, not because of conceptual problems, but because numerous changes in reporting systems and a very detailed but constantly changing specification of the hospital labor force make the reconstruction of a set of consistent historical series a major research project in itself. This project is beyond the bounds of a survey paper such as this one. It cries out to be done as a federal research study. However, a bit of indirect evidence can be brought to bear on the problem.

First of all, despite the attention given to complex diagnostic procedures and highly specialized forms of treatment, nursing services and general support staff (dietary, laundry, administrative) are still the backbone of the hospital. A series of longitudinal studies of particular classes of hospital manpower over the period 1961–1968 shows that the professional and technical classes of employees (radiologists, pathologists, radiology and laboratory technicians, psychologists, social workers, medical record librarians, pharmacists, dietiticians, and physical and occupational therapists) increased their share of total hospital employment from 3.44 per cent to 4.68 per cent of total full-time employment in this field. The percentage increase is large (36 per cent increase in an expanding industry) but the absolute numbers are too small to affect total wage
movements. Their share in part-time employment also rose, from 5.67 per cent to 6.32 per cent, but part-time employees are only about 10 per cent of the total.

In the same period, full-time graduate nurses and nursing assistants rose from 6.42 per cent and 19.00 per cent of total full-time employment to 8.90 per cent and 21.60 per cent, a smaller change (20 per cent) but a more significant quantitative shift. Thus, a picture emerges of a proportional increase in nursing and nursing assistant staff and a corresponding reduction in relative employment of the unskilled “other” category. It is thus plausible to argue that in fact the human capital input per hour worked did rise somewhat over the period under consideration.

But this change, it turns out, does not appear to explain the wage shift. The reason is that average wages for nursing personnel generally (graduates and assistants) are not markedly different from those of other staff. In the first half of 1971, nurses on short-term units averaged $3.11 per hour and on long-term, $2.86 per hour. These made up 80 per cent of all nursing hours in public hospitals. By comparison, averages in general services were: administration $3.28, dietary $3.36, medical records $2.76, housekeeping $2.21, plant operation and security $3.28, and laundry and linen $2.19. Thus the pattern of wage differentials is simply not large enough to explain a major shift in the average from a change of 10 per cent or even 20 per cent. We may conclude that shifting personnel mix has had very little to do with the overall pattern of wage inflation.

Two other points deserve comment before leaving this issue. Part of the wage increase has clearly been attributable to the phasing out of the unpaid or almost unpaid workforce of student nurses. In 1953, student nurses, nursing assistants, and interns accounted for 1.62 out of 9.18 hours worked per patient day. Yet even if we pulled all of these out of the base for computing wage and salary cost in 1953, we divide wage and salary cost per patient day of $7.20 by 7.56 to arrive at an average wage of 95¢ and an increase in average wages from 1953 to 1971 of 232 per cent. Although substantially below 304 per cent, this figure is also well above the approximately 140 per cent increase in general wage levels—on the maximum possible allowance for the effects of eliminating unpaid or low-paid student labor. And of course student labor is not yet fully phased out.

Finally, one should note that the elimination of student labor has been associated in the latter part of the period with the closing of hospital nursing schools. Thus the relative constancy of hours per patient day masks a reduction in education hours and a continued rise in patient pressure hours input break.

A report by the Statistics Branch (Sources of Canada, 1961) explains this picture: it shows that from 1953 to 1971, outpatient wages rose 10.3 per cent annual percentage rate (APR), but our pattern of education mix may in part reflect a different pattern of expention.

Sources of Canada, 1961, but unfortunately, the expense is not marked. In medical and the labor cost per period 1961, per cent and the three-quarter work per paid hour resulted in seven-eight shown to have increased in population shifts in labor shifts are due such shifts in hour as a result of accelerating, inflation in hours over. However, some have been reported in the industry was

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A report recently prepared by the Health Economics and Statistics Branch of the Department of National Health and Welfare (Sources of Increase in Budget Review Hospital Expenditures in Canada, 1961 to 1971, Ottawa: December, 1973), essentially confirms this picture in the post-insurance period. From this report we see that from 1961 to 1971 total hospital expenditures rose 13.7 per cent annually, patient days rising 3.0 per cent and costs per day rising 10.3 per cent. The authors of the report also conclude that outpatient workload shifts were not large enough to affect the pattern of expenditures and that morbidity shifts in patient diagnostic mix may be important but cannot be identified.

Sources of expenditure increase are identified by department, but unfortunately only expenditure on supplies and other nonlabor expense is so allocated. Gross salaries and wages, drugs, and medical and surgical supplies are each treated as aggregates. But the labor cost per patient day is shown to have increased over the period 1961—1971 substantially faster than the nonlabor cost (11.2 per cent annually against 8.5 per cent) and to account for roughly three-quarters of the increase in cost per patient day compared with one-quarter for nonlabor cost. During this period, paid hours of work per patient day rose 2.1 per cent annually and labor cost per paid hour rose 8.7 per cent. Thus wage increase accounts for about seven-eighths of labor cost increase per patient day. This source is shown to have accounted for over 50 per cent of total expenditure increase in budget-review hospitals, even including effects of population growth and higher utilization. The possible effects of shifts in labor force composition in this process are touched on, and shifts are described in general terms, but the quantitative effects of such shifts are unknown. The relative significance of labor cost per hour as a source of expenditure increase over the period is accelerating, but much of this can be accounted for by general inflation in the economy. The rate of relative wage gain is, however, somewhat faster in the later period; hospital hourly wages as reported in Sources of Increase rose 8.1 per cent faster than general industry wages, 1961—1965, and 21.3 per cent faster, 1965—1971. This may be partly a result of the timing of the phase out of nursing education—the impact of the shift away from hospital nursing education and toward more medical education on hospital total costs and average hourly wages has not yet been analyzed. In
analyzing the response of hospital expenditure to insurance, however, the message of the report parallels that of this paper—wage inflation in the hospital sector is the main source of increase and the timing does not particularly correspond to the extension of insurance, the expansion of utilization, or even the expansion of employment. The most rapid relative wage increases have come in the late 1960s, when paid hours per patient day have been static and both population and utilization increase have slowed down.

Summing up, a picture seems to emerge of rapid increases in hospital capacity and utilization as a precursor to national health insurance. During the pre-insurance period hospital inputs, wages, and costs were rising rapidly, and hospital relative wages also were moving up. Private insurance may have fed this process, but government insurance was more likely a result of it. This would follow insofar as expenditure increases prior to the national plan increased burdens on the uninsured and further restricted their access. Moreover, provincial and private insurance plans came under increasing fiscal strain. Most of the discussion surrounding the national hospital plan focused on its role as a vehicle for moving more resources into the hospital sector (it worked!) and thus was a response to increasing expenditure burdens. The initial insurance period saw a jump in hospital expenses, as hospitals appear to have accelerated their expansion of paid hours per patient day. Hospital wages rose at about the same rate as prior to insurance, although their relative status improved faster. The picture does not suggest a strong demand-induced wage inflation resulting from expanded employment. Finally, the very rapid expansion in hospital expenditures in the mid-sixties triggered a bureaucratic response that has been fairly successful in containing increases in labor inputs. But the problem of relative hospital wages continues unaffected, as hospital employees seem to be improving their wage status at an accelerating rate. In the absence of a detailed job breakdown in the industry, of course, it is not possible to say whether they are still “catching-up”; the industrial composite weekly wage of $137.64 in 1971 divided by 40 yields an “average” hourly wage of $3.44, which is still above the hospital average of $3.14. But neither wage rate is skill adjusted or experience adjusted. In any case, it is clear that present bargaining and budget-setting procedures in hospitals do not approximate a competitive market process! Thus it is far from clear that continuation or completion of catch-up would have any relevance to future trends. The problem of hospital wage determination is still unresolved.
Policy Responses to Hospital Cost Inflation

This subject leads into the issues surrounding hospital reimbursement and budgetary control. We have argued that the problems of hospital cost inflation in Canada have little to do with utilization, insurance-induced or otherwise, but rather a lot to do with increases in earnings of hospital workers and secondarily with increases in real resource use per patient day (whether “quality” upgrading by managers, pressure for more hands to lighten the load from employees, or demands for further services by physicians). The process of budgetary control has not been particularly successful in promoting efficiency and/or containing costs.

As mentioned above, the initial intention of the Canadian hospital insurance system was to provide a method of paying whatever expenses the hospital system generated. Insofar as a policy toward appropriate levels of expenditure existed, it seemed to involve encouraging increase; the point of a federal program was to mobilize more resources, to lower financial barriers to utilization, and to maintain or increase standards of care. Consequently, the process of budget review did not initially emphasize efficiency or cost control; and when it became apparent in the late 1960s that hospital expenditures were taking an accelerating share of national resources and that “something” should be done, neither the review and reimbursement process nor the statistical framework that surrounded it proved adequate for the task. After more than five years of discussion and study, they still are not.

The budget review process varies in detail from province to province, and in fact from year to year in a given province, depending on the state of the provincial treasury. For most of the first decade of insurance, provinces employed some variant of a line-item budget approval prior to the budget year, combined with a review and settlement at year’s end. The prospective budget is based on an expected patient day load, and the ratio of total budget to forecast load creates a synthetic per diem that is used as a basis for distributing the hospital’s budget over the year, but is not an independent price in the sense that if actual load is above or below forecast, the total budget will not be adjusted proportionately. If there are significant deviations from forecast, partial adjustments may be made at year’s end. But both agency and hospital are well aware of the difference between average and marginal costs per day, at least in this context.

The patient day forecast is generally based on the preceding year’s experience adjusted for any known special factors in or
outside each hospital. It tends to be quite accurate. It is not defined in terms of diagnostic mix, although certain special subpopulations (such as renal dialysis cases) would be forecast separately. For each hospital, expected procedure workloads and input requirements by category are then developed from this forecast; the particular procedure forecasts thus implicitly embody some judgment about diagnostic and severity mix based on the past experience of the hospital. But the judgment never becomes explicit. Once physical requirements, personnel, supplies, and equipment by category are approved, the final budget will then depend on negotiated wage scales for the positions in each hospital’s approved establishment. Formally, these negotiations take place between hospital managements (on a provincial basis) and provincial unions or associations. But since wage costs are usually passed directly to the provincial reimbursing agency, it is not entirely clear what besides public interest stiffens the negotiators for management. This may be one explanation for the unusually rapid wage increases in hospitals.

The review process has required provincial reimbursing agencies to accumulate a great deal of detailed information about each hospital, much of it informal. In Ontario, the Hospital Services Commission appoints financial representatives, each responsible for several hospitals, whose task is to work within the hospital as the Commission’s agent during the preparation of a budget but to act as the hospital’s representative in steering the budget through the Commission. In B.C., the Hospital Insurance Service maintains a budget “model” of each hospital (which is not revealed to that hospital!) which it uses in evaluating the annual submissions. Thus the reimbursement process is very information-intensive.

The problem, however, is that none of this information is organized in a way linking expenditure with output. Neither hospital nor reimbursing agency knows total costs of inpatient care in a given hospital (except for hospitals with no outpatient or educational activity) since all data is based on inputs. Direct laundry costs per pound processed, or nursing ward costs per patient day, can be calculated, but no allocation of overhead or indirect costs is carried out. If a hospital’s diagnostic mix shifts, or if its patient day load and/or length of stay changes, the reimbursing agency may know in which direction the budget should shift, but never by how much. Thus hospitals are exhorted to lower length of stay. They reply that this would raise their per diem, and that the paying agency would not approve all the necessary increase. The paying agency says that it will approve the necessary increase, but no more. Yet no one knows what is necessary. The same problem arises if patient day...
It is not defined subpopulations separately. For each requirements by the particular judgement about experience of the judging. Once physical by category are negotiated wage establishment. hospital manager associations. to the provincial besides public. This may be one as in hospitals.

bursing agency about each hospital Services each responsible in the hospital as a budget to budget through service maintains revealed to that admissions. Thus sensitive.

formation is or-Neither hospital care in a given or educational laundry costs per patient day, can be set costs is carried patient day load revealed may know in or by how much. They reply that agancy would agency says that more. Yet no one is if patient day forecasts are over- or under-run; no one knows by how much a marginal patient day costs less than average. Arbitrary rules of thumb are used. Nor can comparisons across hospitals be made with any confidence, because “similarity” embodies no adjustment for differences in diagnostic mix. Everyone knows this is important; and this has been shown analytically, but no one is sure what the appropriate adjustment should be. Thus similarity is judged on proxies such as size, location, or educational role. The process of negotiation and budget determination for the largest hospitals in each province is one of the financial responsibilities of senior financial and health officials in the provincial government and is given appropriate attention and weight, but the data from which the province might determine what it is buying simply do not exist. As long as budgets are based on levels of inputs, and inputs cannot be associated in any comprehensive way with outputs (in terms of cases treated by type or students trained), budgeters fall back on incrementalism (last year plus X per cent) and add in the special requests generated by medical technology and the relatively loose wage negotiation process. Hence the statistical outcomes mentioned above.

As the inability of budget review to limit cost escalation has become more apparent, public policy has responded along two main lines. Efforts have been made to encourage greater efficiency in hospitals and to reduce the size of the inpatient hospital sector by substituting other forms of care. Both policies have tended to move the problem out of the hospital sphere and into the realm of medical practice organization; neither has come to grips with the ballooning incomes of hospital workers.

The “management” orientation is reflected in Volume II of the 1969 Task Force Report dealing with hospital services. Much was made of the poor management practices in hospitals, and the recommendations covered the range of training (and even licensing!) better hospital managers, giving them more scope, and creating incentives for efficiency. Hospital reimbursement has correspondingly moved toward global budgeting, using line-item input reports as a guide to setting global amounts but giving administrators more discretion in allocating expenditures within total budgets. Experiments have been tried with fixing annual target budgets and allowing managers to share under-runs and use their share for capital expansion or other projects—the incentive reimbursement approach. It seems fair to say, however, that the managerial approach has been relatively unsuccessful for several reasons.
First, the limited possibilities of comparison across hospitals with existing data make reliable identification of “good” and “bad” management impossible. Moreover, detailed analysis suggests that there is very little variance across hospitals in relative efficiency within each province; the style of medical practice and the pattern of reimbursement jointly determine most of hospital behavior. The administrator may not have much discretion. Even if one could identify desirable behavior and if the administrator had enough control over style of care delivery to do what the reimbursers desired, creation of incentives is almost impossible. Reimbursement incentives work only if a dollar of “profit” (shared cost under-runs) is worth more to management than a dollar of operational expense. In a nonprofit industry whose capital expansion needs are met out of a separate budget on the basis of regional and political needs, this is not so. Direct incentives to managers themselves are likewise ruled out as long as hospitals are nominally controlled by independent boards of trustees—the careers of administrators and/or their levels of remuneration are only indirectly influenced by payment agencies. Rewarding efficiency by “promotion” to a larger hospital is not possible. And finally, everyone knows that hospitals cannot be allowed to go bankrupt. The penalties for inadequate performance can never be absolute; at worst one can fire the administrator. But this weakens any ability he might have to run a tight ship even if he wanted to—the organization itself is never at risk. The focus on improved management has not been abandoned—it is still obviously true that better management can yield more health care for a given budget—but as a technique for overall cost containment it is of less interest.

Attention thus shifts to ways of reducing hospital utilization—by providing institutional alternatives such as convalescent care, day care surgery, home care; by shifting medical practice away from fee-for-service practice and toward salaried group practice or other arrangements; or by simply closing beds. All of these efforts are currently underway; and although it is too early to make any final judgement about their success, certain patterns have become apparent.

The institutional alternatives approach has the advantage of being supported by medical as well as economic opinion; the deleterious effects of excessive hospitalization on the patient are well recognized and are often more important than economic objectives in initiating new programs. Particularly in the pediatric area, it has been demonstrated that significant medical improvements as well as economic savings can be achieved through day care surgery.
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medic care surgery units or ambulatory medical treatment facilities.30 The
main problems with this approach are twofold. First, the tendency
for utilization to rise to match supply ensures that unless new
facilities are balanced by withdrawal of old, total costs rise. If a
home care program or convalescent beds move less severely ill
patients out of acute hospitals, new acute care patients flow in.
Moreover, discharge from lower intensity facilities is more difficult.
Canadian experience parallels Feldstein's judgement in the U.S.;31
provinces with well-developed convalescent care systems, like
Alberta, have relatively higher hospital costs per capita.
A further problem arises because of the structure of reimburse-
ment. Ambulatory alternatives to inpatient care have tended to be
based in hospitals. But hospitals' budgets are geared to inpatient
care; and administrators tend to view reduced days of care as
threatening reimbursements. Thus a day surgery unit that elimi-
nates a two-day stay minor surgery case is perceived as "costing"
the hospital two per diems. The unit price or reimbursement
received for an ambulatory case is less than would have been
received for a corresponding inpatient. As the hospital's inpatient
base shrinks, and its ambulatory load expands, it must negotiate
(legitimately) ever higher per diems, and this is not easy to do.
Reimbursing agencies see the problem differently. They see total
inpatient utilization failing to fall as ambulatory care expands and
they are less willing to negotiate higher rates. The crucial aspects of
the problem are the responsiveness of utilization to facilities and
the inability of either agency or hospital to quantify the full unit
costs associated with either inpatient or ambulatory episodes. If
episodes could be accurately priced and reimbursed independently
of treatment mode, the process of moving patients out of inpatient
care would be strongly encouraged.
The utilization response, in Canada as in the U.S., has been
traced to the mode of organization of medical practice. Evidence
exists that physician groups paid on a salary basis use substantially
less hospital care for their patients than does the fee-for-service
sector.32 This has led numerous observers and some government
study groups to recommend reorganization of medical practice into
community health centers (now a very elastic term with features
parallelling HMO's) as ways of moderating hospital costs.33 But
there is general agreement that this is a long, slow process. Several
provincial governments are committed to the idea in principle, but
organized medicine is strongly opposed to modification of the
present system.
As for the most simple-minded approach, closing beds, this has
been adopted as official or unofficial policy in several provinces. "Standards" of numbers of "needed" acute care beds per thousand population, which never were based on anything very much, are being revised downward; and provincial governments are mounting increased resistance to providing capital for new hospitals or hospital expansion. This tactic is of course easiest in provinces with rapidly growing populations such as Ontario and B.C., but actual closure of hospitals is politically extremely difficult. (The first province to adopt bed limitation as an official tactic was, however, Quebec, after the Castonguay Report stated that at least a third of the province's beds were unnecessary.) This approach probably holds the greatest promise of cost moderation in the near term, whereas long-run efforts at control will probably depend on reorganization of medical practice and some improved method of hospital wage determination.

### Medical Insurance and Medical Expenditures—Cause or Effect

The question of reorganizing medical practice leads directly into consideration of the impact of Medicare on service supply. Statistical evaluation of this impact is hampered by the fact that the program is so recent, 1971 being the first full year of national coverage for which complete data are available. Moreover, in each of the provinces private nonprofit plans pre-dated the public program and provided a significant degree of insurance coverage.\(^{34}\)

The introduction of insurance is not a clear-cut, point-in-time phenomenon.

Table 5 shows, however, that when data are examined at the provincial level the timing of the public plans is quite apparent. The proportion of personal income in each province spent on physicians' services takes an abrupt jump away from its previous pattern in each province either in the year the public plan was introduced (underlined) or immediately after. The Saskatchewan picture is of course muddled by the physician strike of 1962 and its aftermath and Alberta physicians seem to show a degree of anticipation, but elsewhere the change is very systematic. Whether this is a new plateau share of personal income or a new upward trend is too soon to tell (total Canadian personal income was up 10.4 per cent in 1971, so the apparent leveling off of the "physician share" may be exogenous). But it is clear that in each province public insurance was associated with significant increases in the share of personal

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**TABLE 5**

| Year | % Change | NOTE: Data of entry
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eads directly into supply. Statistical fact that the year of national Moreover, in each dated the publicurance coverage.34 but, point-in-time examined at the quite apparent.provence spent on from its previous public plan was the Sackatchewan of 1962 and its degree of anticipa-Whether this is a ward trend is too p 10.4 per cent in share” may be public insurance share of personal income received by physicians. (Table 5 also shows that this increase was superimposed on a general uptrend which may have been leveling off in the mid-sixties.)

Why this was so is less clear. In conventional economics, of course, the answer is obvious—lower prices to consumers, greater demand, greater utilization, and higher prices charged by suppliers. And undoubtedly some of these changes occurred. But tracing them down is not all that easy. First of all, list prices of physician services did not particularly respond to public insurance. Table 6 contains provincial fee schedule indexes (after Medicare the index reports benefits paid by the provincial agency) compiled by the Department of National Health and Welfare since December 1963 and compares these indexes with total expenditure and total expenditure per capita.35 Expenditure data are standardized to the same base as prices in 1964; no average fee level for 1963 is available. This table shows, first, that both total expenditure and

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1957—1971 33.6 55.6 12.9 29.9 50.9 78.1 34.6 45.8 39.9 91.1 51.4

NOTE: Data of entry to Medicare underlined.
### TABLE 6 Indexes of Fee/Benefit Schedules (annual averages), and Corresponding Indexes of Total Expenditure and Total Expenditure per Capita on Physicians' Services, Canada and Provinces, 1963–1973

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**Note:** (Ex. Que.) means that the figures are not adjusted for inflation.
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**NOTE:** Data of entry to Medicare underlined.

*Quebec had no fee schedule for general practitioners prior to Medicare.*
The annual per capita expenditure on physicians' services increased by 5.9 per cent per year from 1957 to 1973. This rate of increase is still considered healthy. However, the increase in expenditure, whether in terms of quantity or hidden price change, should be reflected in either an increase in average gross receipts per physician or an increase in the number of physicians per capita. These increases are displayed in Tables 8 and 9. As pointed out in the appendix, these increases apply only to fee-practice physicians, and not to the remainder of the physician stock. The increase in gross receipts per physician in 1971 was 173.1 per cent, which is 472

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<th>% Change 1957—1973</th>
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% Change 1957—1971: 19.5
% Change 1957—1973: 11.4
Per annum

Several rises in per capita expenditure on physicians' services coincided with the rising average price of physician services. Table 7 lists the implicit average annual rises per cent from 1957 to 1973.
by year in each
is accelerated the
, much of this is
the period, and
But this pattern
The mechanism
roughly listed fees
now pegged to
actual fees either.
sections ratios and
are.
gate level. Here
1964 provincial
Index Medical
icians' fees rising
1, faster than the
Illy slower since.
t than list in the
at relative price
bed down since
climbing. If list
period, one could
71 by dividing
anty" estimate
population change
I a very healthy
er "quantity" or
creases in average
the number of
ayed in tables 8
y to fee-practice
out two-thirds of
cluded in physici-
. The increase
bines with an
ician to yield an
as per capita, and
350 per cent
ualizing, popu-
ita, 1.8 per cent,
total of 11.4 per

Several interesting points emerge from these data. First of all, the
rise in physician stock has been twice as rapid as that of the
population, and has been accelerating. The introduction of
Medicare coincides with a significant increase in the rate of additions to
the physician stock. Furthermore, gross receipts per physician have
gone ahead much more rapidly than list prices. If one accepted the
Table 7 list price increase of 56.0 per cent from 1957 to 1971, the
implicit average increase in real output per physician would be 4.1
per cent per year. Yet physician practices are not adding new inputs
rapidly; physician practice expenses rose at 5.8 per cent per year
from 1957 to 1971 compared with general price level increases of

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% Change

1957–1971 | 62.8% | 59.3% | 354.9% | 191.6% | 124.4%
1957–1973 | 3.1% | 3.0% | 11.4% | 8.0% | 5.9%

Per annum

* Average value of the C.P.I. physicians' fees component, 1957–1964, linked in 1965 to the N.H.W.
Fee Benefit Index (Table 6).
* Expenditure on physician services (Table 1), indexed on 1961 =100.
* Physician services expenditure ÷ list price.

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TABLE 8 Indexes of Average Gross Receipts per Active Fee-Practice Physician, Canada and Provinces, 1957–1971, Canada Average 1957 ($20,804) = 100

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% Change
110.1  166.2  124.3  138.8  180.2  219.6  194.4  148.8  230.3  141.6  173.1  205.0  50.79

Per annum
5.4   7.2   5.9   6.4   7.6   8.7   8.0   6.7   8.9   6.5   7.4   8.3   3.0

NOTE: Data of entry to Medicare underlined.
* Canada net receipts (100 = $12,852).
* Canada net relative to average wage (average weekly wage x 50).

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TABLE 9 Active Fee-Practice Physicians (per 100,000 pop.), Canada and Provinces, 1975–1971

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<td>66.0</td>
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<td>79.1</td>
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### TABLE 9  Active Fee-Practice Physicians (per 100,000 pop.), Canada and Provinces, 1975-1971

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<tr>
<td>% Change</td>
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<td>93.4</td>
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</table>

*Numbers in parentheses include salaried practitioners, which are aggregated in other provinces.*
3.2 per cent and wage increases of 5.2 per cent. Physician net incomes rose steadily relative to the average weekly wage, as shown in the last column of Table 8. What is striking is that average earnings of physicians relative to this industrial composite rose faster in the period 1957–1964 than in the Medicare period 1964–1971. The difference is not great, but it is enough to suggest that the introduction of Medicare did not bring about a change in the longer-run forces that drive the relative incomes of physicians.

Thus we are left with the observations that Medicare was associated with rapid increases in the numbers of physicians and rates of expenditure on their services, but not with major changes in physician list prices. Physician relative income continued to climb rapidly, but no faster than before Medicare; actual prices and real outputs per physician are unknown. We have, however, some fragmentary data on real outputs. The before-and-after Medicare study of physician utilization in Montreal reports that aggregate visit rates did not rise in response to insurance and that physician hours of work did not increase. Instead, physicians reorganized their practice patterns and generated more income from a given number of initial patient contacts. This is supported by data from Trans-Canada Medical Plans showing that in insured populations, rates of physician-generated services per capita tend to rise faster over time and to be more closely associated with physician availability than are rates of patient-generated services. Aggregate data from Quebec for 1971 and 1972, the first two years of insurance, show the same phenomenon, incredible quarter-to-quarter rates of increase of certain specific physician-generated services as well as a shift across fee schedule items from, for example, "ordinary" to "complete" office examinations.

Rather than a linkage from demand through price and quantity to physician expense driven by independent shifts in demand, we seem to be observing a linkage from supply of physicians through quantity of services as determined by the physician to total expense. What we observe, and what generates expense, is not demand in the economist's sense but utilization, and utilization is the outcome of patient demand and physician behavior. This behavior is at least partially dependent on the relation between desired and actual physician incomes. The role of national health insurance may simply have been to relax further any market constraints on how physicians manipulate utilization to generate income. Table 8 suggests, however, that these constraints were not very significant before Medicare. Undoubtedly there was also a once-for-all increase in the ratio of actual to list prices as the plans drove unco
Physician net weekly wage, as is that average composite rose period 1964–71 to suggest that the change in the
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drove uncollectables to zero in one year, but the primary force
driving up physician expenditures in the late 1960s is the increase
in physician stock and the changes in physician practice patterns.

This creates a rather puzzling inconsistency. In the time series
data, each province shows a clear jump in share of income devoted
to medical services when public insurance is introduced; and as
pointed out above, in most provinces physician incomes rose rapidly in the years spanning the introduction. Yet over the longer
period, physician incomes relative to wages and salaries generally
have moved up about 3 per cent per year, and this increase did not
accelerate in the 1968–1971 period. Of course, wages and salaries
do not move with personal income; over this period they have
tended to lag behind. But the key question is the difference made
by insurance. In the absence of the public plan, would the rapid
increase in physicians per capita from 1968 to 1971 (14.2 per cent in
three years) have driven down average physician incomes? Or
would it merely have given rise to price and quantity adjustments
in the private market that would have pushed up costs anyway?
There is some evidence cross-sectionally in Canada that although
absolute numbers of physicians per capita have little systematic ef-
effect on relative physician income, rapid rates of growth of the stock
push down relative incomes (Evans, 1972, Ch. 3). The evidence is
not worth much, but we might tentatively suggest that national
insurance speeded up physician reactions to an increase in num-
bers and affected the timing of their income-maintaining responses.
Had Medicare not been introduced, the influx of physicians to the
market might have held down income increases in the short run and
generated pressure for increases in list prices and changes in
individual billing practices. Medicare speeded up the process by
shifting actual prices relative to list (hence the slower movement of
list prices post-Medicare) and by enabling billing practices to shift
rapidly without patient backlash (the Enterline findings). Physician
influence over the private market seemed to be strong enough,
however, that over the long haul they would have been able to
absorb the influx and restore their incomes to the long-term upward
trend. Of course, this is all hypothetical; we have very little
post-Medicare data yet and political variables have now sup-
seeded whatever market forces were previously operative.

Table 10 merely provides some corroborative evidence on the
role of physician pricing behavior. It shows the variation across
provinces in fee levels: B.C., Manitoba, Alberta, and Ontario tend
to be high priced whereas the eastern provinces are lower. Highest
of all is B.C. Yet these are also the provinces with the largest
number of example—a head of time ahead of the bottom in time increases in incomes per and/or to a successful there and the retired practice.

If in fact the future behavior of the cost trend in the real sector and could be on a variety of evidence is not on the unit basis.

Moreover, the health and government is merely the government or a variety of government and could not restrict the cost control Council or restricted. For example, the lower costs not mean that the be limited.

Income 478 | Evans

479 | Ins
number of physicians per capita. B.C. is the most prominent example—always at or near the top of all provinces in prices, yet far ahead of the others in numbers of physicians (Table 9) and near bottom in physician incomes (Table 8). The inference is that as increases in physician stock spread the patient load more thinly, incomes per physician fall. The response is to try to drive up prices and/or to generate more output. Neither tactic has been fully successful in B.C., but then the physician stock is abnormally large there and probably includes a relatively larger number of semi-retired practitioners.42

If in fact physician behavior is the key to utilization and expenditure behavior, as Canadian insurance experience suggests,43 it follows that efforts to modify patterns of expenditure by incentives directed at the consumer of care cannot hope to influence overall cost trends. Copayment is pretty much a dead issue in Canada, both because of its distributional effects and because it cannot come to grips with the real problems.44 Public policy has instead been directed at two approaches—control within the existing structure of medical practice, and modification of that structure.

Control in the existing structure includes negotiation of list fees and could be extended to unilateral determination of such fees by government (although this has not been suggested out loud). The evidence now seems fairly clear that this will not work because billings can be expanded almost indefinitely on a given schedule. Moreover, procedural multiplication can be harmful to the patient's health and can generate substantial external costs in the hospital sector and elsewhere. The "provider profiles" mentioned above merely identify very unusual practitioners; they give no leverage to government over changes in general practice standards over time. A variety of gimmicks have been suggested or tried—absolute limits on physician earnings (Newfoundland) merely lead to more physician leisure. Prorationing of billings against a fixed pool of reimbursement has been suggested as a short-run measure, but in the long run it seems to accentuate the pressures on physicians to multiply procedures by penalizing the "non-multipliers" for the excesses of their colleagues.45 So far the only sure-fire method of cost containment appears to be the current suggestion by the Council of Health Ministers that physician immigration be restricted. Fewer doctors, like fewer hospital beds, surely does mean lower costs. Combined with "physician-extender" programs, it may not mean fewer services. Thus the escalation of medical costs could be limited to that generated by the income aspirations of current physicians and future Canadian graduates.

Income aspirations of physicians seem to be somewhat muted at

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**Table: Benefits Paid**

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<td>1983</td>
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<td>87.67</td>
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present, partly because of large gains in the 1960s, but also because
the last five years have seen an outpouring of public and private
opinion that "something" should be done about the private prac-
tice, fee-for-service mode of medical care delivery. Just as this form
of medical care delivery seems to make rationalization of hospital
use almost impossible, so it stands in the way of achieving limita-
tions on medical costs. The root of the problem is that although
fee-for-service creates incentives for unnecessary care, private
practice blocks any information channel that would enable a
regulatory agency to determine necessity (or even the accuracy of
the billing). The best that can be done is to identify "unusual"
patient or provider patterns. As much as 50, or 90, per cent of
tonsillectomies may be unnecessary, but which ones? And who has
authority or ability to decide? Thus, attempts to achieve public
accountability for medical care delivery fail before the enormous
information advantage possessed by the physician, exactly the same
problem that made the private market useless as a regulatory
device.

The recommended solution in Canada is some form of public
organization, owning facilities and hiring physicians, tied into a
much more complete network of patient information. The label
attached is usually "Community Health Center," although the
name means something different to almost everyone using it. The
primary features of the C.H.C. are, however, that it combines
conventional medical practice with a more general social and
public health concern, that it is not dependent on fee for service,
and that unlike a medical practice it is nonprofit. It is also quite far
down the road as a system of medical care delivery, and the road
itself is far from clear. Nevertheless, almost every group that has
studied the Canadian health insurance system agrees that we
cannot stay where we are. Insurance changes only the demand side
of health care—the supply side is crucial. The hardest part of the
job lies ahead.

APPENDIX

Data Sources for Text Tables

The most comprehensive data on health care costs in Canada are
prepared by the Health Economics and Statistics Directorate of the

Department of National Health and Welfare, Canada. The data covers all health care services, both medical and hospital, paid for through insurance (both public and private). The data is regularly published as the Canadian Health Care Cost Study. However, the data is not adjusted for inflation, and the cost of medical care has increased significantly since the data was collected. Additionally, the data does not include all costs incurred by patients, such as transportation costs and out-of-pocket expenses. The data is gathered through surveys and administrative records, and the sampling methodology may vary from year to year. The data is used to inform policy decisions and to monitor trends in health care costs. The data is available through the Health Canada website and through the Health Economics and Statistics Directorate's annual report.
Public and private care, private
The label “unusual” is that although
private practice. In the accuracy of
achieve the enormous

The personal health care concept also excludes health expenditures that are not directed by the health care provider “establishment,” such as nonprescription drugs, eyeglasses and appliances, services of health professionals outside hospitals other than physicians and dentists, and nursing home care. The line between nursing homes (excluded) and private convalescent hospitals (included) becomes a little fuzzy but is drawn on the basis of administrative arrangements. Private hospitals contracting with the provincial agency and providing insured care for all or part of their patients are included with respect to their expenditure on insured patients. The amounts involved are trivial.

Annual PHC data for Canada and the provinces are published irregularly, the latest being Canada, Department of National Health and Welfare, Expenditure on Personal Health Care in Canada, 1960–1971, Ottawa, n.d. This is the basis for Table 1; pre-1960 data are from Canada, Department of National Health and Welfare, Expenditures on Personal Health Care in Canada, 1953–1961, Health Care Series Memorandum #16, Ottawa, March 1963. In 1960 and earlier, expenditure in hospitals run by the Department of National Defense (like private hospitals, a very small part of the Canadian hospital industry) are excluded. The earlier prescription drug series also fails to include prescribed drugs sold outside retail pharmacies. The inclusive series can be pushed back to 1957 by earlier “occasional memoranda” from Health and Welfare but the series breaks there.

A more inclusive definition of the health care industry is the basis for a new data series, recently released as Canada, Department of National Health and Welfare, National Health Expenditures in Canada, 1960–1971, Ottawa, October 1973 (including comparative U.S. data). It adds to PHC nursing home care, nonprescription drugs, eyeglasses and other appliances, services of other health professionals outside institutions, costs of prepayment administration, voluntary organizations, research, new-facility construction,
and public health activity. Some specific exclusions are made (such as government of Canada hospital facility construction) but these are quantitatively trivial. This comprehensive series indicates that total health expenditures per capita in Canada rose from $113.50 in 1960 to $306.11 in 1971, compared with $80.53 and $236.61 for PHC. Thus the PHC percentage has risen from 71.0 per cent to 77.3 per cent, indicating the faster growth of the hospital and physician sectors.

Data on the physician stock and physician incomes are generated along with the health care expenditure series and are reported in Canada, Department of National Health and Welfare, Earnings of Physicians in Canada, 1961–1971, Health Care Series #30, Ottawa, n.d. Earlier data are from Earnings of Physicians in Canada 1957–1965, Health Care Series #21, Ottawa, April 1967. This series covers “active fee practice” physicians, those “whose main employment is in the provision of personal medical care services” and “whose professional income is mainly in the form of fees for services rendered.” It thus excludes all salaried physicians providing medical care, whether in a private group practice or in public service. In fact, however, prior to 1970 a small number of salaried physicians working in group practices were included; only those in Manitoba and Newfoundland where salaried service was quantitatively important were excluded. In 1970 all salaried group practitioners were excluded, so that the reported increase in manpower in 1971 over 1970 is remarkably low. In this paper we have added back-salaried physicians outside Manitoba and Newfoundland for 1970 and 1971 to keep the series consistent. Bracketed figures in the text tables show the effects of adding back-salaried practitioners in those two provinces as well.

As a measure of the availability of physician services, the fee practice physician is somewhat unsatisfactory. To compare, for example, service availability in Newfoundland with the national average by looking at fee practitioners only is grossly inaccurate. Similarly, it appears that some of the discrepancy between Quebec and Ontario in physicians per capita is made up by larger teaching programs in Quebec with more hospital staff, interns, and residents supplying medical services but appearing in hospital budgets. (Quebec, Commission d'enquête sur la santé et le bien-être social, Analyse comparative des coûts de l'hospitalisation au Québec et en Ontario, Annexe I du rapport, Gouvernement de Québec, September 1967.) Total active civilian physicians in Canada in 1971 are reported as 32,625 (Canada, Department of National Health and Welfare, Health Manpower Inventory, 1972, Ottawa, October 1972) but this includes etc. This source merely refers to the same figure. Federal Public Health and Welfare, Ltd. (which maintains suppliers. The 32,625 into "not in private" breakdown is than the 21, Earnings of Physicians are). Moreover, not employed in. The manpower Market for Physicians.)

The active for analyzing receives the the Medical and reporte part-time ph part-way th the physician in 1971 this netting less average group $42,624 com physicians. earnings of unfortunately, a it would move also problem result of di and the inve is almost ce
The active fee-practice series is, however, preferable as a basis for analyzing market behavior since this group sets fees and receives them and is the provider of almost all insured care under the Medicare plan. The income series associated with this group and reported in the text has certain problems as well. It includes part-time physicians who are semi-retired, or who entered practice part way through the year. This is partly corrected by focusing on the physicians with net incomes above some arbitrary minimum—in 1971 this minimum is $15,000. Any self-employed practitioner netting less than $15,000 cannot be fully employed! In 1971 average gross and net incomes for this group were $61,516 and $42,624 compared with $56,824 and $39,203 for all fee-practice physicians. Thus, $42,624 would be a better estimate of the net earnings of a “representative” fully employed practitioner. Unfortunately, a time series of this sort is not very meaningful since it would move with the (arbitrary) choice of full-time cutoff. There are also problems in the gross income and expenses of practice data as a result of disentangling group practices with salaried physicians; and the investment earnings component of nonprofessional income is almost certainly understated since all data are drawn from tax...
returns that do not include capital gains prior to 1972. Physicians tend to invest in assets (such as medical arts buildings) yielding high capital gain but low income, and it is hard to believe that the average physician in fee practice earned only $798 from all nonfee sources in 1971, including incidental wages and salaries, given one's fragmentary knowledge of physician-owned real estate holding companies! Some of this may be picked up in 1972 and after, as half of capital gain must now be reported as income (when realized). The same sort of problem arises with expenses of practice, some of which of course reemerge as investment income. Still, it is doubtful if these factors influence trends over time to any great degree.

The physician price series for earlier years is the Consumer Price Index, physicians' fees component, prepared by the Dominion Bureau of Statistics and reported in Canada, Department of National Health and Welfare, Research and Statistics Memo, Health Care Price Movements, Ottawa, April 1968. The overall CPI is from Canada, Dominion Bureau of Statistics, Canadian Statistical Review: Historical Summary 1970, Ottawa, August 1972. Updation of statistics in this issue was from the February 1974 issue of the Canadian Statistical Review (monthly). All population data (June 1st annual data) and average weekly and hourly wage data are drawn from these sources.

The CPI index was relatively limited—fees for office visits, hospital visits, an obstetrical confinement, and an appendectomy as reported by six general practitioners in each metropolitan area to a semi-annual telephone survey. It was phased out city by city as Medicare spread across the provinces. The Department of National Health and Welfare also prepares an index of provincial fee schedules, starting in December 1963. In earlier years this index might differ substantially from fees charged to uninsured patients. As each province entered Medicare, this index was shifted from a listed-fees to a benefits-paid basis (since many provinces pay less than 100 per cent of the schedule or impose administrative limitations). These data are unpublished but were generously supplied by the Health Economics and Statistics Division, Health Programs Branch, National Health and Welfare. A compound index was constructed using the CPI index to 1964, the N.H.W. fee schedule index to 1968 or whenever each province entered Medicare, and the N.H.W. benefits paid index thereafter. The 1965 overlap between CPI and N.H.W. was used to link these two series (the CPI is Laspeyres, the N.H.W. Paasche) and the second point of linkage was implicit in the N.H.W. procedure that reports only
Physicians yielding to believe that the 1972 and after, as income (when real-

The Consumer Price Index of the Dominion Department of National Memos, Health and Welfare Programs 1974 issue of the Consumer Price Index is from the Statistical Re-

The primary source of hospital data is the set of Hospital Statistics volumes published annually by the Dominion Bureau of Statistics. Hospital reporting by D.B.S. began in 1932 but in 1952 a new and more extensive reporting system was introduced and the reports expanded to two volumes. Since then, the structure and content of the reports have changed from time to time but the volume of data collected has steadily expanded until now seven volumes are published annually in addition to Mental and Tuberculosis Hospital statistics and numerous occasional studies on manpower and salaries.

In dealing with the text data, a number of points must be kept in mind. First of all, "general and allied special hospitals" in the D.B.S. data excludes all private hospitals since these do not report the same detailed federal returns. In the total personal health care expenditure, however, national health and welfare includes any private hospital providing care under contract with a provincial agency. The discrepancy is not large, but is just enough to keep the numbers inconsistent! Data on number of hospitals and number of beds in the text are taken from Canada, D.B.S., Hospital Statistics, Vol. I—Hospital Beds, 1971, Ottawa, November 1973, historical data, pp. 46–50. Patient days are adult and child only and include chronic, convalescent, rehabilitation, and other specialties. Patient days per thousand population were calculated by taking the reported average daily number of patients for each year, multiplying by 365 (or 366), and dividing by national population. Admissions per thousand population were calculated by dividing reported total admissions by population. The ratio of the two does not equal reported mean stay per separation (discharge or death) presumably because in an expanding hospital sector, admissions systematically outran separations in every year.

This may not be the whole explanation; a number of small arithmetic discrepancies turn up in this vast array of data, particu-
larly in earlier years. As mentioned in the text, total hospital beds in general and allied special hospitals seem to be undercounted in 1961. Data on p. 33 of Hospital Beds, 1971 suggest that in 1961 about 1,800 chronic, convalescent, and rehabilitation beds were shifted to mental and “restored” the following year.

Costs per patient day in the text always refer to total expenditures per adult and child patient day, excluding new-borns. Earlier data sources often include new-borns, whole or part-weighted. Cost per day back to 1956 is reported on pp. 28-30 of Canada, D.B.S., Hospital Statistics, Vol. VI: Hospital Expenditures, 1971, Ottawa, October 1973. For the earlier years, data were taken from Hospital Statistics, Vol. II, Expenditures for each year. Reconstructing these data, however, it must be noted that prior to 1956 net expenditure per patient day was reported, excluding courtesy rebates to staff and revenue from nurses’ board. Reported patient day costs from p. 89, Col. 5, of the 1953 publication ($11.95) have, for example, been adjusted upward by the ratio of gross to net (p. 105), and similarly in 1954 and 1955. The 1953 total was then allocated by class of expenditure using the proportions in Hospital Statistics, Vol. II, p. 88 (wages and salaries, drugs, etc.). No allocation by department was possible since throughout the 1950s reporting procedures permitted a very high “undistributed expenditure” component that was nearly a fifth of the total. The breakdown in 1971 used data reported in tables 30-33 of Canada, D.B.S., Hospital Statistics, Vol. VII: Hospital Indicators, 1971, Ottawa, August 1973; Table 18 provided paid hours data to compare with the hours data in Table 31 of Hospital Statistics, Vol. I, 1953. Historical length of stay and occupancy data came from Hospital Statistics, Vol. I, 1971, and all 1953 and 1971 disaggregated expenditure data came from Hospital Statistics, Vol. VI, 1971, and Vol. II, 1953.

Data for the subperiods between 1953 and 1971 are much less comprehensive than one would like, because reporting categories and definitions kept changing so as to make the construction of long and consistent series on the internal expenditure components of hospitals rather difficult. Gross salaries and wages and paid hours are drawn from the 1953 Hospital Statistics, Vol. II. Gross salaries and wages for 1959, 1965, and 1971 are drawn from Hospital Statistics, Vol. VI. Expenditures and paid hours are from Hospital Statistics, Vol. VII, Indicators. Data on numbers and wages of professional and technical employees over the period 1961-1968 are taken from a series of twelve occasional papers published by D.B.S., Health Manpower in Hospitals, 1961-1968, the first general and each following paper covering eleven specific occupations and

NOTES

1. Thus, the amalgamation of national publication in Hospital Statistics, Ottawa hospital at federal government hospital, Medical Care in Canada, 1961.

2. The federal government covered cost of such services was nearly a fifth of the 1953 and 1971.

3. A brief history of Malcolm M. G. H. Care in Canada, 1961-1968, the first general and each following paper covering eleven specific occupations and
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their wages. Wages per paid hour by occupation in 1971 are from
Canada, Dominion Bureau of Statistics, Hospital Indicators,
January–June 1971, Ottawa, October 1971, which was based on the
quarterly survey but not reproduced in the annual volume.

The general principles followed in data preparation were, first, to
emphasize construction of consistent series over time, and, second,
to choose data concepts as closely as possible related to potential
insurance responses or behavior. There is a huge quantity of
statistical data on hospitals that could be used to show the re-
sponses of detailed hospital budgets wherein shifts occurred after
the insurance programs were introduced; but such a project was
well beyond the resources available for this paper. The Department
of National Health and Welfare has made a good beginning with its
Sources of Increase in Budget Review Hospital Expenditures in
Canada, 1961 to 1971, Ottawa, December 1973. It is to be hoped
that this project will be pushed back to pre-insurance days and
expanded in detail. It would also be helpful if federal statisticians
could spend some time on indicating the appropriate reconciliation
of sources, where possible! So far, number generation has tended to
outrun either documentation or reconciliation, but the trends ap-
pear favorable.

NOTES

1. Thus, the federal publication Health Services in Canada 1973 (Ottawa: De-
partment of National Health and Welfare, 1973), which summarizes the
national programs, opens its first sentence by referring to the B.N.A. Act. This
publication, issued annually in previous years as Health and Welfare Services
in Canada, is a good overview of the general provisions of the provincial
hospital and medical programs as well as the direct service programs of the
federal government. In earlier years it also provides a statistical sketch of the
hospital system at a point in time, amplifying material in the annual Canada
Year Book published by the Dominion Bureau of Statistics.

2. The federal government pays 25 per cent of each province's own per capita cost
for covered hospital services, plus 25 per cent of the national average per capita
cost of such services, plus 50 per cent of the national average per capita cost of
covered medical services, all multiplied by the provincial population.

3. A brief history of the development of health insurance in Canada is provided by
Malcolm G. Taylor, "The Canadian Health Insurance Program," Public Ad-
ministration Review, 33 (January–February 1973). Other brief descriptions are
J.E.F. Hastings, "Federal-Provincial Insurance for Hospital and Physician’s
Care in Canada," International Journal of Health Services, 1 (1971); R. Kohn,
"Medical Care in Canada," in J. Fry and W.A.J. Farndale (editors), Interna-
tional Medical Care (Oxford: Medical and Technical Publishing Co., 1972) and
A. P. Ruderman, "The Organization and Financing of Medical Care in Canada," in British Medical Association, Health Services Financing (London, 1970). Hastings tends to focus relatively more on current administrative questions and on the impact of health insurance on other health and social services and the organization of health personnel; Kohn provides a current snapshot description of health services, insured or uninsured, which tends to cover the "official" features with limited analysis; Ruderman in his description discusses the relatively limited role of price and income effects in the Canadian system and argues that the private market economy approach is not and never was particularly relevant. A more extensive history of the pre-Medicare nonprofit comprehensive insurance plans from which Medicare evolved is C. H. Shillington, The Road to Medicare in Canada (Toronto: Del Graphics, 1972). Symposia on the hospital system include the September 16, 1962 issue of Hospitals: J.A.H.A., Vol. 35, No. 18, and Medical Care, Vol. 7, No. 6, Supplement (November–December 1969). The cornerstones of description in this field are, of course, the Report of the Royal Commission on Health Services (Hall Commission) (Ottawa: The Queen’s Printer, 1964); and supporting studies: the Report of the Commission d’enquête sur la santé et le bien-être social (Castonguay-Nepveu Commission) (Quebec: Gouvernement de Quebec, 1970); and The Report of the Ontario Committee on the Healing Arts (Toronto: The Queen’s Printer, 1969). Someone, somewhere, may have read all this. John Evans suggests that Canadians spend more time and effort studying health care than most other countries do delivering it; see "Physicians in a Public Enterprise," Journal of Medical Education, 48 (November 1973). The present author strives to uphold that tradition.

4. Taylor, op. cit.
5. It must be recalled, of course, that standards of services cannot be measured only by expenditure. The dramatic increase in provider incomes, physicians, and hospital workers (see below), which have been the principal quantitative effect of health insurance, have tended to even out provincial differentials. Thus, health providers have moved faster up the wage structure in poorer provinces, without any observable associated improvement in health status. In medical care, however, much of this behavior pre-dated the federal legislation—see R. G. Evans, Price Formation in the Market for Physician Services 1957–1969 (Ottawa: The Queen’s Printer, 1972), Ch. 3.
6. These terms are spelled out in more detail in the annual Health Services in Canada. The hospital program required participating provinces to sign an agreement with the federal government detailing licensing, inspection, and supervision requirements and federal audit. These requirements were not imposed in the medical care plan, either as Taylor suggests because of provincial objections to federal intervention, or because public regulation of physicians is a much more contentious issue than regulation of hospitals!
7. Administrative costs have certainly been held down—in 1971 prepayment and administration of health plans cost Canadians $5.54 per capita compared with $12.83 in the U.S.; total health expenditures per capita are $306.11 and $386.92. Canada, Department of National Health and Welfare, National Health Expenditures in Canada, 1960–1971 (Ottawa: 1973). (Both countries, of course, bury compliance costs in provider budgets, but it seems likely that compliance costs are also lower given a uniform national system.) The bargain looks a little different, of course, when one discovers that the existing system of administration does not generate data sufficient to understand or control operating expense! But at least the U.S. is no better off.

8. The nub of the matter over health care provinces will keep their plan well as in political u
9. Moreover, them "50"
10. R. G. Becchetti, dissertation large family Liberal go removed
11. This is not Demand for in the relC. et al., "The Care—The
12. Anne Scirders increased result of this. What short-run hospital? The hosp response, would have changed undercut
13. It is, of the public spread of
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15. In Quebec, titioner or activity of teristics, out by A. Main-DY
The nub of the problem appears to be the desire of the federal government to turn over tax revenues that will initially yield revenues higher than current health costs but that will grow less rapidly (alcohol and tobacco levies). The provinces prefer a larger income tax share, since the income elasticity of this tax will keep pace with past rates of cost increase. The federal authorities note that their plan provides incentives to rationalize delivery at the provincial level, as well as initial resources to support change. The provinces argue that this scheme imposes all the risks of cost containment on them (as well as the political unpopularity).

Moreover, revenues thus collected are subtracted from shareable costs, making them "50¢ dollar" revenues from a provincial standpoint.

This is not solidly established but emerges in several studies—e.g., Beck, The Demand for Physicians' Services in Saskatchewan, Ph.D. dissertation, University of Alberta, 1971. The charge also lowered use among large families and aged-head families, and was politically unpopular. The Liberal government that imposed it was defeated in 1971 and the charge removed by the incoming N.D.P.

This is not solidly established but emerges in several studies—e.g., Beck, The Demand for Physicians' Services in Saskatchewan, shows a steady weakening in the relation between income and utilization after Medicare. P. E. Enterline et al., "The Distribution of Medical Services Before and After 'Free' Medical Care—The Quebec Experience," New England Journal of Medicine, 289 (November 29, 1973), report a shift in number of visits—up for lower-income families, down for upper-income families, zero net change. R. E. Badgley et al., "The Impact of Medicare in Wheatville, Saskatchewan, 1960—1965," Canadian Journal of Public Health, 58 (March 1967), show evidence of a similar shift, although less concrete in the absence of visit data.

Anne Scitovsky has correctly pointed out that although this paper identifies sources of expenditure increase in insured health care and relates them to increased provider incomes, it does not establish that these developments are a result of national health insurance. In some sense one could never establish this. Who knows what would have happened? But it is true that although a short-run expenditure response to national insurance is identifiable in both hospital and medical care, the response of provider incomes are less clear-cut. The hospital response, if it is that, has a long lag, whereas the physician response, on the contrary, may be merely a speeding up of long-run trends that would have happened anyway. If this all sounds a little ad hoc, it is. I've also changed some of the hospital wage numbers and their explanation. I regret undercutting Anne's comments but it made a better paper!

It is, of course, true that relative earnings of health care providers rose prior to the public insurance plans as well. To what extent this was attributable to the spread of private insurance no one knows.


15. In Quebec the medical association collects additional data from each practitioner on auxiliary personnel employed, hours of work, and distribution of activity of hours of work. Analysis of the relationships among practice characteristics, physician characteristics, and pattern of workload is now being carried out by A. P. Contandriopoulos and J. M. Lance, "Modèle de Prrévision de la Main-D’Oeuvre Medicale," Document de Travail No. 8, McGill University,
May 1974. The authors express some reservations about the quality of the practice characteristics data.


17. This view was still being urged in 1969; see Canada, Department of National Health and Welfare, Task Force Reports on the Costs of Health Services in Canada, Vol. III, pp. 170–182. That particular report, on medical prices, seems more concerned with physician autonomy.

18. Thus in 1970 the B.C. Medical Association promulgated a new fee schedule. The province declared it too high, and said that the plan would not pay it. The profession replied that its members would collect the increase from patients. The government advised patients not to pay, and published (by name) each physician's gross receipts from the plan in the newspapers. The profession thereafter lowered its schedule and a compromise was adopted; but it worked to defeat the government at the next election. In most provinces the process is less open.

19. This is an implication of empirical research in B.C. See R. G. Evans et al., "Medical Productivity, Scale Effects, and Demand Generation," Canadian Journal of Economics, 4 (August 1973). It has also been commented on by informed observers. (John Evans, "Physicians in a Public Enterprise.")

20. This was expressed as a positive goal in the Hall Commission Health Charter for Canada. "BASED on freedom of choice, and upon free and self-governing professions..." Report of the Royal Commission, pp. 11–12.

21. These comparisons also illustrate the dangers of interpreting share movements. In 1961, a recession year, personal income was down and the jump in hospital share was accentuated. The long boom of the early sixties held the physician share nearly constant from 1961 to 1966; only when the growth of the economy slowed did physicians' share move up again.

22. Canadian hospital accounts do not include employee benefits in gross salaries and wages but classify these as "supplies and other expense." These amount to about 9 per cent of the total budget in recent years. (Notice that hospital budgets include little or no capital expense.) In 1969, radiologist and pathologist remuneration was transferred from "supplies and expense" to "gross salaries and wages"; this amounts to about 2.5 per cent of total budget and has been transferred back to supplies and expense in this paper for consistency. The 1971 data also reflect an exclusion from hours worked of intern and resident time and classroom hours, thus biasing downward the change in hours per patient day from 1965 to 1971. The effect appears, however, to be quantitatively insignificant (of the order of 0.2 to 0.3 hours per patient day).

23. One study has been conducted that attempts to examine wage change by employment category within the hospital labor force and relate such changes to wages in similar occupations elsewhere in the economy: Canada, Department of National Health and Welfare Research and Statistics Memo, Salaries and Wages in Canadian Hospitals 1962 to 1970, Ottawa, n.d. (1971). This source draws on data from the Department of Labour as well as D.B.S. and N.H.W. Unfortunately, the longest data span assembled is 1962 to 1969, and in this case the 1969 data are contaminated by failure to include a major subsequent retroactive agreement in Quebec in 1970. The report is carefully documented and extensive employee and managerial wages in industry and service. Caution is necessary in extending any general results to these other sectors.

24. Saskatchewan, 1940s, to "The Saskatchewan Hospital: 1934-1940," Saskatchewan Hospitals, (September 1940).

25. Although inpatient hospital costs were highest in Alberta.

26. On one of the reports, by cutting back on charges the profession is asserting evidence that the hospital association is not. (John Evans, "Physicians in a Public Enterprise.")


28. Ibid. The particular problem of physician gross receipts is an example. However, physician gross receipts are subject to other pressures. The government advised patients not to pay, and published (by name) each physician's gross receipts from the plan in the newspapers. The profession thereupon lowered its schedule and a compromise was adopted; but it worked to defeat the government at the next election. In most provinces the process is less open.

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34. Saskatchewan, 1940s, to "The Saskatchewan Hospital: 1934-1940," Saskatchewan Hospitals, (September 1940).
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969, and in this case
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carefully documented
and extremely honest about its limitations; it does show that by 1969 hospital
employees in such service trade occupations as cooks, laundry workers, maids,
and seamstresses were paid well above their private industry counterparts. But
its coverage, both cross-sectionally and over time, is far too limited to support
any general conclusions.
24. Saskatchewan, typically, tried out a variety of innovative approaches in the
1940s, long before anyone else had considered the problem. See B. Roth et al.,
"The Saskatchewan Experience in Payment for Hospital Care," American
25. Although in calculating savings to be achieved by reduced utilization of acute
inpatient facilities, for example, this distinction may be forgotten by exponents
of alternative programs.
26. On one occasion, however, the Minister of Health in B.C. simply refused to pay
all of the negotiated wage increases and forced hospitals to find the differential
by cutting staff or using their own revenue sources (e.g., the preferred
accommodation differential). The policy was monumentally unpopular, and it
is asserted that hospitals merely ran up their lengths of stay; but there is some
evidence that it slowed cost trends. In Quebec the provincial government has
participated directly in wage negotiations since 1966.
27. Evans, "Behavioural Cost Functions for Hospitals," and Evans and Walker,
"Information Theory and the Analysis of Hospital Cost Structure."
28. Ibid. These findings relate to aggregate hospital budgets. Some provinces,
particularly Quebec, are using cross-hospital subindexes, such as dollars per
pound of laundry processed, as control devices to identify and place administra-
tive pressure on hospitals that are above average on these direct departmental
costs. This may simply lead back to standardizing the internal structure of
hospital budgets—uniform inefficiency again.
29. A cynic might fear that better managers in the existing structure might make the
problem worse; they'll simply negotiate better for more money!
of a Day Care Surgery Unit, Final Report, N.H.W. Grant #610-21-14, Van-
Journal of Economics, 85 (February 1971), reports that extended care facilities
raise costs per hospital episode—what is saved on lower acute care stays is lost
in long extended care stays.
32. J. L. McPhee, Community Health Association Clinics (Regina: Saskatchewan
Department of Public Health, August 1973); and J. E. F. Hastings et al.,
"Freepaid Group Practice in Sault Ste. Marie, Ontario, Part I," Medical Care,
(March—April 1973).
33. The locus classicus is the report of the Commission d'enquête (Castonguay
Commission). The federal equivalent was the Community Health Centre
Project, directed by J. E. F. Hastings, which reported to the Council of Health
Ministers in July of 1972 and supported the C.H.C. concept strongly. More
recently the Report of the British Columbia Health Security Programme Project
(Victoria: December 1973) also endorsed the C.H.C. idea.
34. The nonprofits on which the national program was modeled, provincially based
but affiliated as Trans Canada Medical Plans, covered 30 per cent of the
population in 1967 (adding in the population of Saskatchewan, which had a
universal public plan since 1962). Coverage was, however, proportionally
much higher in the western provinces. Moreover, most of the population had
some medical coverage, although private insurance plans were more likely to
limit coverage to in-hospital care and/or impose copayment features. With reference to the role of insurance in expanding demand for care, the TCMP plans had an average cost per insured of $34.95 in 1967, compared with a national average of $33.63 for medical expenditures of all Canadians. Moreover, TCMP subscribers were concentrated in high-cost provinces. See Evans, *Price Formation in the Market for Physician Services*, Ch. 2; or Trans-Canada Medical Plans, *Annual Enrollment Experience and Annual Financial and Statistical Experience Report*, 1967 Year (mimeo.), July 1968.

35. The indexes are current-weighted composites derived from a sample of key items in each provincial fee schedule, with the size of the sample growing over time. By contrast, the C.P.I. Component (discontinued after Medicare) was a base-weighted index of prices of four procedures performed by general practitioners in urban areas, measured by telephone survey. For further discussion, see R. C. Evans, *Price Formation in the Market for Physician Services*, Ch. 1 and Appendix 1–2, where it is also shown that although the proportion of specialists in Canada rose from 35 per cent in 1957 to just over 50 per cent, the impact of this change on measured prices is almost certainly less than 10 per cent overall.

36. The table suggests that this “quantity” increase has accelerated since Medicare, but the 1971 increase is distorted by the massive effects of the introduction of the Quebec program. In that province average gross incomes of physicians jumped 38.9 per cent, 1971 over 1970, and net incomes were up 50.1 per cent. Expenses of practice rose 8.6 per cent on average. This leads to the suspicion that there was substantial under-reporting of income in Quebec prior to 1971.

37. There are a few conceptual discrepancies in moving from physicians to physician services. See *Earnings of Physicians in Canada*, 1961–1971.


41. This whole paragraph is in response to Anne Scitovsky’s comment that this paper really says more about the forces driving expenditure increase than about the role of health insurance, and that its treatment of the impact of insurance on physician incomes was inconsistent. I have attempted to rationalize the inconsistency, but I confess I do not know the answer.

42. Within B.C., however, the effects of differing physician density across regions on regional provider incomes seem to have been almost entirely (about 85 per cent) wiped out by variations in practice patterns; Evans et al., “Medical Productivity, Scale Effects, and Demand Generation.”


44. Moreover, if copayment were to become large enough to reduce demand and utilization, private insurance would return for the good risks.


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Evans' paper is really a short monograph that might just as well be entitled "What Every Interested American Ought to Know about Canadian Health Insurance." The Canadian experience with health insurance is important to this country because (1) it has coupled public financing with continued private production of health services; (2) variation among its provinces in approach and in timing has produced evidence from several significant social laboratories; and (3) a good many Canadian institutions, including the federal structure of government and relationships between physicians and hospitals, resembles our own. In chronological time, Canadian actions with respect to health insurance have preceded ours, so that they may provide us with a leading indicator.

In preparing this paper, Evans has intentionally cast a wide net. To continue the metaphor, he has achieved a substantial catch. The quality of the catch is variable, however. The paper could benefit from more work; it affords rewarding reading even now.

Beginning with an elegant introduction to the Canadian Constitution (the British North America Act), Evans relates how a central government that apparently lacks authority in the health field has managed to establish a roughly uniform nationwide system of nearly universal hospital and medical insurance by wielding the instrument of federal-provincial cost sharing. The hospital plan went into operation in the provinces in the period 1958—1961; the medical plan, in 1968—1970. Evans describes the two insurance plans in considerable detail—their respective benefits, sources of financing, methods of paying providers, and the basic data systems. Both structure and function are depicted with a broad brush, but also with a sense of the degree of diversity that characterizes the several Canadian provinces. (Under the circumstances, the latter aspect is not quite systematic.)

Ten numbered tables plus four more text tables, supported by an appendix on the data sources and on the splicing of time series, constitute a gold mine of trend data on personal health expenditures in Canada by object, on health care prices, and on health services utilization. Several tables also furnish detail by province. At almost every point the data beg for comparison with the United States; in small measure I shall try to respond to this need. Throughout, the paper invites more detailed description or more refined analysis; for this a discussant can only encourage the author to continue his good work and to amplify it.
POLICY PROPOSITIONS

Owing to time limitations in preparing the paper, Evans' policy propositions are not so well supported by the analyses developed in the paper at hand as they might be. Nevertheless, Evans is both a scholar and a man of experience, and his views on policy are worthy of respect for themselves. More important for this context, however, his policy views help the reader to understand why certain problems were selected for study and others were neglected.

I trust that what follows is a fair presentation of Evans' policy propositions stemming from his interpretation of the Canadian experience with health insurance:

1. Copayment by consumers is beside the point, for physician behavior is dominant. (In a footnote Evans adds: if copayment turned out to be important enough, private health insurance would sell policies to cover it.)

2. It is difficult to discover incentives toward greater managerial efficiency if managers are not allowed to do anything much with the savings they achieve or to apply them toward doing a better job.

3. Profiles and audits of providers are of limited value. They can only detect fraud.

4. It follows that it is necessary to try to control the flow of funds. The question, which is not answered, is how.

5. It comes down to this: Health insurance is a limited device. Complementary instruments are required.

6. As a practical matter, it is important to take steps to curtail the supply of hospital beds.

7. Canada will move toward a policy of restricting the number of physicians.

None of these propositions strikes me as unreasonable or implausible. Indeed, I incline to put even greater emphasis on a reduction in the supply of hospital beds in the long run. With respect to physicians, it is essential to explore the implications of their relationship with hospitals.

THIRD PARTIES AND CONSUMERS

Evans concludes that the economic relationships between third parties and consumers in Canada are relatively uninteresting. Why? He gives these reasons:

1. The existing system of health insurance premiums is pointless.

2. There is a scattering of utilization charges among the provinces, without rationale.

3. Utilization charges are probably costly to collect.

4. Extra billing by physicians is trivial (in contrast to the United States experience under Medicare).

Evans' conclusion on this score is important not only for policy purposes, but also because it leads him to emphasize a different set of economic relationships, useful, therefore materials that ensued. Such light on the inter

THIRD PARTIES

For Evans, the providers of health care services in Canada are part of government.

His answer is foreseen. Utilization charges are probably costly to collect. Indeed, for it has been the case that providers receive a scattering of utilization charges among the provinces, without rationale.

Physicians

Closer examination of the United States system revealed that in the 20-29 year age group, utilization charges were low—indeed, the United States had one of the lowest in the world. However, it is well known that services of 16 per cent of the population are not covered by insurance. How could this be? The answer is simple: the United States has a government system.
policy propositions as a man of experience. More important is to understand why they are neglected.

Policy propositions experience with health physician behavior is not turned out to be will policies to cover

managerial efficiency with the savings they provide. They can only flow of funds. The limited device. Complement the supply of the number of physicians or implausible.

restriction in the supply of this, it is essential to third parties and providers. It would be highly useful, therefore, to document this conclusion. Of special interest are case materials that attempt to describe which policies have been tried and what ensued. Such materials serve administrators of health plans, they also shed light on the inferences drawn from quantitative studies.

THIRD PARTIES AND PROVIDERS’ EARNINGS

For Evans, the economic relationships between payment agencies and providers of health services are at the heart of the Canadian health insurance system. How can this be, given the original lack of intention and desire on the part of government to intervene in the provision of services?

His answer is that certain consequences of health insurance were not foreseen. Utilization of services has increased somewhat; more expensive techniques are being adopted; and, in an open-ended payment system, providers revise their income aspirations upward.

Indeed, for Evans, the most prominent effect of health insurance in Canada has been the increase of earnings by health providers, both physicians and hospitals. Two factors are involved: (1) the policy adopted at the outset to pay all legitimate bills and to minimize interference with management; and (2) the inadequacy of the information structure on which intervention on the supply side might be based.

PHYSICIANS

Closer examination of the Canadian data, as well as comparison with data for the United States in the same intervals, suggests that in the case of physician services, health insurance must have been only one of the factors involved, for it appeared rather late. Table 1 presents annual rates of increase in expenditures in both countries; to show the component factors as well and to save space, panel A is for Canada and panel B is for the United States.

Early in the 1960s expenditures for physician services rose at the same rates in the two countries—7 to 8 per cent a year. The figure rose in both countries to 10 per cent a year by 1965. After that the Canadian rate of increase was higher, 13 vs. 10 per cent by 1968, and still higher in the next interval, 16 vs. 11 per cent.

However, the Canadian data indicate an increase in the per capita use of services of 11 per cent in the last interval. The figure is dubious on several grounds: It is considerably higher than any past figure; it is accompanied by a low—indeed, lower—rate of price increase; and it departs appreciably from the United States experience. It is not unreasonable to postulate some spillover between the United States and Canada.
TABLE 1  Physician Services: Annual Rates of Increase in Expenditures, Population, Price, and per Capita Use, Canada and the United States, Selected Intervals

<table>
<thead>
<tr>
<th>Interval</th>
<th>Expenditures</th>
<th>Population</th>
<th>Price</th>
<th>Per Capita Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Canada</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1953—1956</td>
<td>10.8%</td>
<td>3.0%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1956—1959</td>
<td>10.7%</td>
<td>3.1%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1959—1962</td>
<td>7.7%</td>
<td>2.3%</td>
<td>2.0%</td>
<td>3.4%</td>
</tr>
<tr>
<td>1962—1965</td>
<td>10.3%</td>
<td>2.1%</td>
<td>2.3%</td>
<td>5.8%</td>
</tr>
<tr>
<td>1965—1968</td>
<td>13.1%</td>
<td>2.0%</td>
<td>5.0%</td>
<td>5.7%</td>
</tr>
<tr>
<td>1968—1971</td>
<td>16.2%</td>
<td>1.5%</td>
<td>3.0%</td>
<td>11.3%</td>
</tr>
<tr>
<td>B. United States</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950—1955</td>
<td>6.0%</td>
<td>1.7%</td>
<td>3.4%</td>
<td>0.9%</td>
</tr>
<tr>
<td>1955—1960</td>
<td>9.1%</td>
<td>1.7%</td>
<td>3.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>1960—1962</td>
<td>7.0%</td>
<td>1.6%</td>
<td>2.6%</td>
<td>2.8%</td>
</tr>
<tr>
<td>1962—1965</td>
<td>10.4%</td>
<td>1.4%</td>
<td>2.6%</td>
<td>6.4%</td>
</tr>
<tr>
<td>1965—1968</td>
<td>9.8%</td>
<td>1.1%</td>
<td>6.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>1968—1971</td>
<td>10.9%</td>
<td>0.9%</td>
<td>7.1%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

SOURCES: Canada—Evans' paper provides basic data for my computations. United States—Herbert E. Klirman, Dorothy P. Rice, Barbara L. Cooper, and H. Louis Stettler, Sources of Increase in Selected Medical Care Expenditures, 1929—1969 (Washington, D.C., Social Security Administration, 1970); for subsequent years, Social Security Administration, unpublished data.

One can only surmise about plausible explanations. Is it possible that medical insurance in Canada, by establishing a single source of payment within a province, led simultaneously to a more correct reporting of earnings by physicians? If so, there would be a one-time shift in the data base. Utilization changes would be overstated, if price increases were understated for whatever reason. An improved ratio of collections to charges would serve to increase earnings while official prices remained the same. In the United States there is good reason to believe that after 1965 the fractionation of fees became widespread, thereby understating the official rise in fees; has Canada had a similar experience?

Certainly the fact of an appreciable increase in physician earnings is not contestable. However, because of the high increase in per capita utilization reported in his data, Evans may be neglecting prices unduly over the long run. Evans appropriately emphasizes the discretion of the physician in prescribing additional visits and services. In the United States Rappleye and Ginzberg have long made this the core of their policy positions on health manpower. Fuchs and Kramer offer this ability of physicians to generate more services as their preferred explanation of the statistical significance of the physician supply variable in their demand equation. Adam Smith does not distinguish between competition and price, recognizing the importance of the rank in society of the physician. How? Not by the market price alone, but also by the administration of hospitals. In Canada, a national health program was introduced in 1962. The price of services rose at rates similar to those in the United States, but the volume of services rose at a significantly higher rate. This has had the effect of increasing both the demand for and the supply of physician services, thereby increasing the earnings of physicians and reducing the costs of health care.

HOSPITALS

In Canada, a national health program was introduced in 1962. The price of services rose at rates similar to those in the United States, but the volume of services rose at a significantly higher rate. This has had the effect of increasing both the demand for and the supply of physician services, thereby increasing the earnings of physicians and reducing the costs of health care.
distinguish between influence on quantity of service and on price when he recognizes that the reward of physicians must be such "as may give them that rank in society which so important a trust requires." To have better judgment on the Canadian fee data, more needs to be known than is reported in this paper about how physicians are actually paid. May I add that Evans is uniquely able to furnish such information.

There is a wealth of provincial data that Evans does not explore and that I am unable to handle. Take Saskatchewan, for example. Table 6 shows it to have been successful in keeping down physician services expenditures. How? Not by keeping down the number of physicians; its supply rose at the overall Canadian rate, according to Table 9. What about its fee level? Well, it rose at a rate slightly higher than for Canada, according to Table 6; or it may have risen at a lower rate in recent years, according to Table 10. A reconciliation of the fee data, which are undoubtedly ambiguous in spots, would be a useful endeavor.

HOSPITALS

In Canada, average earnings of hospital employees have increased by 8 per cent a year. For a similar period, earnings of hospital employees in the United States rose by 5 per cent a year.

Evans asks whether the increase in average employee earnings reflects in part a higher personnel mix. Data bearing directly on the question are not available to him, but on balance he concludes that a change in personnel mix probably had nothing to do with it. For the United States, Feldstein reports a reduction in the average skill level of hospital workers. This trend was

<table>
<thead>
<tr>
<th>Cost Component</th>
<th>Canada</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Cost/Patient Day</td>
<td>9.3%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Labor Cost/Patient Day</td>
<td>10.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Personnel/Patient Day</td>
<td>2.1%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Average Annual Earnings</td>
<td>8.3%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Nonlabor Cost/Patient Day</td>
<td>7.2%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Proportion Labor to Total:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Year</td>
<td>57.7%</td>
<td>61.7%</td>
</tr>
<tr>
<td>Terminal Year</td>
<td>70.3%</td>
<td>59.6%</td>
</tr>
</tbody>
</table>

coupled with increases in wages for some hospital occupations that brought them to levels above those in other industries.  

Although staffing ratios are lower in Canada than in the United States (and appropriately so, given the longer average duration of stay in the former—13.3 hours per patient day vs. 14.9 hours), the rate of increase in the former still lags—2.1 vs. 2.3 per cent a year (Table 2). However, labor cost per patient day has increased at a higher rate in Canada, owing to the higher rate of increase in average earnings. The result, which is not easy to understand, is that in Canada labor costs have risen to 70 per cent of total cost from a base year figure of 58 per cent, whereas in the United States the trend was gradually downward, from 62 to 60 per cent (Table 2).  

A possible approach to reconciling some of these divergent tendencies is to examine differences in the definition of accounts. In the United States fringe benefits are classified as nonlabor expenses; are they so classified in Canada? In the United States nonlabor expenses incorporate increasing amounts of depreciation, which used to be neglected; does the situation differ in Canada?  

Evans concludes that wage inflation is the main source of increase in hospital expenditures in Canada. The timing of the wage inflation does not correspond to the extension of health insurance, nor to the increase in hospital use, nor even to the expansion of hospital employment. Indeed, the increase in use was small, and corresponded to the increase in hospital beds. It is not clear what led to the increase in wages. From the experience of the United States after Medicare, either of two explanations is tenable: the extension and then operation of universal hospital insurance; or the method employed to pay hospitals. Can the experience in Canada help one choose between them?

REGULATION OR CONTROL THROUGH REIMBURSEMENT

For both types of provider, Evans stresses the importance of negotiated earnings and sees no obvious basis for the exercise of restraint. He mentions the accumulation of a formidable hospital data base and regrets the failure hitherto to apply it. He looks forward to better coding and machine processing of the data. Furthermore, he would employ the data to explain differences in cost among hospitals and to set prices for inpatient and outpatient services. For these purposes direct departmental expenses, without any allocation of overhead, are useless, in Evans' opinion.  

Here I differ. The fact is that economists do not yet know how to explain cost differences among hospitals. Moreover, for a multiproduct firm, it is not possible to calculate the average cost of each product; only the marginal cost is calculable. If so, what is the use of allocating overhead expenses? At least direct departmental expenses can help in making comparisons within a hospital over time and among institutions, preferably also over time. Evans is doubtful about the efficacy of close monitoring of institutions to achieve great improvement in the cost of hospital care.

NOTES

1. Willard E. R.  
2. Eli Ginzbarg  
3. Victor R. Fu  
4. Adam Smith  
5. Robert Evans  
6. Martin S. Fe  
7. George Slid

Anne A. S

Palo Alto Medical I

Like Professors Evans and Slid, I have differed on the organization of the physician group first, by a dues plan, 1953–1971, second, by a physician's contract with the government. I agree with Evans' own assessment that I am still preoccupied with my own experience. My main purpose is to explain the effects of incentives.
achieve greater efficiency. Believing that he is right, I should still like to see some documentation from the Canadian experience.

Evans concludes from his study of Canadian health insurance that the supply side is crucial. Again I tend to agree; the study of demand has preoccupied us unduly. It is salubrious to hear a call for increased concentration on supply factors at a conference devoted exclusively to the economics of health insurance.

NOTES


Anne A. Scitovsky
Palo Alto Medical Research Foundation

Like Professor Klarman, I am much impressed by Professor Evans' paper. He has tackled a formidable problem and really combined three if not four different papers in one. There is, to begin with, a historical-descriptive section on the organization of national health insurance in Canada. This is followed, first, by a detailed analysis of the rise in hospital expenditures in the period 1953–1971, and then by a somewhat less detailed analysis of the increase in physician expenditures in the period 1957–1971. Finally, the sections on hospital and physician expenditures contain a discussion and evaluation of government policy responses to hospital cost inflation as well as Professor Evans' own recommendations on how to solve the problem of medical care cost inflation in Canada. He has assembled and analyzed a vast body of data that I am sure future researchers will heavily draw from. Let me therefore preface my comments by saying that any criticisms I have are minor compared to the job he has done.

My main comment is that Professor Evans' paper is not so much a study of the effects of national health insurance in Canada as an analysis of the
increase in hospital expenditures in the period 1953-1971 and in physician expenditures in the period 1957-1971. Early in his introductory section, he does say: "... the single most prominent influence of health insurance in Canada has been to increase the earnings of health providers." The earnings of health providers, both in the hospital sector and in the physician sector, did indeed rise very substantially during these periods. But his data do not really show that this was the result of national health insurance.

For example, he shows that hospital workers' wage rates as well as gross wages and salaries per patient day actually rose less in the period 1959-1965 (the immediate post-hospital insurance period) than in either the preceding or the subsequent six-year periods. He himself seems to change his mind about what exactly health insurance had to do with the inflation of costs as he proceeds to analyze the data in detail. In the section on hospital costs, he refers to a Canadian government report on hospital expenditures over the period 1961-1971 and says: "In analyzing the response of hospital expenditures ... the message of the report parallels that of this paper—wage inflation in the hospital sector is the main source of increase and the timing does not particularly correspond to the extension of insurance, the expansion of utilization, or even the expansion of employment" (italics mine). Actually, let me add that what increase in utilization there has been also does not seem to correspond to the extension of insurance. As Table 4 shows, the rate of increase in utilization, in terms of both admissions and patient days per 1,000 population, was slower in the post-insurance than in the pre-insurance period. Only employment as measured by hours worked per patient day shows some relation to the extension of insurance. As the table on p. 457 shows, it rose at a somewhat faster rate in the post-insurance period—22.6 per cent between 1959 and 1965 as against 15.2 per cent between 1953 and 1959; however, this increase accounts for only a very small part of the increase in average labor costs per patient day between 1959 and 1965. Thus, the role of national health insurance is a relatively minor factor in explaining the increase in hospital costs, and we have to look to other factors for an explanation.

This Professor Evans does very thoroughly and, I think, successfully, in the hospital sector of the paper, and more superficially in the physician sector. To begin with the hospital part of his paper, his data bear out his thesis that it was supplier behavior—the rapid and considerable increase in hospital workers' wages and in labor costs per patient day—that was the major factor underlying the increase. However, although he shows that the rise in wage rates cannot be explained as demand-induced wage inflation resulting from expanded employment, he does not really come up with a satisfactory explanation. He explores various possible explanations. For example, he considers that there may have been a shift in the mix of hospital personnel from less-skilled to more-skilled workers, but concludes that this was not the case, although here his data are not entirely satisfactory. He also explores the possibility that the phasing out of unpaid or almost unpaid workers (student nurses, nursing assistants, and interns), which in 1953 accounted for about 17-18 per cent of hours worked per patient day, may have been a factor. But even when he considers the possibility that the average industry wage rate in Canada has been to increase the earnings of health providers, even when he does say: '... the single most prominent influence of health insurance in Canada has been to increase the earnings of health providers.' The earnings of health providers, both in the hospital sector and in the physician sector, did indeed rise very substantially during these periods. But his data do not really show that this was the result of national health insurance.

I also want to comment on the data from the States it was to be expected that Canadian figures for costs would be lower than those for the States. For example, he shows that hospital workers' wage rates as well as gross wages and salaries per patient day actually rose less in the period 1959-1965 (the immediate post-hospital insurance period) than in either the preceding or the subsequent six-year periods. He himself seems to change his mind about what exactly health insurance had to do with the inflation of costs as he proceeds to analyze the data in detail. In the section on hospital costs, he refers to a Canadian government report on hospital expenditures over the period 1961-1971 and says: "In analyzing the response of hospital expenditures to insurance ... the message of the report parallels that of this paper—wage inflation in the hospital sector is the main source of increase and the timing does not particularly correspond to the extension of insurance, the expansion of utilization, or even the expansion of employment" (italics mine). Actually, let me add that what increase in utilization there has been also does not seem to correspond to the extension of insurance. As Table 4 shows, the rate of increase in utilization, in terms of both admissions and patient days per 1,000 population, was slower in the post-insurance than in the pre-insurance period. Only employment as measured by hours worked per patient day shows some relation to the extension of insurance. As the table on p. 457 shows, it rose at a somewhat faster rate in the post-insurance period—22.6 per cent between 1959 and 1965 as against 15.2 per cent between 1953 and 1959; however, this increase accounts for only a very small part of the increase in average labor costs per patient day between 1959 and 1965. Thus, the role of national health insurance is a relatively minor factor in explaining the increase in hospital costs, and we have to look to other factors for an explanation.

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even when he adjusts for this change he finds that it explains only a small part of the increase in hospital wage rates (about 24 per cent). He mentions the possibility that hospital workers' wages were still catching up from the period of very low wages during the period of charity hospitals, and he shows that in 1971, the average hourly hospital wage was still somewhat below that of the average industrial hourly wage—$3.26 compared to $3.44. Unfortunately, lack of data on the mix of skills in both the hospital and the industrial sectors prevent him from pursuing this possible explanation. The reason for the increase in hospital wages is therefore left largely unexplained.

I also want to raise a question that bothers me. According to Professor Evans, 70 per cent of the average cost per patient day in Canada in 1971 was labor cost; in the United States in the same year, it was about 58 per cent. Yet in Canada, hours worked per patient day in 1971 were 13.29, or 1.66 hospital workers per day, assuming an eight-hour work day, whereas in the United States it was 3.01 workers per day. What is the explanation? Do the U.S. figures for cost per patient day include some costs that are not included in the Canadian figures? Or do the Canadian figures for labor cost per patient day include something not included in the U.S. figures? Or do Canadian hospitals employ a higher proportion of highly skilled employees? The explanation may lie in the longer average length of stay in Canada than in the U.S. (11.3 days in 1971 in Canada as against 8.03 days in the U.S.). Since shorter stays result in higher average costs per day because the first few days of any hospital stay are the most expensive, involving a high percentage of nonlabor costs (operating room, x-rays, lab tests, etc.), this seems one possible explanation. I don't want to belabor this point, but it does intrigue me.

To turn to the physician expenditures part of Professor Evans' paper, as I already said, his analysis here is less thorough. He compares the period 1957—1964 with the period 1964—1971. His choice of 1964 as the dividing point between the pre- and post-Medicare periods puzzles me since Medicare was enacted only in 1966, and all but one of the ten provinces have introduced programs only quite recently—one in 1968, five in 1969, two in 1970, and one in 1971. In addition, I have some questions about his analysis of the changes in expenditures that occurred in the period 1957—1971.

Any analysis of physician expenditures hinges on the adequacy of the index used to deflate expenditures. Professor Evans does not tell us what exactly is included in the new N.H.W. benefits paid index nor what the implications of linking the old CPI physician fee index to the new index are. He himself seems to have some doubts about the index since he says: "If list prices really reflected actual prices over this period, one would derive an apparent quantity increase for 1957—1971 by dividing expenditure change by price change—this quantity estimate increases by 8.0 per cent per year." Again, a bit later, he says: "If one accepted the Table 7 list price increase of 56 per cent from 1957 to 1971, the implicit average increase in real output to a physician would be 4.1 per cent per year (italics mine in both quotations). A more detailed explanation of the index, and Professor Evans' reasons for being so tentative about it, would therefore seem to be called for in a paper of this kind.
Not knowing what exactly the fee/benefit index reflects leaves it to the reader to speculate about what some of the causes of the increased "real" output might be, especially since Professor Evans does not make much of an attempt to explain it. He does state that the stock of physicians rose twice as fast as population in the period 1957–1971. But this does not explain the increase in "real" output per physician. On the basis of some fragmentary evidence, he doubts that physician visit rates have increased. He concludes, therefore, that the increase in "real" output is attributable to the fact that physicians to a large extent are able to determine the demand for their services and, as he puts it, "manipulate utilization to generate income." I am the first to agree that the physician can and does play an important role in determining the demand for his services, and have argued so for a long time. Undoubtedly this explains a good part of the increased "real" output. But another possible contributory factor that Professor Evans does not mention is the possible increase in the percentage of specialists as against general practitioners. This may, of course, be accounted for in the index but, as I said, I have no way of knowing. If it is not, and there was such a shift in Canada, this could explain at least part of the increased "real" output since specialists not only charge higher fees than GP's but also generate more ancillary services such as lab tests and x-rays per visit. It would be interesting to know, therefore, if and in what way the distribution of Canadian physicians by field of specialty changed in the period 1957–1971.

Just one more point on this subject. Many physicians undoubtedly "manipulate" demand to increase their income by ordering too many lab tests or x-rays or by performing marginal or even unnecessary surgery; or, as Professor Evans points out, they may "shift across fee schedule items from, for example, 'ordinary' to 'complete' office examinations." But there are also other changes in practice patterns that increase physician income and are not quite in the same "manipulative" category. Take, for example, a fairly recent study of "The Effects of 'Free' Medical Care on Medical Practice—the Quebec Experience," reported by Philip Enterline in the New England Journal of Medicine (May 31, 1973). He interviewed a random sample of Montreal physicians before and after the Province of Quebec put Medicare in effect in November 1970 (the surveys were done October 1969–May 1970 and October 1971–May 1972). He found that the total number of all patient contacts declined by almost 10 per cent in the post-Medicare period. However, when you look at the change by type of contact, you find that total face-to-face contacts increased by 4.8 per cent. Telephone contacts declined by 41 per cent, office visits increased by 32 per cent, hospital inpatient visits dropped by 16 per cent, hospital clinic visits stayed about the same, and home visits dropped by 63 per cent. This change in practice patterns undoubtedly raised physicians' incomes, since telephone calls are probably rarely charged for and since home visits (at least in the U.S.) are relatively underpriced in relation to other types of visits (a doctor can see several patients in his office—at a fee not much lower than that for a home visit—for every one home visit he makes and thus make more money). If this type of change in practice patterns occurred in other parts of Canada, either as a result of Medicare or because of a long-term trend (in the
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the increased "real"
not make much of an
icians rose twice as
does not explain the
of some fragmentary
ased. He concludes,
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an important role in
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does not mention is
as against general
index but, as I said,
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re ancillary services
interesting to know,
physicians by field of

Undoubtedly manipu-
any lab tests or x-rays
ery; or, as Professor
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are also other changes
are not quite in the
y recent study of "The
Quebec Experience,"
of Medicine (May 31,
physicians before and
November 1970 (the
declined by almost 10
look at the change
icts increased by 48
office visits increased
cent, hospital clinic
by 63 per cent. This
icians' incomes, since
home visits (at least
other types of visits (a
much lower than that
and thus make more
urred in other parts
long-term trend (in the

U.S., for example, there has been a steady decline in home visits), this also
would explain some of the increase in "real" output.

In conclusion, let me say that I am in full agreement with Professor Evans
that copayment on the part of patients is not the answer to stemming the rise in
medical care costs, or rather not the sole answer. I do not think that
copayment is as ineffective as Professor Evans seems to think, and I believe
that some copayment on the part of patients is desirable. But I feel very
strongly, and have argued so in a recent paper, that some forms of restraints
on suppliers of medical services have to be devised—primarily on physicians
since they to a large extent determine not only the demand for their own
services but the demand for hospital services. The hospitals, as somebody
said recently, don't have patients—they only have doctors. I am not sure that I
agree with Professor Evans' recommended solution, but I have to admit that I
have no counter-proposal.
The study estimate the policies. The analysis uses the markets and their interaction. A microeconomic model is used, and the analysis is specific to national health care markets.

The methods are described in an unpublished technical report. The methods are the methods of Health Insurance, Education, and D. Schenker for...