

EXTENDING CANADIAN HEALTH INSURANCE:
OPTIONS FOR PHARMACARE AND DENTICARE

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Extending Canadian Health Insurance: options for pharmacare and denticare

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Contents

PREFACE vii

ACKNOWLEDGMENTS xi

1

Public intervention: objectives and criteria 3

2

Pharmacare and its alternatives: insurance options 33

3

Pharmacare and its alternatives: reshaping the delivery system 61

4

Denticare and its alternatives: insurance options 108

5

Denticare and its alternatives: reshaping the delivery system 136

6

Under-use of auxiliaries in private practice: theoretical issues 171

7

Summary and conclusions 214

vi Contents

APPENDICES

- A Risk-spreading and the gains or losses from insurance: a graphical analysis 235
- B Estimated cost of a deductible pharmacare program compared with Manitoba (1975) experience 242
- C Retail pharmacy: some current price data 245
- D Dental care utilization and dental health 262

BIBLIOGRAPHY 265

Preface

In the past twenty years, the costs of reimbursing hospital and medical care in Canada have been almost entirely shifted from private to public budgets. The federal and provincial governments between them have put in place programs which are described as 'insurance,' implying that their primary function is intended as the payment of legitimate claims by providers rather than the exertion of direct influence on the process of health care delivery. The Hall Commission in 1964 said of its medicare proposals: 'they do not involve any control over the physician or dentist in the practice of his calling.' Canada has a national health insurance system, not a national health service.

It is in this context which we have interpreted the terms 'pharmacare' and 'denticare' to designate public programs extending the medicare model to cover dental and pharmaceutical services. In such programs independent providers would continue to practise as they do at present, with their services being reimbursed at uniform rates collectively negotiated between the professions involved and the provincial reimbursing agencies. In this study we have attempted to provide estimates of what the total costs of such universal pharmacare and denticare programs might have been in Ontario in 1975. These estimates, developed in chapters two and four, are based on 1975 population, utilization, and price data either actual or projected from previous years. The data are not all complete or up to date, but the estimates are intended to indicate the approximate orders of magnitude of such program costs and to provide a framework within which an interested reader might insert preferred data and generate better estimates. The specific numbers might change, the general conclusions should not.

Such program cost estimates do not, of course, represent the costs to the province as a whole of extending public health insurance. Almost all the increases in government expenditures are matched by corresponding reductions in private expenditures; a province-wide cost-benefit analysis of a pharmacare or denticare program would cancel these out against each other. In evaluating such programs therefore, we have stepped back to try to develop a more general specification of what the objectives of the public sector might or should be in initiating health insurance programs. In particular we suggest that appropriate public objectives would include: reduction of the financial risks to which people are exposed as a result of unpredictable illness, redistribution of the financial burdens of illness (predictable or unpredictable) to be more proportionate to ability to pay and less proportionate to illness incidence, changing the levels and types of health care which people use (increasing or decreasing) in order to improve health status, and maintaining or improving the economic efficiency with which the health care delivery system provides its products and services.

In chapters two and four we assemble data from a wide variety of sources, not all as reliable or as relevant as we would like, to attempt to evaluate universal pharmacare and denticare against these objectives. We also note that universality is not a goal in itself, but only insofar as it serves broader public objectives; and we therefore attempt also to cost out and evaluate more limited alternatives by which reimbursement would be provided only for a part of the population and/or a part of each beneficiary's bills. These partial programs are evaluated not as an interim step on the road to universality, but as long-run alternatives.

The historical experience with hospital and medical insurance in Canada has demonstrated rather conclusively that a public program focused only on the demand side of the care delivery process, paying provider claims, cannot avoid at the same time inducing significant changes in the behaviour of providers of care. These in turn call forth responses by the public sector, often in an *ad hoc* manner, to influence the process of delivery itself. As a result the Hall Commission statement referred to above has been inaccurate, and in retrospect this seems to have been inevitable. Thus we may anticipate that major public initiatives in the reimbursement of pharmaceutical and dental services will certainly have a significant impact of some sort on the supply side.

In chapters three and five, we attempt to broaden the range of perceived alternatives for the organization of service delivery, and to evaluate some of these alternatives against the list of public objectives developed in chapter one. The intention here is to show that extension of the medicare model is only one set or pattern of policy options from a broad spectrum which includes possibilities for increased 'socialization' of some health care services, all the way over

to direct public provision, as well as significantly increased use of competitive market forces to organize the resource allocation process.

It appears to us that there is no single 'right' choice from this spectrum for all of health care, because 'health care services' is an aggregative term which can be as misleading as it is convenient. The appropriate form of public intervention (if any) in the delivery of a particular type of health service should be determined by reference to the special characteristics of that type of service, and related to the more general public objectives as developed in chapter one. Our analysis suggests that the preferred mode of public intervention in pharmacy may be very different from that in dentistry, and both in turn from medicine, for reasons which can be clearly based on the different needs, utilization patterns, and delivery processes of the different services.

In this analysis we have drawn on a considerable body of empirical analysis and casual observation about the characteristic modes of internal operation of health care practices, particularly with respect to the delegation of duties to the various types of auxiliary workers which have been developed. These observations are not always consistent with the predictions of conventional economic theory, and in chapter six we have attempted to outline certain modifications to this conventional analysis which lead to predictions of the behaviour we and many others have observed.

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Acknowledgments

This project has its roots in a small background paper we wrote for the BC Health Security Programme Project (Foulkes Report) in 1973. This then became one strand feeding into the much larger BC Children's Dental Health Research Project, and we are greatly indebted to the members of the co-ordinating committee, staff, and advisors to that project for numerous discussions expanding our knowledge of and focusing our thinking on the dental care insurance and delivery process. We have used much of the data and other materials from that study in this monograph. More recent data on children's dentistry have been provided by the Saskatchewan Dental Plan and by the Quebec Ministry of Social Affairs, for which we are most grateful.

The data from the BC Pharmacare program, as well as a number of very helpful ideas and comments, have come from Pat Tidball and David Schreck; while Alison Masson of the US Federal Trade Commission provided us with information on their current studies of the industrial organization of the pharmaceutical dispensing process. Staff members at the Saskatchewan and Manitoba Pharmacare programs and at Ontario Blue Cross were also helpful in answering a number of questions.

Hank Klein and Marion Schmidt, students in dentistry and economics respectively, provided able research assistance during the summer of 1975, while Morris Barer carried through all the computer programming and calculations for the analysis of the BC pharmacare data. The dental analyses used a simulation model of a dental practice which has been mounted and kept functioning at the University of British Columbia by Keith Wales. Morris Barer then served as a very careful reviewer and critic in his new role as research officer at the Ontario

xii Acknowledgments

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None of the above would wish to accept responsibility for the errors, omissions, or other weaknesses of the finished product — nor for that matter do we. But it is traditional for us to do so.

EXTENDING CANADIAN HEALTH INSURANCE:
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1

Public intervention: objectives and criteria

INTRODUCTION

Health care is not free. The provision of health care is an economic activity which uses up real resources, principally human time and energy but also materials, bricks and mortar, machinery, and power. The more of its resources a society devotes to health care, the less are available for any other useful purpose, regardless of the particular institutional arrangements adopted in that society for the organization and delivery of, and payment for care. It is this 'opportunity cost,' of the other useful things given up by a society in order to use its resources in this way, which constitutes the true cost of health care. The problems of determining the appropriate level of provision of resources to health care, and of ensuring that they are efficiently used, emerge under all actual or conceivable social choices of health care system wherever they may be placed along the spectrum from the pure private market place to total 'socialist medicine.'

In Canada, however, a political consensus has emerged which holds that health care, while not free to society, should be free to the individual. This may be expressed as an ethical principle that 'health is a right' to which citizens should have equal access regardless of economic circumstances. Alternatively it can be argued that the private market place in which health services are bought and sold by private individuals like any other commodity is for a variety of reasons a relatively inefficient social mechanism for converting economic resources into levels of health of the population (and presumably therefore into the satisfaction of human wants as the economics textbooks have it). The two positions are obviously different; one is a statement about ultimate values or

4 Extending Canadian Health Insurance

ends and the other is a judgement about the relative efficiency of different means to an end. Both, however, can be used to justify the choice which has been made in Canada, that the provision of resources for health care production shall be a collective choice, operating through the public tax and expenditure systems of the federal and provincial governments. Decisions to seek care are of course private, individual choices; and decisions over what kind and how much care to provide remain dominated by professionals whose ambiguous role as private businessmen on the public payroll is generating increasing strain. But the hospital and medical insurance programs in each Canadian province ensure that the resources required to support this system shall be raised collectively and that the individual using such services will not have to bear the costs generated by such use.¹

This principle, however, has not been put into practice across the whole range of health care services. The Canadian national health insurance plan, based for constitutional reasons in each of the provinces, covers only hospital and medical services and does not extend to prescription drugs or dental care.² If indeed health care is 'a right,' it seems clear that these are as much a part of health care as the presently covered services. From this point of view, one would see pharmacare and denticare as logical extensions of medicare and hospital insurance, perhaps with some delay while the previous plans are being digested by the governmental administrative and fiscal systems. Within the last three years, several provinces have introduced public dental or pharmaceutical plans, and private insurance for each has been growing steadily – these developments follow the patterns which developed in the decade before each of the previous federal moves into health insurance.

On the other hand, this logical extension may be delayed for reasons partly arising out of experience with the hospital and medical plans. Health care may

1 It remains true, of course, that some direct charges to patients are made by physicians who extra-bill. This phenomenon clearly contravenes the 'health is a right' principle, unless all patients have access to non-extra-billing physicians of equivalent capabilities. Nor does it appear to have any economic justification in terms of more efficient use of social resources. There is, however, an interesting distributional effect. If direct charges to patients are grafted onto a predominantly tax-financed system, and if the utilization response to such charges is income-dependent, then partial direct charges will reduce the access of lower-income persons to health care for which they have already paid most of the costs through taxation. Higher income groups who are less sensitive to direct charges will enjoy better access, while having their care subsidized through taxation.

2 The most recent single source for a description of the Canadian health care system is Andreopoulos (1975), particularly the articles by Le Clair (1975) and Evans (1975a). The hospital insurance plan covers prescription drugs or dental care provided in hospital.

be 'a right,' justifying some form of intervention in the private market place. But the particular form which that intervention should take is not defined merely by acceptance of the ethical principle. The alternative line of argument for intervention, that the unregulated private market place is not a very efficient social mechanism for allocating health care resources, likewise leaves open the question of how one might structure alternatives, whether one might employ some mix of market and regulatory institutions, and whether the optimal mix might not vary for different types of health care. The particular form of public intervention which has been adopted in the Canadian hospital and medical insurance plans is not necessarily optimal for pharmacy and dentistry – these services differ from hospital and medical care in ways which may well indicate alternative approaches.

Indeed, the widespread debate on the efficiency and effectiveness of the existing public insurance plans suggests that the present insurance structure is not optimal for hospital and medical care either. The federal government's White Paper, *A New Perspective on the Health of Canadians* (Lalonde, 1974) indicates that the current principal causes of morbidity and mortality are unlikely to be influenced by extension of hospital and medical care as currently organized and financed. Subsequently, the federal government has revised its health care cost-sharing agreements with the provinces (effective 1 April 1977), moving from an open-ended percentage sharing of actual expenditures to a formula related only to provincial population and economic size. One objective of this change is to encourage provinces to be more innovative in improving the efficiency of health care delivery; this may include modifications to the present insurance structure.

Under the circumstances, eventual federal financial underwriting for provincial drug and dental plans can hardly be counted on, and the mixed success of the medicare model suggests that the range of provincial options for public intervention in extending health care coverage be explored fairly carefully before launching any new initiatives to 'round out' universal public health insurance.³

3 This statement in itself conceals the major assumption that dentistry and drugs would round out such a system. But why draw the boundaries of health care there? Traditionally 'personal health care' in Canada has been defined to include hospital services, medical and dental care, and prescription drugs. But if one adopted the World Health Organization definition of health, very little of human activity is outside the sphere of health care. Should we 'insure' food and shelter? Are they 'rights'? If so, how is the right operationalized; if not, why not? The 'right to health' argument gives no guidance; on the other hand the social mechanism argument would say that we insure hospital care because it has characteristics which lead the free private market to work badly; we do not insure food because it does not.

6 Extending Canadian Health Insurance

Once a given program becomes institutionalized it is difficult or impossible to change because vested interests have been created or strengthened in its defense, while the constituency for change has been diluted or destroyed. There is considerable virtue in thinking before acting, rather than after.

The purpose of this present study, therefore, is to provide a framework within which to define and to evaluate the major policy options which a provincial government might consider in extending health care coverage to pharmacy and dentistry. The framework will involve establishing certain criteria which one should apply in evaluating alternative programs. Then, specifically in the context of Ontario, alternative programs for both pharmacy and dentistry will be suggested and described in terms of their expected coverage, utilization patterns, impact on health, and cost and efficiency. In this latter exercise the framework of evaluation is critical — the numerical parameters involved will be defined for the 1975 Ontario population but in many cases will be 'best guesses.' The framework employed will be specific enough that anyone objecting to a particular parameter will nevertheless know where it came from, why it was chosen, and what difference it makes if an alternative is substituted. The end result will be a set of cost estimates and general evaluations for specific alternative public programs in the dental and pharmaceutical field in Ontario. In addition, since the patterns of use of professionals and auxiliaries turns out to be a critical variable in the analysis of both of these areas, an effort is made in chapter six to explore the theoretical basis for the often-asserted bias of private health care practices against the use of less costly and highly trained intermediate level health practitioners. Since the personal services of trained professionals form the backbone of any health services delivery system, the efficiency with which such services are used is obviously a primary factor in comparing alternative programs.

THE OBJECTIVES OF PUBLIC INTERVENTION

The relationship between governments and the health care sector has a long history (see, for example, articles by Hartwell and Perlman in Perlman, 1974). It is sometimes difficult to separate public intervention in the provision of health care from the intervention of health care providers individually or collectively in the public sector, either in the political arena or by direct influence on the executive administrative process. Periodic ritual denunciations of 'socialized medicine' in North America, which have grown quieter in Canada since the national medicare plans were introduced, and calls for 'free and independent' professions with no state interference, have of course never meant anything of

the sort.⁴ Providers of health care, in Canada as elsewhere in the world, have actively sought out public intervention in the form of legislation regulating both entry to the health care professions and the behaviour of the members of those professions. The only issue has been the extent to which that power should be exercised by the private organizations of the health care providers (in essence the delegation of government power to private organizations), or by politically responsible organs of government. And the key question in that debate is which locus of regulatory power is more likely to exercise its authority in the public interest, and less likely to misuse governmental powers for private organizational interests.

The objectives of this classic form of public intervention into the process of health services delivery were two-fold. At the overt or public level, it was intended to improve the level of health of the public by raising the quality and reliability of the health care provided. It was recognized that individual patients had insufficient knowledge to distinguish good quality care from bad, so the free market was an inadequate regulatory tool. Moreover the state itself did not possess the resources to engage in direct quality surveillance, so it delegated this activity to professional associations and delegated also the coercive power necessary to make this surveillance effective. Tuohy and Wolfson (1976) have analysed the parallel between the informational asymmetry which leads the patient to delegate decision-making authority to the physician or other health professional and the same asymmetry at the societal level which leads the state to delegate regulatory authority to the profession. From the professional point of view, such delegated regulatory power permits the suppression of competitive behaviour both within and from outside the profession. In addition to the obvious economic advantages of such suppression, the self-regulating profession can defend and extend its definition of professional 'territory' to promote objectives which arise as much from professional self-image and identity as from economic self interest. This conflict of interest between public and private objectives in the use of delegated regulatory power has its parallel in the individual physician-patient relation, but it is not unique to situations where

4 Medical advocates of 'free, competitive practice' usually do not know what they are talking about. Free competition implies freedom of entry and of competitive behaviour. It would require as a beginning, repeal of all practice acts and thus removal of the police authority which supports licensure and ethical codes. The policeman would no longer stand ready to enforce the dictates of the College of Physicians and Surgeons, any more than those of the Chamber of Commerce. Anyone could practice medicine who could find patients, at any price, and could advertise the fact.

8 Extending Canadian Health Insurance

regulatory power is explicitly delegated to private associations. The tendency of public regulatory agencies to be captured by the regulatees is a commonplace, and Stigler (1971) has analysed the general economic advantages to the members of an industry from seeking regulation.

Public health insurance represents a major extension of public intervention in health services delivery, affecting in the first instance the users of health care services rather than the providers and addressing directly or indirectly a much wider range of social objectives. These are usually formulated in rather loose terms, such as reducing the financial barriers to health care, relieving people of the economic burden of illness, or generally improving the level of health of the nation. The difficulty with fuzzy or 'motherhood' objectives, however, is that it is rather difficult to specify the relationship between an objective and a particular form or structure of public health insurance organization. Little or no guidance is given on the important problem of how government agencies should choose from the variety of different alternative ways of designing demand-side intervention, a range of options running from simply responding to and reimbursing whatever charges the private delivery system generates, through a variety of intermediate regulatory or negotiation strategies to influence the types of activities performed and the amounts paid for them, to complete public management of the provision of services.⁵ Yet clearly the optimal choice of how to intervene in the health services payment process depends on what it is hoped to achieve by such intervention.

There appear to be four major classes of objectives or public purposes which can be influenced by public health insurance, and the extension of such insurance to pharmaceutical or dental care can be analysed with regard to its effects on each. These are: (1) the reduction of financial risk resulting from the possibility of illness and need for services; (2) the transfer of wealth from one group in society to another;⁶ (3) the level and patterns of utilization of health care services by patients and potential patients in the society; (4) the relative economic efficiency with which the health care services industry responds to the health needs of society, both by supplying the appropriate services and by producing them at minimum cost.

5 In principle, one might imagine a public health care delivery system which tried to behave as if it were a private supplier and played the Lange-Lerner game. But the private reference point is unclear – the real 'private' market with licensure, or some hypothetical genuinely free market which has never existed anywhere?

6 Some commentators have urged that health care allocation decisions should disregard interpersonal distributional decisions because the general tax/transfer system can be used to iron out any inequities. This position emerges both from marketeers who thus defend proposals for coinsurance or other forms of direct patient payment against

Most general statements of purpose can be resolved into one or more of these — reducing financial barriers to care, for example, implies that an increase in utilization is desired, while easing the economic burden of care implies risk-spreading, wealth transfer, or both. But such specific objectives are quite likely to be in conflict, the risk-spreading and wealth transfer benefits achieved by first-dollar universal insurance coverage, for example, may be achieved at a cost of generating excessive or inappropriate utilization, and of eliminating such pressures for efficiency as exist in a market-based health services system. Thus any form of public intervention may have to face a tradeoff between these different objectives, and different forms of intervention may be relatively more or less effective in approaching different objectives. Also the relative importance of these objectives will vary depending on the type of health care services for which a public program is set up. The *raison d'être* for a children's dental care program, for example, is primarily increased utilization in order to achieve a lower prevalence and (it is to be hoped) incidence of dental disease; redistributive intentions are secondary. On the other hand, public insurance of hospital-based surgical services is primarily motivated by risk-sharing and redistributive objectives, *not* by a desire to increase surgical rates!

A further and more detailed discussion of these four types of public objectives may illustrate how public intervention in the delivery system and payment process for different types of health care will in general be rooted in different objectives, and may as a result suggest different forms of intervention.

THE SPREADING OF RISK

A large proportion of health care needs and corresponding expenditures are subject to uncertainty, i.e., one cannot know in advance how much one will need to spend. Under such circumstances, as Marshall (1920, 841) has pointed out, risk-averse individuals can always be made better off by the opportunity to purchase insurance coverage for an actuarially fair premium. Arrow (1963) developed the idea in the health care context. But it is a very long jump from this proposition to a justification for public health insurance. A number of steps must be filled in along the way.

charges of regressivity, and from technocrats who view the appropriate objective of the health system as maximizing health, whatever the distributional effects. Such disregard of the incremental distributional effects of new programs is convenient, but naive. The tax-transfer system is simply not flexible enough to mop up the distributional fallout, and this study assumes that one must take account of distributional effects directly in the evaluation of new insurance programs.

10 Extending Canadian Health Insurance

The argument begins with the assumption that most members of society are risk-averse, i.e., faced with a choice of a risky gamble or of its mathematical expectation they will choose the latter. Faced with a certain loss of \$100 or an 0.1 per cent chance of a \$100,000 loss, most people would prefer the former. Insurance companies survive on this preference, which arises from an assumed diminishing marginal utility of income or wealth.⁷ The chain of reasoning is best conceptualized in terms of the relation between total wealth or net worth, and welfare, for several reasons. First, the magnitude of losses which are insured against in any one year, such as the burning of one's home or catastrophic illness, may be much larger than any one year's income. Thus net income in the event of (uninsured) loss becomes negative, which makes formal representation of the process less clear. Second, and more significant, the importance an individual or family attaches to income and income loss clearly depends on its underlying wealth position. For two individuals with equal incomes, the welfare impact of a particular loss, and hence the benefit from insuring against it, will be very different if one individual is contemplating possible loss of his entire (small) net worth but the other would lose only 1 per cent of his total wealth. Finally, from a social point of view, the relevant concern of public policy is not income but wealth. We often speak loosely of income redistribution as a social objective, and for reasons of administrative convenience redistributive programs may be based on annual incomes, but a millionaire who has a bad year is not really poor even if his income goes to zero. Nor would most voters support (knowingly) tax-transfer programs to assist such an individual. Obviously there is a correlation between annual income and total net worth; but it is not a perfect correlation. For that reason, all subsequent discussion focuses on wealth rather than income as the basis for distributional objectives even though actual statistics usually relate to annual incomes.

Appendix A, derived from the work of Friedman and Savage (1948), provides a graphical and algebraic demonstration of the discussion which follows, using as an example a household facing a single pair of uncertain outcomes, loss and no loss or illness and health, in the coming year. The probability of loss or no loss, and the size of the loss if it occurs, are assumed known. In such a setting it is easy to demonstrate that the opportunity to purchase actuarially fair insurance

7 Of course lotteries survive on the converse, an observation which leads to the suggestion that risk-aversion may be a feature only of the utility function below, not above, one's present wealth position, or to the possibility of threshold effects in the utility function, or direct utility effects from gambling, etc. On this issue see Friedman and Savage (1948). The widespread reluctance of consumers to 'gamble with the rent money,' however, suggests the predominance of risk aversion in the face of large uncertain losses.

against any such risky outcome will always make the household better off. Actuarially fair policies are those for which the premium is just equal to the dollar value of the expected loss (or rather the amount received by the policy holder in the event of loss) multiplied by its *ex ante* probability of occurrence.

But this provides no justification for *public* insurance. The obvious advantages of this sort of pooling of risks give rise to private insurance companies marketing insurance against a wide range of contingencies. There exist markets for risk-bearing, in which households or businesses sell risk and insurers buy it, and since risk is not a good but a 'bad' it commands a negative price. To justify public intervention in this market one would have to show that there were some systematic reasons why private risk-bearing institutions fail – alternatively one would have to argue that risk-bearing is not in fact the justification for public insurance programs.

There are several reasons, as Arrow has pointed out, why private markets for risk-bearing might fail to develop in particular areas. Some, but not all, of these situations may call for public intervention on the grounds of approaching closer to optimal social risk-bearing.

In the first place, actuarially fair policies are a theoretical ideal but a practical impossibility because insurance programs, public or private, are not costless. The premium charged must include a loading factor to cover these capital and operating costs. The average policy holder must always pay out more than he/she expects to get back, where the expected return is the probability of loss multiplied by the amount he/she will be paid in the event of loss. The loss to the policy-holder from this loading factor must as shown in appendix A be balanced against the gain from reduction in uncertainty. But if the loading factor is large and/or the gain from reduced uncertainty is small, then insurance may not be worthwhile and a private risk-bearing market may not emerge.

A universal public program may be justified in this situation if the problem is one of high loading factors. The insurance industry appears to be characterized by strong scale economies (see Blair *et al.*, 1975). It may be that in a small community, province, or country, a universal compulsory plan could set its premiums low enough to be 'worth it' relative to the gain in reduced uncertainty, whereas a number of competing private firms could not. (It is assumed, of course, that the public program is covering its full costs in premiums, including the costs of capital and a 'normal' profit rate. Direct and indirect subsidies to public programs may obscure the whole comparison). On the other hand, as shown in appendix A, the gain from insurance depends both on the size of loss (relative to wealth) and its probability. There is little gain from insuring losses which are very small or very frequent. In the limit, losses which are certain should never be 'insured.' Moreover, frequent small losses

12 Extending Canadian Health Insurance

(large numbers of claims) lead to higher loading charges. So failure of private markets to develop may simply reflect uninsurability of a type of loss, in the sense that the most efficient possible insurance program would use up more resources in its establishment and operation than the gains it would yield in risk reduction. In such a case, public intervention obviously yields no benefits.

The second possible source of failure in private markets for risk-bearing arises from the phenomenon of adverse selection. This occurs because households differ with respect to amount and probability of loss, and because it is obviously not possible in practice for an insurance program to tailor-make policies for each household. Risk classes must be established, with a common premium for each. Within each such class, the lower risk members will be paying a premium which is more actuarially unfair than the high-risk members. If the range of risks becomes too large in a given class, and if enrolment is voluntary, low-risk households may conclude that the loading charge plus the subsidy to high-risk households implicit in the common premium more than outweighs the gains from risk reduction, and may drop out.

Responding to this, private insurance programs will have to raise premiums in order to cover the new higher expected loss per insured household. This tendency will be the stronger insofar as households can judge their own risk status better than the insurer, and insofar as the gains from insurance are small either owing to small losses or owing to very high or very low probabilities of loss. In such cases, a citizen might quite rationally decide not to purchase private coverage, knowing that he/she would thus be joining a pool of the self-selected higher risks, but might vote for a compulsory public program which could offer a lower average premium. If enough citizens made such a choice, private insurance markets would be unable to develop, but a public program might be an appropriate response. Appendix A illustrates how this situation could develop, but also shows that, as in the loading factor case, the public compulsory response is not *necessarily* optimal. It may be better to do nothing.

A third source of possible market failure results from the relation between insurance coverage and the probability of loss. In the insurance literature this is known as 'moral hazard'; the owner whose building is insured may spend less on fire prevention or may even, when business is bad, elect to sell his excess inventory to the insurance company. In the case of health care utilization, however, this concept is indistinguishable from the elasticity of demand. The probabilistic loss which an insurance program reimburses is represented by the utilization of health services rather than by the associated underlying shift in morbidity. (This need not be the case in a theoretical world of costless information; but is obviously true in practice.) Insofar as the relationship between morbidity and utilization is extremely loose, in that it depends on both provider

and patient incentives and behaviour, one may expect that the level of utilization for any given morbidity state will rise when the utilization is paid for by insurance. If this happens, the insurance program will perceive the probability of loss as having risen and will have to raise its premium rates correspondingly. The cost of the increased utilization will have to be passed forward fully in premium rates; but its value to users will presumably be less than this cost. Otherwise they would have bought the extra health care when it was not insured. The resulting excess utilization, and associated loss of consumer welfare, resulting from the increased probability of loss must be set against the gain in terms of lowered uncertainty.

The 'moral hazard' problem in health insurance and its relation to demand elasticity were pointed out by Pauly (1968), while Pauly (1969) and M. Feldstein (1973b) have studied the 'excess burden' problem arising from the over-allocation of resources to health care in response to insurance. Their argument rests heavily on the hypothesis that actual utilization patterns for health care are the outcome of consumer choices which are informed in some meaningful sense. This is of course difficult to maintain; in this study we assume, rather, a direct social interest in health care utilization patterns separate from whatever individuals happen to use. This is discussed in more detail later. But it remains true that insofar as the existence of insurance coverage influences risk of loss, a fully rational household might choose not to purchase insurance because the resulting increases in its own and others' utilization could drive total premiums up beyond the combined value of the health services used and the reduction in uncertainty of loss. This form of private market failure, however, has implications for public programs only if there is some reason to believe that the governmental regulatory process is more able to control increases in utilization (e.g., by non-price rationing techniques based on a social standard of need). If the public program can contain 'unnecessary utilization' more successfully than the private, then the 'moral hazard' source of private market failure may justify public intervention.

In pointing to potential sources of failure in private risk-bearing markets, and the circumstances under which these may or may not justify public intervention, it was stressed that there must exist *significant* benefits from uncertainty reduction or costs of uncertainty. In the case of genuinely 'uninsurable' goods or services the costs of the insurance mechanism at its most efficient, including if necessary costs of utilization control and/or compulsion, may outweigh the benefits. A necessary condition for there to be significant benefits is that there should be considerable variation among households in expenditures on particular health services (losses from a particular type of morbidity). It bears emphasizing that, as discussed in appendix A, this is a necessary but *not* a sufficient condition

14 Extending Canadian Health Insurance

for benefit. If expenditure varied markedly among households but each household knew in advance what its annual expenditure would be — e.g., some are chronically ill, others are not, and this status is well known in advance — then no household is at risk. *Ex post* there will be significant variation in spending across households, but there is no risk to spread and hence no gain from risk-spreading. There may (or may not) be an argument for wealth transfers from healthy to ill, but that is another issue.

In summary, the market-failure case for any form of compulsory public health insurance, whether hospital, dental, pharmaceutical, or whatever, rests on the argument that it ‘solves’ the adverse selection problem (in the sense described above) and may reduce loading charges through scale economies. Furthermore it is possible that cost and utilization control measures available to governments may limit moral hazard more effectively than private companies can do. (Particularly since much of the utilization response to insurance seems to be the behaviour of suppliers, not demanders of care.) It is thus possible that a rational household might refuse to buy private health insurance on the best available terms, and yet vote for public health insurance. But the justification for compulsory public insurance as an improvement in risk-spreading markets must meet certain tests.

First of all, there must be significant benefits to be derived from the insurance mechanism, in terms of risk reduction, to offset the fact that insurance premiums must generally be larger than the expected risks they insure against. A service may be genuinely uninsurable, if for most of the population it is relatively predictable and/or not very large. In this context uninsurability merely implies that the potential benefits even from ideal or actuarially fair insurance are small. Thus the benefits from insurance of dental care or drugs are inevitably smaller than from insurance of hospital care because the expenditures are smaller on average and much more predictable. Again one must stress that variance in expenditure across households in expenditure does not imply insurability or benefit from insurance *unless* it reflects unpredictability for a given household.

Secondly, there must be reason to believe that a public risk-spreading system could reap whatever advantages are to be gained from insurance at lower cost than a private, that due to scale economies it could incur significantly lower administrative charges or due to compulsory membership it could remove the adverse selection bias and make it worthwhile for lower-risk buyers to be in the system. Such advantages would have to be great enough to outweigh the general undesirability of compulsion.

The criteria for public intervention must be met simultaneously, that is public intervention on risk-spreading grounds requires that there be a significant amount of risk to spread, *and* that the public sector can do it better. Failure of

either condition, however, is not an argument against public intervention. But it does indicate that public intervention cannot be viewed as a risk-pooling and uncertainty-reducing mechanism, since that is either unnecessary or better done privately, and must therefore be justified in terms of its effects on wealth distribution, utilization patterns, or efficiency. Insofar as the objectives of public intervention shift away from insurance-type objectives, the appropriateness of an insurance-type intervention mechanism is correspondingly called into question.

REDISTRIBUTION OF WEALTH

A theoretically pure, or ideal, insurance program would have no *ex ante* redistributive effects. If it were possible to charge each household or individual a premium just equal to its own actuarial expectation of loss during the period of coverage, then the expected end-of-period wealth of each household would be unchanged. Introduction of a proportionate administrative charge would of course mean that all households' end-of-period expected wealths would be reduced by this charge, but no one household would be subsidizing another. Of course, *ex post* the insurance mechanism will transfer wealth to households experiencing loss, from those who remain healthy. But if this transfer just offsets the random redistributive effects of illness, then the combination of illness plus pure insurance is distributionally neutral *ex post*.

Redistributive effects develop *ex ante* insofar as premium rates can never be tailored to the risk of the individual household. Premium rates are inevitably determined on a group basis, and in any group there will be a range of different risks depending on the different hereditary, behavioural, and life-style factors which influence the probable mortality of different group members. The premium struck for the group will then represent a relatively large mark-up over the expected loss for low-risk members, with the extra mark-up going to subsidize high-risk members who may well pay premiums less than the expenses they expect to incur. Again it must be emphasized that this is an intra-group subsidy only if high- and low-risk members are identifiable *ex ante*; *ex post*, of course, some members will have expenditures greater than their premiums and others will have less.⁸ This form of *ex ante* within-group subsidy can be reduced over time by private insurers if premium-setting is experience-rated and groups can be

8 But *on average* of course, everyone will pay premiums somewhat greater than expenditures, unless the insuring company has set a faulty rate and taken a loss. The touching belief of members of an employee group newly insured for dental care that they are all going to use more care than the premium costs them is charming – they cannot all be right, and on average they must be wrong.

16 Extending Canadian Health Insurance

redefined without being contaminated by adverse selection; but it inevitably means that non-compulsory private insurers will be unable to cover unorganized persons for whom *ex ante* risks differ widely. Low-risk households will refuse to subsidize high-risk and will drop out, until as shown above the insurance coverage ceases to be worthwhile for anyone.

This inevitable form of within-group cross-subsidy, which arises from incomplete insurer information and can be reduced (but never eliminated) over time by more sophisticated rate-setting, must be distinguished from deliberate cross-subsidies established as a matter of social policy. Public hospital and medical insurance programs, for example, whether based on flat compulsory premiums or financed from general public revenue, involve very large transfers from younger members of the population to the elderly. This latter group is unable to purchase insurance coverage, not simply because of failure in insurance markets (though as an unorganized group with a wide variance in *ex ante* risk their insurance market probably suffers more from adverse selection than any other) but because many of the elderly could not afford a theoretically ideal, actuarially fair policy. If significant groups in the population are unable, on average, to generate the resources to pay for health care technically determined as needed, then clearly risk-spreading will not help. The problem is not risk, but lack of resources. If society as a whole judges, as it appears to have done in the case of health care, that the unattainable services are 'merit goods' which people should have independently of their ability to pay for them, then wealth will have to be transferred from other members of society. One way to achieve such a transfer is to set up an actuarially unfair public insurance program which charges low-risk people much more than their expected use would cost, and to compel them to belong to it; another is to finance the health care system out of tax revenue so that use is unrelated to tax payments and the cross-subsidy becomes buried in the general subsidy patterns of the public tax-expenditure-transfer system.⁹

This deliberate wealth-transfer objective is very prominent in the Canadian hospital and medical insurance programs, and could serve as a justification for extension of such programs to dental care and drugs. One should note, however, that this transfer is of a rather peculiar and special type, being keyed not to income or wealth but to use of certain services. Insofar as age, low income, and illness, for example, tend to be associated, we may approve the redistributive results regardless of which is used as a base. But there are some perverse effects

9 It is politically cosmetic, but wrong, to describe this as spreading risk more broadly.

Expected losses are in fact being transferred from a relatively well-defined group, who cannot afford them, to another group who can.

— the healthy poor clearly subsidize the affluent ill. And insofar as higher income groups tend to make more use of certain services than lower income, public insurance coverage of those services will involve perverse transfers. Dental care is a case in point; unlike hospital or medical care it is clearly positively correlated with income. Unless such correlation changes under insurance (which private insurance experience suggests it does not, being rooted in socio-economic factors more general than point-of-service charges) then a dental insurance plan would be a wealth transfer plan which transferred from low-income to middle- and upper-income groups.¹⁰

Since public health insurance programs tend to be either flat premium or tax financed (typically both) with little or no adjustment of contributions to *ex ante* risk faced by the insured, it appears that a deliberate wealth redistribution is inherently part of such plans. In evaluating extensions of health insurance, therefore, one should question the correspondence between the wealth redistribution thus introduced, and the general redistributive objectives of society. The redistributive effects of a public insurance program are inevitably in favour of those with a high *ex ante* expectation of use — insofar as such high-risk persons are also relatively low-income, or have low over-all wealth, or are otherwise considered deserving according to more general criteria, then the program is a good one on redistributive grounds. But such a correlation may in fact not hold. If expectation of use is positively correlated with income/wealth, as in dental care, or simply unrelated to it, as seems to be true for pharmaceutical services (Rabin and Bush, 1976) then the wealth transfer effects of public insurance may be perverse or neutral. In either case, the argument for public intervention on redistributive grounds is undercut. It may be salvaged, if a high correlation between use of a particular form of health care and wealth transfer need can be

10 The potent political appeal of such a plan is obvious. It may be objected that this perverse redistributive effect would not apply in the case of universal dental insurance, because utilization of lower-income groups would rise. This issue is dealt with in some detail in chapter four; here we note only that despite econometric estimates apparently showing relatively large responses of 'demand' to price of dental care, experience with prepaid groups to date does not support this idea. Lower-income groups remain non-users even of 'free' care. Nor is this a transitional phenomenon; the British Columbia *Labour Research Bulletin* (June 1975) provides an analysis of a set of industrial dental plan contracts over their first five years of operation, segregated by class of employee. Professional employees are the highest users (about 60 per cent of contracts with a claim in any given year); semi- or unskilled are lowest (about 30 per cent); but the only groups showing any increase in utilization over the five-year period are executive (from 47 per cent to 57 per cent) and skilled labour (from 43 per cent to 62 per cent). Even these increases leave a large proportion of the insured group as irregular users or non-users.