AN INTRA- & INTER-PROVINCIAL ANALYSIS OF THE FAIR PHARMACARE POLICY IN BRITISH COLUMBIA

By

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We accept this thesis as conforming
to the required standard

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ABSTRACT

In the wake of several recommendations for a national approach to pharmacare, the provincial government of British Columbia made the most significant changes to its PharmaCare program in over two decades. On May 1, 2003, two major PharmaCare plans – the seniors' plan and the universal plan - were combined into a single income-tested plan known as "Fair PharmaCare".

Through semi-structured interviews with seventeen policy makers I gathered insights about the fairness principles underlying this policy change. Based on the fairness objectives described by these participants, I aimed to evaluate whether the new pharmacare model would achieve its goals.

Through simulations I estimated the distribution of financial burdens that would occur under the pre- and post-pharmacare models by applying the cost-sharing rules to hypothetical family types. The family compositions, income levels, and drug expenditures were selected to represent distributions of these variables drawn from real-world data sources—including the 2001 Census and provincial drug expenditure reports. Comparing the Fair PharmaCare model to the other nine provincial pharmacare models across Canada extended the analysis.

Contrasted against the old pharmacare model in BC, Fair PharmaCare better protects against extremely high drug costs and better targets subsidies at low-income households. However, this is achieved at the expense of seniors predominantly, who will receive much less coverage for modest drug costs, than in the past.

Compared to other provincial pharmacare models in Canada, Fair PharmaCare effectively protects against catastrophic drug costs. Universal models that employ income-

based maximum contribution limits best protect against catastrophic drug costs, while less comprehensive models in Atlantic Canada, and premium-based models in Quebec and Alberta, provide poorer protection.

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LIST OF ABBREVIATIONS

AB	Alberta
ACE	Angiotensin-Converting Enzyme
BC	British Columbia
CCRA	Canada Customs and Revenue Agency
CHA	Canada Health Act
CHSPR	Centre for Health Services and Policy Research
CI	Concentration Index
GIS	Guaranteed Income Supplement
LCA	Low Cost Alternative
MB	Manitoba
MSA	Medical Savings Account
MSP	Medical Services Plan
NB	New Brunswick
NFLD	Newfoundland
NPHS	National Population Health Survey
NS	Nova Scotia
ON	Ontario
PEI	Prince Edward Island
QC	Quebec
RDP	Reference Drug Program
RP	Reference Pricing
SK	Saskatchewan
UBC	University of British Columbia

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CHAPTER ONE

Introduction

Prescription drugs are playing an increasingly important role in Canadian health care. In 2003, Canadians spent $16 billion on out-of-hospital prescription drugs, making them the second largest cost component of the health care system (1). Yet, public coverage for outpatient prescription drugs is not mandated under the *Canada Health Act* or any other federal legislation. Thus, provincial governments have independently established outpatient prescription drug subsidy plans.

PharmaCare, British Columbia's publicly funded provincial drug subsidy program was officially established in 1974. Through the PharmaCare program, the provincial government provides financial assistance to residents who need help paying for outpatient prescription drugs. PharmaCare's stated mission is "To improve the health status of British Columbians by providing reimbursement to ensure reasonable access to and appropriate use of prescription drugs and related benefits for eligible residents of the province" (2).

To achieve this, PharmaCare offers "reimbursement" in the form of a **subsidy**. A subsidy is a financial contribution by a government that confers benefit. In this case, the benefit conferred is assistance in paying for medically necessary prescription drugs. Clearly those with the highest prescription drug needs and/or the least ability to pay for them would be expected to gain the most from a pharmacare subsidy. When first established in 1974, BC's PharmaCare program provided first-dollar coverage for seniors and social assistance recipients. In 1977, PharmaCare underwent significant expansion to include a universal plan for all non-seniors. In May 2003, BC's provincial government changed the terms of coverage under PharmaCare. Underpinning this change were beliefs about who should be "eligible" for the subsidy and what constitutes a "reasonable" level of subsidy.

This policy change reflects the very definition of policy science, the study of "who gets what, when, and how" (3). Moreover, determining the "eligibility" for and "reasonableness" of this public subsidy is inherently a question of values.

Types of Prescription Drug Plans

Universal plans ensure that prescription drug subsidies are made available to every person on uniform terms and conditions. The strengths of this type of plan are the low administrative costs due to its simplicity, and the sense of social unity it creates by pooling the risk of the healthy and the sick. However, in times of fiscal restraint, this type of plan is often touted as unaffordable.

Income- and means-tested plans award larger subsidies to those with lower incomes or assets respectively. Proponents highlight the ability of these plans to target subsidies at those with the greatest need. However, detractors suggest that the necessary and often complex enrollment procedures associated with this type of plan lead to higher administrative costs. They also suggest that potential beneficiaries may not enroll due to the complex procedures for claiming benefits, the invasion of privacy by having to disclose personal details about income or assets, and the potential for stigmatisation. This could potentially lead to unintended effects, such as decreased utilization of prescription drugs. Owing to the relative newness of income-based pharmacare plans in Canada, only one study has evaluated the effect of this type of plan on prescription drug use. The study found a decrease in inhaled corticosteroid use by children with asthma after pharmacare in Manitoba became income-tested (4).

Gaining increased attention are Medical Savings Accounts (MSAs). Here, a combination of the individual, employer or government make contributions toward a savings

account from which routine prescription drug expenses are paid. Proponents argue this model reduces costs by making patients more responsible for their consumption and encouraging them to seek the best available price from competitive suppliers (5;6). However, recent evidence has shown that MSAs alone do not control costs and increase inequities in publicly funded systems (7-9).

Prescription Drug Subsidy Plan Components

In general, prescription drug subsidy plans are comprised of up to four core structural components: a premium, a deductible, a co-payment, and a maximum out-of-pocket contribution limit. Together with the plan's eligibility rules, these components determine a beneficiary's out-of-pocket expenditure on prescription drugs.

A **premium** paid by the beneficiary entitles him or her to receive the prescription drug subsidy and is paid irrespective of the actual prescription drug expenses incurred. The premium is usually a flat amount and is due either annually, semi-annually, quarterly or monthly. However, as with each of the subsidy plan components, the premium amount can also be income-sensitive.

The **deductible** is the amount of prescription drug expense that the beneficiary must pay before any expenses can be reimbursed by the plan provider. Deductibles may be expressed as flat dollar amounts or a fixed percentage of income and may vary based on income. The length of time the beneficiary is allowed to accumulate the deductible ranges from one, three, six, or twelve months. Beneficiaries with moderate or infrequent drug expenses might prefer a longer proration period. On the other hand, beneficiaries with consistently high drug costs might prefer a shorter proration period to help ease their immediate out-of-pocket financial burden.

Once the deductible has been reached, the beneficiary may be asked to pay a portion of the cost of each prescription thereafter. These **co-payments** can take two forms: a flat amount per prescription (e.g. $2), or a fixed percentage of the cost of the prescription (e.g. 25%), which is referred to as co-insurance. Some plans include a maximum co-payment per prescription (e.g. $25) to limit the out-of-pocket expenditure per prescription.

The plan may also incorporate an overall **maximum out-of-pocket contribution limit**. This limit is the maximum expense that may be imposed on the beneficiary as a result of deductibles and co-payments. Once the beneficiary has paid the maximum amount, the plan reimburses 100% of remaining prescription drug expenses. For most provincial drug plans, the maximum limit is usually allowed to accumulate over twelve months. The maximum may be a fixed upper limit or a fixed percentage of income. This cap on out-of-pocket expenditure protects the beneficiary against extremely high prescription drug expenses. It follows that a lower limit is more advantageous to the beneficiary.

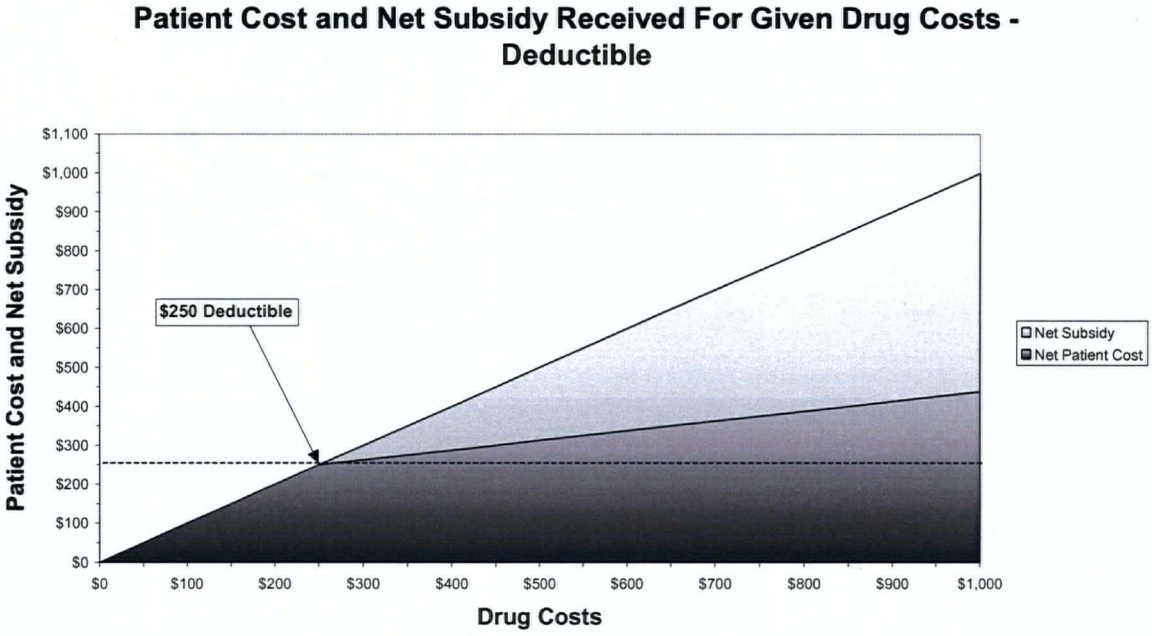
For example, imagine a hypothetical prescription drug plan with the following terms of coverage.

Terms of Coverage

Premium	$0
Annual Deductible	$250
Co-insurance	25%
Annual Max. OOP Cont. Limit	$1,000

In this example, there is no premium charge to gain access to the subsidy offered by the plan. As illustrated in Figure 1.1, beneficiaries pay their drug costs up to a $250 annual deductible and 25% co-insurance for all prescription drug costs thereafter. The plan has an annual

maximum out-of-pocket contribution limit of $1,000, so that once the sum of the deductible and co-payments reaches this amount, beneficiaries receive 100% subsidy on all prescription



drug costs incurred thereafter. Figure 1.2 illustrates the point at which the maximum out-of-pocket contribution limit takes effect.

Figure 1.1 - Plot of Patient Cost and Subsidy Received for Given Drug Costs Before and After the Deductible.

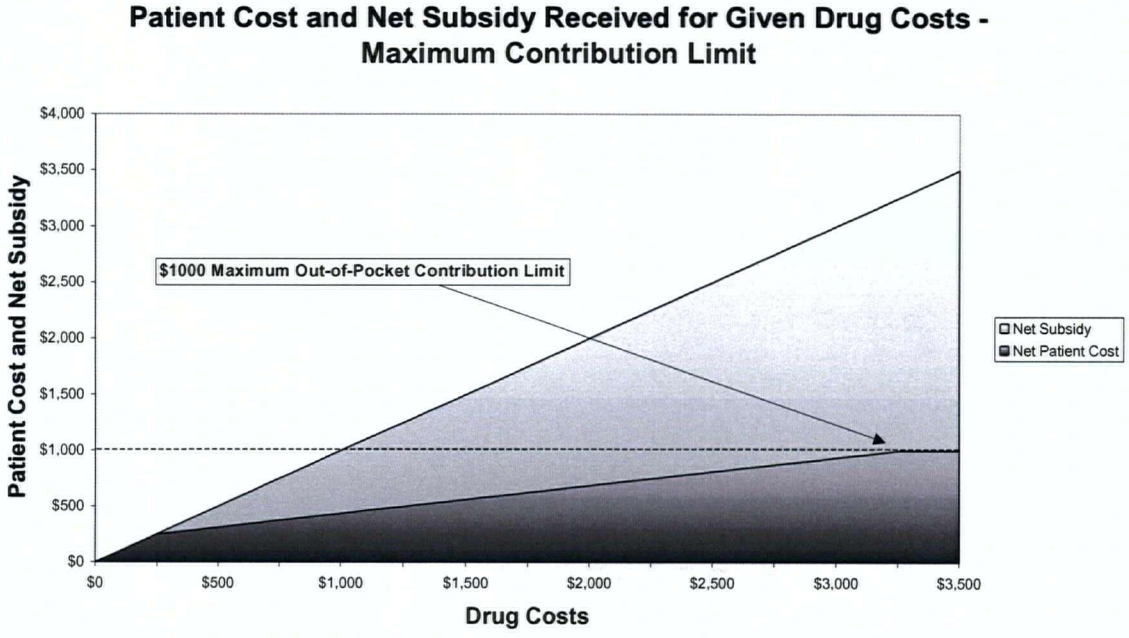


Figure 1.2 - Plot of Patient Cost and Subsidy Received for Given Drug Costs Under a Hypothetical Prescription Drug Plan.

Lastly, when discussing the components of a prescription drug subsidy plan, consideration must be given to **eligibility rules**. Within BC's PharmaCare program there are a number of plans, each with their own eligibility requirements. These eligibility requirements are essentially tests of one's need. Age-tests and income-tests are ways of measuring whether people need financial assistance in paying for their prescription drugs, and if so, to what extent.

Phamacare in Canada

In Canada, provinces employ an assortment of provincial drug subsidy programs, which vary in their eligibility and comprehensiveness. Despite the importance of prescription drugs to Canada's health care system, they are not considered an insured health service under the *Canada Health Act (CHA)* and therefore, provincial drug subsidy programs are not obliged to meet the CHA standards of a publicly administered, comprehensive,

universal, accessible and portable health service. Several official calls for a national approach to Canadian pharmacare have been made over the decades, the most recent being that of the Royal Commission on the Future of Health Care (the Romanow Commission) (10-13). In response to these recommendations and to address perceived inequities in outpatient prescription drug coverage within and across the provinces, the February 2003 First Ministers' Accord on Health Care Renewal included a commitment to ensure " ... that Canadians, wherever they live, will have reasonable access to catastrophic drug coverage" (14). In the wake of these recommendations, the provincial government of British Columbia made significant changes to its PharmaCare program.

Changes to BC PharmaCare

In May 2003, the British Columbia government combined its universal PharmaCare plan for the general population with its seniors' plan to create a new program, Fair PharmaCare. The old universal plan provided catastrophic coverage for non-seniors through high fixed deductibles, while the seniors' plan was more comprehensive. Unlike either of these plans, the new Fair PharmaCare program uses income-testing to determine eligibility for prescription drug subsidies.

Initially, the changes to the BC PharmaCare program were set to begin on January 1, 2003. However, on November 25, 2002, the eve of a protest by more than 1,500 seniors, Health Minister Colin Hansen announced that the launch was postponed for a few months due to technical problems and public anxiety (15-17). Some speculated that the impending release of the Romanow report, calling for a national pharmacare program, also might have influenced the delay (18). On February 24, 2003 the new May 1st start date and the details of the Fair PharmaCare plan were released to the public (19).

In the two weeks leading up to the launch of the new program there was much concern and confusion surrounding the registration process in the media. Attention was drawn to the large number of households that had not yet registered, on the order of 1.3 million out of two million eligible households (20). Non-registered households would be considered to fall within the highest income tax bracket and would be assigned a $10,000 deductible. Since private health insurance providers reimburse prescription drug costs that fall below the PharmaCare deductible level, private insurance providers began urging their beneficiaries to register for the new PharmaCare program by the May 1st deadline and warned that if they did not, the end result would be increased premiums on extended benefits to compensate for the additional costs incurred by the insurers (21). This message created some alarm and likely added to a flurry of last minute registrations which produced congested phone lines and computers (22). Health Services Minister Colin Hansen responded by saying that private insurers had misinformed their members. There was no "deadline", people could still register after May 1st, and, if someone paid prescription costs that should have been covered, they would be reimbursed at the end of the year (23). Many criticized the government for the complicated registration process and for changing the information it was giving the public daily (24-27).

As its name implies, this new policy is value-laden and clarification of its underlying principles is required. Whether this new pharmacare system is fairer in distributing the financial burden of prescription drug costs is unclear. Very few studies have investigated the effects of health care financing on equity (28-30). Certainly to date no study has looked specifically at equity in the finance of pharmacare in British Columbia. The objectives of this thesis project were as follows:

1) To gather policy makers' perceptions of fairness as they relate to the Fair PharmaCare policy through semi-structured interviews.

2) To compare the PharmaCare program in BC before and after the policy change in terms of private financial burden imposed upon various household types.

3) To compare the Fair PharmaCare program in BC with pharmacare programs in Canada's other nine provinces in terms of private financial burden imposed upon various household types.

There are five chapters to this thesis report. Chapter Two describes the results of interviews with policy makers about the Fair PharmaCare program. Chapter Three describes the study and results of comparisons between various household types before and after the introduction of Fair PharmaCare. Chapter Four describes the results of comparisons between the private financial burdens borne by various household types across the ten provincial pharmacare programs in Canada. Chapter Five summarizes the findings and provides recommendations for future studies.

CHAPTER TWO

The Fair PharmaCare Policy According to Policy Makers

On May 1, 2003, the most significant changes to BC's PharmaCare program in over two decades came into effect (31). Two major PharmaCare plans – the seniors' plan and the universal plan - were combined. Plan A, which provided comprehensive coverage for community-dwelling seniors (65 years or older) and Plan E, a universal plan providing protection against catastrophic drug costs for the general non-senior population, were combined into a single income-tested plan known as Plan I, or Fair PharmaCare.

Prior to this change, under Plan A seniors were not required to pay a deductible, but did pay $25 towards the total cost of each prescription - including dispensing fee - up to a maximum annual contribution of $275 per senior. Low-income seniors - those receiving Medical Services Plan (MSP) Premium Assistance - only paid $10 per prescription up to a maximum annual contribution of $200 per senior.

Under Plan E non-senior families paid an initial deductible of $1000 per family and 30% of the total cost of each prescription thereafter until a maximum annual contribution of $2000 per family was reached. Low-income non-senior families - those where at least one member received MSP Premium Assistance - paid a deductible of $800 after which all further eligible benefits were fully covered.

The new Fair PharmaCare restructuring removed age – which had been a core feature of all previous iterations of BC PharmaCare - as a critical eligibility requirement. This most recent change is represented in Figure 2.1.

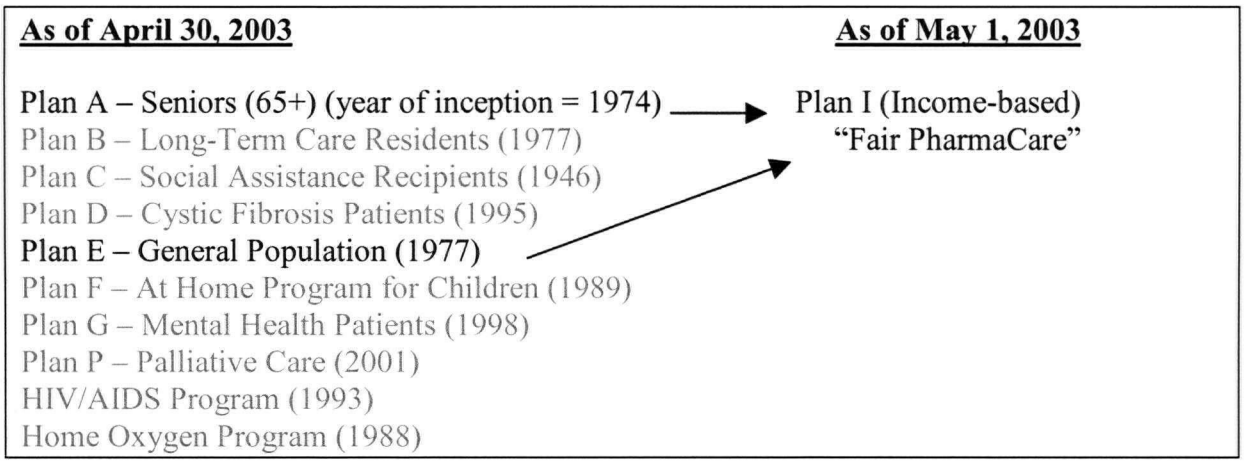


Figure 2.1 - Changes to BC PharmaCare as of May 1, 2003

Tables A.1.1 and A.1.2 in Appendix A outline the details of BC's entire PharmaCare program, before and after the introduction of Fair PharmaCare. Under the Fair PharmaCare plan, deductibles and annual maximum contribution limits are based on the income band in which the family's net income falls. When a family's total expenses for eligible benefits reach the deductible, PharmaCare reimburses 70% of any further eligible costs for the remainder of the calendar year. Once a family's total contributions reach its annual maximum contribution limit, PharmaCare covers 100% of further eligible expenses for the remainder of the calendar year. Notably, the plan is slightly more generous to families considered "current senior families", that is, those families that include an individual born on or before December 31, 1939.

To receive maximum financial assistance under the Fair PharmaCare plan, individuals and families are required to register either by phone, online, or by mail. To be eligible, a person must be a resident of British Columbia for at least three months, be registered with the MSP, and have filed an income tax return for the year two years prior to the year in which assistance is to begin. Registrants are required to sign a consent form

authorizing the provincial government to verify their net income information with the Canada Customs and Revenue Agency (CCRA). This registration process did not exist prior to the commencement of income-based Fair PharmaCare.

While representing a significant shift in the history of prescription drug coverage in BC, income-based approaches to pharmacare are not unique to British Columbia. In the current climate of health care reform, all provinces are re-evaluating their pharmacare programs. Income-based prescription drug plan designs are now receiving consideration from provinces across the country (32) and may emerge as a national standard.

Closer Examination of the Fair PharmaCare Policy

Guiding values and clear explanations of the rationale behind policies are rarely made public. The goal of this research was to better understand the rationale for the new income-tested plan from the perspective of policy makers. Through semi-structured interviews, we aimed to appreciate policy makers' understanding of "fairness" as it related to this new policy. This section endeavours to describe policy maker's perceptions of fairness regarding this new policy in terms of the three key elements of a public policy conceptualized by Pal (33): problem definition, policy goals, and the choice of policy instrument.

Problem Definition

Government policies are generally created to address perceived problems. To understand a policy, it is necessary to understand the problem that it is attempting to address. However, the problem is rarely articulated in great detail in the policy statement itself.

Analysis of the Fair PharmaCare policy began by defining the problem that the policy was expected to solve. Information gleaned from semi-structured interviews with policy makers helped identify the issues motivating the policy change.

Policy Goals

Clear policy goals are necessary for the unambiguous assessment of any policy. However, as with problem definitions, policy goals are rarely publicly stated and usually have to be inferred. Moreover, it is often the case that the primary goals of a policy are very different from the publicly stated goals.

The interviews with policy makers provided insight into the goals of the policy. For instance, implicit in the Fair PharmaCare policy, was the goal to improve fairness. Literature from the policy sciences was referenced to explore further the concept of fairness and understand how it might apply to a publicly funded prescription drug benefit program.

Policy Instrument

The third key component of a public policy is the nature and choice of policy instrument. Ideally, the particular policy instrument is chosen based on how well it will address the problem and achieve the explicated goals.

In Chapter Three expenditure simulation data are analyzed to determine whether the policy instrument selected will produce the desired results. The simulations investigate the extent to which the policy changes the ability of various family types with different household incomes to pay for their drug expenses.

These three elements of the Fair PharmaCare policy were analyzed through data gathered by semi-structured interviews with key policy makers, literature reviews, and expenditure simulations. By contrasting the policy makers' portrait of the policy against expenditure simulations, this thesis investigates whether the new policy is likely to address the problem and achieve its goals.

Methods

This study was based on the belief that gathering the perceptions and opinions of health policy decision-makers is essential for conducting a meaningful and relevant policy evaluation. Qualitative methods were used because of their ability to capture a deep understanding of decision-makers' perspectives. These techniques can reinforce information available in the literature and also uncover unstated explanations for the new PharmaCare policy and its objectives. The goal of the analysis was to produce clear thematic descriptions of participants' perspectives.

Recruitment and Ethical Conduct

Individuals were invited to participate based on their knowledge and experience with PharmaCare. Current or former employees of the Government of British Columbia who are or were involved in pharmacare policy decision-making were of interest for this study. A group of researchers at the Centre for Health Services & Policy Research (CHSPR), including Morris Barer, Ken Bassett, Charlyn Black, Bob Evans and Steve Morgan gathered to brainstorm a list of all potential participants. This list of 19 was compared to a list of key individuals provided by a director within the provincial government and was expanded to include 27 potential participants. Individuals from political, executive, managerial and analyst levels were purposefully included on the list to ensure the sample incorporated a range of experiences. To ensure information-rich and sufficiently varied perspectives, several policy leaders (such as former PharmaCare directors from the last ten years, the Premier of the province, and the leader of the opposition party) were invited to participate. While we recruited participants from a variety of backgrounds, time and budget constraints did not allow us to pursue interviews with additional key individuals identified by

participants during the interviews who were not on the original list (n=10). However, since this investigation was exploratory and the intent was not to generalize the findings, but rather to develop preliminary themes based on the perspectives of individuals involved in PharmaCare policy decision-making, it was unlikely that interviewing these additional people would have substantially added to the findings.

Of the 27 potential subjects, 24 were invited to participate in the study. Three potential participants (one at the political level and two at the executive level) were not invited since, at the time, they were inaccessible (e.g. living in a remote area, vacationing etc.). The invitation letter was sent on behalf of Charlyn Black, Director of CHSPR, as it was felt that this would lead to faster and more favourable responses. The letter included information about the study and asked interested candidates to contact the project supervisor for more information or to schedule an interview. The study invitation letter is attached as Appendix B. Invitations were sent by electronic mail and by regular mail on the same day. Two weeks later, the graduate student trainee followed-up by telephone with those who had not yet responded to determine interest and availability for an interview. A follow-up letter was sent electronically from the graduate student trainee to all those who were initially invited and could not be reached by telephone. Once participants agreed to participate they were scheduled for an interview. Within 24 hours, an electronic message was mailed to each participant confirming the date, time and location of the interview, with a copy of the interview synopsis and the consent form attached. The interview synopsis and consent form are attached as Appendices C & D respectively. Of the 24 subjects invited to participate, three (two at the political level and one at the executive level) did not reply and four (three at the political level and one at the managerial level) declined to participate. In total, 17

subjects agreed to an interview, representing a 71% participation rate overall. Participation rates by political, executive, managerial and analyst levels were 38%, 80%, 83% and 100% respectively.

The study received approval from UBC's Behavioural Research Ethics Board on June 23, 2003. All individuals who agreed to participate were electronically mailed a copy of the consent form prior to their interview appointment to allow sufficient time to read and understand its content. Prior to beginning each interview, written informed consent was obtained and a copy of the signed form was given to the participant.

Data Collection

The project supervisor and the graduate student trainee conducted all interviews in concert. Before beginning data collection, the interviewers received training, conducted a "mock" interview, and received feedback from a colleague specializing in qualitative interviewing techniques. In order to maintain confidentiality, all participants were interviewed individually. In total, 17 interviews were conducted over a one-month period, 15 face-to-face and 2 via teleconference. All interviews were conducted in English. Interviews ranged from 20 to 55 minutes in length, with an average length of 37 minutes. The length of the interviews did not appear to vary according to position level. To accommodate participants and foster their comfort level, in-person interviews were conducted in a private room at each participant's office. Interviews were not tape-recorded out of concerns that participants might not feel free to speak frankly due to the politically sensitive nature of the subject. Rather, electronic fieldnotes were taken during the interview, and at the end of each interview, were checked for accuracy and completed in greater detail by both interviewers.

Semi-structured interview questions were initially designed with four main conceptual categories in mind (*Problems that Motivated the Policy Change, Goals for the New Policy, Evaluation Criteria, and Challenges Associated with Implementation*). Prior to beginning the interviews the list of questions was expanded to encompass two additional categories (*Factors that Influenced Policy Selection and Notions of Fairness and Equity*). The questions were independently reviewed for clarity of language and meaning by the project supervisor and the graduate student trainee. Questions were kept open-ended so that the participants could share their views regarding the policy change without being bound to a pre-specified set of response options. The semi-structured interview guide is attached as Appendix E.

Data Analysis

Individual interview content analysis was followed by thematic analysis across the set of interviews. Each interview fieldnote was analyzed for overall content. Primary categories were created based on participants' responses and the three key elements of a policy discussed earlier: problem definition, policy goals and policy instrument. Relationships between the categories were examined and descriptions of the categories were written. Once each individual interview had been coded for content, common threads or themes that extended across the entire set of interviews and were felt to describe the data most accurately were created to enlighten the interpretive description. During the analysis, unique ideas and perspectives offered by different participants about the new policy were noted. For example, whether the perspectives of participants varied by their position within the government was assessed. Throughout the analysis an audit trail explaining and justifying all analytical decisions was created. Early memos were created containing the researcher's impressions,

tentative hunches and patterns that seemed to be emerging from the data. Based on data from all interviews, an initial set of eleven codes was developed. These codes included: *Sustainability, Budget Cuts, Age Discrimination, Concentration of Benefits, Taking More Responsibility, Ability to Pay, Notch Effects, Catastrophic Payments, Barriers to Access, Stakeholder Consultations, The Jury Is Out.* These codes were then grouped into more abstract conceptual categories to arrive at the final set of categories: *Reacting to Financial Pressures* (new code that subsumed *Sustainability* and *Budget Cuts), Improving Fairness (Subcodes: Equity* (a new code that subsumed *Age Discrimination* and *Taking More Responsibility*) and *Allocative Efficiency* (a new code that subsumed *Concentration of Benefits*)), *Applying a Fair Selection Process* (a new code that subsumed *Stakeholder Consultations), Maintaining Equal Access (Subcodes: Registration and Communication)* (subsumed data previously labeled *Barriers to Access*), *Minimizing Harm* (a new code that subsumed *Ability to Pay, Notch Effects* and *Catastrophic Payments*), *Continuing to Refine* (a new code that expanded *The Jury Is Out*). Throughout the analysis previous findings from the bioethics and health economics literatures were integrated to inform my understanding of how others have conceptualized fairness. This paper describes these categories and provides illustrations from the interviews to characterize their meaning.

Strengths and Limitations

In conducting the current study, the purpose was not to generalize the findings beyond the BC PharmaCare experience and this particular policy change. Rather, the rich insights gained through the interviews have been used to develop preliminary themes and additional research questions to be investigated further in subsequent research. While self-reported data are often presumed to be vulnerable to recall bias and memory loss, the purpose

of the interviews was to uncover rich descriptions of the diverse perceptions and insights regarding Fair PharmaCare. Study participants' perceptions, opinions and recollections of their experiences with the policy's development and implementation have inherent value because they reveal the meaning that the participants attach to these experiences. These types of insights are not easily uncovered by traditional, observational, survey and questionnaire studies; hence, the current study contributed new descriptions and contextualised understandings of the making of Fair PharmaCare.

In gathering the interview data and conducting the data analysis, inevitably judgments and decisions needed to be made. These decisions required justification and explanation in writing about study participants' opinions and experiences. In gathering the data, attempts were made to maintain a non-judgmental orientation to questioning (e.g. open-ended, non-judgmental phrasing). A similar orientation was brought to bear during the analysis, which helped to encourage searches for new data to test (confirm or refute) emerging ideas during the analysis. A commonly employed strategy to assist qualitative researchers in maintaining a non-judgmental orientation is the practice of writing about the process of reflecting on and scrutinizing data collection and analytic methods. In attending to this, an "audit trail" was maintained that details the major data collection and analytical decisions. In addition, the study employed a number of other strategies to address rigour from a qualitative research perspective, including: (1) a sampling strategy that helped to ensure the comprehensiveness and relevance of the data set; (2) a comprehensive literature review to inform the development of the interview guide; and (3) recording data as accurately as possible (i.e., detailed field notes) without interfering with the study participants' comfort levels.

While the decision not to tape-record the interviews likely aided in obtaining

uncensored narrative, it made data collection and analysis more challenging. Although the field notes were voluminous (68 pages in total; an average of 4 pages per interview), it was not possible to fully capture the participants' expressions and narratives verbatim. However, the data collection quality was improved by having two researchers in attendance for all of the interviews, and having both researchers debrief, read, and analyze the fieldnotes.

Many of the participants were aware of CHSPR prior to the study and were aware that researchers at CHSPR had been selected to conduct a broad evaluation of the policy change. In some cases, participants had an existing relationship with the project supervisor. This was felt to strengthen the study since connections had been established that might have helped obtain forthright information from interview participants. However, prior to this study, the project supervisor along with other researchers at CHSPR openly supported government policies such as reference pricing and generic substitution (34;35) to manage the costs of pharmacare. If the participants were aware of the researcher's views, a certain degree of social desirability bias may have been introduced. In other words, participants may have reported beliefs, opinions, and behaviours aligned with those of the academics at CHSPR, even if inconsistent with their actual beliefs. For example, it is possible that the reported motivations for adopting the income-based plan overemphasized concerns for fairness when, in fact, economic factors dominated decision-making. This likely influenced the findings in one or two selected cases. However, in general, once participants were assured of the anonymity of their individual answers, they tended to provide frank opinions regarding the problems that motivated the policy and the effectiveness of the new policy instrument.

It is possible that the researchers might have inadvertently imparted their own views

on the interviewees resulting in a certain amount of researcher bias. The researchers' prior knowledge of the issues facing pharmacare and beliefs about how pharmacare subsidies should be allocated might have inadvertently influenced the questions asked, the way they were asked, and interpretations of the responses. In general, both researchers held the egalitarian belief that equal access to pharmacare is every citizen's right and that people should not be able to use their wealth to get privileged access to public pharmacare subsidies. They supported a universal, publicly financed health care system as well as a pharmacare program that distributes subsidies according to need, and finances those subsidies on the basis of ability to pay.

Findings & Discussion

Study participants

Study participants included 7 females and 10 males for a total of 17 participants. The majority of participants (n=13) were employed by or consulting for the Government of British Columbia at the time of the interviews; all but one (n=12), worked within the Ministries of Health Services & Health Planning. The remainder (n=4) were once employed by the Government of British Columbia, but had since changed employers. Participants' position levels within the government at the time of their experience with PharmaCare varied from politician (n=3), to executive (n=4), to manager (n=5), to analyst (n=5).

The interviews were conducted during July 2003. This meant that the Fair PharmaCare plan had been implemented and operational for two months. By the time the interviews began, the furor of media coverage surrounding the changes and registration process had settled and participants had significantly more time to be interviewed. Enough time had elapsed so that participants were able to critically reflect on the forces affecting the

selection and implementation of the new policy. However, the interviews were held close enough to the time of the change so that participants could also use them to vent frustrations.

This analysis attempts to illustrate the ways in which policy makers understand "fairness" as it relates to BC's new PharmaCare policy by using descriptions of the problems the new policy was expected to solve, the goals for the new policy, and how well the policy instrument will achieve these goals. While the interview data are rich, the findings are based on a relatively small set of interviews (n=17) about a politically sensitive topic and therefore should be interpreted with caution.

Problem Definition

At the beginning of each interview, participants were asked what they perceived were the key issues or concerns that motivated the policy change. Two problems that the new PharmaCare policy aimed to address were identified from participants' responses. The first concerned the extreme **financial pressures** facing the PharmaCare program. The second was the program's **unfairness**.

1) Reacting to Financial Pressures

All participants stated that uncontrolled growth in government spending on pharmaceuticals was the central problem that made the policy change necessary. Participants told us that PharmaCare's increasing program costs had been scrutinized by Provincial Treasury for almost two decades. They told us that the large and growing share of the health budget taken up by PharmaCare was of great concern. According to the Ministry of Health Services' Annual Service Plan Report for 2002/03, PharmaCare accounted for over 7% of the Ministry's total operating expenses at almost $728 million (36). Moreover, participants highlighted the troubling annual double-digit expenditure growth. Throughout the 1990s,

PharmaCare's budget increased by a rate of almost 14% per year, faster than any other BC government program (2).

Executives and political-level participants framed the need to reduce government spending as essential to the sustainability of PharmaCare. One politician described people's high expectations when it came to any form of health care. From hip replacements to prescription drugs, this politician asserted that people expected to have access to the best health care technology available. Moreover, she also asserted that these high expectations, combined with the increasing number of seniors relative to the working age population, meant that if changes were not made quickly, the system would not be able to sustain itself. In fact, PharmaCare expenditures under the seniors' Plan A increased from almost $190 million in 1992 to over $352 million in 2001 (2). The politician anticipated that the aging of the baby boom generation and resultant influx of eligible beneficiaries under the seniors' plan would create additional financial pressures capable of "bankrupting the system". Other executives and political-level participants echoed concerns over the demographic changes and forecasted costs of Plan A, which would threaten the sustainability of the entire program.

Managers and analysts—responsible for PharmaCare operations—described reduced spending as compulsory due to a three-year budget freeze. Participants at the managerial and analyst levels saw the policy change as a necessary result of the newly elected government's clear objectives to balance the budget and reduce the provincial debt (37). According to these participants, the budget freeze imposed upon the Ministry virtually necessitated a policy change capable of dramatically reducing government spending on PharmaCare. Analysts told us that the initial objective was to reduce the PharmaCare budget by approximately 43%. However, it quickly became apparent that such a drastic budget cut

could not be achieved without cutting benefits to both the rich and the poor and eventually a less radical figure was agreed upon.

Participants explained that there are two main policy approaches that can be taken to control PharmaCare expenditures. The first involves controlling which drugs are eligible for reimbursement. For example, participants referred to the Low Cost Alternative (LCA) program, which restricted coverage to lower priced drugs, often generics, within groups of drugs containing chemically identical active ingredients. They also spoke of the Reference Drug Program (RDP) where PharmaCare pays for the price of a "reference standard" drug amongst a group of drugs that are therapeutically related and equally efficacious for treating the same condition, but are not necessarily chemically identical. Participants depicted these as good policies, which helped contain PharmaCare expenditures. Another drug-related cost-control measure mentioned by participants included reviewing which drugs were listed on the provincial formulary to ensure that only those shown to be clinically effective and that offered good value for money were included. As a good example, one participant recalled how calcium supplements were removed from the formulary since they could be easily obtained over-the-counter without a prescription. The second approach to controlling PharmaCare expenditures described by participants involved policies that modified the design of the benefit plans. Participants gave examples of changes that had been made in the past such as the introduction of a co-payment under the seniors' plan (Plan A) and increases to the annual deductible under the universal plan (Plan E). One manager vividly remembered an unpopular policy decision to increase the deductible under Plan E. He recalled that this approach provoked numerous calls from unhappy, working poor, non-seniors with what he referred to as "garden variety" disease states such as hypertension.

2) Improving Fairness

The second motivator for the new PharmaCare policy identified from participants' responses was the unfair allocation of subsidy arising from the age-based entitlement of the old program. Participants described the allocation as both **inequitable** and **inefficient**.

i) Equity

Equity can be defined in terms of processes, end-states, or both (38). Equitable processes refer to the actual procedures used to allocate resources. Equitable end-states refer to the result of the allocations.

One school of thought is that as long as fair processes are followed when allocating resources, the resulting allocation will be fair (39). Policies tend to focus on process principles when the good being distributed cannot be divided amongst those with a claim on it (e.g. an organ), in which case, fair allocation aims to provide each individual with a fair chance to obtain the good. Processes such as lotteries, queuing and democratic decision-making processes have been used to ensure equitable resource allocation.

Equity can also be assessed in terms of the resultant end-state after resources have been allocated. Participants conveyed the challenges associated with deciding the fairest way to allocate prescription drug subsidies among the population to ensure an equitable end-state. While assigning each person an equal subsidy is one way to divide the pie, participants noted that it does not account for the variation in prescription drug needs and capacity to benefit between individuals within the population. Equity does not necessarily mean equality because, as participants noted, an equal allocation of subsidy may be unfair to some who feel they have a legitimate claim to more benefits based on their special situation. For example, one participant recalled being in the unpleasant position of having to decide whether to

allocate greater subsidies to certain special disease groups. He told us that these groups "battle" for distinct and often, costly benefit plans. Disease-specific plans already in place such as Plan D for cystic fibrosis patients, Plan G for mental health patients, Plan P for palliative care patients, and a special program providing funding for HIV/AIDS drugs were notable examples. He said that dealing with requests for special treatment was particularly "emotional". While an equitable end-state might be one in which equals are treated equally and unequals are treated unequally according to their degree of inequality, participants stressed the complexity of these decisions. Economists use the term horizontal equity to describe an allocation where equal subsidy is given to individuals who are alike in a relevant respect (40). The term vertical equity is used to describe an allocation where unequal subsidy is given to individuals who are different in some relevant respect in proportion to the degree that they are different (40). To apply these concepts of horizontal and vertical equity, it becomes necessary to define the aspects of individuals' situations that are relevant in legitimizing their claims to a greater share of resources. In this respect, participants considered age a less meaningful criterion.

The old program was horizontally inequitable because, as participants made clear, households with similar incomes were not receiving similar subsidies due to the age-related eligibility criteria. Participants explained how, under the old plan, a senior with the same income as a non-senior received a much larger subsidy simply because he or she was 65 years of age or older. Participants described age as a less relevant criterion for legitimizing claim to subsidies than income. One political-level respondent reminded us that pharmacare in BC began as a social services program that provided subsidies to low-income non-seniors and all seniors. He recalled that during the 1970s there was much concern surrounding

whether seniors would have adequate retirement income. Another analyst explained that much has changed since then. He shared the opinion that modern-day 65 year olds are no longer the "poor pensioning seniors" of years passed. He questioned, if all seniors regardless of income receive generous subsidies, are not working poor non-seniors also deserving? Since equal subsidies were not being given to those with similar incomes, the old program was horizontally inequitable.

Participants relayed personal stories of how the allocation of subsidies under the old PharmaCare program led to inequitable end-states. One participant at the political level recalled how, shortly after becoming elected, he received a phone call from a young single mother who was struggling to pay her drug bills under the old universal program. This memorable occurrence initiated concern and served to alert him to the need to re-examine the program. Another managerial-level participant relayed how he would "feel like hell" when someone from a working poor family that had a few members with chronic diseases would call to say that they could not afford the cost of their drugs and had to decide between food or medicine.

Many participants articulated the ideal that those who have more have a responsibility to contribute a greater share. They promoted the principle of "noblesse oblige" - the obligation of honorable, generous, and responsible behavior associated with high rank or birth (41). Participants were unanimous in their contention that people with higher incomes, and thus a higher ability to pay, should make a greater financial contribution toward their prescription drug costs, regardless of whether they are a senior or not. They explained that the old system was inherently inequitable because it did not assist the working poor and yet was generous to all seniors, even the wealthy. While participants did not specifically define

what they meant by a "wealthy senior", they commonly cited a well-known, wealthy businessman in BC as an example of a person who could afford to, and therefore should, pay a greater portion of his drug costs. The fact that multiple participants at all levels named this one individual out of a possible four million British Columbians, made it clear that this illustrative anecdote had become culturally ingrained within government. That person was Jimmy Pattison, British Columbia's wealthiest resident. Participants saw him as someone who did not need the subsidy and, if not for the automated PharmaNet system, would not likely claim the subsidy. They told us that he could afford all the health care he could ever want and therefore, his subsidy should go to someone who needed it more. Participants asserted that the end-state equity of PharmaCare needed to be improved; that wealthier individuals needed to assume more responsibility for the cost of their drugs so that subsidies could be directed to those who needed it most based on their ability to pay and not their age.

ii) Allocative Efficiency

To ensure an efficient allocation of resources, two elements of efficiency must be met simultaneously (42). The first is technical efficiency: the second is allocative efficiency. *Technical efficiency* is defined simply as getting the maximum output for any given input. In the context of pharmacare, issues of technical efficiency typically tend to focus on the cost-effectiveness of the drugs selected for reimbursement or the appropriateness of their use. Do the drugs currently listed on the formulary provide the greatest value for money? Are patients taking the drugs properly and therefore deriving the maximum benefit from their use? Applied at a higher level, a technically efficient PharmaCare organization might be one that maximizes the health status of British Columbians through the provision of prescription drug subsidies, determined by a fixed amount of public dollars pre-assigned by the Treasury.

Indeed, technical efficiency resonates in PharmaCare's mission statement "To improve the health status of British Columbians by providing reimbursement to ensure reasonable access to and appropriate use of prescription drugs and related benefit services for eligible residents of the province" (2). While discussions of efficiency typically focus on issues of technical efficiency, participants described the old system as being inefficient in the allocative sense.

Allocative efficiency adds the requirement that resources be used to maximize the types of outputs that best satisfy members of society (i.e. those resource allocations that people value most highly). To make PharmaCare efficient in the allocative sense, policy makers must decide which health needs to meet and for whom. The standard criterion that has typically been used to determine whether allocative efficiency has been attained is known as the Pareto criterion. Its premise is that an allocation of resources is efficient whenever it is impossible to change it so as to make one person better off without at the same time making another person worse off (43). However, this view assumes that social welfare is a zero-sum game and does not account for the reality that people care about, and are affected by, the welfare of others and the society in which they live. In actual fact, it may be possible for a society to prefer a "Pareto inefficient" resource allocation if it is felt to be more equitable. For example, a person might support a policy that could make him or her appear worse off if the benefit of that policy went to someone in greater need. Such a person may in fact favour the redistribution. Therefore, allocative efficiency encapsulates the concept of equity such that members of society must be satisfied that the allocation of resources is equitable (44). In short, an allocation of resources may be technically efficient, but if it does not yield the greatest value for society according to its members, then it is inefficient.

Participants described how the age-based design of the old program permitted inefficient allocation of resources. The old program was inefficient in that it concentrated subsidies on seniors and therefore did not necessarily generate the maximum population health improvement for the size of investment. It was anticipated that wealthy seniors, like Jim Pattison, would still be able to afford their prescription drugs with a smaller subsidy, while poor non-seniors would benefit significantly from a larger subsidy. Participants saw the rich needlessly benefiting under the old program and said it was a waste of resources – resources that could be used to direct subsidies to those with lower incomes.

In addition, participants contended that some wealthy seniors would actually prefer a system that saw the scarce subsidy diverted away from them toward less wealthy non-seniors. One executive-level participant reported that every year a senior family would send a cheque to the government with a letter explaining that they were relatively wealthy and were paying back their drug subsidy so that it could be spent on those in greater need. The willingness of a senior family to give back their subsidy for the benefit of others lends support to the idea that a more equitable allocation of resources was possible, even if it was "Pareto inefficient". A manager saw the policy shift toward expecting wealthier individuals to assume more responsibility for the cost of their drugs, as a "signaling initiative". She saw this as the first of many policies that would be aimed at increasing people's involvement in their health care costs.

Overall, participants perceived there to be two problems that motivated the policy change. First and foremost, the policy change was seen as a reaction to financial pressures. While executives and policy-level participants saw this as a long-standing issue that

threatened the sustainability of the program, managers and analysts saw this as a requirement imposed by the new government's drastic budget cuts. The second motivation was the desire to improve fairness. They described the allocation of resources through the old PharmaCare program as inequitable and inefficient. Age as an eligibility criterion made the program more generous to senior households than low-income non-senior households and this led to an inequitable end-state. This inequity combined with the fact that the old program did not generate the maximum possible prescription drug-related health improvement for the population made the allocation of resources inefficient. Of these two concerns, only one political-level participant told us that the need to improve fairness was the main problem that motivated the policy change. All others perceived the fairness issue as secondary to the need to control costs.

Policy Goals

When participants were asked what they perceived to be the objectives of the new policy, not surprisingly, their response was to save PharmaCare money and to improve fairness. This analysis focuses on the way participants described "fairness" in terms of the new policy's goals. Participants described fairness in terms of process-related and end-state equity. A small number of participants responsible for PharmaCare's operations described fairness in terms of process-related equity goals. Specifically, they referred to fairness as it related to the new plan's selection and implementation. However, most described the goal of improving fairness more generally in terms of improving the end-state allocation of prescription drug subsidies through the design of the new Fair PharmaCare plan.

1) Plan Selection – Applying a Fair Selection Process

Almost all participants noted that the idea of income testing had been considered in BC for over a decade. They referred to one of the first reports submitted by the PharmaCare Review Panel in 1993, which supported an income-tested program (45). They noted that this report sparked development of numerous - estimated at over 40 – income testing proposals. These proposals took many forms as simulations of the anticipated impact on various family types were considered. Submissions made it to various levels within government over the years and became the focus of much discussion. As one executive explained it, everyone from analyst to cabinet minister had a different opinion as to how to save more money or how to be fairer. Participants reasoned that the long intra-governmental history of income testing made it a natural policy choice.

Participants differed in their views as to whether the process used to select the new policy was fair. Most respondents described the selection of an income-tested plan as consultative. They talked about how, after the May 2001 election, a core services review of all public programs was announced by the Minister of Finance in July 2001. They told us how in the two months following, the Minister of Health wrote to approximately 38 different stakeholder groups to gather their input into the health care reform process. One executive told us the Minister's letter solicited solutions to the rising costs of PharmaCare - among other suggestions for health care reform - and requested that their feedback be received by September 2001. The executive admitted that this was a short turn-around time. She explained that the tremendous pressures and time constraints within the Ministry during this period were to blame for the fact that the final report from the stakeholder consultations was never released. However, she assured us that the process revealed support for switching to

an income-based program. A high-ranking politician told us that during this process three stakeholder organizations suggested income testing. Another political-level participant viewed the consultation process conducted by the Select Standing Committee on Health Care as influential in the selection of an income-based pharmacare plan. She told us how this committee toured the province gathering wide-ranging opinions from professionals to consumers about health reform in general. The first report was released in December 2001 at which time the committee recommended that the public "debate whether covering all the prescription drug costs of individuals over 65 years of age in the province — regardless of their ability to pay — and not the prescription costs of a young working family with a chronically ill child, for example, is in fact fair and equitable treatment" (46). Participants recalled that by autumn 2001 the government announced that deductibles would be raised under the universal plan in January 2002 as an interim measure and that a more significant PharmaCare policy change would follow.

Not all participants described the policy selection process as consultative. One analyst recalled that the Minister of Health "drew a line in the sand" by committing to an income-based policy in July 2001. He told us that this significantly reduced the menu of policy options under consideration. Another analyst revealed that once the budget cuts were announced they were instructed to dig up past briefing notes and old income-based plan simulations. A policy manager and analyst were sent to Manitoba in July to obtain instruction and advice on how to best design and implement an income-based pharmacare policy. According to analysts, the early commitment to income testing was because it was the only policy option able to produce the magnitude of savings needed to stay within budget.

Analysts told us how the government's early commitment to income testing shifted the focus from selection of a suitable policy option to refining the design of the new plan. Analysts within the government simulated dozens of scenarios to examine the family types that would fare better or worse under different terms of benefit. These were then presented and debated within the government. As one analyst described it, it was "kind of like that Dilbert cartoon" – apparently the initial project plan of one month of decision-making and twelve months of system development became twelve months of decision-making and one month of system development.

2) Plan Implementation – Maintaining Equal Access

When discussing the new policy's goal to improve fairness, participants emphasized the need for equal access to be maintained throughout the transition and under the new plan. Equal access means that every individual has an equal opportunity to use PharmaCare services. In general, several factors are known to influence equal opportunity of utilization of health services and thus equality of access. Quantity of the service being offered (service capacity), geographical distribution of the service, affordability of the direct costs related to using the service in terms of money as well as time, level of education, language and technical skills necessary for using the system, and cultural values and beliefs attached to using the service are all important.

Participants described two main factors that they perceived could influence equality of access to PharmaCare services: registration and communication.

i) Registration

Participants relayed their concerns regarding the new registration process that was implemented concomitant with the new policy. They pointed out that Fair PharmaCare was

the first pharmacare policy in BC to require that the population register in order to receive the subsidy. Registration was possible either by mail, telephone, or on the PharmaCare website. Participants explained that the registration process was instituted so that PharmaCare could collect and verify with the CCRA income tax information used in the calculation of the new income-based deductibles. Signed consent was necessary for the CCRA to disclose personal income tax information to PharmaCare. However, participants familiar with PharmaCare operations described the difficulties associated with the new registration process and how it could influence equality of access. First, despite the overwhelmingly high number of registrants at the end of April - presumed to be due to the intense media coverage - few had mailed in their signed consent forms. Without receipt of the signed consent form, an individual was assumed to fall into the highest annual income level and would therefore receive the lowest subsidy. Participants described the extra effort that was given to ensuring that all signed consent forms were received by sending out reminder notices, yet this was riddled with unforeseen difficulties such as running out of envelopes and being bumped down Mailing Services' queue. Second, participants explained how the May 1st program launch date was less than ideal as it meant that people would be registering around "tax time". This resulted in some confusion as to which tax year's income should be reported. Also, participants explained that every year during tax time - between February and May - the CCRA has a blackout period where they will not verify income details. This unforeseen circumstance created some frustration as well.

Participants noted that the primary objective related to registration was to ensure that all seniors were registered. Internal statistics were being collected and participants, predominantly managers responsible for PharmaCare's operations, were keenly interested in

seeing registration rates by population group and registration method. At the time of the interviews participants divulged that preliminary data showed a large number of seniors had registered via the Internet. One manager was of the opinion that this was due to seniors receiving help from families and friends. Participants were also interested in understanding why certain individuals or groups were less likely to register. While acknowledging the initial operational wrinkles, participants were committed to ensuring that the new registration process did not create an added barrier to accessing the financial assistance.

ii) Communication

Communication is a very important aspect of any policy change that, if done poorly, can present unnecessary barriers to equal access. Participants stressed the importance of providing clear, accurate and sufficient information to the entire population, but especially to seniors, before the policy change. A participant at the executive level explained that by making the policy more equitable, it became more complex and thus, more difficult to communicate to the public. Recognizing the increased complexity, she told us that one of the implementation goals was to communicate the key message that it was a "reasonable and fair thing to do", even if it meant higher contributions by some. She was of the opinion that many seniors see programs such as PharmaCare as an entitlement under the current health care system. Other participants echoed this sentiment by stating that people's expectations for health care and new health care technologies are very high. Participants told us how seniors who received larger subsidies under the old plan were fearful of losing benefits and were opposed to increasing their contributions. They understood this as people's natural tendency, especially seniors, to "feel threatened by change" and acknowledged the responsibility of policy makers to communicate the changes well. Participants considered it

the responsibility of policy makers to ensure that individuals understood the new plan and the registration process, when the changes were to take effect, the reasons behind the policy change, and how and where beneficiaries could obtain needed information about matters such as their current deductible level or the appeals process. Participants expected an increased number of queries associated with the new registration and consent processes, from seniors in particular, due to their level of comprehension and the manner in which they deal with change. One manager gave an example of how to communicate in a way that could be easily understood by seniors. She said that a senior would understand better if you explained they must pay one-quarter of the cost of their prescription rather than if you said there is 25% co-insurance.

Participants from all levels expressed the opinion that by directing so much attention toward "promoting" the new plan to seniors, other important groups were ignored. One managerial-level participant suggested that if there had been better communication with other business partners such as pension plan and extended insurance providers, the "panic signals" and registration system overload might have been averted. Participants stated that this was an oversight by the Ministry, as it did not expect recipients of private drug insurance to be primarily affected by the new program.

Several participants from all levels associated good communication with "selling" the new program. One analyst said that by emphasizing how the new program would improve fairness, the policy would be more "palatable" to the public. Most participants considered the new program name "Fair" PharmaCare, to be a clear indication of the ostensible, "sellable" goal, but alleged the de facto objective was to save money.

3) Plan Design – Minimizing Harm

Most participants described the goal of improving fairness in terms of improving the end-state allocation of prescription drug subsidies through the design of the new Fair PharmaCare plan. Participants explained that the goal was to make the system fairer by basing eligibility for subsidies on one's ability to pay. They perceived age to be a less relevant eligibility criterion. They told us that the goal was to reduce financial barriers to taking necessary prescription medicines by linking subsidization of prescription drug costs to income. By using income as the sole criterion for eligibility, the plan would make prescription drugs more affordable for poor families: both senior and non-senior. , Participants expected that under the new Fair PharmaCare plan more low-income families, regardless of age, would receive the subsidies they needed. Participants considered this "good policy" because it was expected to achieve the maximum population health impact for the investment in prescription drug subsidy, while at the same time improve fairness.

Participants explained ways in which the goal to improve fairness was considered in the plan's design. They made it clear that it was important that the plan minimized harm. According to participants, a study by Tamblyn and colleagues was particularly influential (47) as it raised awareness of the adverse consequences that could potentially arise. The study, which evaluated the Quebec drug policy change in 1997 when deductibles and co-insurance were introduced for low-income seniors, found that the increased cost sharing was followed by reduced use of essential drugs and poorer health outcomes. Participants told us they anticipated that criticism of the new policy could be based on this study and, thus, wanted to avoid a similar backlash by ensuring the new plan continued to protect low-income seniors.

Analysts told us that one way they tried to mitigate harm in designing the new plan was by attempting to minimize "notch" effects. A "notch" can occur at the level where the deductible jumps with increased income. For instance, with Fair PharmaCare, families with net annual incomes of $15, 001 must pay a deductible of 2% of their net income while those with net incomes of $14,999 pay no deductible at all. In the new plan's design, notch effects were mitigated by the inclusion of maximum annual out-of-pocket contribution limits that were also sensitive to income.

Participants also discussed how the new plan was designed to protect against "catastrophic" prescription drug costs. In general, prescription drug costs are considered catastrophic if a household is required to spend more than a given percentage of their income on prescription drugs in any given period. The term catastrophic is used to underscore how the costs associated with becoming ill have the potential to unpredictably and dramatically change a household's living standards. One analyst mentioned that in the design phase, the informal goal was to try to ensure no one would be required to pay out-of-pocket more than 4% of his or her annual income for prescription drugs. The rationale provided for this particular percentage was that it was similar to the guidelines used in an influential report entitled "*Canadians' Access to Insurance for Prescription Medicines*" (48). Another participant stated the opinion that the equity of the new plan was contingent upon the maximum beneficiary contribution limits used to protect against catastrophic drug expenditures. She contended that if these were not set correctly, improved fairness would be an unattainable goal.

As well, participants recognized that the new plan needed to build in sensitivity toward soon-to-be seniors expecting to receive benefits according to the previous seniors

plan. Therefore, a "transitional" benefit structure was incorporated into the new plan's design for those turning 65 in the first three years of the new policy (2003-2005). Those born in 1939 or earlier were considered "current" seniors and would receive more generous subsidies than those turning 65 after 2005. One executive-level participant explained that the "current" senior distinction was decided early on. She explained that it was fair since soon-to-be seniors had less opportunity to plan for the policy change, whereas younger people would have a longer time window.

To summarize, when discussing the new plan's design, participants described notions of fairness in terms of basing eligibility strictly on ability to pay, minimizing notch effects, placing income-based limits on out-of-pocket contributions, and being sensitive to soon-to-be seniors.

Policy Instrument – Continuing to Refine

PharmaCare provides reimbursement for prescription drugs in the form of a subsidy program. With this type of policy instrument, the government uses its monetary resources to provide financial subsidies to individuals who need prescription drugs. Similar types of policy instruments include cash transfers, grants, loans, tax breaks and vouchers. The Fair PharmaCare policy change was a change within a policy instrument since the overall instrument type was not altered – it remained a government subsidy – instead the parameters of the subsidy were changed.

Participants were asked whether they felt the Fair PharmaCare policy would be able to achieve the objectives they described. With regard to the objective to control costs, participants from all levels expressed the view that this policy change was not going to single-handedly cure the sustainability issues facing PharmaCare. One analyst described the

new policy as creating a "speed bump", but he claimed that long-term expenditure growth was "inevitable". They expected that this policy would achieve a one-time reduction in costs, but that increased utilization of prescription drugs and the introduction of newer, more expensive drugs would continue to drive expenditure growth at rates similar to those prior to Fair PharmaCare. They acknowledged that this policy would not control PharmaCare expenditures through improving the appropriateness of drug utilization and the drugs eligible for reimbursement. They recognized that further measures would need to be taken. Some suggested that government partner with industry's marketing and detailing practices to improve appropriate prescribing. Others suggested reexamining the formulary and expanding the reference-pricing program.

A few participants saw this policy change as purely shifting costs onto patients and asserted that such an approach can result in higher drug costs in the long term. One executive pointed out that as long as patients are paying an increased share of the costs, the government's ability to control drug costs is weakened. He explained that as a large single-payer, governments typically have greater leverage for negotiating lower drug prices.

In terms of whether the new policy would improve fairness, participants were less certain. One manager shared the concern that perhaps an income-tested program might not be fair for middle- and high-income earners who were essentially being taxed twice. They recognized that they might not have gotten it right the first time and that future adjustments to income bands and deductible levels might be necessary. They were hopeful that the results of the planned evaluation of the new policy by researchers at CHSPR would show that in fact the end-state allocation of subsidies was fairer. One participant saw the question of whether fairness had improved as a subject for expert researchers to tackle. They wanted to

be sure that people were able to buy the drugs they needed. They wanted to know how utilization of prescription drugs had changed by socioeconomic status. Participants were also anxious to see internal analyses of registration rates to find out whether the new registration process had affected equality of access.

Conclusions

In summary, participants identified two main problems that prompted the policy change: unrelenting financial pressures and the unfairness of the old PharmaCare program.

Participants at the executive and political levels perceived the uncontrolled growth of PharmaCare expenditures as a threat to the sustainability of the program. They perceived the program's sustainability to be threatened further by the projected increase in the number of seniors relative to the working age population as a consequence of the impending aging of the baby boom generation. Managers and analysts perceived the financial pressures as being imposed by the new government in their efforts to balance the budget and reduce the provincial debt. Participants understood there to be two means by which policies could be implemented to save the program money. The first was through drug related policies such as reexamining the drugs included on the formularies and implementing policies to encourage more appropriate utilization of prescription drugs. The second was by restructuring the design of the benefit plans.

The second main problem participants identified as requiring redress was the unfair allocation of subsidies arising from the age-based entitlement of the old program. They described it as horizontally inequitable because households with similar incomes were not receiving similar subsidies. Participants juxtaposed personal stories of calls from young single mothers struggling to afford medicines against the example of rich senior Jimmy

Pattison receiving a hefty subsidy. They believed it was time for the wealthy to begin taking greater responsibility for the cost of their drugs. Participants also described the old program as inefficient because by concentrating subsidies on seniors it could not achieve the maximum prescription drug-related impact on the health of the entire population.

Second to saving the program money, participants identified the policy objective of improving fairness. They described fairness in relation to this new policy in terms of process-related and end-state equity. One way they discussed fairness was in relation to the process used to select the policy. All participants described the long history of consideration of income-tested programs within the government. While most perceived the process used to select the policy as consultative, analysts described the selection of an income-tested plan as determined before the consultation process began. Participants also emphasized the need for equal access to be maintained under the new plan. They identified the registration process and communication as two main factors that could influence equality of access. They also described how the goal of improving fairness was considered in the design of the new plan. They explained that basing eligibility strictly on ability to pay, minimizing notch effects, placing income-based limits on out-of-pocket contributions, and being sensitive to soon-to-be seniors would help in the goal of improving fairness.

Finally, participants were uncertain whether the Fair PharmaCare policy would be able to achieve the objective of improving fairness. They accepted the responsibility of continuing to refine this, as well as other, PharmaCare policies and were hopeful that evaluations of Fair PharmaCare would indeed demonstrate it to be a fairer allocation of prescription drug subsidies.

CHAPTER THREE

Pre- and Post-Fair PharmaCare – A Microeconomic Simulation

Introduction

In Chapter Two we endeavored to define the problem that the new Fair PharmaCare policy aimed to address and the goals of the new policy, according to policy makers. Interview participants told us that the Fair PharmaCare policy was designed, in part, to address the inequitable allocation of prescription drug subsidies among British Columbians. They described the old program as inequitable because it was not equally generous to households with similar incomes. Seniors were receiving higher subsidies than income-equivalent non-seniors due to the age-related eligibility criterion. They told us that one objective of the policy was to resolve this inequity by allocating subsidies based on income rather than age – a criterion they perceived as more legitimate. Those less able to pay would be given a larger subsidy, while wealthier individuals would be expected to contribute more towards their medications. Age would no longer play a role in defining subsidy levels.

In this chapter, I consider whether the selected policy instrument addresses the problem and achieves this goal. By analyzing expenditure simulation data I compare the PharmaCare program in BC before and after the policy change. First, I explore how the new policy changes the private financial burden of various family types with different household incomes and prescription drug costs[1]. Second, I describe the allocation of prescription drug subsidies across households ranked by income. This distributional analysis helps to determine whether subsidization under the Fair PharmaCare program is consistent with the goal of ensuring that the poor receive a higher subsidy for their prescription drugs than the wealthy, regardless of age.

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[1] In the next chapter I employ the same methods to conduct a comparison of the Fair PharmaCare program to the programs in the other nine provinces.

Simulation Methods

This policy simulation study was based on the cost-sharing rules for British Columbia's provincial drug program before (as of April 30, 2003) and after (as of May 1, 2003) Fair PharmaCare. Cost-sharing rules (detailed in Appendix A - Tables A.1.1 and A.1.2) specify the premium, deductible, co-payment and maximum out-of-pocket contribution limit amounts. "Private financial burden" was the measure of primary interest; it comprised any drug costs not covered by the public drug plan, including "out-of-pocket payments" and payments covered by private insurance.

Owing to limitations on household income data by age and composition at the provincial level, it was necessary to base the policy simulation on a nationally representative population profile. Because British Columbia's eco-demographic profile is roughly comparable to the national portrait, the use of national data does not affect the primary objective of testing the distributional impact of the policy change. For example, while seniors make up 12% of Canada's total population, they make up 13% of BC's total population (49). Furthermore, the median private household income in 2000 for Canada was very similar to that in BC - $46,752 compared to $46,802 (49).

Policy simulations were conducted for a nationally representative set of 4,860 household types differing in size, age composition, income, and drug expense levels. Households were defined by several characteristics:

- Number of seniors: 0, 1, or 2
- Number of non-senior adults: 0, 1, or 2
- Number of children under 18: 0 or 2

- Annual net taxable household income: $5,000, $20,000, $40,000, $60,000, $80,000, or $100,000
- Annual household prescription drug costs: One of 50 levels from $0 to $12,000
- Average prescription cost

The source of each variable is described below.

Each household's private financial burden was expressed as a percentage of its net taxable income. Population coverage under the different provincial models was computed as the percentage of households whose private financial burden exceeded different percentages of household income. Simulations were carried out using SAS® Release 8.02 on a Microsoft® Windows 98 platform. Analyses were completed using Microsoft® Excel 2000.

Household Types

A set of six "typical" private household types were selected for parsimony and based on availability of income distribution data from the 2001 Census (50). The six household types accounted for approximately 87% of all private households in the census: single senior (9%), single non-senior (17%), senior couple without children (8%), non-senior couple with (26%) and without (18%) children less than 18 years of age, and non-senior lone-parent households with children under 18 (9%). Couples were defined as married or common-law, opposite or same-sex. Families with children were assumed to have two.

Excluded private household types accounted for 13% of all private household types in the 2001 Census. These were one family households with an additional non-family person, multifamily households with or without non-family persons, non-family households with two or more persons sharing a dwelling, senior couples with children of any age, non-senior couples with children older than 18 years, non-senior lone-parent households with children

greater than 18 years of age and senior lone-parent households with children of any age. Collective households referring to a person or a group of persons that occupy a collective dwelling such as a rooming house, shelter, hostel, hotel, motel, jail, nursing home, hospital and so on were also not included.

Annual Household Income

Household income bands used in the 2001 Census were collapsed to six broad bands. The approximate median income within each broad band was used as the representative income for households falling within that income band. These median incomes, which were assumed to be net taxable incomes, were $5,000, $20,000, $40,000, $60,000, $80,000 and $100,000. Households were assumed to qualify for social assistance (non-seniors) or guaranteed income supplements (seniors) based on published cut-offs for income relative to household size (51). Census data provided the numbers of households within each of the six household types with incomes falling in each of the six broad bands. Stratification by income and household type significantly increased the realism of simulation results. For example, Table 1 in Appendix F, which summarizes the distribution of income across household types, shows that single seniors are much less likely to have incomes in the highest income bands than single non-seniors.

Annual Prescription Drug Costs

While average drug cost information is routinely presented in studies, valid information about the distribution of drug costs across individuals or households is rare due to scarcity of population-based, patient-specific databases. Distributions used in the simulation were drawn from the only published data on population-based, patient-specific drug spending: an analysis of Manitobans' total prescription drug costs for fiscal year

2000/01 (52). From the Manitoba data, median drug cost levels of $0, $100, $500, $1,000 and $3,000 were selected, representing approximately 35%, 30%, 25%, 5% and 5% of the adult population respectively. In other words, 30% of adults had drug costs between $52 and $162 with a median value of approximately $100, and so on. The drug cost distributions available from Manitoba were not stratified by age; however, studies have shown that prescription drug expenditures increase with age (53;54). In an attempt to make the simulations more realistic, I used the assumptions in Table 3.1 to estimate the probability that a household had a particular level of annual prescription drug costs. These assumptions were calibrated for consistency with the average senior, non-senior, and child drug cost levels to age-specific averages presented elsewhere (55).

Annual Prescription Drug Cost Level	**Senior (65+ yrs)**	**Adult (18-64)**	**Child (<18 yrs)**
$0	10%	35%	55%
$100	20%	30%	20%
$500	40%	25%	15%
$1,000	20%	5%	5%
$3,000	10%	5%	5%

Table 3.1 - Distribution Assumptions for Annual Prescription Drug Cost Levels by Age

For single-person households, the distributions of household drug costs were identical to the age-specific individual drug cost distributions. Multiperson household drug costs were computed based on the joint distributions of age-specific individual drug costs for each member. The resulting household drug costs fell into 50 different potential levels, ranging from $0 (if all members of a household had no drug expenses) to $12,000 (if each member of a 4-person family had $3,000 in drug expenses). Simple Bayesian theory was used to calculate the probability that a given household type had a given level of drug cost. The permutations of household types, incomes, and drug costs resulted in a representative set of

4,860 different households for the simulations. To assess the effect of annual prescription drug costs on out-of-pocket expenditure, I conducted sensitivity analyses by increasing and decreasing all drug cost levels by 20% (Appendix G). The sensitivity analysis revealed little effect of such variation in annual drug costs.

Cost per Prescription

I wanted to ensure the simulation model could be easily applied to other provincial pharmacare plans in addition to British Columbia's. Some provincial plans, such as Newfoundland's seniors' plan, make use of ingredient costs and pharmacists' professional fees to calculate co-payments. Therefore, it was necessary to approximate these amounts separately in determining the total prescription cost.

According to data from IMS HEALTH, the average cost per prescription in 2000, including professional fee, was approximately $37.80 (56). As well, an analysis of prescription costs in Manitoba found that the average ingredient cost per prescription for individuals with drug expenditures greater than $2,500 per year was nearly double that of the overall Manitoba population (57). Based on these findings, ingredient costs of $30 and $60 each with an assumed professional fee of $7.80 (i.e., prescription costs of $37.80 and $67.80) were used for households with annual prescription drug costs less than or equal to $2,500 and greater than $2,500, respectively.

The annual prescription drug cost level was divided by the cost per prescription to arrive at the number of prescriptions dispensed in one year. I assumed that prescriptions were dispensed evenly throughout the year.

To assess the effect of cost per prescription I conducted sensitivity analyses in which I assumed prescription costs of $37.80 and $67.80 for all annual drug cost levels (Appendix

H). Changes to prescription cost caused only slight alterations to the proportion of households that would face private financial burdens exceeding critical percentages of household income.

Annual Out-of-Pocket Payments

In cases where prescription drug cost levels did not exceed the annual deductible, absolute annual out-of-pocket payments were calculated simply as the annual drug expenditures plus the total annual pharmacare premium if applicable. For annual drug cost levels that exceeded the annual deductible, out-of-pocket payments were the sum of the annual deductible plus the co-payments applied to the remainder of drug expenditures, up to the maximum annual contribution limit, plus the annual premium.

Results

Table 3.2 and Figure 3.1 compare the percentages of senior & non-senior households that would face given levels of private drug costs as a percentage of household income under BC's PharmaCare program before and after the introduction of Fair PharmaCare. As policy makers told us and as shown here, the old model would provide greater protection against high drug costs to seniors than non-seniors. This is evidenced by the higher private financial burden borne by non-senior households. For example, 7.6% of non-senior households would pay 4-4.9% of their annual income out-of-pocket towards prescription drugs compared to only 0.2% of senior households.

For the most part, the protection of seniors against very high drug costs is retained under the Fair PharmaCare program. No senior household would pay 4-4.9% of household net income out-of-pocket, whereas 3.6% of non-senior households would do so. For non-

seniors, the new policy improves protection against very high drug costs. However, for both seniors and non-seniors, coverage of more "routine" drug expenses is reduced.

% of Annual Hhold Income	Before Fair PharmaCare		After Fair PharmaCare	
	Seniors	Non-Seniors	Seniors	Non-Seniors
<1%	65.2%	54.1%	44.1%	54.1%
1-1.9%	30.1%	23.3%	46.6%	19.1%
2-2.9%	4.1%	11.8%	8.8%	11.7%
3-3.9%	0.1%	2.9%	0.4%	11.6%
4-4.9%	0.2%	7.6%	0.0%	3.6%
5-9.9%	0.3%	0.3%	0.0%	0.0%
10-14.9%	0.0%	0.0%	0.0%	0.0%
15-19.9%	0.0%	0.0%	0.0%	0.0%
>=20%	0.0%	0.0%	0.0%	0.0%

Table 3.2 - Percentage of Senior & Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income Before and After Fair PharmaCare

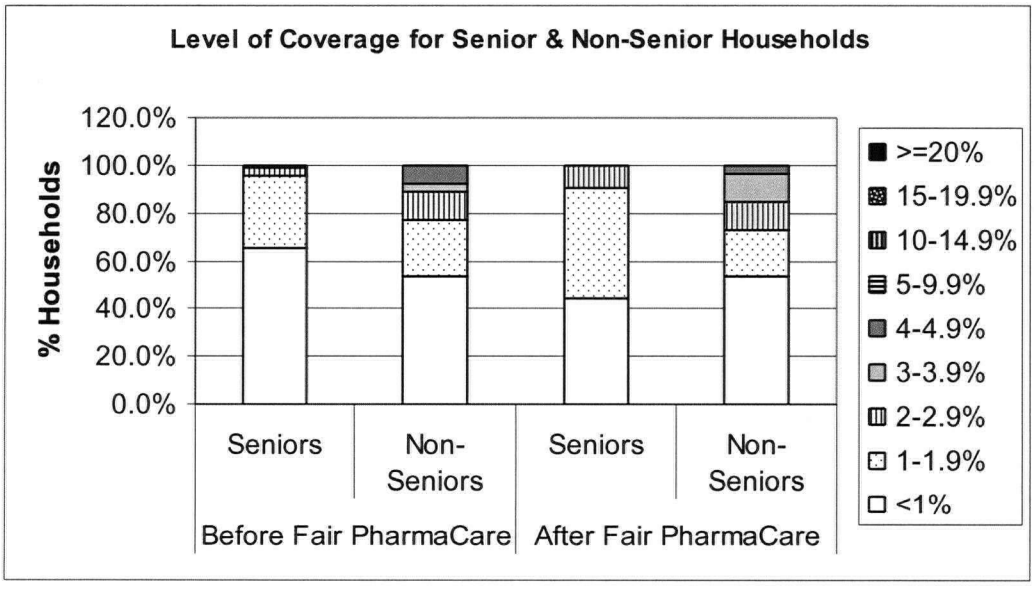

Figure 3.1 - Level of Coverage for Senior & Non-Senior Households Before and After Fair PharmaCare

As Figure 3.2 shows, under the new model approximately 4% fewer non-senior households would pay 4-4.9% of their annual household income toward prescription drugs. This is explained by the introduction of the income-based maximum beneficiary contribution

limits, which prohibit non-senior families from paying more than 4% of their annual net income toward prescription drug expenses. As well, roughly 4% fewer households would pay 1-1.9% of their income toward their drug costs. These changes are offset by close to an additional 9% of households falling into the 3-3.9% range under the new model. So, while the policy change ensured some non-senior households would pay a smaller proportion of income towards their drug costs, others would pay a larger proportion.

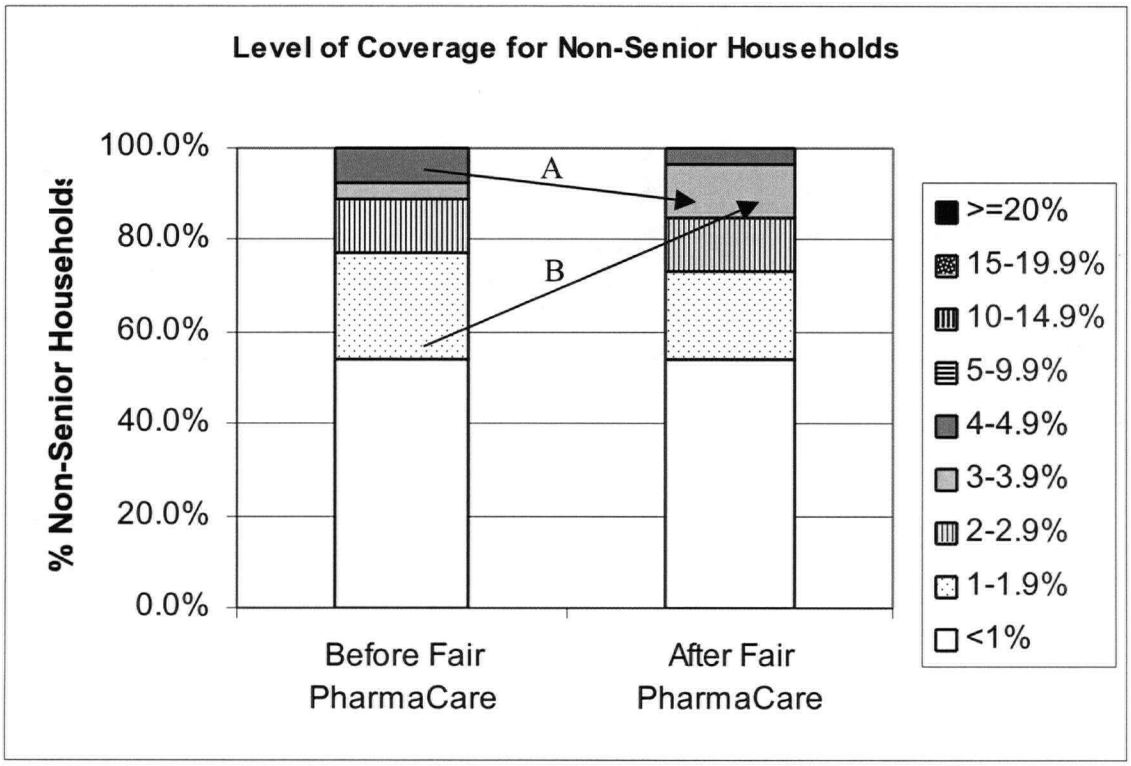

Figure 3.2 - Level of Coverage for Non-Senior Households Before and After Fair PharmaCare

To illustrate the types of households that transferred from one range of financial burden to another, I considered two typical scenarios. Scenario A involves a single-parent non-senior household with two children, an annual net income of $20,000, and annual drug costs of $3,000. Under the old program this household would pay 4% of annual income toward drug costs. Under Fair PharmaCare, this would be reduced to 3%. It should be noted

that the same reduction would apply to all similar households regardless of the number of children. Unlike plans in Saskatchewan and Manitoba, which adjust household income for the number of dependent children below 18 years of age, Fair PharmaCare does not take this factor into consideration. Whether a family has six children or none, they are required to pay the same percentage of their income towards their prescription drugs.

Scenario B involves a non-senior couple with two children, an annual net income of $100,000, and annual drug costs of $3,000. This household would have paid 1.6% of their annual income toward their drug expenses under the old program. However, under Fair PharmaCare this would be increased to 3%. Again, this would be the same regardless of the number of dependent children. These scenarios show how the policy improves the ability of poorer non-senior households to pay for their prescription medications while placing greater financial burden on wealthier non-senior households.

Figure 3.3 shows the percentages of senior households that would face given levels of private drug costs as a proportion of household income. It illustrates the large percentage of senior households that would no longer pay less than 1% of their annual income on prescription drugs under the new model – just over 21% in fact. This is balanced by an additional 16% of households that would pay 1-1.9% and an additional 5% of households that would pay 2-2.9%. The 0.3% and 0.2% of senior households that would have paid 5-9.9% and 4-4.9% respectively would be eliminated under the Fair PharmaCare model. Again, this is attributed to the new income-based maximum beneficiary contribution limits, which prohibit seniors from paying more than 3% of their annual income toward drug expenses.

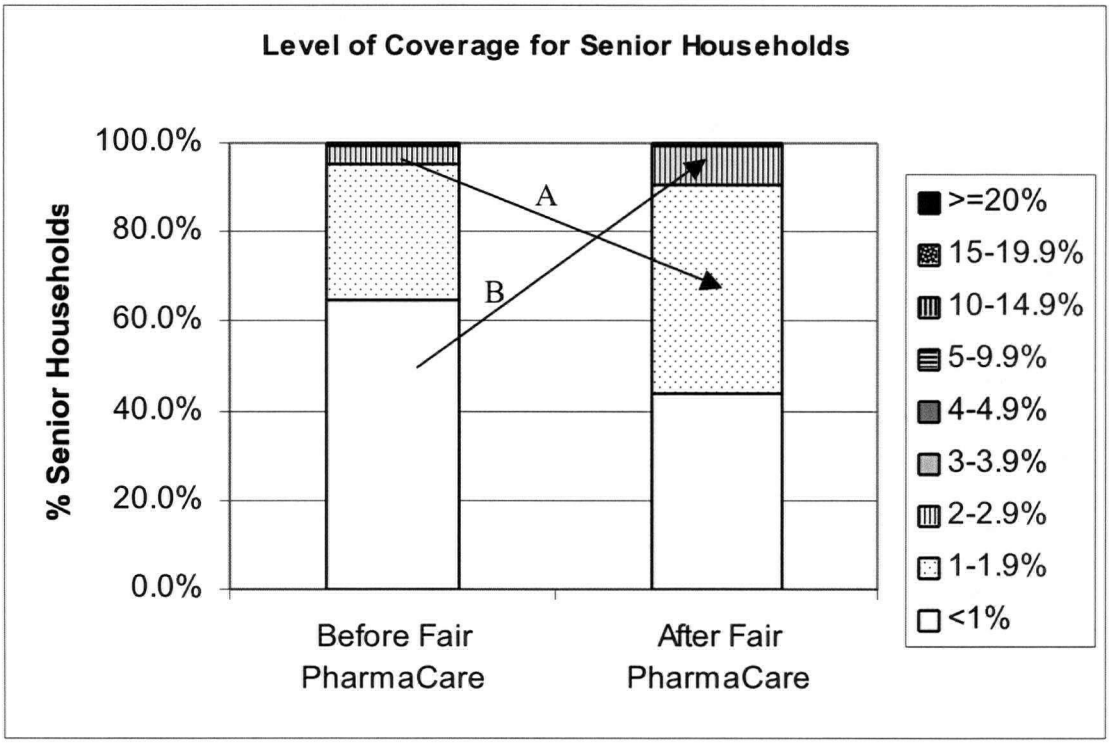

Figure 3.3 - Level of Coverage for Senior Households Before and After Fair PharmaCare

Scenario A in Figure 3.3 corresponds to a senior couple with an annual income of $20,000 and $3,000 in annual drug costs. Under the old program they would have paid 2% of their annual income toward their drug costs. However, under Fair PharmaCare this would be reduced to 1.25%. Scenario B corresponds to a single senior with an annual income of $60,000 and annual drug costs of $3,000. Under Fair PharmaCare this senior would be expected to pay 2.75% of his or her income towards drug costs - an increase from the previous 0.46%. Similar to non-seniors, these scenarios illustrate how the new policy better protects poor senior households from paying a relatively large portion of their income toward their prescription medications while demanding a higher contribution from wealthier senior households.

Policy makers informed us that prior to Fair PharmaCare low-income seniors were receiving larger subsidies than low-income non-seniors and they perceived this as inequitable. In Table 3.3 I revisit the low-income scenarios from Figures 3.2 & 3.3 and draw additional comparisons.

	Annual Income = $20,000 Annual Drug Costs = $3,000		Annual Income = $20,000 Annual Drug Costs = $3,000	
	0 Kids	2 Kids	0 Kids	
	Single Senior	Single Non-Senior	Senior Couple	Non-Senior Couple
Before Fair PharmaCare	1.00%	4.00%	2.00%	4.00%
After Fair PharmaCare	1.25%	3.00%	1.25%	3.00%
	Scenario A Figure 3.2		Scenario A Figure 3.3	

Table 3.3 - Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income Before and After Fair PharmaCare – Seniors vs. Non-Seniors

When Scenario A from Figure 3.2 is compared to a similar low-income senior scenario - recall the number of children is not a consideration under either program - it becomes clear that indeed, low-income seniors received and continue to receive a larger subsidy than low-income non-seniors. While the Fair PharmaCare policy continues to be more generous to seniors, the difference in private financial burden between seniors and non-seniors has been narrowed. When Scenario A from Figure 3.3 is compared to a similar non-senior scenario, the same trend is observed. Although under the Fair PharmaCare policy seniors pay a smaller proportion of their income out-of-pocket for prescription drugs than non-seniors, the difference is now less. However, one must be cautious in this interpretation of the data considering the temporary definition of senior created by the new Fair PharmaCare program. Only "current" seniors, those turning 65 years of age before the end of 2005, will be granted this extra-generosity. Beginning in 2006, an increasing proportion of once considered senior households will fall under the terms of the "non-senior" plan even though 65 years or older.

Concentration Curve Analysis

Policy makers told us that the goal of this policy was to better target subsidies at low-income families. They perceived income as a more legitimate indicator of need than age. This analysis was undertaken to assess how well subsidies were targeted toward low-income families before and after the introduction of Fair PharmaCare.

Distribution of Subsidy

The distribution of prescription drug subsidies allocated to households was evaluated in relation to household income. The annual subsidy allocated to a particular household was calculated as the household's annual prescription drug cost minus the annual out-of-pocket payment (see above). Subsidies were totaled for all households within each income group. The total subsidies for each income group were expressed as percentages of the total subsidy provided to all income groups. Subsidies were expressed in percentage terms because, as noted above, the simulations were based on national census figures, which are comparable to the demographic profile of BC, but not of the absolute numbers of households by age and income. The distribution of households across each age and income group was drawn from 2001 Census data – see Table F.1 in Appendix F.

Concentration Curves

The cumulative percentage of prescription drug subsidy that would be received by household income groups was presented by graphing the subsidy concentration curve (58-60). The concentration curve provides a way to assess the degree of income-related inequality in the subsidy distribution. Here it was used to assess whether inequalities in the allocation of subsidies were increased or decreased by the introduction of the Fair PharmaCare policy. The concentration curve plots the cumulative percentage of prescription

drug subsidy on the vertical y-axis against the cumulative percentage of households ranked by income on the horizontal x-axis. The curve shows the cumulative percentage of prescription drug subsidies accruing to the poorest p% of households.

If every household, irrespective of income and prescription drug costs received exactly the same subsidy, the concentration curve would be a forty-five degree line running from the bottom left-hand corner to the top right-hand corner, known as the line of equality (58). If a higher (lower) cumulative percentage of subsidy was received by poorer households, the concentration curve would lie above (below) the line of equality. Figure 3.4 illustrates two hypothetical concentration curves for the cases mentioned above.

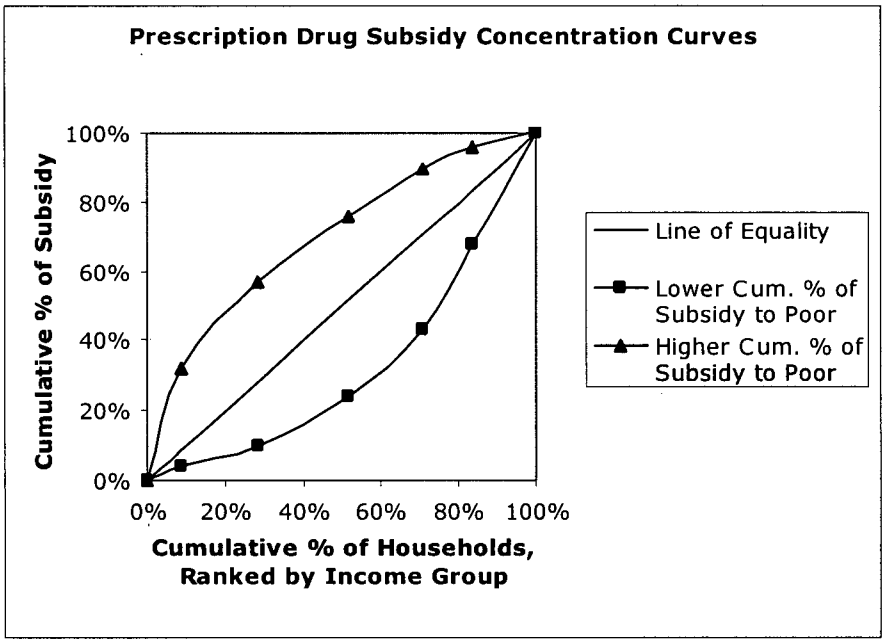

Figure 3.4: Two hypothetical concentration curves

I plotted two subsidy concentration curves on the same graph. The curves correspond to the two different levels of subsidy determined by the PharmaCare programs in place before and after Fair PharmaCare.

Concentration Index

The concentration index (CI) was calculated to measure whether the distribution of subsidy was progressive or not. A progressive distribution of a subsidy would mean that poor households received a disproportionate share of the total subsidy. The CI is defined as twice the area between the concentration curve and the line of equality. It is calculated using the following formula:

$$CI = (p_1L_2-p_2L_1) + (p_2L_3-p_3L_2) + \ldots + (p_{T-1}L_T-p_TL_{T-1})$$

where p is the cumulative percent of households ranked by income group, L(p) is the cumulative percent of subsidy, and T is the number of income groups (61).

In the case where there is no income-related inequality the CI is zero. When the curve lies above the line of equality, the CI takes on a negative value, indicating disproportionate concentration of prescription drug subsidies among poorer households and therefore progressivity. When the curve lies below the line of equality, the CI takes on a positive value, indicating disproportionate concentration of subsidies among wealthier households and regressivity.

Limitations of Concentration Curve Methods

Caution should be exercised when interpreting the following concentration curves since this method uses a linear approximation. Curves constructed using more data points (e.g. income deciles) would have been more accurate. However, one must bear in mind that

the accuracy of self-reported income data collected through census survey methods is already limited.

Results

Tables 3.4 and 3.5 present the relative and cumulative shares of subsidies that would be received by cumulative proportions of households ranked by income group if BC's PharmaCare programs - before and after the introduction of Fair PharmaCare - were applied to all (senior and non-senior) households. Prior to Fair PharmaCare, the 27% of all households in the $20,000 median-income group would have received 33% of the total subsidy. However, after Fair PharmaCare began, they would have received a 46% share of the total subsidy. Alternatively, the 14% of households in the $100,000 median-income group would have received 12% of the total subsidy prior to Fair PharmaCare, but after the policy's introduction the subsidy received by these same households would have decreased to 3%.

Income Group	Relative % of Subsidy	Cumulative % of Subsidy	Relative % of Households	Cumulative % of Households
$ 5,000	10%	10%	7%	7%
$ 20,000	33%	44%	27%	34%
$ 40,000	20%	64%	23%	57%
$ 60,000	14%	78%	17%	75%
$ 80,000	9%	88%	11%	86%
$ 100,000	12%	100%	14%	100%
Concentration Index	-0.1007			

Table 3.4: Cumulative Shares of Prescription Drug Subsidy by Income Group Before Fair PharmaCare - For All Households & All Annual Drug Cost Levels

Income Group	Relative % of Subsidy	Cumulative % of Subsidy	Relative % of Households	Cumulative % of Households
$ 5,000	13%	13%	7%	7%
$ 20,000	46%	59%	27%	34%
$ 40,000	23%	82%	23%	57%
$ 60,000	10%	92%	17%	75%
$ 80,000	4%	97%	11%	86%
$ 100,000	3%	100%	14%	100%
Concentration Index	-0.3213			

Table 3.5: Cumulative Shares of Prescription Drug Subsidy by Income Group After Fair PharmaCare - For All Households & All Annual Drug Cost Levels

Figure 3.5 is a graphical summary of the data provided in Tables 3.4 & 3.5. It shows the subsidy concentration curves if BC's PharmaCare programs were applied to all households. Both concentration curves lie above the line of equality indicating that subsidies would be concentrated amongst the poorer households. This suggests that even before the introduction of the Fair PharmaCare policy, the program was somewhat successful at allocating subsidies based on ability to pay, despite not being explicitly income-based. However, the Fair PharmaCare policy has made the program more progressive since at all points, the After Fair PharmaCare curve lies further from the line of equality than the Before Fair PharmaCare curve. Higher concentration of subsidies implies that there is less "equality" in subsidies with the Fair PharmaCare policy, but perhaps greater "equity" or fairness. This result is consistent with the goal shared by interview participants to improve the vertical equity of the program by allocating larger subsidies to those with lower incomes and smaller subsidies to those with higher incomes.

Higher subsidies amongst poorer households are also reflected in the negative concentration indices for both curves. The CI for the Before Fair PharmaCare curve is

-0.1007 and the CI for the After Fair PharmaCare curve is –0.3213. The smaller CI after the introduction of the Fair PharmaCare policy reflects the larger degree of income-related inequality for subsidies, which in this case is favourable.

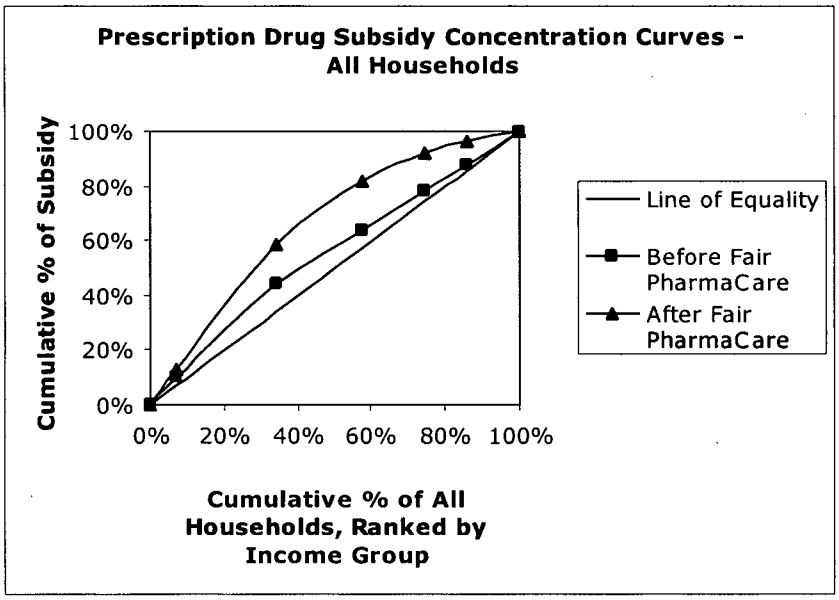

Figure 3.5 - Subsidy Concentration Curves for All Households

Tables 3.6 and 3.7 present the shares of subsidy that would be received by cumulative proportions of only the non-senior households ranked by income group. Prior to Fair PharmaCare, the 20% of non-senior households in the $20,000 median-income group would have received 20% of the total subsidy allocated to non-seniors. However, after Fair PharmaCare began, the subsidy share for this income group would have increased to 32%. In contrast, the 17% of non-senior households in the $100,000 median-income group would have received 17% of the total non-senior subsidy prior to Fair PharmaCare, but after the policy's introduction the share for these same households would have decreased to 4%.

Income Group	Relative % of Subsidy	Cumulative % of Subsidy	Relative % of Households	Cumulative % of Households
$ 5,000	16%	16%	9%	9%
$ 20,000	20%	36%	20%	28%
$ 40,000	18%	54%	23%	51%
$ 60,000	17%	71%	19%	71%
$ 80,000	12%	83%	13%	83%
$ 100,000	17%	100%	17%	100%
Concentration Index	-0.0681			

Table 3.6 - Cumulative Shares of Prescription Drug Subsidy by Income Group Before Fair PharmaCare - For Non-Senior Households & All Annual Drug Cost Levels

Income Group	Relative % of Subsidy	Cumulative % of Subsidy	Relative % of Households	Cumulative % of Households
$ 5,000	21%	21%	9%	9%
$ 20,000	32%	53%	20%	28%
$ 40,000	23%	76%	23%	51%
$ 60,000	14%	89%	19%	71%
$ 80,000	6%	96%	13%	83%
$ 100,000	4%	100%	17%	100%
Concentration Index	-0.3361			

Table 3.7 - Cumulative Shares of Prescription Drug Subsidy by Income Group After Fair PharmaCare - For Non-Senior Households & All Annual Drug Cost Levels

Under the old policy, non-senior households in the $40,000 median-income group received less than a proportionate subsidy, even though the program was not income-based. With the exception of this one income group, the data show that prior to the Fair PharmaCare policy, subsidies were almost proportionally allocated across non-senior households, with low-income households receiving a somewhat disproportionately higher subsidy.

Fair PharmaCare ensures the allocation of subsidy is unambiguous with a disproportionate concentration of prescription drug subsidies amongst the poor. The subsidy concentration curves in Figure 3.6 help illustrate this. Although subsidies were concentrated amongst low-income non-seniors prior to Fair PharmaCare, as also supported by the negative

concentration index, higher-income households received subsidies in proportion to their numbers making the progressiveness of the program rather uncertain. After Fair PharmaCare, this ambiguity is removed since the curve clearly dominates the first. Therefore, the Fair PharmaCare policy has made the program more vertically equitable amongst non-seniors – subsidies are more concentrated among low-income non-senior households.

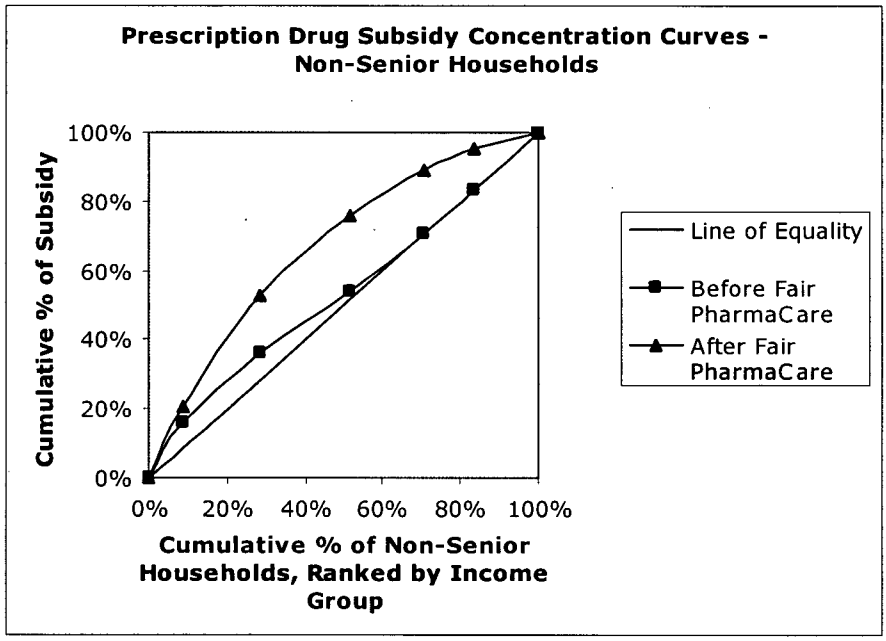

Figure 3.6 - Subsidy Concentration Curves for Non-Senior Households

The cumulative shares of subsidy that would be received by cumulative proportions of senior households ranked by income group are shown in Tables 3.8 and 3.9. Prior to Fair PharmaCare, senior households in the $20,000 median-income group would have received 55% of the total subsidy allocated to seniors. Yet, under Fair PharmaCare, they would receive a much larger share at 66%. This scenario would be quite common, as 58% of senior households fall within this income group. Interestingly, seniors in the $60,000 median-

income group would see the most dramatic reduction in their share of the total senior's subsidy, decreasing from 11% to 5%. This income group accounts for 10% of senior households.

Income Group	Relative % of Subsidy	Cumulative % of Subsidy	Relative % of Households	Cumulative % of Households
$ 5,000	1%	1%	1%	1%
$ 20,000	55%	56%	58%	59%
$ 40,000	24%	80%	23%	82%
$ 60,000	11%	90%	10%	91%
$ 80,000	5%	95%	4%	95%
$ 100,000	5%	100%	5%	100%
Concentration Index	0.0272			

Table 3.8 - Cumulative Shares of Prescription Drug Subsidy by Income Group Before Fair PharmaCare - For Senior Households & All Annual Drug Cost Levels

Income Group	Relative % of Subsidy	Cumulative % of Subsidy	Relative % of Households	Cumulative % of Households
$ 5,000	2%	2%	1%	1%
$ 20,000	66%	68%	58%	59%
$ 40,000	24%	92%	23%	82%
$ 60,000	5%	97%	10%	91%
$ 80,000	2%	99%	4%	95%
$ 100,000	1%	100%	5%	100%
Concentration Index	-0.1235			

Table 3.9 - Cumulative Shares of Prescription Drug Subsidy by Income Group After Fair PharmaCare - For Senior Households & All Annual Drug Cost Levels

Figure 3.7 shows that prior to Fair PharmaCare, the shares of senior subsidy received by senior households would have been more or less proportional to the relative percentage of households within that income group. For instance, the 5% of senior households in the $100,000 median-income group would have received 5% of the total subsidy. Note also the concentration index of essentially zero in Table 3.8. Conspicuously, households in the $40,000, $60,000 and $80,000 median-income groups would receive a slightly larger share of the subsidy relative to the percentage of households in those groups whereas households in

the $20,000 median-income group would receive a slightly smaller share of the senior subsidy. After the Fair PharmaCare policy, the curve shifts away from the line of equality demonstrating the transfer of subsidy from wealthier seniors to poorer seniors. This is confirmed by the negative concentration index.

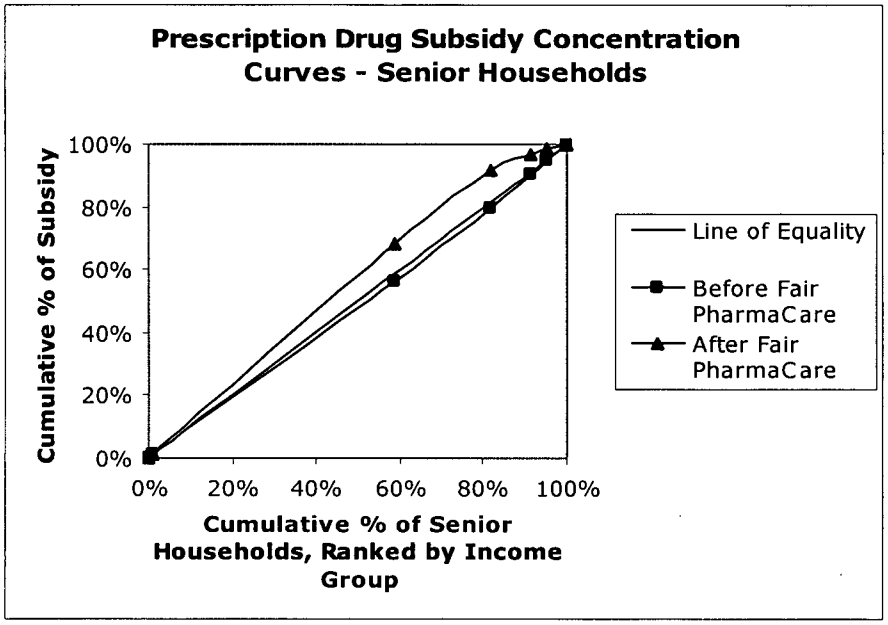

Figure 3.7 - Subsidy Concentration Curves for Senior Households

Discussion

The results confirm that indeed, the old PharmaCare model was more generous to seniors than non-seniors. According to the simulations, when the pre-Fair PharmaCare model was applied to all households, senior households had lower private financial burdens relative to non-seniors. Seniors received greater coverage for routine drug costs and greater protection against high drug costs than non-seniors. The greater coverage for routine costs may be attributed to the absence of deductibles (i.e. first dollar coverage) under the old seniors' plans. Greater protection against high drug costs was likely a result of significantly lower maximum annual contribution limits for seniors. These data confirm suspicions and

support information gathered during the interviews that the old PharmaCare model tended to provide higher subsidies to seniors.

The simulations demonstrate the new capability of Fair PharmaCare to control the level of private financial burden so that no non-senior household pays more than 4% and no senior household pays more than 3% of their annual income out-of-pocket. This was achieved through the new income-based maximum beneficiary contribution limits. However, the added protection achieved through maximum contribution limits should not overshadow the reduced coverage for routine drug costs.

Results of the concentration curve analysis suggest that the old PharmaCare model was moderately successful in allocating subsidies based on ability to pay. Under the old model, subsidies would have been concentrated amongst poorer households, both senior and non-senior. However, amongst non-senior households, while low-income households would have received a somewhat greater concentration of the subsidy, there was greater equality among high-income non-seniors. Among senior households, the subsidy concentration curve virtually laid along the line of equality. This meant that shares of senior subsidy received by senior households were proportional to the relative percentage of households within each median-income group.

The analysis establishes the new policy's success in achieving the goal expressed by interviewees, of improving vertical equity by allocating larger subsidies to those with lower incomes and smaller subsidies to those with higher incomes. The subsidy concentration curves for both non-seniors and seniors demonstrate the improved progressiveness of this new program.

Finally, Fair PharmaCare will ultimately achieve horizontal equity whereby all households with the same income will receive the same subsidy. This has been made possible by eliminating the "senior" distinction. Seniors born after 1939 will no longer have a legitimate claim to the larger subsidies afforded all seniors under the old model. Seniors will eventually receive the same subsidy as non-seniors, which protects against very high drug costs, but provides much lower coverage for modest drug costs than seniors have historically received.

Study Limitations

This study investigates the effects of two BC PharmaCare models on senior and non-senior households using national rather than provincial population data. Unfortunately, it was not possible to acquire provincial income data at the level of private household type in the detail required. However, as explained earlier, I do not expect that the provincial data would be considerably different from the national data.

Conclusions

In summary, these analyses provide evidence supporting the improved progressivity of the new Fair PharmaCare program. The new program allocates larger subsidies to poorer households and smaller subsidies to wealthier households, thereby improving the vertical equity amongst senior and non-senior households. Ultimately the goal of horizontal equity will be achieved, whereby households with similar incomes will receive similar subsidies. Yet it will be achieved at the expense of all "non-current" seniors who will incur a larger private financial burden than seniors in the past. However, the new program does do a better job of protecting everyone against extremely high levels of private financial burden and so may be considered a progressive policy by definition.

CHAPTER FOUR

Who's the Fairest of Them All? Which Provincial Pharmacare Model Would Best Protect Canadians Against Catastrophic Drug Costs?[2]

Introduction

During the interviews we learned that one of the criteria policy makers use to judge the fairness of a prescription drug subsidy plan is whether it protects against "catastrophic" drug costs. Participants explained that Fair PharmaCare was designed to improve upon the protection offered by the old program. While both the old universal and seniors' plans incorporated maximum out-of-pocket contribution limits, they were a fixed amount, rather than a percentage of income, and therefore provided less protection for lower income households. One might expect that a contribution of $2,000 would have a much larger impact on a family with an annual income of $40,000 than on a family with an annual income of $200,000. In this chapter I investigate the Fair PharmaCare model's ability to protect against catastrophic drug costs compared to the other provincial models.

Despite the popularity of the term, "catastrophic" coverage is not well defined. The Kirby Report recommended national catastrophic last-dollar coverage beyond out-of-pocket prescription expenditures of 3% of an individual's total family income (12). The Romanow Report considered drug costs to be catastrophic if they exceeded a flat threshold of $1,500 per person per year (13). Both reports acknowledged the inconsistencies in catastrophic coverage across Canada.

While a handful of studies have examined the variation in any form of prescription drug coverage across Canada (62-65), even fewer have specifically investigated the

[2] A version of this chapter has been published. Coombes, M.E., Morgan, S.G., Barer, M.L., Pagliccia, N. (2004) Who's the Fairest of Them All? Which Provincial Pharmacare Model Would Best Protect Canadians Against Catastrophic Drug Costs? Longwoods Review, 2(3): 13-26.

disparities in the extent to which Canadians would be protected against catastrophic prescription drug costs (48;66;67). Although none of these studies applied empirically determined distributions of drug expense levels, they have been influential in highlighting variations in coverage. The research reported here builds on these previous studies by illustrating the variation in protection against catastrophic drug costs offered by the ten provincial pharmacare models. My intention is slightly different from previous studies: I aim to illustrate the degree of protection that would be offered across Canada if different provincial pharmacare models were adopted as the national standard. This study is unique in that it applies empirically defined distributions of drug expenditures and uses Canadian Census data to estimate the proportions of senior and non-senior households affected by different pharmacare policies.

Methods

This policy simulation study was based on the cost-sharing rules from each of the ten provincial drug plans as of August 1, 2003 (detailed in Appendix A – Tables A.1.2 to A.10). Again, "private financial burden" was the measure of primary interest; it comprised any drug costs not covered by a public drug plan, including "out-of-pocket payments" and payments covered by private insurance. Premiums for public drug plans were also included as private costs; though not technically "out-of-pocket" at the point of purchase, premiums affect the affordability of a drug plan, particularly for low-income families. (Appendix I contains the results of sensitivity analyses where premiums were excluded from the calculation of annual out-of-pocket costs.)

Note that the same professional fee ($7.80) was used for every province unless the cost-sharing rules stipulated a maximum less than $7.80, in which case the lower of the two

was used. For example, under Ontario's plan for 'other' seniors, co-payments were calculated as $6.11 per prescription.

For all other methods, please refer to the section on Simulation Methods in Chapter Three.

Results

Tables 4.1 and 4.2 show the percentages of Canada's senior and non-senior households that would face given levels of private drug costs as a percentage of household income if each provincial pharmacare model was adopted as the national standard. Comprehensive, tax-financed seniors' drug plans such as the Ontario Drug Benefit plan offer the most protection against modest as well as higher drug costs. According to the simulations, if Canada were to adopt Ontario's pharmacare model as a national standard, most Canadian seniors would bear relatively modest drug costs as a share of household income: no senior household in Canada would pay more than 3% of its annual household income on prescription drug costs. In contrast, premium-based plans such as those in Nova Scotia or Quebec leave a large proportion of the senior population to bear relatively high private costs: this is true despite apparently "generous" deductible and co-payment structures.

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	44.1%	65.7%	22.9%	22.9%	81.1%	2.1%	6.5%	12.5%	38.6%	32.5%
1-1.9%	46.6%	18.8%	14.6%	14.6%	18.8%	13.0%	15.9%	23.5%	33.7%	17.6%
2-2.9%	8.8%	6.0%	25.1%	26.0%	0.1%	23.1%	16.5%	15.0%	16.1%	24.7%
3-3.9%	0.4%	1.7%	37.3%	36.5%	0.0%	26.0%	19.1%	7.8%	7.3%	6.0%
4-4.9%	0.0%	5.2%	0.0%	0.0%	0.0%	21.2%	25.9%	12.2%	3.0%	0.4%
5-9.9%	0.0%	2.5%	0.0%	0.0%	0.0%	14.7%	16.1%	28.9%	1.1%	13.7%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.8%
15-19.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	4.2%
>=20%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4.1 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province.

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	54.1%	43.3%	54.1%	54.1%	52.4%	17.5%	50.0%	50.0%	57.2%	54.1%
1-1.9%	19.1%	38.7%	17.2%	17.2%	26.1%	36.1%	21.4%	21.4%	20.7%	19.1%
2-2.9%	11.7%	10.6%	7.3%	13.1%	12.5%	24.5%	9.1%	9.1%	8.2%	8.3%
3-3.9%	11.6%	4.3%	21.4%	15.5%	9.1%	11.0%	6.3%	5.8%	4.3%	5.6%
4-4.9%	3.6%	0.9%	0.0%	0.0%	0.0%	6.7%	1.8%	2.1%	1.5%	1.6%
5-9.9%	0.0%	2.1%	0.0%	0.0%	0.0%	4.2%	8.4%	8.6%	6.5%	8.3%
10-14.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.7%	0.7%	0.6%	0.7%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.9%	1.9%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%

Table 4.2 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income by Province

Pharmacare models that subsidize only low-income seniors leave many senior households with little or no coverage. Combined with the often costlier drugs used by seniors, this can result in many households facing high costs as a percentage of income. Newfoundland, for example, provides coverage only for seniors with annual household incomes below a low threshold. If this model were adopted as the national standard, almost one-fifth of all senior households in Canada would pay more than 4% of their net taxable income on prescription drug costs, and just over 4% of senior households would pay 15% or more!

The considerable variation in out-of-pocket prescription drug expenditures borne by non-seniors under the different provincial pharmacare models can be seen in Table 4.2. Pharmacare programs that limit out-of-pocket expenditures to a given percentage of income protect all households against extraordinarily high financial burdens. Examples of such coverage are increasingly common in Canada. Manitoba, Saskatchewan, British Columbia, and Ontario (through the Trillium program) all offer some form of income-based limits on out-of-pocket household drug expenditures. It is noteworthy that Ontario's model appears most generous in this simulation. This results from the assumption of 100% participation in the Trillium program by the non-senior Canadian households examined in this study. Since there is an application process associated with the Trillium program, in reality, fewer than 100% of eligible households would likely take advantage of the subsidy offered.

In marked contrast, pharmacare models that provide little or no coverage for non-seniors result in significant proportions of the population bearing private drug costs above 4% of household income. Subsidy programs such as those in the Atlantic Provinces illustrate the impact of offering no coverage for non-seniors above low-income cut-offs. For example,

if Nova Scotia's pharmacare model were adopted as the national standard, over 13% of Canada's non-senior households would pay 4% or more of their annual net taxable household income on prescription drugs. In fact, under three of the four current Atlantic pharmacare models, 3% or more of Canada's non-senior households would pay considerably more out-of-pocket than under the other provincial pharmacare plans.

Between the extremes lie premium-based programs for non-senior populations. Examples of these are found in Alberta and Quebec. These models offer reasonable coverage for most of the population, but the combined cost of premiums and co-payments can become a significant share of household income. This is particularly true if plans do not employ limits on household contributions, as in Alberta.

Discussion

While this study focused on median drug cost levels, rather than a realistic distribution of drug costs drawn from empirical research, the results are broadly consistent with those of the earlier work cited above. Simulations consistently reveal that a national catastrophic drug benefit plan modelled after the current plans in the Atlantic Provinces would confer the least protection against out-of-pocket catastrophic drug costs for both senior and non-senior households. Perhaps more importantly, simulations also show that the considerable variation in protection conferred by the provincial pharmacare models may be attributed to three influential design components: eligibility rules, premiums, and maximum out-of-pocket contribution limits.

First, eligibility rules typically target benefits by age, low-income thresholds or both. When pharmacare programs are not comprehensive, many senior and non-senior households could be exposed to high drug cost burdens as a percentage of household expenditures.

Second, premiums have a considerable influence on the extent to which provincial pharmacare models provide protection against catastrophic drug costs. Plans that charge seniors premiums, such as those in Quebec, New Brunswick and Nova Scotia, and plans that charge non-seniors premiums, such as those in Quebec and Alberta, appear to provide greater protection against catastrophic drug costs when premiums are not included in calculating out-of-pocket payments. However, as demonstrated in Table 4.3, plans that charge premiums can end up providing considerably less protection against out-of-pocket expenditures exceeding any given threshold.

		BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
% of Senior Households paying >= 4.5%	Including Premium	0.0%	7.9%	0.0%	0.0%	0.0%	17.2%	20.1%	41.2%	3.7%	18.8%
	Excluding Premium	0.0%	7.9%	0.0%	0.0%	0.0%	7.0%	0.5%	0.5%	3.7%	18.8%
% Non-Senior Households paying >=4.5%	Including Premium	0.0%	2.5%	0.0%	0.0%	0.0%	4.9%	11.7%	12.1%	8.4%	11.6%
	Excluding Premium	0.0%	2.2%	0.0%	0.0%	0.0%	1.5%	11.7%	12.1%	8.4%	11.6%

Note: The "catastrophic" threshold of 4.5% is used solely for comparison to previous research. Further analysis and public input is necessary to determine the legitimate threshold (see Discussion and Conclusion).

Table 4.3 - Comparison Against Previously Published "Catastrophic" Thresholds: Percentage of Senior & Non-Senior Households with Out-of-Pocket Expenditures on Prescription Drugs as a Percentage of Annual Household Income Equal to 4.5% or More (Including and Excluding Premiums), by Provincial Pharmacare Model

A third key design feature that strongly influences protection against catastrophic drug costs is whether and at what levels the plan places a limit on a household's total out-of-pocket contribution. Without contribution limits, households can spend significant amounts of income on deductibles and, more importantly, co-payments or co-insurance. Twenty-five percent co-insurance on a household with drug costs of $12,000 will be a significant burden to virtually any family. Furthermore, absolute maximum contribution limits, such as those employed in Quebec, New Brunswick and Nova Scotia, are not sensitive to household income and, depending on the limit, may provide at best minimal protection for low-income households. Maximum contribution limits that are a function of income, such as those

employed in British Columbia, Saskatchewan and Manitoba, tend to provide better protection against catastrophic payments.

Study Limitations

As this was a simulation analysis of financial burdens, a number of assumptions had to be made, each taken in consideration of the need to balance desired realism, analytic parsimony, and data availability.

First, I did not attempt to specify the particular drugs included in the annual prescription drug costs. While differences between provincial formularies have been shown (68;69), incorporating these differences into the simulations was beyond the scope of this study.

Second, while the household data used in this study are more comprehensive than those used in previous work, 13% of private households were excluded from the simulations due to a lack of detailed income data published from the 2001 Census. Though I believe the included household types are generally representative of the Canadian population, the potential impact of excluding certain household types, such as multifamily households, is unknown.

Third, our model did not incorporate the prescription drug subsidy plans offered in the three territories or the federal plans for Veterans and Registered First Nations. Since the beneficiaries covered under these plans are less likely to be representative of the Canadian population, this decision seems justified.

Fourth, since the intention was to simulate the impact of adopting any provincial model as a national standard, I assumed that all households would participate in the pharmacare program. This may be unrealistic, particularly for premium-based programs.

Unless participation is compulsory, it is likely that relatively healthy households would opt out of premium-based subsidy programs. Furthermore, relatively poor households may be unable to afford the premiums required by some models of pharmacare.

Fifth, because of the paucity of population-based, patient-specific prescription drug cost data, I drew distributions of annual prescription drug costs from the only published study with such information (52). Owing to the limitations of the published data, I made further adjustments for age-specific costs based on my best estimates. While sensitivity analysis showed that changes of the order of 20% do not affect the general findings, future analysis of age-specific cost burdens is warranted.

Finally, in this era of health care reform, pharmacare programs are dynamic, making them a challenge to study. Provinces are continually adjusting the terms of their plans and, indeed, since my inter-provincial analysis many changes to other provincial plans have been implemented, causing the results already to be somewhat dated. In the last year alone, Manitoba has increased its deductibles for all income bands and has added two additional high-income bands, Quebec has increased premiums, deductibles, co-insurance and maximum monthly contribution limits for all groups except low-income seniors and social assistance recipients, and Nova Scotia has expanded the eligibility rules so that more low-income seniors are eligible for premium exemption, and increased all other seniors' premiums. Not surprisingly, the trend is a transfer of larger portions of prescription drug costs to middle and high-income earners, emphasizing the immediate need to put some national standards for coverage in place.

Conclusions

As policy makers begin to address intra-Canadian inequities in pharmacare coverage, the key issue becomes defining "reasonable" or "fair" drug coverage. As yet, there is no gold standard. This simulation portrays catastrophic drug expenses in terms of the proportion of income that households must allocate toward their drug costs; it thus reflects favourably on income-based drug plans. Portraying the fairness of drug coverage in terms of income is consistent with economic notions of financial equity in healthcare (60). It is also consistent with recent provincial trends toward income-based pharmacare and the recommendations of the Standing Senate Committee on Social Affairs, Science and Technology (2002), which suggested that no Canadian should be obliged to pay out-of-pocket prescription drug expenses that exceed 3% of family income (12). There are, however, important considerations to be taken into account when considering income-based coverage as a standard of pharmacare. Two of these are the disincentives for adherence to drug therapy created by deductibles of any kind (70-73), and the health-related financial inequities created for patients with persistent chronic disease (74). Some of these considerations might suggest that 3% of family income is too much for any household - regardless of income - to bear out-of-pocket for their prescription needs.

Future studies should aim to determine what "reasonable" drug coverage would be. A gold standard might be defined by both Canadian values about healthcare and healthcare financing, and by scientific evidence regarding the impact of user-charges - income-based or otherwise - on access to medically necessary prescription drugs. Establishing such a value- and evidence-based standard to be applied across all provincial pharmacare models would represent a major step forward for Canadian pharmacare policy. Given the considerable variation in provincial pharmacare models that exists today, federal and provincial

policymakers should act quickly and cooperatively to ensure that provincial eligibility rules, premiums, deductibles and co-payments do not allow Canadians to fall through the cracks of the pharmacare system while we debate what level of coverage appears reasonable.

CHAPTER FIVE

Conclusions & Suggestions for Future Research

This thesis explored the motivation and goals for the Fair PharmaCare policy as perceived by policy makers. Through micro-economic simulations, this policy was compared to the old pharmacare model in BC and the pharmacare programs in the other nine Canadian provinces to evaluate whether the goal of improved fairness was achieved.

Chapter Two presented the findings from interviews with policy makers, which were conducted to gain a better understanding of the values and objectives that guided the policy change. The findings were presented in terms of the three key elements of a policy.

Participants identified two main problems that the policy aimed to address. The first concerned the financial pressures facing PharmaCare. While executives and political-level participants rhetorically described the old program as unsustainable, managers and analysts described the need to reduce spending as a consequence of the newly elected government's imposed budget cuts and associated goals of balancing budgets and reducing provincial debt.

The second problem requiring redress was the program's unfairness. Participants described the allocation of subsidies as both inequitable and inefficient. According to participants, the program was horizontally inequitable because households with similar incomes were not receiving similar subsidies due to the age-related eligibility criterion. An anecdote that was clearly culturally ingrained within PharmaCare, was the "rich senior" example of Jim Pattison. Participants described notions of vertical equity in that the wealthy should be expected to pay more so that poorer households could receive a larger subsidy. They explained that age was no longer as legitimate a claim to subsidies as income. Participants also depicted the allocation of subsidies as inefficient. By concentrating scarce resources on seniors, the program was not able to maximize the population health impact of

prescription drug subsidies. They justified the new policy approach by providing examples of wealthy seniors who preferred to forego their subsidies and have them directed to less fortunate families. Apart from one political-level participant, all others perceived the unfairness problem as secondary to the need to address the financial pressures.

Participants described the policy's equity goals in terms of the plan's selection, implementation and design. First, while almost all participants noted the long history of considering income testing within PharmaCare, there were differences of opinion as to whether the process used to select the new policy was fair. Primarily executives and politicians described the selection process as consultative, whereas managers and analysts emphasized the early commitment to income testing soon after the announced budget cuts.

With regard to implementation of the policy, participants described fairness objectives in terms of maintaining equal access to PharmaCare services. They emphasized two main factors that could influence equality of access: registration and communication. First, participants noted how the unfamiliar registration process could create a potential barrier to accessing needed financial assistance. They strove to ensure that no one went unregistered. Second, participants recognized that the increased complexity of the new policy made it a challenge to communicate effectively. Participants described the goal to share clear, accurate and sufficient information with all parties.

Lastly, participants described how the goal of minimizing harm was central to the design of the new plan. Several safeguards, such as basing eligibility strictly on ability to pay, minimizing notch effects, placing income-based limits on out-of-pocket contributions and building in sensitivity to soon-to-be seniors, were incorporated to minimize harm and improve the fairness of the new plan.

When asked whether the policy instrument would be able to achieve its goal of improved fairness, participants were uncertain, yet hopeful that evaluations would confirm its improved ability to allocate prescription drug subsidies more fairly. They also recognized that further adjustments and refinements might be necessary.

Chapter Three laid out the results of my comparison between the PharmaCare models in place directly before and after Fair PharmaCare. As expected, the results of my simulations showed the old model ensured a lower private financial burden was borne by seniors than non-seniors. Seniors were better protected against both very high and lower, more "routine" drug costs. Protection against routine drug costs is likely a result of the first-dollar coverage that was provided under the previous seniors' plans. With the introduction of income-based deductibles, coverage of routine drug costs is reduced for "current" seniors. Protection against very high drug costs for this group is retained under the Fair PharmaCare plan. However, the group of "current" seniors is expected to dwindle over time, leaving the entire population with non-senior coverage. The new policy better protects non-seniors against very high drug costs, but coverage for routine drug costs is reduced.

A closer look at how the policy changed the financial burden of various households revealed that it better protected poor senior and non-senior households from paying a large portion of their income toward their prescription medicines and demanded higher contributions from wealthier senior and non-senior households.

Using a simulation approach, my analyses provided evidence to show that, by definition, the Fair PharmaCare program is more progressive than the old PharmaCare program for both senior and non-senior households in that it allocates larger subsidies to poorer households and smaller subsidies to wealthier households. Over time, horizontal

equity will also be achieved with this new policy as the number of "current" seniors dwindles. Without larger subsidies associated with the designation of "senior", people over 65 years of age will undeniably incur a larger private financial burden than in the past. While the new income-based maximum contribution limits better protect everyone against extremely high levels of private financial burden, coverage of modest drug costs is reduced.

Overall, the trends toward protection against catastrophic drug expenses and less comprehensive coverage for modest drug expenses will certainly decrease government spending but increase private payments. This enlarged financial barrier will impede the population's access to medically necessary prescription drugs, and in this sense may not seem fairer at all. One might ask why access to prescription medicines should be treated any differently than hospital or medical care.

It should be emphasized that my analysis did not incorporate the potential impact of broader government policies, such as tax cuts, on the 'net' fairness of this policy. If this analysis incorporated the larger provincial tax cuts given to those with higher incomes a year before the introduction of Fair PharmaCare (75), the results would likely be very different and possibly even show that this is a regressive policy.

In Chapter Four I compared the private financial burden imposed upon various household types by the Fair PharmaCare program to that imposed by the programs offered in each of the other nine Canadian provinces. The results illustrated the considerable variation in protection against catastrophic drug costs conferred by the provincial pharmacare models in Canada. They also revealed that a national catastrophic drug benefit plan modelled after the current plans in the Atlantic Provinces would confer the least protection against out-of-pocket catastrophic drug costs for both senior and non-senior households. Programs that

limit out-of-pocket expenditures to a given percentage of income, like Fair PharmaCare, are able to protect all households against extraordinarily high financial burdens.

Other Pharmacare Cost Management Strategies

Income-testing is only one of many strategies available to policy makers to control public spending on prescription drugs. Strategies target either the price of drugs or patient's consumption patterns (34;76;77). Controlling the price of drugs should be of particular concern to policy makers since this increases the cost of care without contributing to population health. Governments can directly influence the price of individual drugs by using their purchasing power to negotiate bulk prices with manufacturers. When governments shift costs onto patients, not only do governments lose their bargaining power with manufacturers to control drug prices, the risk of medication misuse (78) and worsening health outcomes increase (47). They can also influence price indirectly through policies such as reference pricing (RP), a reimbursement ceiling strategy. RP gives manufacturers an incentive to lower their prices to avoid losing market share to competitors with cheaper, fully reimbursed drugs. In fact, reference pricing for angiotensin-converting enzyme (ACE) inhibitors saved BC's PharmaCare program close to $6 million in its first year alone (79). Also, governments can regulate wholesaler and pharmacist's professional fees (52) and implement generic substitution policies (80).

Governments can influence patient's consumption by providing better education on disease prevention and clear, balanced information about the risks and benefits of drug and non-drug therapies. Other strategies include limiting the quantity and duration of prescriptions that may be dispensed (71), creating formulary listings of drugs eligible for reimbursement, and altering the cost-sharing rules governing levels of subsidy. For instance,

co-payments are intended to make patients aware of drug costs and discourage overuse. Moreover, a study by Morgan and colleagues (81) found that, from 1991-2001, over half of seniors' drug expenditure inflation was attributable to changes in the mix of therapies and the type of products selected. Since these changes may not significantly improve the quality of therapy received, they advocate greater evaluation of the effect of substitutions across therapeutic categories and increased management through policy interventions. Lastly, governments can control public spending on prescription drugs by promoting appropriate and cost-effective prescribing. This can be achieved by enforcing direct-to-consumer advertising laws (82), encouraging use of clinical practice guidelines, disseminating confidential prescribing statistics to physicians to increase awareness of volumes and costs, providing academic detailing, or fixing prescribing budgets.

With such a diverse selection of strategies available to policy makers, one wonders why income-testing was the only approach taken to control public spending at the time. It is conceivable that, just as some participants told us, it was the only policy instrument capable of generating the desired magnitude of savings. It is clear that this policy cannot addresses the multiple determinants of prescription drug cost inflation and thus, will only temporarily control the growth in government spending on pharmaceuticals. Additional long-term, evidence-based policy interventions are needed.

Future Research

As with any study, there is always more that could be done. While both provincial and federal governments have acknowledged the need to address the gaps and reduce the variation in coverage across Canada, they are far from reaching a consensus as to how to achieve this. At their most recent annual conference, the premiers made a last-minute

proposal to the federal government to immediately establish and assume full responsibility for all aspects of a national pharmacare program (83). The Minister of Health, Ujjal Dosanjh, responded to the premiers' proposal by saying that the federal government is willing to discuss a national catastrophic plan as recommended by the Romanow Commission, not a full pharmacare scheme. Before implementing even a national catastrophic drug plan, it is necessary to agree on an operational definition of "catastrophic" drug costs, preferably, based on Canadians' values. A natural extension of this study would aim to do this through nation-wide focus groups. At the same time, Canadians' ideals for coverage of modest drug costs could also be solicited, as this is sure to become a critical issue in the near future.

Another analysis could investigate the effects on income distribution of the Fair PharmaCare policy combined with other relevant policy changes made since the 2001 provincial election, such as provincial income tax cuts and MSP premium increases. By linking individual-level out-of-pocket prescription drug costs (including MSP premiums/exemptions) with individual after tax incomes, using methods similar to those developed by Mustard and colleagues (84), one could assess whether financing prescription drugs through public taxation or a combination of private insurance and public subsidies is more likely to reduce income inequality.

During our interviews, participants provided many ideas for evaluating this policy. One suggestion made repeatedly was to assess the impact of the program on low-income groups' utilization of medications. Their concerns stemmed from studies that have shown a decrease in essential prescription drug utilization (70;72;73;85;86) and a resultant increased risk of adverse events and emergency department visits (47) among poor and elderly persons

after the implementation of cost-sharing policies. This highlights the vulnerability of poor and elderly subpopulations, who have the poorest health status and thus greatest health needs (53;87). When additional payments must be made in order to gain access to medically necessary services, such as prescription drugs, utilization is more dependent on income than actual need. In contrast, studies have shown that for universally insured health care services, such as hospital and physician services covered under Canada's Medicare system, these populations consume higher levels, as expected (88;89). Barriers to accessing medications, such as a lack of money, can result in reduced adherence through stopping, reducing or skipping daily doses, or delaying prescription renewals, which in turn, decreases their safety and effectiveness. Interview participants were eager for evidence of this new policy's effect on prescription drug utilization and health outcomes. While the unavailability of sufficient post-policy administrative data ruled out a health outcomes evaluation of the policy change in this thesis, researchers at Harvard and the University of Victoria are planning such a study. As well, researchers at CHSPR will undertake a study using administrative data to assess the post-policy trends in prescription drug utilization by different age and income groups.

APPENDIX A

Provincial Prescription Drug Plans

Table A.1.1 - British Columbia – Pre Fair PharmaCare (as of April 30, 2003)

Beneficiary Subgroup	Premium	Deductible (one per family unit)	Co-payments	Max. annual beneficiary contribution
Plan A				
Senior Citizens	$0.00	None	Maximum of $25 toward total prescription cost of each prescription	$275/person
Plan A1				
Low-Income[1] Senior Citizens	$0.00	None	Maximum of $10 toward total prescription cost[3] of each prescription	$200/person
Plan B				
Residents of Long-Term Care	Full Coverage of Eligible Benefits			
Plan C				
Social Assistance Recipients	Full Coverage			
Plan D				
Patients Registered at Provincial Cystic Fibrosis Clinics	Full Coverage of Digestive Enzymes			
Plan E				
General Population	$0.00	$1000 in total prescription costs/family annually	30% of total prescription cost thereafter	$1000/family
Plan E1				
General Population Low-Income[2] Household	$0.00	$800 in total prescription costs/family annually	0% of total prescription cost thereafter	$800/family
Plan F				
At Home Program for Children <=18 years	Full Coverage of Eligible Benefits			
Plan G				
Mental Health Program	Full Coverage of Eligible Psychiatric Medications			
Plan P				
Palliative Care Program	Full Coverage of Medications on BC Palliative Care Drug Formulary			
HIV/AIDS Program	Full Coverage of Anti-retroviral Medications			
Home Oxygen Program	Full Coverage of Oxygen and Related Equipment			

[1] those on Plan A who receive Medical Services Plan Premium Assistance or BC Benefits

[2] those on Plan E in which at least one member receives Medical Services Plan Premium Assistance

[3] "total prescription cost" includes both drug ingredient cost and professional fee applied to the prescription of a single medication

Table A.1.2 - British Columbia – Post Fair PharmaCare (as of May 1, 2003)

Beneficiary Subgroup	Premium	Deductible (one per family unit)	Co-payments	Max. annual beneficiary contribution
Plan B				
Residents of Long-Term Care	Full Coverage of Eligible Benefits			
Plan C				
Social Assistance Recipients	Full Coverage			
Plan D				
Patients Registered at Provincial Cystic Fibrosis Clinics	Full Coverage of Digestive Enzymes			
Plan F				
At Home Program for Children <=18 years	Full Coverage of Eligible Benefits			
Plan G				
Mental Health Program	Full Coverage of Eligible Psychiatric Medications			
Plan I - Fair PharmaCare				
Current seniors[1] with net annual family income<$33,000	$0.00	None	25% of total prescription cost[4]	1.25% of net income[3]
Current seniors[1] with net annual family income $33,000-$50,000	$0.00	1% of combined family net income[3]	25% of total prescription cost[4] thereafter	2% of net income[3]
Current seniors[1] with net annual family income >$50,000	$0.00	2% of combined family net income[3]	25% of total prescription cost[4] thereafter	3% of net income[3]
Non-seniors[2] with net annual family income <$15,000	$0.00	None	30% of total prescription cost[4]	2% of net income[3]
Non-seniors[2] with net annual family income $15,000-$30,000	$0.00	2% of combined family net income[3]	30% of total prescription cost[4] thereafter	3% of net income[3]
Non-seniors[2] with net annual family income >$30,000	$0.00	3% of combined family net income[3]	30% of total prescription cost[4] thereafter	4% of net income[3]
Plan P				
Palliative Care Program	Full Coverage of Medications on BC Palliative Care Drug Formulary			
HIV/AIDS Program	Full Coverage of Anti-retroviral Medications			
Home Oxygen Program	Full Coverage of Oxygen and Related Equipment			

[1]Includes those born in 1939 or earlier

[2]Includes those turning 65 after 2005

[3]Defined as line 236 from Notice of Assessment or tax form

[4]"total prescription cost" includes both drug ingredient cost and professional fee applied to the prescription of a single medication

Table A.2 - Alberta (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments	Max. annual beneficiary contribution
All Senior Citizens	$0.00	$0.00	30% of total prescription cost up to max of $25/prescription[1]	None
Single non-seniors	$61.50/quarter	$0.00	30% of total prescription cost up to max of $25/prescription[1]	None
Low income single non-seniors (net income < $15 970/yr)	$43.05/quarter	$0.00	30% of total prescription cost up to max of $25/prescription[1]	None
Non-senior families	$123/quarter	$0.00	30% of total prescription cost up to max of $25/prescription[1]	None
Low income non-senior families (if no children net family income < $28 240/yr, if one or more children, net family income <$34 250/yr)	$86.10/quarter	$0.00	30% of total prescription cost up to max of $25/prescription[1]	None
Social Assistance Recipients (Alberta Human Resources and Employment programs)	$0.00	$0.00	$2.00/prescription for first three prescriptions each month[2]	$72/yr

[1]The maximum patient co-payment of $25/prescription does not apply if the patient chooses a brand name formulation of the drug when a generic equivalent exists.
[2]Dependents under 18 yrs of age receive full coverage.
Note: Total benefit coverage is limited to $25,000 per subscriber per year.

Table A.3 - Saskatchewan (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments[1]	Max. annual beneficiary contribution
Senior Citizens on Saskatchewan Income Plan	$0.00	$100/senior/semiannually	35% of all formulary drugs[3] thereafter	3.4% of adjusted household income[2] annually
Senior Citizens on GIS in community	$0.00	$200/senior/semiannually	35% of all formulary drugs[3] thereafter	3.4% of adjusted household income[2] annually
Senior Citizens with no GIS income and Non-Seniors	$0.00	3.4% of annual adjusted household income	35% of all formulary drugs[3] thereafter	3.4% of adjusted household income[2] annually
Non-seniors on Family Health Benefits	$0.00	$100/adult/semiannually	35% of all formulary drugs[3] thereafter	3.4% of adjusted household income[2] annually
Non-seniors on Saskatchewan Assistance Plan (Plan 1 only)	$0.00	$0.00	$2.00/prescription	None

[1] Copayments waived for paraplegic, cystic fibrosis, renal failure, palliative care patients and children under 18 years of families approved for Family Health Benefits as well as for people requiring certain high cost drugs as in AIDS or transplant therapy.
[2]Defined as gross annual household income (line 150 on Notice of Assessment form) less $3,500 for each dependent under 18 years of age.
[3]Total prescription drug cost.

Table A.4 - Manitoba (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments	Max. annual beneficiary contribution
All households with adjusted income $15,000/yr or less	$0.00	2.1% of adjusted household income[1]; minimum of $100	0%	2.1% of adjusted household income[1]
All households with adjusted income over $15,000/yr	$0.00	3.15% of adjusted household income[1]; minimum of $100	0%	3.15% of adjusted household income[1]
Social Assistance Recipients	$0.00	Full Coverage		

[1] Defined as gross income (line 150 on Notice of Assessment form) less $3,000 for the spouse and each dependent child less than 18 years of age.

Table A.5 - Ontario (as of August 1, 2003)

Ontario Drug Benefit Program				
Beneficiary Subgroup	**Premium**	**Deductible**	**Co-payments**	**Max. annual beneficiary contribution**
Single seniors with household income < $16,018/yr and senior couples with household income < $24,175/yr	$0.00	$0.00	$2.00/prescription (may be waived by pharmacy)	None
Other seniors	$0.00	$100/senior/yr	$6.11 toward professional fee/prescription thereafter[1]	None
Persons who live in long-term care facilities, Homes for Special Care, those receiving professional services under the Home Care Program and Social Assistance recipients (General Welfare or Family Benefits Assistance)	$0.00	$0.00	$2.00/prescription (may be waived by pharmacy)	None
General Population	See Trillium Drug Program			

[1]Seniors in families receiving Trillium Drug Program benefits who have exceeded the yearly deductible pay $2.00/prescription.

Ontario Trillium Drug Program: General population with high drug costs in relation to income				
Beneficiary Subgroup	**Premium**	**Deductible**	**Co-payments**	**Max. annual beneficiary contribution**
Household Annual Net Income[1] <= $100,000	$0.00	$150-$4089/yr (pd quarterly) See pamphlet[3]	$2.00/prescription thereafter	None
Household Annual Net Income > $100,000	$0.00	See formulae[2, 3]	$2.00/prescription thereafter	None

[1] Defined as line 236 from Notice of Assessment

[2] Household Annual Net Income > $100,000

1-person household: 0.045 x (Net Income-$20,000) + $500

2-person household: 0.045 x (Net Income-$20,000) + $400

3-person household: 0.045 x (Net Income-$20,000) + $350

4 -person household or more: 0.045 x (Net Income-$20,000) + $300

[3] Any unpaid deductible in a quarter is added to the next quarter's deductible

Table A.6 - Quebec (as of August 1, 2003)

Beneficiary Subgroup	Premium[3]	Deductible[3]	Co-payments[3]	Max. annual beneficiary contribution[5]
Full[1] GIS senior citizens	$0-$460/senior/yr[2]	$8.33/senior/month	25% of total prescription cost thereafter	$16.66/senior/month
Partial GIS senior citizens	$0-$460/senior/yr[2]	$9.60/senior/month	28% of total prescription cost thereafter	$46.17/senior/month
Non GIS senior citizens	$0-$460/senior/yr[2]	$9.60/senior/month	28% of total prescription cost thereafter	$69.92/senior/month
Social Assistance Recipients[6]	$0.00	$0.00	$0.00	None
General population with no group coverage[4, 7, 8]	$0-$460/adult/yr[2]	$9.60/adult/month	28% of total prescription cost thereafter	$69.92/adult/month

[1]Those receiving at least 94% of the maximum GIS.

[2]Premium is paid through income taxes. Persons whose net income is less than or equal to the following amounts pay no premium:
$11 680: (one adult)
$18 940: (two adults OR one adult and one child)
$21 610: (two adults and one child OR one adult and two or more children)
$24 075: (two adults and two or more children). Those with incomes exceeding the exemption amounts pay 4.77% on the first $5000 of income exceeding the exemption amount and 7.17% on the portion of income that exceeds that level.

[3]Per adult in family. Not applied to children under 18 years of age, full-time single students under 26 years of age, residents of long-term care facilities and some residents with certain functional deficiencies when they are covered by the provincial drug plan.

[4]Those who opt out of the provincial government insurance coverage must enroll in a plan with the following minimum conditions: no more than 25% coinsurance rate on total prescription cost, no more than $750/year in adult out-of-pocket cost –including drug expenses made on behalf of children under 18 and dependent full-time students under 26 years of age.

[5]Refers to total of deductible and co-payment.

[6]Recipients with severe functional deficiencies and unable to work due to poor health or those with severe employment constraints (and their spouses) receive full coverage.

[7] Persons aged 60-64 years with severe employment constraints who receive a spouse's or a widow's allowance from Old Age Security and hold a carnet de reclamation (claim slip) receive full coverage.

[8]children 0 to 17 years of age and students 18 to 25 years of age who do not have a spouse, who attend an educational institution on a full-time basis and over whom a person would exercise parental authority if they were minors receive full coverage.

Table A.7 - New Brunswick (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments	Max. annual beneficiary contribution
GIS senior citizens (Plan A)	$0.00	$0.00	$9.05/prescription	$250/person in total co-payment costs annually
Low-income senior citizens[1]	$0.00	$0.00	$15.00/prescription	$250/person in total co-payment costs annually
Other senior citizens[2]	$58/senior/month	$0.00	$15.00/prescription	None
Social Assistance recipients (Family & Community Social Services FCSS – Plan F)	$0.00	$0.00	$4/prescription[3] for adults >18yrs; $2/prescription[3] <18 yrs	$250/family in total co-payment costs annually
General population	No Coverage			

[1]Defined as those who do not collect any GIS benefits but have adjusted annual household income $17,198 or less if single or have adjusted household income $26,955 or less if married to another senior or have adjusted household income of $32,390 or less if married to a non-senior.
[2]Defined as those who neither receive GIS nor have sufficiently low income. Blue Cross of Atlantic Canada provides drug coverage to these seniors, irrespective of their health status, provided that they apply for coverage within 60 days after their 65th birth date.
[3]Exempted from these fees for oral contraceptives.

Table A.8 - Nova Scotia (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments	Max. annual beneficiary contribution
GIS senior citizens	$0.00	$0.00	33%, min of $3/prescription, max of $30/prescription	$350/person in total co-payment costs annually
Non-GIS senior citizens	Income-contingent premium/senior[1]	$0.00	33%, min of $3/prescription, max of $30/prescription	$350/person in total co-payment costs annually
Employment Support & Income Assistance recipients	$0.00	$0.00	$5/prescription	None
General population	No Coverage			

[1]For single non–GIS seniors: premium=0 if annual income <$17,000, premium=4.8%*senior's total annual income in excess of $17,000 up to $24,000, premium=$336 if annual income >$24,000; For married non-GIS seniors: premium=0 if combined income is <$20,000, premium=4.2%* total annual combined income in excess of $20,000 up to $28,000, premium=$336 if combined income is >$28,000.

Table A.9 - Prince Edward Island (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments	Max. annual beneficiary contribution
All senior citizens (Seniors Drug Cost Assistance Plan)	$0.00	$0.00	First $10 of the medication cost[2] plus professional fee[3]/prescription	None
Social Assistance recipients (Financial Assistance Program)	Full Coverage if prescription filled at Provincial Pharmacy			
Low-income[1] (Family Health Benefit Program)	$0.00	$0.00	Professional fee[3]/prescription	None
General population	No Coverage			

[1]The Family Health Benefit Program is targeted at families not receiving social assistance benefits with at least one child less than 18 years of age and annual net family income of less than $22,000 plus $2,000 for each additional child under 18. Household income is defined as line 236 of the Revenue Canada Notice of Assessment form. Families must apply.

[2]Medication cost includes ingredient cost and high cost drug markup (7.5% of ingredient cost, for prescriptions with an ingredient Maximum Allowable Cost (MAC) of $45 or more)

[3]Professional fee varies by pharmacy and ranges from $3.99-$8.00.

Table A.10 - Newfoundland (as of August 1, 2003)

Beneficiary Subgroup	Premium	Deductible	Co-payments	Max. annual beneficiary contribution
GIS senior citizens	$0.00	$0.00	Professional fee (max. $6.50/prescription) plus 10% of ingredient cost if ingredient cost is greater than $30	None
Non-GIS senior citizens	No Coverage			
Social Assistance recipients	Full Coverage			
General population	No Coverage			

APPENDIX B

APPENDIX C

Interview Synopsis

The Ministry of Health has asked CHSPR to conduct an evaluation of the new Fair PharmaCare program. We feel that by understanding your perspective, we can make our evaluation more relevant.

Please tell us about how you first came to be involved in the development of Fair Pharmacare?

Motives for Policy Change: This section involves the challenges that motivated the PharmaCare policy change. From your perspective, what were the key issues or concerns that motivated the policy change?

Objectives for Policy Change: When implementing the policy change, the government would have had a number of specific objectives Fair PharmaCare would strive to meet. From your perspective, can you please describe these objectives?

Evaluating the policy: CHSPR will be conducting an analysis of the recent changes to the BC PharmaCare program. This research requires criteria be defined upon which to evaluate the program. What aspects of the program do you feel should be considered when evaluating the program's performance?

Implementation: What would you say was the main challenge facing the implementers of the Fair PharmaCare program?

APPENDIX D

If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598.

Consent:

Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without jeopardy to your employment or to your relationship with CHSPR.

Your signature below indicates that you give permission to be interviewed and understand that you may refuse to answer any question, withdraw any of your answers or stop the interview at any time. Also, by signing below you understand that the information you provide may be published, but your name will not be associated with the research.

Your signature below indicates that you have received a copy of this consent form for your own records.

Your signature indicates that you consent to voluntarily participate in this study.

_____

Subject Signature Date

_____

Signature of a Witness Date

APPENDIX E

Interview Guide

The recent revisions to BC's PharmaCare program represent a fairly significant policy change in pharmacare history. We are interested in documenting these policy changes, by capturing the various perspectives of the many people involved in redesigning and implementing the new program. We are interested in the evolution of these important changes. Also, as you may know, CHSPR has been asked to conduct an evaluation of the new program. We feel that by understanding your perspective, we can make our evaluation more relevant to you.

Do you have any questions before we begin?

I. Background:
Let's start at the beginning. Please tell me about how you first came to be involved in the Fair PharmaCare project.

Please tell me about your position prior to becoming involved in the PharmaCare project.

What were your roles and responsibilities on the project team?

What was your level of involvement in formulating the changes to PharmaCare?

II. Motives for Policy Change:
I would like to begin with some questions dealing with the challenges that motivated the PharmaCare policy change.

From your perspective, what were the key issues or concerns that motivated the policy change?

III. Policy Selection:
Were there any influential national or international documents / reports / studies / experiences that you referred to when deciding between various policy options?

What would you say was the main challenge in selecting the appropriate policy option?

IV. Objectives for New Policy:
When implementing the policy change, the government would have had a number of specific objectives for Fair PharmaCare to strive to meet. Can you please describe these objectives?

What would you consider to be the *main* objective?

V. Evaluating Fair PharmaCare:

As I mentioned CHSPR will be analyzing the recent changes to the BC PharmaCare program. This research requires criteria be defined upon which to evaluate the program.

What aspects of the program do you feel should be considered when evaluating the program's performance? (e.g. enrollment)

What do you consider important ways to measure the impact of the Fair PharmaCare program?

What level of performance do you feel should be reached for the program to be considered successful?

What would you say was the main challenge facing the implementers of the Fair PharmaCare program?

Managing the provinces increasing drug costs is an extremely complex issue and unfortunately there is no one panacea/cure-all that can address all of these problems. Do you feel there might have been a better way to achieve the same objective? What outstanding issues do you anticipate requiring other new policy initiatives? What do you feel remains to be addressed?

VI. Fairness and Equity:

We're going to switch gears a little bit here. In order for others to learn from the BC experience, it is important that we understand concepts such as fairness and equity. Presumably these are overarching objectives for all public drug benefit programs in Canada.

From your professional perspective, what constitutes fairness or equity in a public drug benefit program?

What would you say a public drug benefit program aims to allocate "equitably" within the population?

The notion of adequacy often comes up in debates about public programs; how would you define adequacy in terms of a public drug benefit?

Other Contacts: Are there people you would recommend we talk to for further information and possibly interview regarding the Fair PharmaCare program?

We really appreciate the time you've spent with us today. Since our time was limited, would you mind if we called you if necessary to confirm any details?

APPENDIX F

Census Data – Canadian Private Household Types by Income

		Single Senior Household		Senior Couple Family Household Without Children		Single Non-Senior Household		Non-Senior Couple Family Household Without Children		Non-Senior Couple Family Household With Children under 18		Non-Senior Lone-parent Family Household With Children under 18		All Households So Classified	
Income Range	Median Income (approx)	number of private households	% of all private households	number of private households	% of all private households	number of private households	% of all private households	number of private households	% of all private households	number of private households	% of all private households	number of private households	% of all private households	number of private households	% of all private households
Under $10,000	$5,000	10,770	0.1%	9,985	0.1%	413,125	3.6%	94,895	0.8%	86,390	0.7%	102,500	0.9%	717,665	6.2%
$10,000 to $29,999	$20,000	810,365	7.0%	335,370	2.9%	625,110	5.4%	306,450	2.7%	275,115	2.4%	375,880	3.3%	2,728,290	23.6%
$30,000 to $49,999	$40,000	147,110	1.3%	309,955	2.7%	514,220	4.4%	476,270	4.1%	612,135	5.3%	285,310	2.5%	2,345,000	20.3%
$50,000 to $69,999	$60,000	43,370	0.4%	149,605	1.3%	242,445	2.1%	460,915	4.0%	693,325	6.0%	153,005	1.3%	1,742,665	15.1%
$70,000 to $89,999	$80,000	14,360	0.1%	67,660	0.6%	78,575	0.7%	332,150	2.9%	546,140	4.7%	66,075	0.6%	1,104,960	9.6%
Over $90,000	$100,000	14,065	0.1%	77,210	0.7%	63,430	0.5%	438,755	3.8%	800,645	6.9%	52,425	0.5%	1,446,530	12.5%
All Incomes		1,040,040	9.0%	949,785	8.2%	1,936,905	16.8%	2,109,435	18.2%	3,013,750	26.1%	1,035,195	9.0%	10,085,110	87.2%

Table F.1 - 2001 Census of Population Data for Private Household Types Used in Simulations

APPENDIX G

Annual Prescription Drug Cost Sensitivity Analysis

Senior Households

Annual Drug Cost Levels plus 20%

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	62.7%	42.6%	62.7%	21.5%	21.5%	78.6%	2.1%	6.5%	9.8%	36.7%	26.3%
1-1.9%	29.9%	45.0%	21.1%	13.0%	13.0%	17.0%	12.2%	12.3%	23.6%	31.7%	19.7%
2-2.9%	6.6%	10.5%	5.3%	3.4%	4.2%	4.4%	21.8%	18.4%	15.1%	17.9%	4.3%
3-3.9%	0.3%	1.9%	2.9%	62.2%	61.3%	0.0%	27.8%	19.3%	10.2%	2.0%	26.1%
4-4.9%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	17.6%	24.8%	12.3%	7.9%	4.5%
5-9.9%	0.3%	0.0%	7.5%	0.0%	0.0%	0.0%	18.5%	18.7%	28.8%	3.2%	12.8%
10-14.9%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.2%	2.0%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	4.3%
>=20%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Table G.1 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

Annual Drug Cost Levels less 20%

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	65.2%	46.5%	69.2%	26.1%	26.1%	82.8%	2.9%	9.9%	13.6%	62.1%	35.0%
1-1.9%	30.1%	45.0%	19.9%	11.8%	11.8%	13.0%	14.8%	15.3%	25.1%	22.5%	15.4%
2-2.9%	4.2%	8.4%	3.0%	28.4%	29.3%	4.2%	24.4%	14.4%	13.3%	6.4%	27.6%
3-3.9%	0.0%	0.1%	5.2%	33.7%	32.9%	0.0%	39.3%	20.5%	6.9%	2.4%	3.2%
4-4.9%	0.3%	0.0%	2.2%	0.0%	0.0%	0.0%	7.2%	24.0%	12.2%	0.8%	10.5%
5-9.9%	0.2%	0.0%	0.3%	0.0%	0.0%	0.0%	11.4%	16.0%	28.9%	5.5%	4.1%
10-14.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	4.3%
15-19.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Table G.2 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

Non-Senior Households

Annual Drug Cost Levels plus 20%

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	41.3%	51.0%	39.4%	50.6%	49.5%	49.2%	17.4%	46.9%	46.9%	54.1%	51.0%
1-1.9%	16.4%	18.7%	37.6%	17.1%	17.8%	25.1%	34.7%	21.0%	20.9%	19.7%	18.7%
2-2.9%	18.2%	9.9%	14.0%	6.4%	12.3%	13.8%	23.8%	5.3%	4.6%	5.7%	4.5%
3-3.9%	8.5%	15.7%	3.9%	25.9%	20.4%	11.8%	12.5%	10.5%	11.2%	8.5%	10.4%
4-4.9%	9.9%	4.7%	2.5%	0.0%	0.0%	0.0%	6.7%	4.1%	3.6%	3.1%	3.4%
5-9.9%	5.7%	0.0%	2.4%	0.0%	0.0%	0.0%	5.0%	8.5%	9.1%	6.5%	8.3%
10-14.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	1.5%	1.5%	1.3%	1.5%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	1.4%	0.8%	1.4%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.8%	0.1%	0.8%

Table G.3 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

Annual Drug Cost Levels less 20%

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	45.7%	60.6%	45.4%	59.1%	59.0%	59.6%	19.4%	58.3%	56.6%	64.4%	60.6%
1-1.9%	18.4%	13.5%	39.3%	15.1%	14.9%	19.6%	37.4%	14.9%	15.8%	14.7%	13.5%
2-2.9%	16.9%	14.0%	9.1%	8.6%	14.2%	14.0%	22.8%	11.9%	12.5%	10.1%	11.7%
3-3.9%	5.2%	10.2%	3.9%	17.2%	11.9%	6.8%	12.9%	3.1%	3.0%	2.8%	2.8%
4-4.9%	11.0%	1.7%	0.7%	0.0%	0.0%	0.0%	4.0%	4.9%	5.1%	3.5%	4.8%
5-9.9%	2.7%	0.0%	1.7%	0.0%	0.0%	0.0%	3.6%	4.7%	4.7%	3.6%	4.2%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.9%	1.9%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.0%	0.3%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%

Table G.4 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

APPENDIX H

Prescription Cost Sensitivity Analysis

Senior Households

All Scripts = $37.80 for All Annual Drug Cost Levels

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	65.2%	44.1%	65.7%	22.9%	22.9%	78.0%	2.1%	6.5%	12.5%	37.8%	32.5%
1-1.9%	30.1%	46.6%	18.8%	14.6%	14.6%	17.0%	13.0%	15.8%	23.5%	31.4%	17.6%
2-2.9%	4.1%	8.8%	6.0%	25.1%	26.0%	4.9%	23.1%	15.7%	15.0%	15.2%	24.7%
3-3.9%	0.1%	0.4%	1.7%	37.3%	36.5%	0.1%	26.0%	17.8%	7.8%	4.7%	6.0%
4-4.9%	0.2%	0.0%	5.2%	0.0%	0.0%	0.0%	21.2%	28.0%	12.2%	2.9%	0.4%
5-9.9%	0.3%	0.0%	2.5%	0.0%	0.0%	0.0%	14.7%	16.1%	28.9%	7.6%	13.7%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.3%	0.8%
15-19.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%
>=20%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Table H.1 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

All Scripts = $67.80 for All Annual Drug Cost Levels

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	81.2%	44.1%	65.7%	22.9%	22.9%	92.7%	2.1%	11.3%	12.5%	68.9%	31.2%
1-1.9%	15.1%	46.6%	18.8%	14.6%	14.6%	7.2%	13.0%	12.7%	23.5%	19.6%	18.9%
2-2.9%	3.4%	8.8%	6.0%	25.1%	26.0%	0.1%	23.1%	16.9%	15.0%	3.5%	24.7%
3-3.9%	0.0%	0.4%	1.7%	37.3%	36.5%	0.0%	26.0%	19.8%	7.8%	4.6%	5.9%
4-4.9%	0.1%	0.0%	5.2%	0.0%	0.0%	0.0%	21.2%	32.1%	12.2%	2.0%	0.5%
5-9.9%	0.1%	0.0%	2.5%	0.0%	0.0%	0.0%	14.7%	7.2%	28.9%	1.2%	13.7%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.8%
15-19.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	4.2%
>=20%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table H.2 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

All Scripts = $67.80 for Annual Drug Cost Levels < =$2500

All Scripts = $37.80 for Annual Drug Cost Levels >$2500

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	81.2%	44.1%	65.7%	22.9%	22.9%	89.6%	2.1%	11.3%	12.5%	68.1%	31.2%
1-1.9%	15.1%	46.6%	18.8%	14.6%	14.6%	5.4%	13.0%	12.7%	23.5%	17.2%	18.9%
2-2.9%	3.4%	8.8%	6.0%	25.1%	26.0%	4.9%	23.1%	16.1%	15.0%	2.6%	24.7%
3-3.9%	0.0%	0.4%	1.7%	37.3%	36.5%	0.1%	26.0%	18.5%	7.8%	2.1%	5.9%
4-4.9%	0.1%	0.0%	5.2%	0.0%	0.0%	0.0%	21.2%	34.1%	12.2%	1.9%	0.5%
5-9.9%	0.1%	0.0%	2.5%	0.0%	0.0%	0.0%	14.7%	7.2%	28.9%	7.6%	13.7%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.8%
15-19.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%
>=20%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Table H.3 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

Non-Senior Households

All Scripts = $37.80 for All Annual Drug Cost Levels

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	41.5%	54.1%	43.3%	54.1%	54.1%	52.4%	17.5%	50.0%	50.0%	57.2%	54.1%
1-1.9%	18.5%	19.1%	38.7%	17.2%	17.2%	25.6%	36.1%	21.4%	21.4%	20.1%	19.1%
2-2.9%	19.0%	11.7%	10.6%	7.3%	13.1%	12.3%	24.5%	9.1%	9.1%	7.6%	8.3%
3-3.9%	5.7%	11.6%	4.3%	21.4%	15.5%	9.7%	11.0%	5.8%	5.8%	5.3%	5.6%
4-4.9%	10.9%	3.6%	0.9%	0.0%	0.0%	0.1%	6.7%	1.6%	1.6%	1.8%	1.6%
5-9.9%	4.5%	0.0%	2.1%	0.0%	0.0%	0.0%	4.2%	9.1%	9.0%	6.6%	8.3%
10-14.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.7%	0.8%	0.6%	0.7%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.9%	1.9%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%

Table H.4 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

All Scripts = $67.80 for All Annual Drug Cost Levels

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	41.9%	54.1%	44.2%	54.1%	54.1%	53.3%	17.5%	52.4%	52.2%	59.0%	54.1%
1-1.9%	19.4%	19.1%	37.7%	17.2%	17.2%	25.2%	36.1%	20.0%	20.0%	19.0%	19.1%
2-2.9%	17.9%	11.7%	10.6%	7.3%	13.1%	12.5%	24.5%	8.4%	8.5%	8.0%	8.3%
3-3.9%	5.7%	11.6%	4.3%	21.4%	15.5%	9.1%	11.0%	6.2%	5.7%	4.3%	5.6%
4-4.9%	10.6%	3.6%	0.9%	0.0%	0.0%	0.0%	6.7%	1.8%	2.1%	1.5%	1.6%
5-9.9%	4.4%	0.0%	2.1%	0.0%	0.0%	0.0%	4.2%	8.4%	8.6%	6.5%	8.3%
10-14.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.7%	0.7%	0.6%	0.7%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.9%	1.9%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%

Table H.5 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

All Scripts = $67.80 for Annual Drug Cost Levels < =$2500

All Scripts = $37.80 for Annual Drug Cost Levels >$2500

	OLD BC	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	41.9%	54.1%	44.2%	54.1%	54.1%	53.3%	17.5%	52.4%	52.2%	59.0%	54.1%
1-1.9%	19.4%	19.1%	37.7%	17.2%	17.2%	24.7%	36.1%	20.0%	20.0%	18.4%	19.1%
2-2.9%	17.9%	11.7%	10.6%	7.3%	13.1%	12.2%	24.5%	8.4%	8.5%	7.4%	8.3%
3-3.9%	5.7%	11.6%	4.3%	21.4%	15.5%	9.7%	11.0%	5.6%	5.7%	5.3%	5.6%
4-4.9%	10.6%	3.6%	0.9%	0.0%	0.0%	0.1%	6.7%	1.6%	1.6%	1.8%	1.6%
5-9.9%	4.4%	0.0%	2.1%	0.0%	0.0%	0.0%	4.2%	9.1%	9.0%	6.6%	8.3%
10-14.9%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.7%	0.8%	0.6%	0.7%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.9%	1.9%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%

Table H.6 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

APPENDIX I

Sensitivity Analysis Not Including Premiums

Senior Households

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	44.1%	65.7%	22.9%	22.9%	81.1%	31.4%	65.4%	67.8%	38.6%	32.5%
1-1.9%	46.6%	18.8%	14.6%	14.6%	18.8%	39.0%	24.9%	24.8%	33.7%	17.6%
2-2.9%	8.8%	6.0%	25.1%	26.0%	0.1%	9.8%	4.9%	2.7%	16.1%	24.7%
3-3.9%	0.4%	1.7%	37.3%	36.5%	0.0%	5.3%	4.2%	4.2%	7.3%	6.0%
4-4.9%	0.0%	5.2%	0.0%	0.0%	0.0%	7.4%	0.2%	0.0%	3.0%	0.4%
5-9.9%	0.0%	2.5%	0.0%	0.0%	0.0%	7.0%	0.3%	0.4%	1.1%	13.7%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.8%
15-19.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	4.2%
>=20%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table I.1 - Percentage of Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

Non-Senior Households

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
<1%	54.1%	82.8%	54.1%	54.1%	52.4%	66.0%	50.0%	50.0%	57.2%	54.1%
1-1.9%	19.1%	10.9%	17.2%	17.2%	26.1%	19.7%	21.4%	21.4%	20.7%	19.1%
2-2.9%	11.7%	3.4%	7.3%	13.1%	12.5%	8.3%	9.1%	9.1%	8.2%	8.3%
3-3.9%	11.6%	0.7%	21.4%	15.5%	9.1%	1.3%	6.3%	5.8%	4.3%	5.6%
4-4.9%	3.6%	1.4%	0.0%	0.0%	0.0%	3.2%	1.8%	2.1%	1.5%	1.6%
5-9.9%	0.0%	0.8%	0.0%	0.0%	0.0%	1.5%	8.4%	8.6%	6.5%	8.3%
10-14.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.7%	0.6%	0.7%
15-19.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	0.9%	1.9%
>=20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	0.4%

Table I.2 - Percentage of Non-Senior Households by Out-of-Pocket Expenditure on Prescription Drugs as a Percentage of Annual Household Income, by Province

GLOSSARY

Allocative Efficiency	Getting the maximum output *which members of society value most highly* for any given input.
Catastrophic Drug Costs	A general term used to describe drug costs that can dramatically change a household's living standards.
Concentration Index	Calculated as twice the area between the concentration curve and the line of equality, it quantifies the degree of income-inequality in a specific health variable.
Co-payment/Co-insurance	Once the deductible has been reached, this is the portion of the cost of each prescription that must be paid by the individual thereafter. May be either a flat amount per prescription (co-payment) or a fixed percentage per prescription (co-insurance).
Deductible	The amount of eligible prescription drug expense that must be paid by an individual before the plan provider reimburses any expenses. This may be either a fixed dollar amount or a fixed percentage of family income. The length of time allowed to accumulate the deductible may vary.
First-Dollar Coverage	Coverage of all or part of drug costs beginning with the first prescription of the year.
Horizontal Equity	People with the same income receive the same subsidy.
Income-Test	An eligibility test based on income in order to be entitled a subsidy.
Ingredient Cost	The amount paid for ingredients in the prescription dispensed.
Last-Dollar Coverage	Coverage of all drug costs beyond an annual threshold (e.g. deductible).

Maximum Out-of-Pocket Contribution Limit	The maximum drug expense due to deductibles and co-payments or co-insurance that may be imposed on a beneficiary in a given period (usually a year). May be either a fixed upper limit or a fixed percentage of income. Once this maximum has been met, the plan provider pays 100% of the remaining expenses. The lower this limit, the greater the protection against catastrophic drug expenses.
Pareto Efficiency	A situation in which nobody can be made better off without making somebody else worse off.
Pharmacist's Professional Fee	The fee charged per prescription by pharmacists for prescriptions dispensed.
Premium	An amount paid for entitlement to reimbursement of eligible expenses, irrespective of the actual expenses incurred. Payments are made either annually (usually through income taxes), semi-annually, quarterly or monthly to the plan provider.
Progressive Policy	A policy that requires payments as a proportion of income to rise with income. (See Vertical Equity)
Provincial Formulary	A list of drugs eligible for cost reimbursement under the provincial drug plan.
Subsidy	A financial contribution by a government that confers benefit.
Technical Efficiency	Getting the maximum output for any given input.
Vertical Equity	People with lower income receive a larger subsidy.

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