

Prescription drug benefits and Canada's uninsured

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Abstract

The Canada Health Act provides a framework for the Canadian health system and a mechanism for federal healthcare funds to flow to the provinces. Presently, the Canada Health Act covers medically necessary hospital, physician and surgical-dental as well as limited long-term care services, but not prescription medication. Though not mandated, each province has chosen to also develop a prescription drug benefit plan. These plans differ with respect to the groups that are covered and the type of coverage provided. In this paper, we describe the key structural elements of the various provincial plans. In addition, using a population-based national health and mental healthcare survey of 33,000 Canadians, we explore the characteristics of the population currently not covered by prescription drug benefits. Finally, we look at a sub-population of Canadians with mental illness with regard to their insurance coverage and use of prescription drugs. Our findings suggest that drug coverage within provinces is working for individuals with chronic physical conditions only. The findings herein reaffirm the need for a national strategy, support the notion that prescription drug coverage is important, and raise questions about the role of employers in providing these benefits.

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Canada's healthcare system provides universal coverage and access to medical services — an often discussed sharp contrast to its North American neighbor. Two decades after the passage of the Canada Health Act in 1984, Canada is critically evaluating its healthcare system (also referred to as Medicare).

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Currently, the public system covers services that have been defined as medically necessary including hospital, physician and surgical-dental as well as limited long-term care services (CFHCC, 2002a). Outpatient prescription drug coverage is conspicuously missing from this list.

Recently, the federal government appointed the Commission on the Future of Health Care in Canada (CFHCC) to examine the state of the system and recommend a course for its future. When the CFHCC released its final report, it underscored the need to make prescription drugs accessible (CFHCC, 2002b).

Of all healthcare expenditures, those for prescription drugs are rising at the fastest rate; between 1984 and 2001, the Canadian Institute for Health Information (CIHI, 2001) estimates total expenditures on drugs increased an average of 12%. Over the same time period, expenditures for hospital services grew 5% and physician services increased 6% (CFHCC, 2002a). While drugs represented approximately 15% of total 2001 health expenditures, they comprised 34% of total private payer health expenditures in the same year (CIHI, 2001).

It is clear prescription drugs are becoming an increasing burden supported by private sources and are playing a larger role in healthcare. But, do these trends justify the funding of prescription drugs through the public healthcare system? The CFHCC (2002c) identified three primary questions to consider with regard to publicly funding prescription drugs. They were: (1) Should there be a national pharmacare program versus one designed to cover only the currently uninsured? (2) Should a national program be introduced as part of Medicare? and (3) Should a national program be funded through taxes or a mandatory premium-based insurance plan? To answer these questions, it is crucial to understand the population who is currently uninsured and how they might be affected by their lack of prescription drug coverage.

In this paper, we describe the key structural differences in the types of prescription drug benefits among the provinces. Next, using a population-based national health and mental healthcare survey of 33,000 Canadians, we explore the characteristics of the population currently not covered by prescription drug benefits. We then consider how lack of insurance might affect individuals with mental disorders, a sub-population of Canadians who likely would be affected by the introduction of universal prescription drug coverage. Finally, we suggest how our results contribute to the debate about offering universal pharmaceutical coverage under the Canada Health Act.

1. Background

1.1. Public prescription drug benefit plans

The Canada Health Act (1984) provides a framework for the Canadian healthcare system and a mechanism for federal healthcare funds to flow to the provinces; the actual design and implementation of the system occurs at the provincial level. Thus, the manner in which the Canada Health Act has been implemented varies by province. Though not mandated, it is significant that each province has chosen to also develop a prescription drug benefit plan. Not surprisingly, the plans also differ with respect to the groups that are covered and the type of coverage provided.

Table 1 provides an overview of the public plans by province. All provinces offer coverage to seniors and financially disadvantaged populations (i.e., individuals and families receiving social assistance). Half extend coverage to other populations conditional on the presence of a specific disorder or condition (e.g., multiple sclerosis, HIV, cystic fibrosis). The remainder offer coverage to their general populations. However, it should also be noted that two of five of these provinces have premiums associated with their

Table 1
Description of provincially funded prescription drug benefits

Province	Provincial residents	Special populations		
		Financially disadvantage	Selected disease groups/conditions	Seniors
Alberta	Yes			
British Columbia	Yes			
Manitoba	Yes			
New Brunswick	No	•Social assistance	•Cystic fibrosis •Organ transplant recipients •HIV •Multiple sclerosis •Nursing home residents •Special needs children	Yes
Newfoundland and Labrador	No	•Income support program •High drug costs relative to income	•Cystic fibrosis or growth hormone	Yes
Nova Scotia	No	•Social assistance	•Low income cancer patients •Multiple sclerosis	Yes
Ontario	No	•Social assistance •High drug costs relative to income	•Long-term care residents •Cystic fibrosis •Thalassemia •HIV/AIDS •Clozapine users	Yes
Quebec	Yes			
Prince Edward Island	No	•Social assistance •Low income families with children <18 years	•Diabetes •Multiple sclerosis •Sexually transmitted diseases •Nursing home residents •Children in custody of Province	Yes
Saskatchewan	Yes			

Source: Canadian Institute for Health Information. (2004). http://secure.cihi.ca/cihiweb/products/DrugExpRep2004_e.pdf. Accessed December 7, 2004.

plans and three of the five have income-tested deductibles. The premium may act as a barrier to enrolling in the drug benefit. In addition, in plans with a deductible, the insurance coverage does not begin until the deductible is met. In essence, individuals are uninsured until they spend the equivalent of the deductible. Though these provinces offer insurance coverage to their general populations, their plan designs could leave a proportion of their population virtually uninsured. Thus, although the existence of provincial plans suggests a large proportion of the population has prescription drug benefits, this may not be the case.

Premium	Deductible	Co-pay	Out-of-pocket limit
•For residents <65 years up to \$61.50/ quarter for singles and up to \$123/quarter for families	None	•Up to 30% of prescription	•By prescription
None	Income tested	•Seniors 25% •Gen population 30%	•Income tested
None •Up to \$50 annually for selected disease groups	Income tested None	None •Up to \$20	Not Applicable •Up to \$250/ individual •Up to \$500/ family
None	None	None	None
•Up to \$390 for seniors	None	•Up to \$30	None
None	•\$100 for seniors •Income-tested for individuals qualifying due to high drug costs	Up to \$6.11	None
•Up to \$460	•Up to \$9.60/mo	•Up to 28% of drug costs	•\$16.66–\$69.92 per month
None	None	•Income tested co-pay for MS prescriptions •\$8–\$16 for insulin •First \$10 for seniors	•Not Applicable
None	•Income tested	•Up to 35%	None

1.2. Demand for prescription drug benefits

Individuals may purchase private supplemental health insurance for services that are not covered by public plans. For instance, in Ontario, that includes services not provided by a registered physician (e.g., mental health counseling provided by a psychologist, dental visits and eye glasses) as well as prescription drugs. Often, these benefits are offered through employers. In 2001, public insurance

accounted for 46.3% of all prescription drug expenditures; individuals paid for 19.8% out-of-pocket; and private insurers covered 34.0% of expenditures (CIHI, 2004). About a third of prescription drug expenditures are covered by private insurance. In addition, it has been observed that about 58% of Canadians have private conventional prescription drug plans (as opposed to catastrophic plans) (Kapur & Basu, 2005).

The demand for health insurance is a well-studied topic dating back to classic articles by Arrow (1963) and Rothschild and Stiglitz (1976). A number of factors consistently have been found to be associated with health insurance coverage. For example, there is a strong link between employment and insurance (Millar, 1999) as a result of the economic incentives associated with employment-based health insurance (Feldstein, 1973; Feldstein & Friedman, 1977; Pauly, 1986). Other factors affecting a person's preferences for health insurance include age, gender, marital status, education, and income (Bundorf, 2002; Harmon & Nolan, 2001; Kapur & Basu, 2005; Moran, Chernew, & Herth, 2001).

In theory, individuals with poor health status are more likely to need healthcare and incur higher healthcare costs and consequently seek insurance coverage — a phenomenon economists refer to as adverse selection. Bundorf (2002) observed individual health status plays a role in insurance coverage. Harmon and Nolan (2001) found evidence of adverse selection to the extent that individuals who were more likely to choose private insurance were also more likely to use the insurance. The appeal of insurance to cover these costs is not lost on insurers who have implemented a variety of mechanisms to combat adverse selection such as using incentives to attract healthier enrollees (Nicholson, Bundorf, Stein & Polsky, 2004). In addition, Ketsche and Custer (2000) reported that those classified as high-risk of using services because their own or a family member's self-assessed health status was fair or poor were less likely to have coverage than those considered low-risk.

1.3. The impact of being uninsured

It has been shown that the demand for prescription drugs is sensitive to out-of-pocket price with the impact of consumer out-of-pocket costs greater for individuals who are more financially disadvantaged (e.g., Hillman et al., 1999; Leibowitz, Manning, & Newhouse, 1985; Manning et al., 1987). Studies suggest as the price to consumers increases, their use of drugs decreases (Leibowitz et al., 1985; Lundberg, Johannesson, Isacson & Borgquist, 1998; Tamblyn et al., 2001). At the same time, Lundberg et al. (1998) found that price sensitivity decreased with increasing age, income, education, and self-perceived health status.

1.4. The impact of mental illness

Mental and behavioural disorders account for approximately 12% of all diseases and injuries worldwide (WHO, 2001). For countries such as Canada, the percentage of all diseases and injuries attributable to mental disorders is closer to 25%, with as much as 13% attributable to depression alone (Murray & Lopez, 1997). In addition, the major categories of mental disorders from which Canadians suffer include anxiety (i.e., generalized anxiety disorder, panic disorder) and affective disorder (i.e., major depressive episode) (Offord, Boyle, Campbell, et al., 1996). By the year 2020, it is expected that depression will emerge as one of leading causes of disability globally second only to ischaemic heart disease (WHO, 1996).

Over the past two decades, there has been growing evidence of the efficacy of treatments for most mental illnesses (Bebchuk, 1999). Two main forms of intervention have emerged: psychosocial treatments and pharmacological treatments. In the late 1990's, the Canadian Network for Mood and Anxiety Treatment (CANMAT, 1999) began to disseminate its pharmacological guidelines for the treatment of depression and anxiety. These guidelines reflect a theme that has emerged from contemporary treatment research that the two treatment modalities of psychotherapy and medication can often attain their greatest efficacy when used together (Sperry, 1995).

1.5. The association between out-of-pocket costs and mental health treatment

While there is growing evidence that efficacious treatments for mental illnesses are available, there is also evidence that individuals with chronic mental health disorders are very sensitive to out-of-pocket costs. A number of studies have reported that the demand for mental health services is responsive to out-of-pocket spending (e.g., Frank & McGuire, 1986; Keeler, Manning, & Wells, 1988; Simon, Grothaus, Durham, VonKorff, & 1996).

A number of studies have reported that the use of psychotropic prescription drugs is also characterized by high price sensitivity (e.g., Johnson, Goodman, Hornbrook, & Eldredge, 1997; Piette, Heisler, & Wagner, 2004; Soumerai, McLaughlin, Rose-Degnan, Casteries, & Bollini, 1994; Tamblyn et al., 2001). However, the focus of much of this work has been on the elderly and financially disadvantaged populations. There is less information about the price sensitivity of the general population suffering from affective and anxiety disorders. However, there is evidence that price sensitivity is associated with how the prescribed medications for these disorders are viewed — are they considered essential or discretionary? If these medications are considered essential, individuals will be less sensitive to price (Harris, Stergachis, & Reid, 1990). Results of recent US studies of employed populations indicate that individuals using antidepressants appear to be less price sensitive (Goldman et al., 2004; Motheral, Henderson, & Cox, 2004), suggesting that prescription drug users may view these psychotropic agents as essential medications. In contemplating a national prescription drug benefit plan and how it should be structured, it will be important to understand among Canadians, what factors are associated with coverage and how various groups are affected by insurance.

2. Methods

2.1. Data source

The study population was drawn from the *Canadian Community Health Survey (CCHS) 1.2*, a national population-based survey designed to gather cross-sectional data on health status, determinants of health, and health care utilization of a representative sample of Canadians living in households (Bailie, 2002). In 2002, each survey participant was given a structured diagnostic interview developed for the World Health Organization's World Mental Health Initiative 2000 (World Mental Health, 2003).

Sampling for the CCHS was based on the standard area probability frame that Statistics Canada employs for its Labour Force Survey and the majority of its population surveys (Statistics Canada, 2003). The frame includes the entire country with the exception of the northern territories, individuals

living on Indian Reserves or in institutions, and full-time Canadian Armed Forces personnel. Provinces, and regions within provinces, are stratified and household clusters with strata identified. Sample selection is based on the random selection of one individual from randomly selected households within these household clusters. For the CCHS 1.2, regions were stratified into urban and rural areas. Eligible respondents were 15 years and older (Statistics Canada, 2002).

2.2. Study sample

To answer the question regarding who is uninsured, the sample we used was composed of CCHS respondents over the age of 18 years.

To understand how insurance affects a population with mental disorders, the sample was stratified to include those with a diagnosis of an affective or anxiety disorder who had seen a physician for a mental health concern in the past 12 months. Given the fact that everyone in this sub-sample saw a physician for a mental health reason, we can be more confident that the variation in the insurance variable represents having insurance rather than seeking treatment.

2.3. Dependent variables

Two outcome variables were examined. For the analysis using the full sample, the dummy variable (*Insured*) identifies whether an individual had insurance coverage for prescription drugs. It was coded in the affirmative if the respondent indicated as such to, “Do you have insurance that covers all or part of the costs of your prescription medications?”

For the analysis based on the sub-sample, the dummy variable (*Drugs*) indicates whether a respondent used psychotropic prescription drugs. It was coded as “1” if the respondent had a prescription for any atypical antipsychotic (e.g., clozapine, olanzapine, risperidone, sertindole or quetiapine), typical antipsychotic (e.g., haloperidol), antidepressant (e.g., amitriptyline, fluoxetine, sertraline, paroxetine, or fluvoxamine), anxiolytic (e.g., diazepam) or mood stabilizer (e.g., lithium) in the past two days and “0” otherwise.

2.4. Independent variables

Five categories of independent variables that have been observed in previous studies (e.g., Bundorf, 2002; Harmon & Nolan, 2001; Kapur & Basu, 2005; Moran et al., 2001;) to be associated with insurance coverage and prescription drug use were used: (1) sociodemographic, (2) employment, (3) mental and chronic physical disorders and severity, (4) prescription drug use, and (5) provincial fixed effects.

2.4.1. Socio-demographic indicators

Five dummy variables were created to indicate whether respondents were: male, married, White, over 65 years old or high school graduates, respectively.

Five household income category variables were created to capture each of the household income quintiles: <Can\$25,000; \$25,000–\$41,999; \$42,000–\$59,999; \$60,000–\$89,999; and ≥;\$90,000.

2.4.2. Employment

A dummy variable for employment was created. Individuals were considered employed if they went to work in the past week or had a job or business from which they were absent. It has been observed that

among Canadians, there is a significant association between employment and prescription drug benefit coverage (Millar, 1999).

2.4.3. Mental disorders

The CCHS 1.2 measured six mental disorders falling into the broader categories of mood and anxiety disorders. Structured interview modules were drawn from the most recent Composite International Diagnostic Interview (CIDI). This version of the CIDI is based on DSM-IV criteria (APA, 2000) and was chosen specifically because it is the instrument used in the World Mental Health 2000 initiative, an effort by the World Health Organization to assess the prevalence and burden of mental illness internationally (World Mental Health, 2003). The disorders included in the CCHS are depression, mania, agoraphobia, generalized anxiety disorder, panic, and agoraphobia. Two broad categories of psychiatric disorders were assessed: *anxiety disorders* (generalized anxiety disorder, panic, social phobia and agoraphobia) and *affective disorders* (depression and mania).

The CCHS 1.2 provides information about the presence of disorders for several timeframes including lifetime and one-year. Indicators for both timeframes were used in the analyses.

2.4.4. Chronic physical conditions

An indicator for a *chronic physical condition* was created and scored as “1” if the respondents replied affirmatively to having at least one chronic condition that lasted more than six months and was diagnosed by a health professional and “0” otherwise. These conditions included asthma, fibromyalgia, arthritis, high blood pressure, chronic bronchitis, emphysema/chronic obstructive pulmonary disease, epilepsy, heart disease, diabetes, cancer, stomach or intestinal ulcers, stroke, bowel disorder (e.g., Crohn’s Disease or colitis), chronic fatigue syndrome or migraines. It has been observed that the prescription drug use of individuals with depression can be affected by the presence of chronic physical conditions and vice versa (Piette et al., 2004; Goldman et al., 2004).

2.4.5. Self-reported health

Self-reported health was used as an indicator of overall health status. Respondents were asked to rate their overall health as “excellent”, “very good”, “good”, “fair”, or “poor”. Such single item global measures of health status have been shown to be good predictors of health outcomes (i.e., mortality) (Knauper & Turner, 2003). From this item, dummy variables were created for three levels of self-rated health status. These included (1) “excellent” or “very good”, (2) “good”, and (3) “fair” or “poor.”

2.4.6. Psychological distress

A continuous variable “distress” ranging from 0 to 40 was created from respondents’ scores on the Kessler Psychological Distress (K10) scale (Kessler et al., 2003). This scale consists of ten items related to levels of anxiety or depressive symptoms that an individual may have experienced in the most recent 4-week period.

2.4.7. Province fixed effects

Because there are province-specific factors associated with insurance coverage, province-specific fixed effects were included in the models. Under ideal conditions, these non-random factors would be controlled for by the inclusion of variables that are correlated with outcomes and vary between

provinces. However, given the limitations inherent in the data, it was not possible to explicitly measure all province factors and their contribution to the outcomes. As a result, province fixed effects were included to adjust for unobserved province-related heterogeneity.

2.5. Analyses

Following the example of [Marquis and Long \(1995\)](#), the regression analysis plan was selected to help describe factors associated with: (1) insurance status and (2) use of psychotropic prescription drugs. Differences in demographic, employment, mental and chronic physical disorders and severity, and pharmacologic treatment characteristics were examined. The following regressions were estimated

$$\text{Probability of Having Insurance} = \alpha' \mathbf{x}_{\text{Insurance}} + \delta \text{ and}$$

$$\text{Probability of Using a Psychotropic Drug} = \beta' \mathbf{x}_{\text{Use}} + \varepsilon.$$

The $\mathbf{x}_{\text{Insurance}}$ matrix contains the four categories of variables: (1) demographic, (2) employment, (3) physical and chronic physical condition, and (4) provincial fixed effects and the coefficient vector is α . The \mathbf{x}_{Use} matrix contains the five categories of variables: (1) demographic, (2) employment, (3) physical and chronic physical condition and severity, (4) indicators for use of prescription drugs, and (5) provincial fixed effects and the coefficient vector is β . A logistic regression was used to produce estimates of α and β .

The confidence limits for our estimates were determined using the bootstrap resampling program that is employed by [Statistics Canada \(2005\)](#). This method involves the repeated selection with replacement of simple random samples from each stratum and the recalculation and post-stratification of weights (to demographic information) for each stratum. The bootstrap variance estimator is the standard deviation of the point estimates calculated for each of 500 samples using the bootstrap weights.

3. Results

Overall, 76.9% (95% CI=76.2%, 77.6%) of respondents reported having insurance coverage. [Table 2](#) contains the descriptive characteristics of the individuals who were insured and uninsured. Among the insured, there were significantly higher proportions of those who are married (68% versus 56.9%), have a high school diploma (74.4% versus 66.1%), are White (86.2% versus 77.0%), and have a chronic physical illness (57.5% versus 53.5%). Among the uninsured, there was a higher proportion of individuals in the lowest income groups. There were also a lower proportion of employed individuals (59.9% versus 68.0%).

Not surprisingly, there were differences by province related to the proportion of individuals who reported having insurance coverage ([Table 3](#)). The proportion of respondents reporting they did not have prescription drug insurance varied by province. Relatively larger proportions of respondents in Quebec (85.8%, 95% CI=84.3%, 87.4%), Ontario (75.1%, 95% CI=74.0%, 76.2%), and Alberta (79.7%, 95% CI=77.8%, 81.6%) reported having prescription drug benefits than those in the rest of the country.

3.1. Factors associated with insurance coverage

The results of the logistic regression ([Table 4](#)) indicate the odds of having insurance coverage significantly increase with being a senior citizen (OR=1.69, 95% CI=1.48, 1.93), being employed

Table 2
Characteristics of study population

	Total		Insured		Not Insured	
	% (weighted)	95% CI	% (weighted)	95% CI	% (weighted)	95% CI
<i>Socio-demographic characteristics</i>						
% Female	51%	(50.9, 51.1)	51.2%	(50.8, 51.7)	50.3%	(48.9, 51.8)
% >65 years	15.8%	(15.7, 15.8)	15.8%	(15.5, 16.1)	15.8%	(14.8, 16.8)
% Married/cohabiting	65.3%	(64.7, 65.9)	68.0%	(67.3, 68.7)	56.9%	(55.4, 58.3)
% High school diploma	72.4%	(71.7, 73.1)	74.4%	(73.6, 75.1)	66.1%	(64.6, 67.5)
% White	84.1%	(83.4, 84.8)	86.2%	(85.4, 87.0)	77.0%	(75.4, 78.5)
Annual household income						
<\$25,000	17.7%	(17.1, 18.2)	14.6%	(14.1, 15.2)	28.6%	(27.0, 30.2)
\$25,000–\$41,999	21.9%	(21.2, 22.7)	19.6%	(18.8, 20.4)	30.4%	(28.8, 32.1)
\$42,000–\$59,999	15.1%	(14.5, 15.7)	15.4%	(14.7, 16.2)	13.9%	(12.6, 15.2)
\$60,000–\$89,999	23.6%	(22.8, 24.3)	25.9%	(25.0, 26.8)	15.3%	(13.9, 16.7)
\$90,000+	21.7%	(20.8, 22.6)	24.5%	(23.5, 25.5)	11.8%	(10.5, 13.1)
<i>Employment</i>						
% Employed	66.1%	(65.4, 66.7)	68.0%	(67.2, 68.7)	59.9%	(58.3, 61.5)
<i>Mental and physical conditions</i>						
% with a chronic physical condition	56.1%	(55.8, 57.3)	57.5%	(56.6, 58.4)	53.5%	(51.9, 55.0)
% with lifetime history of anxiety or affective disorder	20.4%	(19.8, 21.0)	20.6%	(20.0, 21.3)	19.4%	(18.1, 20.8)
% with anxiety or affective disorder in past 12-months	8.5%	(8.1, 8.9)	8.4%	(8.0, 8.9)	8.4%	(7.5, 9.2)
Self-perceived health status						
Excellent/very good	60.5%	(59.8, 61.2)	61.2%	(60.4, 62.0)	58.2%	(56.7, 59.7)
Good	28.0%	(27.3, 28.8)	27.6%	(26.8, 28.4)	29.6%	(28.0, 31.1)
Fair/poor	2.6%	(2.4, 2.8)	2.7%	(2.4, 2.9)	2.6%	(2.2, 3.0)
Mean distress score	5.3	(5.2, 5.3)	5.2	(5.1, 5.3)	5.4	(5.3, 5.6)
<i>Mental health service use</i>						
% Taking a psychotherapeutic	7.6%	(7.2, 8.0)	8.1%	(7.7, 8.6)	6.1%	(5.5, 6.8)
% with a MD mental health visit	6.2%	(5.8, 6.6)	6.2%	(5.8, 6.7)	5.9%	(5.3, 6.6)

(OR=1.21, 95% CI=1.08, 1.36), having a spouse or partner (OR=1.24, 95% CI=1.13, 1.36), having a high school diploma (OR=1.22, 95% CI=1.10–1.35) and being White (OR=1.45, 95% CI=1.26, 1.66). Insurance coverage also appeared to be positively associated with income; the odds of having insurance increased as income increased. The highest income quintile had 4.5 greater odds of drug coverage than the lowest income quintile.

Health status and insurance coverage also appeared to be related. Individuals who perceived they were in good to excellent health were significantly less likely to report coverage than those who were in fair to poor health. In addition, respondents with a chronic physical condition had significantly higher odds of being insured (OR=1.28, 95% CI=1.17, 1.41).

Table 3
Proportion of the population with prescription drug coverage by province

	% (weighted)	95% CI
TOTAL	76.9	(76.2, 77.6)
British Columbia	70.9	(68.9, 72.9)
Alberta	79.7	(77.8, 81.6)
Saskatchewan	69.9	(67.5, 72.4)
Manitoba	67.8	(65.3, 70.4)
Ontario	75.1	(74.0, 76.2)
Quebec	85.8	(84.3, 87.4)
New Brunswick	71.5	(68.7, 74.3)
Nova Scotia	76.0	(73.9, 78.0)
Prince Edward Island	60.9	(56.9, 64.9)
Newfoundland and Labrador	65.3	(62.0, 68.6)

There were also significant differences by province. Compared to respondents residing in British Columbia, those in Quebec (OR=2.90, 95% CI=2.42, 3.47), Nova Scotia (OR=1.28, 95% CI=1.08, 1.52), and Alberta (OR=1.45, 95% CI=1.22, 1.72) had significantly higher odds of having prescription drug coverage whereas those in Prince Edward Island (PEI) had significantly lower odds (OR=0.64, 95% CI=0.51, 0.80).

3.2. Factors associated with use of psychotropic drugs

The results of the logistic regression (Table 4) indicate that among those with an affective or anxiety disorder in the past year and who saw a physician, the odds of using a psychotropic drug was significantly greater for respondents who were White (OR=3.44, 95% CI=1.85, 6.39), had lower self-perceived health status, and those reporting being insured (OR=2.09, 95% CI=1.31, 3.35).

4. Discussion

The Canada Health Act of 1984 mandates the public healthcare system be publicly administered and cover medically necessary services that are comprehensive, accessible, portable, and have universal first dollar coverage (Gray, 1998). But, is it possible to offer prescription drug benefits in the same way as health services? Part of the reason prescription drugs were not originally covered under the universal system was the fear of uncontrollable costs (Willison, Grootendorst, & Hurley, 1998). However, the CFHCC (2002b) concluded prescription drugs should be integrated into the healthcare system.

4.1. Towards a national system

Patterns observed in our analyses raise important considerations. It appears the provinces already recognize the necessity of prescription drugs; the majority of provinces offer prescription drug benefits to their residents. However, there is variation in the way the plans are structured. While all of the provinces have instituted some type of cost-control mechanism, they have not adopted the same mechanisms. Thus, presently there is little similarity among the public plans. In turn, this means

Table 4
Logistic regression results for prescription drug coverage and use of psychotropic medication

	Had prescription drug coverage		Had a prescribed psychotropic drug	
	Odds ratios	95% CI	Odds ratios	95% CI
<i>Socio-demographic characteristics</i>				
% Female	1.17	(1.09, 1.31)	1.34	(0.88, 2.04)
% >65 years	1.69	(1.48, 1.93)	0.70	(0.28, 1.75)
% Married/cohabiting	1.24	(1.13, 1.36)	0.99	(0.65, 1.50)
% High school diploma	1.22	(1.10, 1.35)	1.16	(0.77, 1.76)
% White	1.45	(1.26, 1.66)	3.44	(1.85, 6.39)
Annual household income ^a				
\$25,000–\$41,999	1.27	(1.13, 1.43)	0.87	(0.48, 1.56)
\$42,000–\$59,999	2.30	(1.96, 2.69)	0.93	(0.49, 1.77)
\$60,000–\$89,999	3.55	(3.03, 4.15)	0.88	(0.49, 1.60)
\$90,000+	4.51	(3.77, 5.39)	0.71	(0.37, 1.37)
<i>Employment</i>				
% Employed	1.21	(1.08, 1.36)		
<i>Mental and physical conditions</i>				
% with a chronic physical condition	1.28	(1.17, 1.41)	0.85	(0.52, 1.41)
% with lifetime history of anxiety or affective disorder	1.07	(0.95, 1.20)		
Self-perceived health status ^b				
Excellent/very good	0.81	(0.70, 0.93)	0.54	(0.31, 0.96)
Good	0.80	(0.70, 0.93)	0.36	(0.19, 0.66)
Distress score			1.00	(0.98, 1.03)
Prescription drug coverage			2.09	(1.31, 3.35)
<i>Province^c</i>				
Alberta	1.45	(1.22, 1.72)	1.30	(0.54, 3.12)
Saskatchewan	1.01	(0.85, 1.21)	1.13	(0.48, 2.64)
Manitoba	0.93	(0.77, 1.11)	1.04	(0.35, 3.05)
Ontario	1.07	(0.94, 1.22)	0.97	(0.57, 1.67)
Quebec	2.90	(2.42, 3.47)	0.74	(0.38, 1.47)
New Brunswick	1.08	(0.90, 1.30)	1.21	(0.40, 3.66)
Nova Scotia	1.28	(1.08, 1.52)	0.98	(0.47, 2.05)
Prince Edward Island	0.64	(0.51, 0.80)	1.86	(0.32, 10.62)
Newfoundland and Labrador	0.86	(0.71, 1.03)	0.50	(0.18, 1.40)

^a Income <\$25,000 is reference category ^bFair/poor is reference category ^cBritish Columbia is reference province.

currently drug benefits are not equally accessible throughout the country. This is reflected by the finding that the province fixed effect variables show statistically significant differences. To meet the criteria of the Canada Health Act, all provinces may need to agree to one structure.

4.2. Chronic physical conditions and prescription drug benefits

It is also important to note that individuals with chronic physical conditions are more likely to have prescription drug benefits than those who do not. Thus, the current system appears to be covering some

necessary prescription drug services. Indeed, most of the publicly supported plans target individuals with chronic physical disorders. Thus, insurance coverage appears to be accessible to those with chronic physical conditions.

4.3. Mental disorders and prescription drug benefits

However, the same may not necessarily be said for individuals with affective and anxiety disorders. Our results suggest the presence of an affective or anxiety disorder is not significantly associated with prescription drug coverage. Over the last decade, there has been a proliferation of psychotropic agents available to treat these disorders. As a result, these newer prescription drugs have become important components of standard and recommended care, yet they are more costly than older agents (Dewa & Goering, 2001). In the absence of prescription drug benefits, individuals with these disorders may be less likely to access these treatments. Our results suggest that among individuals who have an affective or anxiety disorder, insurance coverage is associated with use of psychotropic prescription drugs, indicating a sensitivity to price. If lack of insurance coverage is a barrier to access, society may experience serious long run consequences in the form of decreased productivity and negative labor market outcomes (Dewa, Lesage, Goering, & Caveen, 2004; Dewa, Rochefort, Rogers, & Goering, 2003).

4.4. Controlling costs

Though there are few who would dispute the need for prescription drug benefits, there is ongoing debate about how to achieve it (e.g., Deber, 2004; Forest, 2004; Lexchin, 2004; Morgan & Willison, 2004). There is a need to consider the balance between the benefits of prescription drug insurance and the costs of offering it (see Manning & Marquis, 1996 for an in depth discussion regarding the trade-offs between risk aversion and moral hazard). On the one hand, an important benefit and underlying premise of insurance is that it decreases the risk of being exposed to major costs. Increasing the population covered by insurance allows risk spreading which facilitates covering high-cost, low-probability events.

But, as Morgan and Willison (2004) point out, prescription drug use is not a rare event, violating a premise of insurance coverage. Thus, the benefit of insurance (i.e., protection from financial risk) is counter balanced by the price-lowering effect of having healthcare costs covered. The benefits of drug insurance may reduce individuals' sensitivity to price. As a result, consumers may purchase medicines they would not have chosen had they been forced to pay the full cost (a phenomenon economists refer to as moral hazard).

From the risk of moral hazard arises the need for cost-control mechanisms. An important challenge involves identifying the most effective, equitable cost-control mechanisms. For example, there is evidence that consumers may be more sensitive to coinsurance than co-payments (Dor & Encinosa, 2004).

Furthermore, though the majority of the provinces offer prescription drug benefits to their residents, our results show a quarter of the population report being uninsured. We also observed that those with the highest probability of being uninsured were in the lowest income groups. Part of this might be related to the designs of the benefit plans. Most of the plans include premiums and deductibles that potentially could serve as barriers to using the insurance coverage. For example, our results indicate that compared to respondents in British Columbia, those in Alberta were more likely to report being insured. This could be attributable to the fact that Alberta does not have a deductible attached to its plan.

The CFHCC (2002b) suggested a first step toward full integration of prescription drugs under the Canada Health Act could be to offer last dollar coverage catastrophic drug benefits to all Canadians. This raises the question of how catastrophic should be defined. Given the fact that mental health services have been shown to be relatively more sensitive to out-of-pocket price (Frank & McGuire, 1986; Keeler et al., 1988; Simon et al., 1996), it will be important to carefully define catastrophic coverage. The CFHCC (2002b) proposes to set the threshold at \$1,500 per year. But, an individual with major depression who has been prescribed Zoloft could spend about \$611.94 for 100 mg/day for a year. This would be well below the proposed cut-off. If among individuals with mental disorders, out-of-pocket cost is a major factor influencing use of prescription drugs, it may be important to re-consider the threshold.

Also closely linked to cost-control is the question of the drugs that will be covered. The decision about what is to be covered also affects the programs' universality, comprehensiveness and quality of available care (Zelman, 1994). Consideration must be given to the structure of the formularies (i.e., what drugs are included, will they be multi-tiered, will they be opened or closed) (Dewa & Hoch, 2003) as well as other cost containment strategies (e.g., allowable out-of-pocket contributions, generic substitution programs) (Grootendorst, Dolovich, O'Brien, Holbrook, & Levy, 2001) with regards to the types of incentives they introduce for the consumer, payer and supplier.

Indeed, the CFHCC (2002b) called for the development of a national formulary. A national formulary could set a standard that would allow for central control of drug prices. It would also ensure quality of care by insuring formularies include proven cost-effective medications. The design of the formulary (i.e., which medications are included under which tier) may also be used to adjust for the varying sensitivities to price among those with different disorders (i.e., back pain versus depression).

Another important consideration relates to other healthcare services that will be covered. For instance, Coulson and Stuart (1995) argue that the demand for prescription drugs is also driven by the accessibility of substitute treatments. Indeed, it has been observed that consumers will seek lower cost substitute drugs such as over-the-counter medications when faced with higher out-of-pocket costs (Goldman et al., 2004; Stuart & Grana, 1998). If the services of other mental healthcare specialists such as psychologists and other counselors became widely available through public health insurance, the demand for prescription drugs might also be tempered. On the other hand, the risk of moral hazard related to these services might also expose the public coffers to additional fiscal burdens.

4.5. *The role of employers*

In his discussion about the future of Canadian pharmacare, French (2004) called attention to the role of employers. Our results indicate employment is strongly associated with prescription drug benefits. Perhaps, another tactic for providing coverage would require a partnership between employers and government by building on the existing system. Similar to Clinton's proposal for US health reform (Zelman, 1994), all employers could be encouraged to offer all workers insurance benefits. In turn, all workers would be required to accept the benefits.

5. Limitations

Of course, this study's results should be considered in light of the data limitations. As with all survey data, these data were subject to recall bias. Study participants were asked to recall symptoms and

medications taken. To decrease the impact of the bias, interviewers also requested to see the participants' medication vials and transcribed the prescription.

Individuals also may not be aware of the public benefits available to them and may not have registered for insurance coverage. Or, the benefit structures may have contributed to a perception of not being insured. To the extent that this was true, our figures overestimate the number of uninsured for the non-elderly, non-financially disadvantaged. Instead, these individuals may have been under-insured. If this is the case, the figures may indicate the proportion who perceive they are uninsured. If perception versus access is the problem, a solution might include education about and restructuring of the benefits offered.

Another limitation that should be noted relates to our insurance estimate and its vulnerability to endogeneity bias. This could occur because insurance status was not randomly assigned. It is possible that people who have insurance are more concerned about their health and therefore are more likely to: recognize a need, see a physician, get a prescription, and fill the prescription. In this case, it is one's concern about health and not one's insurance status driving this chain of events. To reduce this potential source of bias, we carefully selected our study sample for the insurance analysis. The sample was sub-set to include only those with a diagnosis of an affective or anxiety disorder who had seen a physician. It is still possible that endogeneity bias exists; however, our choice of study sample likely ameliorated some of the potential bias by conditioning on health seeking behavior.

Another limitation in the data relates to the difference in timeframes. The timeframe for the questions about the use of prescription drugs was the past two days whereas the timeframe for the mental health visit and presence of the mental disorder was the past 12 months. Depending on the timing of the episode, there may be an underestimate of psychotropic drug use for a mental illness. At the same time, it should be noted that there have been recommendations for maintenance use of some drugs (e.g., antidepressants) beyond the acute period (Thase & Sullivan, 1995). Thus, we might expect individuals who received antidepressants to use them for a period significantly beyond the beginning of the episode.

It would also have been useful to have information about the out-of-pocket spending for prescription drugs for individuals and households. This would have allowed for a richer analysis and may have helped to disentangle the effects of deductibles and co-payments.

6. Conclusions

With the growing reliance on pharmaceutical therapy for the treatment of most disorders, has the time for a national drug benefit come? The Canadian healthcare system is built on the belief that universal access to healthcare is a right of all its citizens (CHFCC, 2002a). At the same time, for the past 20 years, publicly funded prescription benefits have been limited to the aged and poor, leaving a larger proportion of Canadians to rely on employment-related benefits to cover prescription drugs.

This paper contributes to the discussion by examining data from the most recent population-based survey of Canadians. Though all the provinces are looking for ways to make this healthcare service accessible to their populations, it seems that they have been less than successful for the general population. But, it appears services are accessible to individuals with chronic physical conditions. Our observations reaffirm the need for a national strategy, support the notion that prescription drug coverage is important, and raise questions about the role of employers in providing these benefits. To implement a

national prescription drug program, Canadians will be asked to make difficult decisions and to identify innovative ways to pay for them.

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