Prescription Drug Insurance and Demand for Physician Services: Evidence from Ontario and New Brunswick

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Abstract

This paper examines the marginal impact of supplemental prescription drug coverage on demand for physician services within a publicly funded health care system. The data comes from three cycles of the Canadian Community Health Survey for Ontario and New Brunswick. The probability of at least one consultation per year is estimated using a probit model. Then users of health care services are divided into high and low frequency latent classes, and the number of consultations per year is estimated using a negative binomial model. This paper is the first to consider the impact by type of insurance (government-provided, employer-provided, or privately purchased) separately for family doctors and specialists for both individuals under 65 and seniors. These results confirm that having supplemental insurance increases the likelihood of a visit to both a family doctor and a specialist. This paper also finds that the number of consultations with family doctors and specialists are sensitive to the type of insurance, not only the presence of insurance. In general, the greatest impacts can be seen from specialist visits and among low frequency latent class users.

1 Introduction

In Canada, health care is a provincial matter but it is governed by the Canada Health Act, which aims "to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers," (Health Canada, 2010) by providing all medically necessary services with no charges to the patient at the point of service. That is to say, any individual can consult a primary-care physician as frequently as he or she feels is necessary without cost. However, while medications dispensed in hospitals are provided free of charge, prescriptions filled in pharmacies must be paid for by the individual directly or through supplemental prescription drug coverage (Health Canada, 2010).

Prescription drug coverage can be provided as an employment benefit (often the employer and employee share the cost of this coverage), privately purchased through a third

party insurer, or provided to specific sub-populations by provincial governments. This latter category of government-provided insurance covers all individuals over 64 years of age, as well as those households receiving social assistance, individuals with certain conditions, and those with high drug costs relative to their incomes (Health Canada, 2004). There are some small differences across provinces in provincial coverage. British Columbia‘s public drug program, Fair PharmaCare BC, is unusual in that it provides catastrophic drug coverage to everyone enrolled in the provincial health plan. Each household pays a percentage of its prescription costs up to a certain point, after which the government covers 100 percent of future costs. Both the percentage of cost-sharing and the maximum deductible are based on the household‘s composition and income (British Columbia, no date). Since 1997, Quebec has had a mandatory supplemental drug insurance policy. Residents are required to obtain coverage through an employer or the private market, and a public drug plan covers individuals who are low-income or elderly (Wang et al., 2015). The public drug programs in Ontario and New Brunswick are nearly identical. For example, both programs are available to those receiving social assistance, those in long-term care facilities, those with cystic fibrosis and those with HIV/AIDS, but New Brunswick explicitly provides for those with Multiple Sclerosis and Ontario provides coverage for infants with respiratory syncytial virus (Ontario Ministry of Health and Long-Term Care, 2016; New Brunswick Health, 2016).

Economic theory suggests that insurance coverage for prescription drugs increases the demand for physicians‘ services by reducing the expected total cost of an encounter, even in the case of publicly funded physician services (Leibowitz et al., 1985; Stabile, 2001; Winkelmann, 2004; Devlin et al., 2011; Kaestner and Khan, 2012). Although in Canada the physician consultation is free, individuals often expect that their visits will result in a drug prescription, for which they would have to pay some amount. Allin and Hurley (2009) report that, in Canada, for 60 percent of physician visits patients receive a prescription for medication. Several studies have shown a positive correlation between having supplemental prescription drug insurance and physician consultations (Stabile, 2001; Allin and Hurley, 2009; Devlin

et al., 2011). Stabile (2001) examines how tax incentives can influence whether an individual chooses to purchase supplemental insurance from an employer, but he also concludes that individuals with privately held insurance, the privately purchased or employer types, are more likely to visit a physician and to have more physician visits than those with no supplemental insurance. Only two of these studies consider the type of prescription drug insurance in the Canadian case. Both Allin and Hurley (2009) and Devlin et al. (2011) use data on Ontario from the 2005 Canadian Community Health Survey (CCHS). They find similar results, namely a positive increase in the probability of visiting a physician with any type of insurance, and a greater impact on the number of consultations from public drug insurance than from private drug insurance.

This paper expands upon the existing work on the link between prescription drug insurance and use of health care services in three ways. First, I extend the analysis of Ontario to the recent 2014 CCHS data set which also asks individuals about their drug coverage in that province. Second, the 2007-2008 CCHS survey asks residents of New Brunswick about their drug insurance coverage, enabling me to add that year‘s data to the analysis as well as adding the CCHS (2014) for New Brunswick in order to enlarge the sample of observations. My third contribution arises from the novel way that I extend the analysis to include specialist visits by age instead of only general practitioner visits, taking account of the fact that the GP plays a ‘gatekeeper’ role in the Canadian health-care system. Previous work has looked at the impact of public or private type insurance on the number of specialist visits, but grouped all individuals together regardless of age group or latent class (Allin and Hurley, 2009).

2 Background Literature

The existing literature proposes many factors to consider when estimating the demand for physician services (Anderson 1995), socio-economic status (Dunlop et al., 2000; Alter et al.,

2011; Dahrouge et al., 2013), immigrant status and, social networks (Deri, 2005), and health insurance (Stabile, 2001; Allin and Hurley, 2009; Devlin et al., 2011; Wang et al., 2015; Dunn, 2016). Economic theory suggests that individuals will consume more health care services when those services become cheaper, as when the individual has health insurance. This has been found to be the case whether the insurance covers only physician visits, or the individual has additional supplemental coverage for prescription medication. The United States' health care system comprises both publicly and privately provided health insurance policies. Medicaid provides coverage for low-income households, while Medicare provides coverage for most seniors. The diversity within the American health care sector allows for the opportunity to research several aspects of demand for physician services, but also limits their applicability to other health care contexts. Freeman et al. (2008) provide an excellent review of research on health insurance and use of health care services in the United States.

Basic Medicare coverage is provided free of charge to individuals 65 and older based on having lived or worked in the United States (Medicare.gov, no date a), which prevents problems arising from adverse selection in that age group. These individuals may also have other types of insurance coverage. The literature does not completely agree on the effects arising from the different types of insurance that individuals may hold. Kaestner and Khan (2012) find that those with Medicare Part D, supplemental prescription coverage available for purchase by those covered under basic Medicare (Medicare.gov, no date b), have increased prescriptions as well as increased expenditures, but no change in their use of inpatient services. They attribute this result to statistical problems. Gibbons and Wilcox-Gk (1998) develop a multinomial probit model and determine that relative to those with Medicare alone, seniors with Medicaid (for low-income individuals), employer, or private insurance in addition to Medicare have a slightly higher probability of consulting a medical provider or receiving a hospital outpatient service. In a more recent paper, Marvasti (2014) finds that Medicaid increases use of health care services, but having Medicare and not having other insurance reduces the use of health care services relative to private health insurance.

However, these studies seem to be outliers in their lack of effect or negative effects from insurance types (Freeman et al., 2008).

Although Medicare provides a somewhat comparable context to the case of Canada, it applies only to seniors, who may make their health care decisions differently than others. Research on the relationship between insurance and use of services in public health care systems has also been done using samples from Germany, France, and Taiwan (Winkelmann 1997 Buchmueller et al., 2004; Schmitz, 2012; Tian, 2012). Buchmueller et al. (2004) find that private supplemental drug insurance increases the number of consultations with primary care physicians but does not affect demand for specialist services. However, a significant weakness of that paper is that it only considers a one month period. Within the German health care system, Winkelmann (1997) finds that an increase in copayments for prescription drugs leads to a decrease in the utilization of physician services; Schmitz (2012) finds that insurance coverage increases demand among low frequency users of physician services. For inpatient services, Taiwanese patients with supplemental insurance are more likely to be admitted and to stay more days than those without coverage (Tian, 2012). Although each patient in the preceding studies has basic health insurance provided by the government, the health systems are different from Canada's in that individuals normally still pay a fee for service.

As noted in the introduction, there are several papers using Canadian data sets; these evaluate both general questions of insurance and specific policy implementations. Stabile (2001) estimates that those with supplemental coverage are 2 percent more likely to use physician services and have 4 percent more physician visits (conditional on having at least one) when compared to their uninsured counterparts; about half of this increase is attributed to moral hazard. Seniors in British Columbia pay a portion of their prescription costs until they reach a certain threshold, after which their medications are covered entirely by insurance. Before they reach that threshold, there are fewer prescriptions filled per month and per physician visit, but there are 0.38 more physician visits per month (Anis et al.,

2005). Wang et al. (2015) consider the implementation of mandatory prescription drug coverage in the province of Quebec. They find that having supplemental insurance increases the number of consultations with family physicians by approximately 10 percent, but there is no significant change in specialist consultations. Mulvale and Hurley (2008) find that while having supplemental insurance increases prescription use, it does not affect family doctor or psychiatrist services for treatment of mental health. The overall trend, however, is that the price elasticity of demand for physician services is -0.2, which is similar to the results from the RAND health insurance experiment (Stabile, 2001; Caldbick et al., 2015; Dunn, 2016).

Allin and Hurley (2009) and Devlin et al. (2011) focus on the impact of the type of drug coverage on physician visits in the Canadian context, using data from the 2005 Ontario CCHS supplement. Allin and Hurley (2009) consider the income of those who use health care services and whether there is inequality in income promoted by supplemental insurance for prescription drugs. Both public and private supplemental insurance policies are predicted to increase the probability of a family doctor or specialist visit. Public insurance has a larger estimated effect than the employer and privately purchased types, but both public and private types will significantly increase the number of family doctor visits relative to being uninsured with no effect from insurance on the number of visits to a specialist. Devlin et al. (2011) examine the impact of prescription drug insurance on the probability and frequency of physician visits. This paper only considers visits to family doctors; it further separates private insurance into the employer and privately purchased types, and it divides users into high and low use with a latent class model to account for unobserved heterogeneity. Like Allin and Hurley (2009), this study finds that insurance increases the probability of a physician visit relative to no insurance, but that public insurance has a greater positive effect on the number of visits than the employer and privately purchased types (Devlin et al., 2011). Since both of these studies use data from the same province in the same year, the availability of more recent data from both New Brunswick and Ontario provides an opportunity to update and expand upon this work.

3 Data and Variables

My study uses data from the public use microdata files for the 2005, 2007-2008, and 2014 cycles of the Canadian Community Health Survey (CCHS), a voluntary, cross-sectional survey consisting of information on respondents' health status, health care utilization, and demographic characteristics. The 2007 and 2008 surveys were released together as one public microdata file, and 2005 and 2014 are individual annual components of the CCHS. Provinces are represented proportionally according to their population, but the survey excludes those living on Aboriginal settlements, full-time Canadian Forces members, and those residing in long-term care facilities (Statistics Canada, 2005, 2007, 2008, 2014a). Prior to 2007, Statistics Canada conducted the CCHS only every two years, but used a sample size of 130,000 individuals. Since then, data has been collected annually and released in an annual microdata file and in two-year combinations with a total sample size of 130,000, or 65,000 respondents per year. Each observation is weighted according to its probability of selection into the sample, and these weights are included in the data set (Statistics Canada, 2005, 2007, 2008, 2014a).

For health regions in Ontario and New Brunswick, selection into the sample was random and the probability of inclusion was proportional to population, first at the provincial level and again within each health region. Respondents selected under the area frame completed the survey mainly using the Computer-Assisted Personal Interviewing method, and respondents selected from the telephone number list frame completed the survey with the Computer-Assisted Telephone Interviewing method. If a selected household was willing to participate, an individual over 12 years of age was automatically selected at the time of contact. Data was collected throughout the year, from January to December, with each respondent answering based on the 12 months preceding his completion of the survey (Statistics Canada, 2005, 2007, 2008, 2014a). The sample included in the regressions is restricted to residents of Ontario from the 2005 and 2014 CCHS cycles and residents of New Brunswick from the 2007-2008 and 2014 CCHS cycles. The included cycles were selected based on the

availability of data on the respondent's type of supplemental prescription drug coverage, namely whether it was government, employer, or private. The 2005 cycle contains supplemental information on prescription drug insurance in Ontario. 2007-2008 contains this information for New Brunswick, and both provinces are represented in the 2014 cycle.

An additional advantage of the CCHS as a data source is that it includes demographic characteristics as well as detailed information on measures of health need and utilization of health services. The survey also asks separately about encounters with specialists and regular family doctors during the preceding 12 months.

I start with a total pooled sample of 58,307 observations, from which I exclude the 8,494 observations with missing data. The majority of these missing observations are the result of missing responses for income and chronic conditions in New Brunswick and income, education, chronic conditions, and labour status in Ontario. I test for correlation between missing responses and other covariates, as well as missing responses and outcome variables. I also run an OLS regression including missing responses and none are significant at the five percent level. I therefore conclude that there is no significant pattern to the missing data.

Also excluded are 11,908 individuals under the age of 25 because this group often does not make the decision whether or not to purchase supplemental insurance, and many of their health care decisions are made by or influenced by their parents. This results in a final pooled sample of 49,813.

Estimating the effect of prescription drug insurance on number of physician consultations poses additional challenges in the case of seniors. Most Canadians 65 and older receive prescription drug coverage from their provincial government (in New Brunswick, seniors with higher incomes or alternate coverage may have to purchase their own supplemental coverage or enroll in the income based drug program for the general population (Government of New Brunswick, Canada, 2016 a)), which means there is less variation in insurance type. However, there is clearly a problem with understanding what that question means as approximately 20 percent of seniors in each cycle of the CCHS indicated that they do not have prescription drug

coverage. This discrepancy may be due to seniors' lack of knowledge about their insurance status or a miscommunication about what was meant by the question (Grootendorst et al., 2004). They also face different health challenges than their counterparts in the 25-64 age range. I therefore estimate the determinants of physician consultations by the 14,442 seniors separately.

The explanatory variables of interest are the probability of a physician consultation and the number of consultations with a family doctor (or specialist physicians). Respondents are asked, "Not counting when you were an overnight patient, have you seen, or talked to a family doctor or general practitioner?" If so, "How many times (in the past 12 months?" The question is repeated for "any other medical doctor or specialist such as a surgeon, allergist, orthopaedist, gynaecologist/urologist or psychiatrist" (2005, 2007, 2008, 2014b). I therefore use the word "consultation," not differentiating between physical visits to a physician's and contact by telephone or email.

Figure 1 provides summary statistics on the average number of consultations with family doctors and specialists. It is of interest to note that in each provinces, the mean number of family doctor consultations decreases and the number of specialist consultations increases between the earlier survey years and the 2014 survey cycle. The effect is more pronounced in Ontario than in New Brunswick; however, this may be due to the fact that the Ontario survey was conducted two years earlier. Without further analysis, it is not clear whether the difference is due to a change in the parameters or a change in the population demographics.

Table 1 reveals the difference in supplemental insurance trends occurring in Ontario and New Brunswick. Ontario's distribution of coverage types is very similar in both time periods, with a slight shift from employer-type to government-provided in 2014. New Brunswick, however, shows a small decrease in government-provided insurance and increases in both the employer and privately purchased types.

4 Empirical Strategy

In Canada, the individual is responsible for deciding if and when to consult a family doctor. However, a referral from the family doctor is usually necessary in order to consult a specialist. The involvement of the family doctor in the referral decision suggests that the determinants of the demand for physician services may be broader than those that motivated the patient to make initial contact with the family doctor (Grossman, 1972). For this reason, many researchers have used two-part models to estimate use of health care services (Pohlmeier and Ulrich, 1995; Stabile, 2001; Jimenez-Martin et al., 2002; Devlin et al., 2011).

The first part of the model seeks to explain whether or not an individual has an encounter with a family doctor. The probit model estimates the probability of a binary outcome, in this case y=1 if the individual consulted a family doctor in the preceding 12 months and y=0 if no consultation occurred (Greene 2012, 728).

$$Prob(Y = 1|\mathbf{x}) = \int_{-\infty}^{x'\beta} \psi(t)dt = \Phi(\mathbf{x}'\beta) \tag{1}$$

The function Φ represents the standard normal distribution, where x is vector of the individual's characteristics, including type of supplemental insurance, and β is the coefficient for each characteristic (Greene, 2012, 728). Taking the derivative of the probability density function in equation (1) with respect to a given characteristic provides the marginal impact of that characteristic on consulting a family doctor, all other factors being held constant.

Equation (1) is estimated for the decision to visit a family doctor and then repeated for the decision to have a specialist consultation in the preceding 12 months. However, for specialists the sample is conditioned on having at least one consultation with a family doctor that year, to take account of the GP gatekeeper role. The same covariates from the regression of primary care physician consultations are included in this specification, and once again the impact of the three different types of insurance on the outcome variable is of particular interest.

After considering which factors predispose an individual to be a user or non-user of physician services, I estimate the determinants of how many consultations an individual might have with a physician. The hurdle model has traditionally been used for estimates involving discrete data (Greene, 2012, 922) such as number of visits to a health care provider (Stabile 2001); research since 2001 suggests that the latent class models more accurately represent discrete use of services (Deb and Trivedi, 2002; Jimenez-Martin et al., 2002; d'Uva, 2006). Deb and Trivedi (2002) suggest that these latent classes could capture "healthy" and "ill" individuals. Although I control for health status using the individual's number of chronic conditions and self-reported health status, there are still unobserved inherent differences between individuals. Some individuals are more susceptible to minor illnesses than others, a fact which cannot be fully accounted for by the included covariates. Furthermore, an individual's proclivity for consulting a physician can be affected by fear, level of trust in the medical establishment, or the belief that a condition will resolve itself given time.

The negative binomial distribution is ideal for modeling the number of physician consultations as it measures discrete censored outcomes but accommodates the over-dispersion observed in the sample data. This over-dispersion is revealed in Figure 2, where one sees that the distribution of individuals' consultations with family doctors is skewed to the left. The distribution for specialist visits is very similar. While most individuals in the dataset have only a few family doctor consultations and are within one or two consultations of the conditional mean, responses range from 0 to 31 or more consultations (CCHS 2005, 2007-2008, 2014b). The negative binomial distribution as a mixture density:

$$f(y_i|x_i) = \frac{\Gamma(\theta + y_i)}{\Gamma(y_i + 1)\Gamma(\theta)} r_i^{y_i}(1 - r_i)^{\theta} \qquad where\ r_i = \frac{\lambda_i}{\lambda_i + \theta} \tag{2}$$

λ_i represents the conditional mean and $\lambda_i(1 + (1/\theta)\lambda_i)$ is the conditional variance, and y_i is the number of physician consultations by individual i within the 12 month period and θ is the unknown parameter of the mixing distribution[1] (Greene 2012, 848).

[1]When $\theta = 0$, this distribution is a Poisson.

When estimating the number of consultations with a family doctor, a latent class approach accounts for the unobserved heterogeneity between those who frequently consult physicians and those who visit infrequently. This approach is applied to the negative binomial model by manually separating survey respondents into those who used many physician services and those who used only a few services, and then performing two separate negative binomial regressions. Since the mean number of consultations with a family doctor in the 12 month period for those who had at least one consultation is five, I define high users as those who have more than five consultations with a family doctor. Individuals with at least one but no more than five consultations are classified as low-frequency users, and the distribution is such that the high frequency latent class comprises approximately the top 20 percent of users of health care services.

This process is then repeated to estimate the number of consultations with a specialist. Since specialist consultations are much less prevalent within the sample population, new latent classes are defined based on high and low frequency use of specialist services. The mean number of consultations among users of specialist services is slightly less than three consultations; however, it is significantly lower among those eligible for specialist care based on having consulted a family doctor. I therefore define low frequency users as those individuals who visited a family doctor and have zero, one or two specialist consultations. High frequency users are those with three or more specialist consultations.

5 Results

The marginal impacts from the probit estimations are reported in table 5 (family doctors) and table 6 (specialists). Because the data are pooled across two provinces and three time periods, interactive terms are added to ensure that the pooling restrictions are accounted for. In the 'full model', 'province' is interacted with all of determinants and 'year' is interacted with all of the determinants as well. Those interactive terms that were not statistically

significant are removed. Included in the estimations reported here are only those interactive terms which were statistically significant in the full model.

At the end of each table is the predicted probability that the reference individual sees a family doctor or specialist; this allows me to indicate the importance of each marginal effect for this reference person. For the 25-64 age group specification, the reference individual is a female from the 2005 or 2007-2008 survey cycle who is between 55 and 64, who works full time, has a household with a post-secondary graduate and an income in the top quintile, is healthy, and has no regular family doctor. She lives in Ontario and has employer provided supplemental insurance, and she will consult a family doctor at least once with probability 0.808 and a specialist with probability 0.351 given that she had a family doctor visit. The reference individual for the senior group is the same, except she is in the 65 to 69 age group and will see a family doctor with probability 0.903 and a specialist with probability 0.425.

Mostly, the results presented in tables 4 and 5 are in line with the existing literature in terms of the covariates expected to affect demand for physician services. Like Devlin et al. (2011), I find that individuals between 25 and 64 are significantly less likely to visit a family doctor if they have no supplemental prescription insurance than if they have coverage. There is no difference between the three types of coverage when it comes to the decision to visit a family doctor or specialist, but working-aged individuals without coverage are 4.4 percentage points less likely to have a family doctor consultation (table 4) and 5.4 percentage points less likely to have a consultation with a specialist than similar individuals with any type of supplemental insurance (table 5).

I also find that the effect of type of insurance on seniors' physician visits has changed since 2005. Government-provided insurance is associated with a 4.1 percentage point increase in probability of family doctor visits relative to the other types or absence of insurance during the early cycles, but no effect is present in the 2014 cycle. Any impact from government provided insurance would be surprising because all seniors are in fact eligible for coverage under provincial drug plans. This coverage is in addition to any coverage obtained through

the private market or from a former employer. While the fact that seniors reporting "no supplemental insurance" are actually covered under the government programs can explain the absence of any difference between no coverage and the other types, it cannot explain why those reporting government coverage would be more likely to visit a family doctor than those who have access to additional coverage.

For specialist services, type of insurance for seniors is not important, but seniors with privately purchased insurance in 2014 were 12.6 percentage points more likely to consult a specialist than those with privately purchased insurance in 2005, 2007, or 2008. These results cannot be directly compared with previous results since Allin and Hurley (2009) do not separate the sample by age group, and Devlin et al. (2011) estimate only the conditional number of consultations, not the probability of at least one consultation.

I interacted residents of New Brunswick with the presence of government insurance, and find that for those aged 65 and over, being from New Brunswick has an additional increase of 0.050 points on the likelihood of seeing a family doctor, but this result is only significant at the 10 percent level. New Brunswick seniors are 0.089 points more likely to have a consultation than their Ontario counterparts, which is a 9.9 percent increase relative to the reference group. They are also 13.8 percent more likely to have a specialist consultation.

As with family doctor consultations, the highest level of education in the household is a significant predictor of consulting a specialist. Working aged adults in households with secondary or less than secondary education were 0.035 and 0.048 points less likely to consult a family doctor than those with post-secondary education. For specialist care, these socio-economic disparities are even larger. The marginal probabilities are -0.117 points and -0.056 for exposure to less than secondary and secondary level education respectively. Seniors exposed to less than secondary education were 0.083 points less likely to consult as specialist than those with post-secondary education. Individuals in both age groups in the lowest income quintile were also significantly less likely than those in the highest income quintile to consult a specialist. This is consistent with Allin and Hurley's (2009) finding that specialist

care is a pro-rich good.

The health and personal behaviour variables number of chronic health conditions, the self-rated health status of "poor" or "fair," and being registered with a physician are the strongest predictor variables of consulting a doctor in all cases. Having one or more of the 12 chronic conditions included in the survey is correlated with an increase in the probability of visiting a family doctor or specialist, although it is not a perfect measure of actual health need since each condition may require different care; the 12 conditions represented in the questionnaire range in severity from asthma to cancer (Statistics Canada, 2005, 2007, 2008, 2014b)[2]. Rating one's health status as unhealthy is also a strong predictor of having a consultation with a physician. Individuals registered with a family doctor are more likely to consult a physician than those who are not rostered. However, these two factors must be interpreted carefully as reverse causality is a concern. It is possible that having a regular doctor makes a consultation easier or more appealing, but it is also possible that those who are more inclined to consult a physician anyway are those who choose to register with a family physician.

Province of residence is also correlated with use of specialist services. Seniors from New Brunswick are 0.059 points more likely to consult a specialist at least once, an increase of 13.9 percent relative to a similar senior in Ontario. As with family doctor consultations, younger adults from New Brunswick are slightly less likely than their Ontario counterparts to consult a specialist. However, this effect is small in magnitude and barely statistically significant. The full results for these probit estimations can be found in tables 5 and 6.

The type of insurance coverage (employer, government or private) does matter when it comes to the frequency of family doctor and specialist consultations for the 25-64 age group (both conditional on seeing a family doctor at least once). The results of these negative binomial regressions are presented in tables 7 and 8. For those who are less frequent users of

[2]The 12 chronic health conditions addressed in the survey are asthma, arthritis, back problems, high blood pressure, migraine headaches, diabetes, heart disease, cancer, stomach or intestinal ulcers, effects of a stroke, urinary incontinence, and bowel disorders.

physician services, not having supplemental drug insurance is negatively correlated with the number of family physician consultations. This group had 0.054 fewer consultations with a family doctor. High users from New Brunswick with privately purchased insurance had 0.223 fewer consultations with family doctors than high users from Ontario. Those in the low and high user groups with government insurance had 0.310 and 0.092 more consultations with specialists per year than those with the employment type insurance.

This result must be interpreted carefully as these groups are demographically different. Younger adults with government insurance had an average of 4.82 family doctor consultations and 1.70 specialist consultations while those who have another type or no supplemental insurance had 2.79 family doctor consultations and 0.90 specialist consultations. Seniors who reported government type health insurance had an average of 4.03 family doctor consultations and 1.09 specialist consultations; seniors with other types of insurance or who reported no coverage had 3.54 family doctor consultations and 0.93 specialist consultations. The significant positive coefficients from the government type insurance could be driven by the fact that many of the group members receiving said insurance have significant medical needs (having qualified for coverage by having certain serious conditions or significant medical costs relative to household income).

Low frequency users in New Brunswick in the 2007-2008 survey group consulted family doctors less than those in Ontario, but that difference is negligible in the 2014 group. Residents of Ontario seem to be driving the 0.235 decrease in family doctor consultations. Since New Brunswickers are increasing their consultations with family doctors and Ontarians are using fewer family physician services, the two groups end up roughly equal. However, the high use group from New Brunswick has 0.14 fewer family doctor consultations than the high frequency users in Ontario. This difference persists because there are no time effects in the high frequency group.

While not a factor in the decision to consult a family doctor, income plays a significant role in the frequency of consultations. Low frequency users in the lower three income quintiles

have significantly more consultations than low frequency users in the wealthiest quintile. This effect is most pronounced for the second income quintile, 0.102 more consultations with family doctors than individuals in the top quintile. Among high frequency users, the lowest income quintile has 0.162 more family doctor consultations than the top income quintile.

The opposite effect can be seen in the demand for specialist care; both high and low users in the lowest income quintile use significantly fewer specialist services than those in the top income quintile. Education also plays a role in who is most benefiting from specialist services. Individuals in the low frequency group with less than a secondary education or a high school diploma consult a specialist significantly less than those with post-secondary education.

As with the probit model estimations, measures of health need have the biggest impact on conditional visits with both family doctors and specialists. This is to be expected if the individuals consulting specialists are being assessed first by family doctors and deemed in need of specialized care. It is also possible that some individuals rating their health as "poor" or "fair" have done so based on having needed several physician consultations.

Among seniors, there are significant time and provincial fixed effects in addition to the expected effects from socio-economic and health need variables. Even though all individuals over 64 years have supplemental drug insurance, those reporting additional coverage from a privately purchased policy or reporting no insurance have slightly fewer consultations, -0.05 and -0.06 respectively, with a family doctor than those who reported employer type insurance. Government insurance is not significantly different from the impact of the employer type. Being from New Brunswick was only a factor for low use individuals, however. Low frequency New Brunswickers have 0.257 more consultations with family doctors, but there are no significant fixed effects for time period or province of residence in frequency of specialist care among seniors.

Income and education seem to play a bigger role in specialist consultations than for family doctor consultations. In the low user group, individuals have fewer specialist consultations

as education levels decrease from post-secondary graduates. This effect is statistically significant for those in households with less than secondary education or a high school graduate; individuals with less than secondary education in their household have 0.225 fewer specialist consultations and those who have high school diplomas have 0.106 fewer specialist consultations, relative to those with a post-secondary education. The same pattern is present in income; as income decreases, individuals in the low user group have fewer consultations with specialists than those in the wealthiest quintile. However, specialist consultations do not vary with income among the high user group.

The results presented above are assessed for robustness in three ways; by changing the definition of low and high users in the negative binomial model, by employing a Tobit model, and, by estimating a Heckman model. First, I re-estimate the negative binomial model to see how sensitive my results are to how the two latent classes have been defined. In particular, I am concerned about how to interpret the 'middle' group those who are defined as low users with, say, four GP visits as opposed to those who are defined as high users with five visits. To this end, the latent classes for family doctor consultations are redefined as one to three consultations and seven or more consultations (i.e., I remove the middle group entirely). Similarly, the specialist consultations are re-estimated with five or more for the high use class. The upper bound of the low user latent class is defined as one visit more than the median number of consultations, two for family doctors and one for specialists. The low user class for specialists is not modified because the latent class for low specialist use is already quite small and the difference between one consult and two consults per year is likely arbitrary. The full results of the modified negative binomial regression are presented in tables 10 (family physicians) and 11 (specialists).

For the low frequency group between ages 25 and 64, the marginal impact of not having health insurance relative to having employer type insurance goes from -0.054 visits to -0.029 visits in the modified negative binomial model, and this latter estimate is weakly statistically significant (10%). In other words, the impact of employer insurance on the low user group

is sensitive to how that group is defined. The impact of government provided insurance also depends upon how these latent classes are defined. In the case of the smaller latent classes, the government provided drug insurance is associated with an increase of 0.069 consultations relative to the non-significant increase of 0.032 consultations in the original model specification. The original model finds a 0.061 decrease in family doctor consultations for those without drug insurance and a decrease of 0.053 for privately purchased insurance, but the regression with smaller latent classes fails to find a significant impact from privately-purchased insurance. For specialist visits, how the latent classes are defined also matters when it comes to the impact of drug insurance on visits.

As another robustness check, I estimate a Tobit model , which accounts for censoring of the data (on physician visits) at zero (Wooldridge, 2006, 596-597). This model is also estimated twice, once for family doctors and once for specialists, with the results presented in table 12. In general, these results have the same signs as the negative binomial regression results presented in tables 6-9, but the magnitudes of the estimates are, again, different. Overall, the magnitude of the impact of the different types of drug insurance on the number of visits, is much larger with the Tobit estimates. The Tobit model suggests that not having supplemental insurance leads to 0.471 fewer annual family doctor consultations. The model also predicts 0.536 fewer specialist visits from those who have no supplemental insurance and 0.771 additional consultations per year relative to individuals who have the employer type insurance. These estimates can be compared to the increases of 0.310 and 0.092 specialist consultations predicted by the negative binomial model for the low and high latent classes with government provided insurance. Similarly, for seniors, the impact of insurance on visits is much higher in the Tobit framework. Seniors with government-provided insurance have 0.207 more consultations per year than those with another type or who reported no insurance (significant at the ten percent level); neither presence nor type of insurance are significant at the five percent level in the over 65 group. Besides the supplemental insurance variables, the coefficients for the lowest income quintile, having a regular family doctor, self-rated health,

and number of chronic conditions were significantly inflated in the Tobit model estimates for family physician and specialist visits (table 12). The Tobit estimations confirm the positive impact of insurance, irrespective of type, on the demand for physician services. However, they do suggest a much larger impact that what was found using the negative binomial model, likely due to the fact that the Tobit combines the decision to consult a physician with the frequency of consultations.

Finally, I estimate the model using the Heckman approach, which attempts to correct for any selection bias resulting from unobserved characteristics of the non-users of the health care system. This two-step model comprises a selection equation and a regression where the number of physician visits is only observed if the individual is a participant. Whereas the negative binomial specifications consider different latent classes (high and low frequency users in this case), the Heckman model estimates both groups together, using a different approach to deal with unobserved heterogeneity (Wooldridge, 2006, 596-597; Greene, 2012, 848). Unlike the negative binomial regressions, the Heckman model accounts for the preferences of those individuals who chose not to have any consultations. This is important since type or absence of supplemental insurance may have been a factor in their decision-making.

The Heckman model uses the same covariates as the previous estimations with the exception of the inclusion of an indicator variable that takes the value 1 if the individual reports having a regular doctor, and zero otherwise, which serves to identify individuals who decide to consult a physician in the first stage. Having a regular family physician has the strongest relationship with the probability of having at least one encounter with a doctor, and since it is not directly related to the cost of consulting a physician or the individual's health status, it should not be highly correlated with how often an individual consults a physician. This variable is therefore excluded from the regression estimating the frequency of physician consultations so that it can be used to estimate the selection equation.

The results from the Heckman estimation are presented in tables 13 and 14, and they are consistent with the results from the negative binomial estimation in sign, but not in mag-

nitude. Insurance is an important indicator of demand for family doctor services; among working age individuals not having insurance reduced the probability of having a consultation by 0.187 points and the number of consultations by 0.217 visits per year, but having government type insurance increased family doctor consultations by 0.487 visits per year relative to the employer provided health insurance. These results are in sharp contrast to the negative binomial specification, which suggests a decrease of 0.054 family doctor visits among low users without insurance and no impact at all among high latent class users.

The patterns in the Heckman estimation confirm the direction of the supplemental insurance determinants, but the difference in magnitude between the two sets of results implies that either the Heckman model is overestimating these relationships or the original specification is underestimating them. The major difference between the two models is that the Heckman specification groups together non-users and users of all levels, while the original negative binomial specification considers only the impact for specific groups of users. Among seniors, insurance type did not have any impact on the frequency of consultations with a family doctor, but not having insurance reduced the likelihood of having a consultation with a family doctor.

A very similar pattern appears with specialist consultations; the full regression results are provided in table 14. Among the 25-64 age group, not having insurance decreases the likelihood of consulting a specialist by 0.111, and the government type insurance increases the likelihood of visiting by 0.092 and the number of consultations by 0.342 encounters. Seniors with no insurance are 0.085 points less likely to consult a specialist, but insurance status is not a significant factor in the frequency of specialist visits.

The estimates from the Heckman model also suggest that in no case does being a resident of New Brunswick increase use of physician services; this is a significant difference between the results obtained from the Heckman specification and the results from the probit and negative binomial specifications. For family doctor consultations, being from New Brunswick reduces frequency of visits in both age groups but has no impact on the likelihood of a con-

sultation. Working age New Brunswickers have 0.408 fewer family doctor consultations and 0.462 fewer specialist consultations than residents of Ontario. Seniors from New Brunswick have 0.353 fewer family doctor consultations and 0.420 fewer specialist consultations (table 13 and table 14). For specialist consultations, seniors from New Brunswick are less likely to have a consultation, and both age groups have fewer consultations than residents of Ontario. These results differ from the main specification in both direction and magnitude. According to the probit and negative binomial models, seniors from New Brunswick are, in fact, more likely to have a family doctor consultation and to have a specialist consultation than seniors in Ontario (table 8 and table 9). Furthermore, while working age residents of New Brunswick generally have fewer consultations with both types of physician (high frequency users of specialist services do not differ between provinces), low frequency seniors have more family doctor consultations than seniors in Ontario.

6 Discussion and Conclusion

The results of this paper show that not only the presence of supplemental prescription drug insurance, but also the type of insurance matters for how often individuals consult physicians. Like previous literature (Allin and Hurley, 2009; Devlin et al., 2011) this paper finds a direct link between having supplemental insurance and visiting a physician. Those in the 25-64 age group with access to supplemental insurance are 5.4 percent more likely to consult a family doctor and 15.4 percent more likely to consult a specialist than those without coverage. Among those in the low frequency group, not having supplemental insurance also corresponds to fewer consultations with a family physician or other specialist. Low frequency individuals have 0.054 fewer visits with a family doctor per year than working age adults with supplemental insurance. The results for specialist consultations are larger but are not statistically significant at the five percent level.

For seniors, the presence of supplemental drug insurance matters for the probability

of consulting a family doctor, but the greatest impact is seen in the frequency of family doctor and specialist consultations. Seniors with government insurance are 4.5 percent more likely to see a family doctor than the reference group with employer type insurance, and those with no reported insurance or the privately purchased type. Only seniors in the low use group are sensitive to type of insurance, however. Seniors reporting no insurance or privately purchased insurance use slightly fewer family doctor services than seniors reporting government-provided insurance or employer type insurance. Seniors reporting no insurance or employer type insurance use approximately the same quantity of specialist services *ceteris paribus*, but seniors with privately purchased insurance use fewer services and those with government type insurance use the fewest, 0.282 fewer annual consultations than those with employer type coverage or no coverage.

Working age individuals are more sensitive to insurance status than seniors. Only the presence of insurance seems to matter for the number of family doctor consultations, but for specialist consultations, those with government type insurance are using substantially more services, 0.310 more consultations per year for the low use group and 0.092 more consolations per year within the high use group.

We see some inter-provincial differences in use of physician services as well as differences in usage over the time periods under study. While not universal, the pattern emerges that seniors in New Brunswick use more health care services and younger adults use fewer services than their counterparts in Ontario. This paper finds that seniors in New Brunswick are 9.9 percent more likely to consult with family doctors and 13.9 percent more likely to consult a specialist than Ontario seniors *ceteris paribus*. Furthermore, low use seniors in New Brunswick have 0.257 more family doctor consultations and high use seniors have fewer specialist consultations than the corresponding seniors in Ontario. Younger adults in New Brunswick have fewer consultations with family doctors than their counterparts in Ontario. They use fewer family doctor services and the high user group also uses fewer specialist services. The magnitude of these differences is less than that of the differences between the

senior groups.

The higher propensity for New Brunswick seniors to have at least one consultation for both family physicians and specialists may reflect a difference in the cost structure of the provincial drug plans. For those seniors with the lowest incomes, Ontario provides more generous benefits for supplemental drug coverage; a single senior earning less than $19,300 per year pays only $2 per prescription (Government of Ontario, no date), whereas a New Brunswick senior earning less than $17,198 would have to pay $9.05 per prescription up to a maximum of $500 (New Brunswick Prescription Drug Program) (Government of New Brunswick 2016 b). In this case we would expect more individuals in Ontario to choose to consult a family doctor or specialist, but most seniors are earning above these thresholds. Any senior earning more than $19,300 per year must enrol in the New Brunswick Drug Plan rather than the New Brunswick Prescription Drug Program in order to obtain coverage. The New Brunswick Drug Plan requires seniors to pay a monthly premium and copayments between $5 and $30 (both based on income). A high earning senior in Ontario must pay the first $100 of the prescription costs and $6.11 per prescription thereafter (Government of Ontario, no date; Government of New Brunswick, 2016 b). If a higher income Ontario senior has only one or two physician consultations per year, he may not even use the provincial drug plan, but a senior from New Brunswick can benefit from coverage immediately provided that the premium has already been paid. However, the New Brunswick plan does not encourage frequent use since the copayments for most individuals will be significantly larger than the copayment in Ontario.

The higher frequency of specialist consultations in Ontario and the greater use of physician services by younger adults in Ontario may be the result of more limited access in New Brunswick. The public use files do not provide information about urban versus rural residence for each cycle of the survey; individuals living in large urban centres such as Toronto or Ottawa may have more specialists available or shorter distances and wait times to consult one. If more Ontarians live in urban areas, especially working age adults, this may explain

the relative reluctance of New Brunswick residents to have frequent consultations.

Another difference between the two provinces is the percentage of working age individuals with employer provided supplemental insurance (table 1). 64.9 percent of all Ontario respondents between 25 and 64 have employer type health insurance, whereas only 56.8 percent of working age New Brunswick respondents report supplemental insurance from an employer. One possibility is that New Brunswick has fewer conventional jobs in which it is more difficult to obtain health care. For example, individuals working in isolated areas in the oil or fishing industries may have less opportunity to engage with a health care provider, particularly a specialist.

Low frequency use New Brunswick residents used fewer family doctor services in 2014 than in the 2007-2008 survey cycles; they had 0.235 fewer consultations. One possible explanation is that this time-province interaction term is capturing the effect of a sudden increase in insured individuals between 2008 and 2014. This effect might be related to the 2013 policy announcement that made supplemental drug insurance available to the uninsured residents of New Brunswick on May 1, 2014 and mandatory by April 1, 2015 (CBC News (New Brunswick), 2014). This requirement was abandoned in December 2014, but the coverage remained available to those who wanted it. If more residents obtained insurance who might otherwise not be frequent users of health care services due to the policy, they face less cost to consult a family doctor and may be more motivated to receive care from family doctors (Government of New Brunswick, Canada, no date a; no date b).

The use of health care services and the impact of insurance type have changed since 2005. There has been a significant increase in the use of specialist services in particular over time among younger adults. Individuals in both provinces and age groups are not only more likely to have consulted with a specialist; they are also having more consultations. Relative to the two earlier cycles of the CCHS, residents from the 2014 cycle in the low frequency group had 0.150 more specialist consultations and the high frequency group had 0.116 more specialist consultations (table 7). Seniors reporting government type insurance in 2014 were

5 percent less likely to consult a family doctor in 2014 than in the earlier survey cycles. The impact of government-provided insurance on the probability of a family doctor consultation also decreased between the first cycle and the 2014 cycle. Working age adults were 10.3 percent less likely to consult a family physician and seniors were 5.3 percent less likely to consult a family physician in 2014. Respondents were also more likely to consult a specialist in 2014 than in the earlier years. Younger adults were 14.5 percent more likely to consult a specialist and seniors were 6.6 percent more likely to consult a specialist relative to the reference group represented in the 2005, 2007, and 2008 survey cycles (tables 4 and 5).

The apparent shift towards more speciality visits found in table 5 and table 7 may be explained by changes in the way physicians are being paid. Since the patient generally needs a referral from a family doctor in order to consult a specialist, the actions of family doctors can have significant consequences for how Canadians are using their publicly funded health system. Since 2005, Ontario has made substantial changes to the way that family doctors are compensated, mainly by moving away from the fee-for-service payment model. In 2004, 57 percent of Ontario physicians received at least 90 percent of their income on a fee-for-service basis (National Physician Survey, 2004). By 2013, only 24.1 percent of New Brunswick family doctors were paid primarily by fee-for-service, compared to 36.8 percent in 2007; 27 percent of Ontario family doctors were paid primarily by fee-for-service and 14 percent were paid by salary or capitation payments (National Physician Survey 2007, 2013). Since more service provision means higher income under fee-for-service models, this payment structure would provide incentive for primary care physicians to continue to treat patients for concerns for which specialist might be appropriate but not absolutely necessary.

There has been mixed evidence, however, on the extent to which fee-for-service versus other payment forms might be affecting family doctors' referral practices. Norway also has family doctors paid under both contract and fee-for-service systems work in this context finds no evidence of supplier-induced demand among Norwegian physicians (Grytten et al. (1993); Grytten and Sorensen (2001); Godager et al. 2015). In Canada, however, there is

some evidence that physicians in capitation-based models perform fewer services than those paid under fee-for-service models (Sarma, Devlin, and Hogg, 2009; Kantarevic and Kralj, 2013). With an increase in capitation payments in Ontario comes an increase in physicians eligible for the province's pay for performance incentives. In order to increase the provision of preventive care, family doctors receive financial bonuses for each rostered patient who receives particular services such as flu shots for toddlers and seniors, cancer screenings, and pap smears (Li et al., 2014). Therefore, while family doctors may be referring more patients to specialists, there may not be a significant decrease in their number of consultations because they are encouraged to provide more preventive services to those under their care. Examining the net effect in the context of the different provinces requires physician claims data.

This paper confirms that there is a statistically significant impact on use of publicly funded physician services from having supplemental prescription drug insurance in a publicly funded health care system and that this impact differs by type of insurance. From a policy perspective, a better understanding of how provincial drug programs are related to use of physician services might help provincial health organizations to best allocate resources and encourage more efficient use of physician services. It also raises the question as to whether prescription drug coverage should be part of the primary-health care package provided publicly given its importance in affecting physician consultations.

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[3]Web address is for the documentation supporting the 2014 annual component, but the same information is found in the documentation accompanying previous cycles.

[4]Web address is for the Questionnaire for the 2014 annual component, but the phrasing of the relevant questions is identical in the previous cycles.

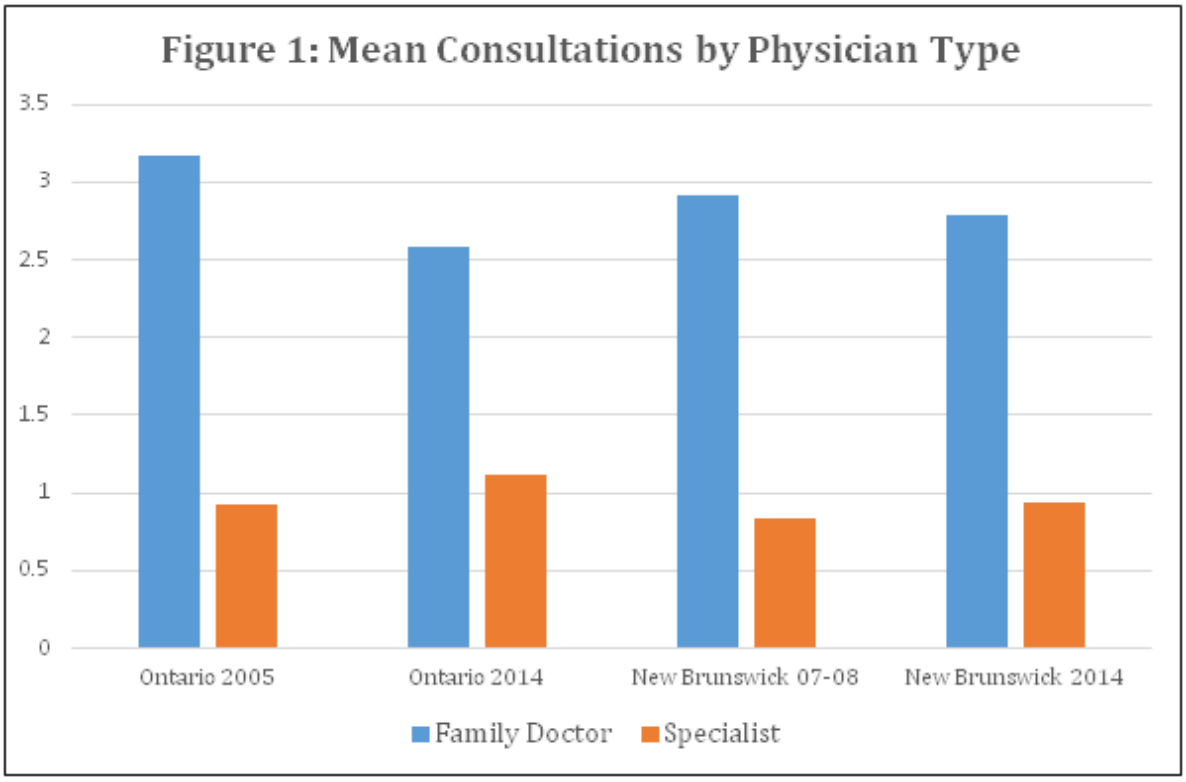
Figure 1: Mean Consultations by Physician Type
3.5
3
2.5
2
1.5
1
0.5
0
Ontario 2005
Ontario 2014
New Brunswick 07-08
New Brunswick 2014
Family Doctor
Specialist

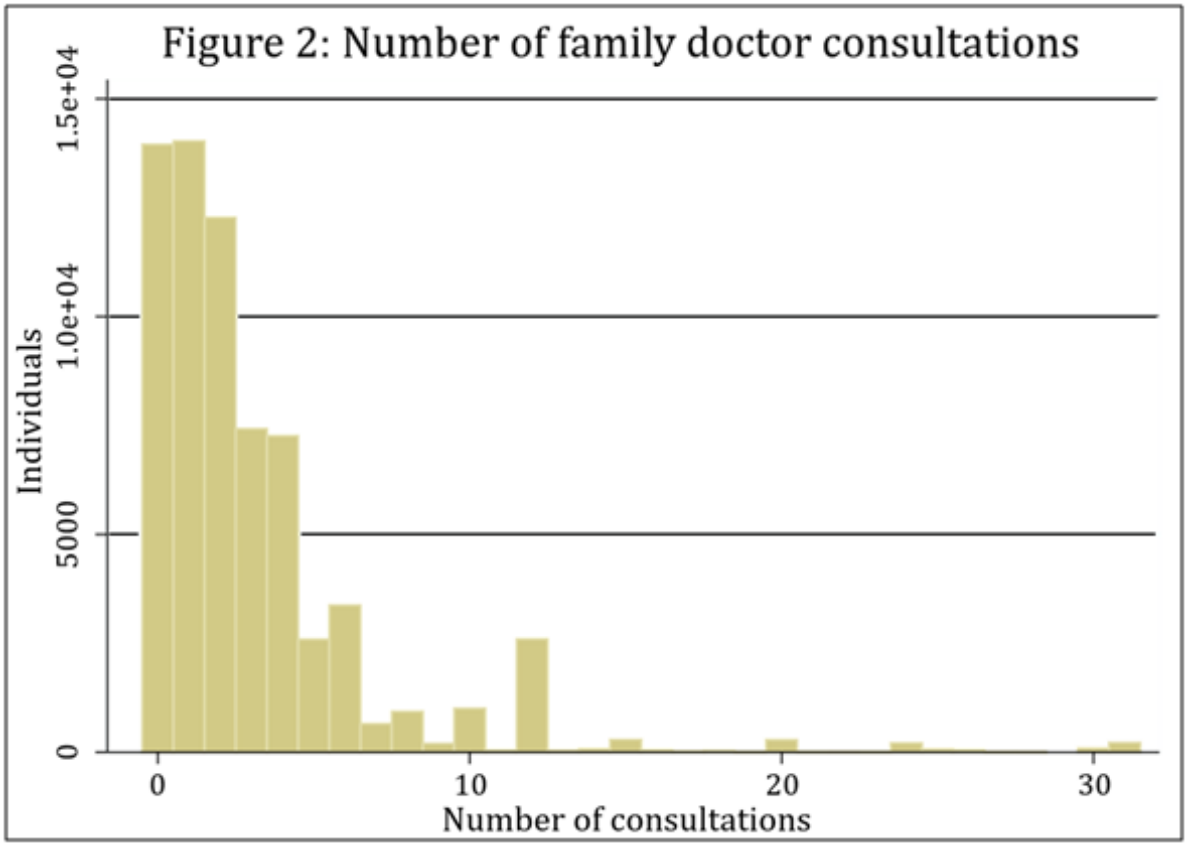
Figure 2: Number of family doctor consultations
Individuals
1.5e+04
1.0e+04
5000
0
0
10
20
30
Number of consultations

Table 1: Type of supplemental drug insurance: ages 25-64

Ontario 2005		
Insurance type	Percent	Frequency
None	22.5	4,809
Government	7.51	1,605
Employer	65.77	14,056
Private	4.22	9.01
		21,371

Ontario 2014		
Insurance type	Percent	Frequency
None	22.63	2,249
Government	9.43	937
Employer	63.07	6,267
Private	4.86	483
		9,936

New Brunswick 2007/2008		
Insurance type	Percent	Frequency
None	23.42	665
Government	11.41	324
Employer	56.37	1601
Private	8.8	250
		2,840

New Brunswick 2014		
Insurance type	Percent	Frequency
None	21.37	268
Government	10.37	130
Employer	57.89	726
Private	10.37	130
		1,254

Table 2: Means by year and province: ages 25-64								
	Ontario 2005		Ontario 2014		New Brunswick 2007-2008		New Brunswick 2014	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Income1	0.149	0.36	0.144	0.35	0.198	0.4	0.145	0.35
Income2	0.152	0.36	0.147	0.35	0.172	0.38	0.199	0.40
Income3	0.194	0.4	0.195	0.40	0.212	0.41	0.238	0.43
Income4	0.226	0.42	0.237	0.43	0.215	0.41	0.204	0.4
Income5	0.279	0.45	0.277	0.45	0.204	0.40	0.214	0.41
Age25-34	0.244	0.43	0.193	0.40	0.198	0.40	0.161	0.37
Age35-54	0.517	0.50	0.443	0.50	0.172	0.38	0.423	0.49
Age55-64	0.239	0.43	0.364	0.48	0.212	0.41	0.416	0.49
Male	0.467	0.50	0.436	0.50	0.215	0.41	0.446	0.50
Female 25-40	0.207	0.40	0.172	0.38	0.204	0.40	0.149	0.36
Married	0.656	0.47	0.640	0.48	0.672	0.47	0.658	0.47
Less than Secondary	0.065	0.25	0.049	0.22	0.107	0.31	0.093	0.29
Secondary grad	0.120	0.32	0.135	0.34	0.134	0.34	0.172	0.38
Some PSE	0.051	0.22	0.025	0.16	0.048	0.21	0.026	0.16
Postsecondary grad	0.765	0.42	0.791	0.41	0.711	0.45	0.709	0.45
Full-time worker	0.737	0.44	0.692	0.46	0.070	0.26	0.696	0.46
Part-time worker	0.089	0.29	0.692	0.46	0.718	0.45	0.696	0.46
Full-time student	0.018	0.13	0.018	0.13	0.017	0.13	0.010	0.10
Part-time student	0.035	0.18	0.019	0.14	0.014	0.12	0.009	0.09
Has doctor	0.892	0.31	0.920	0.27	0.921	0.27	0.947	0.22
Healthy	0.889	0.31	0.875	0.33	0.851	0.36	0.843	0.36
Any chronic	0.289	0.45	0.278	0.45	0.299	0.46	0.602	0.45
Number chronic	1.017	1.24	1.077	1.29	1.103	1.30	1.216	1.42
	n=21,378		n=9,936		n=2,840		n= 1,254	

Table 3: Means by year and province: ages 65+								
	Ontario 2005		Ontario 2014		New Brunswick 2007-2008		New Brunswick 2014	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Income1	0.338	0.47	0.220	0.41	0.380	0.49	0.273	0.45
Income2	0.281	0.45	0.285	0.45	0.336	0.47	0.374	0.48
Income3	0.175	0.38	0.227	0.42	0.161	0.37	0.213	0.41
Income4	0.126	0.33	0.154	0.36	0.094	0.29	0.091	0.29
Income5	0.080	0.27	0.114	0.32	0.029	0.17	0.048	0.21
Age65-69	0.290	0.45	0.327	0.47	0.296	0.46	0.351	0.48
Age70-79	0.228	0.42	0.433	0.50	0.257	0.44	0.433	0.50
Age80plus	0.228	0.42	0.241	0.43	0.257	0.44	0.216	0.41
Male	0.413	0.49	0.408	0.49	0.418	0.49	0.393	0.49
Married	0.499	0.50	0.530	0.50	0.526	0.50	0.508	0.50
Less than secondary	0.304	0.46	0.213	0.41	0.390	0.49	0.337	0.47
Secondary grad	0.154	0.36	0.180	0.38	0.115	0.32	0.136	0.34
Some PSE	0.048	0.21	0.028	0.17	0.034	0.18	0.031	0.17
Postsecondary grad	0.495	0.50	0.579	0.49	0.460	0.50	0.496	0.50
Has doctor	0.951	0.22	0.967	0.18	0.969	0.18	0.969	0.17
Healthy	0.746	0.44	0.804	0.40	0.674	0.47	0.734	0.44
Any chronic	0.253	0.44	0.253	0.43	0.261	0.44	0.268	0.44
Number chronic	2.064	1.50	2.069	1.50	2.106	1.63	2.116	1.56
	n=6,840		n=5,891		n=1,050		n=713	

Table 4: Probit marginal probabilities of having at least one consultation with a family physician within a 12 month period for working age adults and seniors

	Ages 25-64	Ages 65+
Supplemental Prescription Insurance		
Type of prescription drug insurance (ref: employer provided)		
No supplemental insurance	-0.044 ***	-0.007
	(0.012)	(0.014)
No supplemental insurance*2014		-0.046 *
		(0.028)
Government-provided insurance	0.010	0.041 ***
	(0.020)	(0.012)
Government-provided insurance*2014	-0.083 **	-0.048 ***
	(0.038)	(0.019)
Government-provided insurance*New Brunswick		0.050 *
		(0.028)
Privately Purchased insurance	-0.013	0.012
	(0.022)	(0.013)
Personal Characteristics		
Male (ref: female)	-0.079***	-0.005
	(0.011)	(0.009)
Female age 25-39 (ref: male or age 40-64)	0.041***	
	(0.013)	
Married or common-law (ref: single, divorced or widowed)	-0.001	0.001
	(0.010)	(0.009)
Age (ref: Age 55-64)		
Age 25-34	-0.024	
	(0.016)	
Age 25-34*2014	-0.048 **	
	(0.025)	
Age 35-54	-0.006	
	(0.012)	
Age 35-54*2014	-0.034 *	
	(0.021)	
Age 70-79		0.029 ***
		(0.010)
Age 70-79*2014		-0.030 *
		(0.017)
Age 70-79*New Brunswick		0.031 *
		(0.016)
Ages 80+		0.021 ***
		(0.010)
Highest Household Education Level (ref: Post-secondary)		
Less than secondary	-0.048 **	-0.007
	(0.021)	(0.011)
Secondary school	-0.035 **	-0.012
	(0.015)	(0.012)

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Table 4 continued: Probit marginal probabilities of having at least one consultation with a family physician within a 12 month period for working age adults and seniors		
	Ages 25-64	**Ages 65+**
Income (ref: wealthiest quintile)		
1st income quintile	-0.002 (0.017)	-0.039 *** (0.020)
1st income quintile*New Brunswick		-0.225 * (0.157)
2nd income quintile	-0.023 (0.017)	-0.025 (0.019)
2nd income quintile*New Brunswick		-0.205 * (0.034)
3rd income quintile	-0.032 *** (0.013)	0.015 (0.015)
3rd income quintile*New Brunswick		-0.330 ** (0.174)
4th income quintile	-0.009 (0.012)	-0.007 (0.020)
4th income quintile*New Brunswick		-0.299 ** (0.018)
Employment (ref: employed full time)		
Not employed	0.004 (0.015)	
Employed part-time	-0.010 (0.013)	
Current Student (ref: not a student)		
Full-time student	0.004 (0.033)	
Part-time student	0.062 *** (0.021)	
Health and Personal Behaviour		
Has a regular doctor (ref: not registered with a physician)	0.323 *** (0.018)	0.369 *** (0.048)
Unhealthy (ref: rated self health as good, very good, or excellent)	0.060 *** (0.014)	0.039 *** (0.012)
Unhealthy*2014	0.056 ** (0.025)	
Unhealthy*New Brunswick	-0.128 ** (0.070)	-0.045 (0.036)
Number of chronic conditions	0.060 *** (0.005)	0.030 *** (0.004)
Fixed Effects		
Resident of New Brunswick (ref: Ontario resident)	-0.018 (0.016)	0.089 *** (0.023)
2014 (ref: 2005 if Ontario, 2007-2008 if New Brunswick	0.002 (0.017)	0.005 (0.017)
	n=35,371 pred.=0.808	n=14,442 pred.=0.903

Table 5: Probit marginal probabilities of having at least one consultation with a specialist within a 12 month period for working age adults and seniors

	Ages 25-64	Ages 65+
Supplemental Prescription Insurance		
Type of prescription drug insurance (ref: employer provided)		
No supplemental insurance	-0.054 ***	0.011
	(0.015)	(0.024)
Government-provided insurance	0.031	0.017
	(0.023)	(0.019)
Privately Purchased insurance	0.005	-0.025
	(0.024)	(0.032)
Privately Purchased insurance*2014		0.126 ***
		(0.048)
Personal Characteristics		
Male (ref: female)	-0.084 ***	0.049 ***
	(0.014)	(0.017)
Female age 25-39 (ref: male or age 40-64)	0.078 ***	
	(0.020)	
Married or common-law (ref: single, divorced or widowed)	0.012	0.029
	(0.013)	(0.017)
Age (ref: Age 55-64)		
Age 25-34	-0.020	
	(0.021)	
Age 35-54	-0.013	
	(0.016)	
Age 70-79		0.014
		(0.019)
Ages 80+		-0.034
		(0.022)
Highest Household Education Level (ref: Post secondary)		
Less than secondary	-0.117 ***	-0.083 ***
	(0.022)	(0.019)
Secondary school	-0.056 ***	-0.03
	(0.017)	(0.024)
Some post-secondary	0.045	-0.011
	(0.031)	(0.045)
Income (ref: wealthiest quintile)		
1st income quintile	-0.056 ***	-0.096 ***
	(0.021)	(0.033)
2nd income quintile	-0.020	-0.005
	(0.020)	(0.031)
3rd income quintile	-0.028 *	0.004
	(0.16)	(0.030)

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Table 5 continued: Probit marginal probabilities of having at least one consultation with a specialist within a 12 month period for working age adults and seniors		
	Ages 25-64	**Ages 65+**
Employment (ref: employed full time)		
Not employed	0.041 ** (0.018)	
Employed part-time	0.019 (0.019)	
Current Student (ref: not a student)		
Full-time student	-0.020 (0.044)	
Part-time student	0.059 * (0.035)	
Health and Personal Behaviour		
Has a regular doctor (ref: not registered with a physician)	0.093 *** (0.023)	0.184 *** (0.055)
Unhealthy (ref: rated self health as good, very good, or excellent)	0.172 *** (0.021)	0.091 *** (0.021)
Number of chronic conditions (ref: no chronic conditions)	0.079 *** (0.005)	0.065 *** (0.006)
Fixed Effects		
Resident of New Brunswick (ref: Ontario resident)	-0.039 * (0.023)	0.059 *** (0.020)
2014 (ref: 2005 if Ontario, 2007-2008 if New Brunswick	0.051 *** (0.015)	0.028 * (0.016)
	n=27,830 pred.=0.351	n=12,673 pred. =0.425

Table 6: Negative binomial regression of number of conditional family doctor consultations with latent classes, conditional on at least one consultation with a family physician: ages 25-64

	Low User (1-5 visits)	High User (6+ visits)
Supplemental Prescription Insurance		
Type of prescription drug insurance (ref: employer provided)		
No supplemental insurance	-0.054 ***	0.027
	(0.020)	(0.037)
Government-provided insurance	0.032	0.072 *
	(0.024)	(0.044)
Privately Purchased insurance	0.003	0.101 *
	(0.028)	(0.059)
Privately purchased insurance*New Brunswick		-0.223 **
		(0.110)
Personal Characteristics		
Male (ref: female)	-0.074 ***	-0.005
	(0.017)	(0.030)
Male*2014	0.054 **	
	(0.027)	
Female age 25-39 (ref: male or age 40-64)	0.052 **	0.149 ***
	(0.021)	(0.043)
Married or common-law (ref: single, divorced or widowed)	0.000	0.001
	(0.015)	(0.029)
Age 25-34	0.007	0.135 ***
	(0.025)	(0.048)
Age 25-34*2014		-0.214 ***
		(0.075)
Age 35-54	-0.024	0.122 ***
	(0.019)	(0.035)
Age 35-54*New Brunswick		-0.099 *
		(0.055)
Age 35-54*2014		-0.108 *
		(0.063)
Male (ref: female)	-0.074 ***	-0.005
	(0.017)	(0.030)
Highest Household Education Level (ref: Post-secondary)		
Less than secondary	-0.022	-0.004
	(0.033)	(0.042)
Less than secondary*2014		0.311 ***
		(0.119)
Secondary school	-0.017	0.026
	(0.022)	(0.039)

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Table 6 continued: Negative binomial regression of number of conditional family doctor consultations with latent classes, conditional on at least one consultation with a family physician: ages 25-64		
	Low User (1-5 visits)	**High User (6+ visits)**
Some post-secondary	-0.011 (0.039)	0.067 (0.054)
Income (ref: wealthiest quintile)		
1st income quintile	0.084 *** (0.028)	0.162 *** (0.048)
1st income quintile*New Brunswick	-0.087 ** (0.045)	
1st income quintile*2014	0.063 (0.047)	-0.213 *** (0.064)
2nd income quintile	0.102 *** (0.024)	0.042 (0.043)
2nd income quintile*2014		-0.156 *** (0.064)
3rd income quintile	0.046 ** (0.019)	0.065 (0.040)
4th income quintile	0.024 (0.018)	0.048 (0.041)
4th income quintile*2014	0.061 ** (0.030)	
Employment (ref: employed full time)		
Not employed	-0.007 (0.021)	0.034 (0.036)
Not employed*New Brunswick		
Employed part-time	-0.003 (0.022)	-0.050 (0.041)
Employed part-time*New Brunswick		0.191 *** (0.060)
Current Student (ref: not a student)		
Full-time student	-0.040 (0.054)	0.029 (0.088)
Part-time student	0.019 (0.037)	-0.060 (0.057)
Health and Personal Behaviour		
Has a regular doctor (ref: not registered with a physician)	0.157 *** (0.028)	0.040 (0.042)
Has a regular doctor*2014	-0.110 * (0.065)	
Unhealthy (ref: rated self health as good, very good, or excellent)	0.130 *** (0.023)	0.171 *** (0.032)
Unhealthy*2014		-0.111 * (0.059)
Number of chronic conditions (ref: no chronic conditions)	0.099 *** (0.006)	0.046 *** (0.010)

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Table 6 continued: Negative binomial regression of number of conditional family doctor consultations with latent classes, conditional on at least one consultation with a family physician: ages 25-64		
	Low User (1-5 visits)	**High User (6+ visits)**
Fixed Effects		
Resident of New Brunswick (ref: Ontario resident)	-0.095 *** (0.027)	-0.140 *** (0.049)
New Brunswick*2014	0.108 *** (0.035)	
2014 (ref: 2005 if Ontario, 2007-2008 if New Brunswick	-0.235 *** (0.027)	0.107 (0.075)
Constant	0.605 (0.038)	1.976 (0.072)
	n=22,837	n=4,993

Table 7: Negative binomial regression of number of conditional specialist consultations with latent classes, conditional on at least one consultation with a family physician: ages 25-64

	Low User (0-2 visits)	High User (3+ visits)
Supplemental Prescription Insurance		
Type of prescription drug insurance (ref: employer provided)		
No supplemental insurance	-0.093 *	0.005
	(0.053)	(0.041)
Government-provided insurance	0.310 ***	0.092 **
	(0.051)	(0.052)
Privately Purchased insurance	0.090	0.002
	(0.063)	(0.057)
Personal Characteristics		
Male (ref: female)	-0.103 **	-0.027
	(0.043)	(0.036)
Female age 25-39 (ref: male or age 40-64)	0.124 *	0.227 ***
	(0.069)	(0.060)
Married or common-law (ref: single, divorced or widowed)	-0.027	-0.048
	(0.044)	(0.035)
Age (ref: Age 55-64)		
Age 25-34	-0.420 ***	0.144 ***
	(0.075)	(0.063)
Age 35-54	-0.352 ***	0.133 ***
	(0.046)	(0.038)
Age 35-54*New Brunswick		-0.170 **
		(0.072)
Highest Household Education Level (ref: Post-secondary)		
Less than secondary	-0.194 ***	-0.117 **
	(0.063)	(0.064)
Secondary school	-0.156 ***	-0.038
	(0.058)	(0.044)
Some post-secondary	0.034	-0.133 **
	(0.090)	(0.071)
Income (ref: wealthiest quintile)		
1st income quintile	-0.242 ***	-0.134 ***
	(0.072)	(0.056)
2nd income quintile	0.010	-0.098 **
	(0.060)	(0.051)
3rd income quintile	-0.023	-0.066
	(0.055)	(0.047)
4th income quintile	-0.080 (0.052)	0.080 *
		(0.046)

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Table 7 continued: Negative binomial regression of number of conditional specialist consultations with latent classes, conditional on at least one consultation with a family physician: ages 25-64		
	Low User (0-2 visits)	**High User (3+ visits)**
Employment (ref: employed full time)		
Not employed	0.243 *** (0.053)	0.210 *** (0.040)
Not employed*New Brunswick	-0.262 * (0.147)	
Employed part-time	0.074 (0.057)	0.121 *** (0.039)
Employed part-time*New Brunswick	-0.260 * (0.152)	
Current Student (ref: not a student)		
Full-time student	0.213 ** (0.108)	-0.003 (0.106)
Part-time student	0.244* (0.127)	-0.088 (0.110)
Health and Personal Behaviour		
Has a regular doctor (ref: not registered with a physician)	0.125 (0.080)	0.088 (0.098)
Unhealthy (ref: rated self health as good, very good, or excellent)	0.136 ** (0.056)	0.121 *** (0.038)
Number of chronic conditions (ref: no chronic conditions)	0.151 (0.013)	0.001 (0.010)
Fixed Effects		
Resident of New Brunswick (ref: Ontario resident)	0.168 (0.137)	-0.102 ** (0.050)
New Brunswick*2014	-0.150 * (0.090)	
2014 (ref: 2005 if Ontario, 2007-2008 if New Brunswick	0.150 *** (0.047)	0.116 *** (0.032)
Constant	-0.970 (0.107)	1.579 (0.110)
	n=26,930	n=3,904

Table 8: Negative binomial regression of number of consultations with a family doctor, conditional on at least one consultation with a family physician, divided into latent classes ages: 65+		
	Low User (1-5 visits)	**High User (6+ visits)**
Supplemental Prescription Insurance		
Type of prescription drug insurance (ref: employer provided)		
No supplemental insurance	-0.061 **	-0.018
	(0.025)	(0.038)
Government-provided insurance	-0.002	0.009
	(0.021)	(0.029)
Privately Purchased insurance	-0.053 **	-0.042
	(0.026)	(0.049)
Personal Characteristics		
Male (ref: female)	0.002	0.094 ***
	(0.019)	(0.027)
Married or common-law (ref: single, divorced or widowed)	0.004	-0.027
	(0.019)	(0.030)
Age (ref: Age 65-69)		
Age 70-79	0.037 *	-0.012
	(0.021)	(0.032)
Age 80plus	0.032	-0.001
	(0.024)	(0.036)
Highest Household Education Level (ref: Post-secondary)		
Less than secondary	0.010	-0.017
	(0.020)	(0.036)
Secondary school	-0.009	-0.046
	(0.029)	(0.036)
Some post-secondary	0.014	0.006
	(0.051)	(0.065)
Some post-secondary*2014	-0.202 *	0.376 **
	(0.106)	(0.185)
Income (ref: wealthiest quintile)		
1st income quintile	0.039	0.108 *
	(0.033)	(0.064)
2nd income quintile	0.013	0.071
	(0.034)	(0.059)
3rd income quntile	0.001	0.019
	(0.031)	(0.060)
4th income quintile	-0.042	0.026
	(0.031)	(0.070)

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Table 8 continued: Negative binomial regression of number of consultations with a family doctor, conditional on at least one consultation with a family physician, divided into latent classes ages: 65+		
	Low User (1-5 visits)	**High User (6+ visits)**
Health and Personal Behaviour		
Has a regular doctor (ref: not registered with a physician)	0.277 ***	-0.014
	(0.077)	(0.159)
Has a regular doctor*New Brunswick	-0.254 **	0.014
	(0.112)	(0.159)
Unhealthy (ref: rated self health as good, very good, or excellent)	0.059 ***	0.102
	(0.023)	(0.033)
Unhealthy*2014	0.071 **	-0.110 *
	(0.036)	(0.060)
Number of chronic conditions (ref: no chronic conditions)	0.093 ***	0.033 ***
	(0.006)	(0.010)
Number of chronic conditions*2014	-0.019 *	0.023
	(0.011)	(0.020)
Fixed Effects		
Resident of New Brunswick (ref: Ontario resident)	0.257 **	0.183
	(0.111)	(0.200)
New Brunswick*2014	-0.060	-0.044
	(0.038)	(0.067)
2014 (ref: 2005 if Ontario, 2007-2008 if New Brunswick	-0.032	-0.030
	(0.030)	(0.057)
Constant	0.531	2.066
	(0.085)	(0.174)
	n=9,732	n=2,941

Table 9: Negative binomial regression of number of consultations with a specialist, conditional on at least one consultation with a family physician, divided into latent classes: ages 65+		
	Low User (0-2 visits)	**High User (3+ visits)**
Supplemental Prescription Insurance		
Type of prescription drug insurance (ref: employer provided)		
No supplemental insurance	-0.055 * (0.029)	-0.006 (0.074)
Government-provided insurance	-0.282 *** (0.035)	-0.014 (0.051)
Privately Purchased insurance	-0.135 ** (0.046)	0.158 (0.108)
Personal Characteristics		
Male (ref: female)	0.009 (0.020)	0.068 * (0.040)
Married or common-law (ref: single, divorced or widowed)	-0.045 ** (0.021)	-0.012 (0.042)
Age (ref: Age 65-69)		
Age 70-79	-0.651 *** (0.040)	-0.012 *** (0.032)
Age 80 plus	-0.811 *** (0.055)	-0.041 (0.058)
Highest Household Education Level (ref: Post-secondary)		
Less than secondary	-0.225 *** (0.043)	-0.071 (0.050)
Secondary school	-0.106 ** (0.035)	-0.078 (0.050)
Some post-secondary	0.001 (0.050)	0.076 (0.095)
Income (ref: wealthiest quintile)		
1st income quintile	-0.110 ** (0.036)	0.111 (0.078)
2nd income quintile	-0.079 ** (0.031)	0.057 (0.075)
3rd income quintile	-0.071 ** (0.026)	-0.021 (0.074)
4th income quintile	-0.026 (0.025)	0.000 (0.080)
Health and Personal Behaviour		
Has a regular doctor (ref: not registered with a physician)	0.091 (0.052)	0.317 *** (0.104)
Unhealthy (ref: rated self health as good, very good, or excellent)	0.060 * (0.033)	0.114 *** (0.042)

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Table 9 continued: Negative binomial regression of number of consultations with a specialist, conditional on at least one consultation with a family physician, divided into latent classes: ages 65+		
	Low User (0-2 visits)	**High User (3+ visits)**
Unhealthy*2014	0.071 ** (0.036)	
Number of chronic conditions (ref: no chronic conditions)	0.029 ** (0.009)	0.030 ** (0.011)
Number of chronic conditions*2014	-0.019 * (0.011)	
Fixed Effects		
Resident of New Brunswick (ref: Ontario resident)	-0.009 (0.027)	-0.135 * (0.074)
2014 (ref: 2005 if Ontario, 2007-2008 if New Brunswick	0.023 (0.018)	0.057 (0.038)
Constant	0.226 (0.055)	1.225 (0.145)
	n=18,711	n=1,763

Appendix

Table 10: Negative binomial regression of number of family doctor consultations with robust standard errors				
	Ages 25-64		Ages 65+	
Variables	1-3 consults	7+ consults	1-3 consults	7+ consults
Supplemental prescription insurance (ref: employer provided)				
No supplemental insurance	-0.029 *	0.025	-0.028	-0.016
	(0.020)	(0.036)	(0.024)	(0.039)
Government-provided insurance	0.069 ***	0.080 *	0.001	0.010
	'(0.020)	-0.043	(0.020)	(0.027)
Privately purchased insurance	0.021	0.030	0.018	0.014
	'(0.020)	(0.064)	(0.026)	(0.048)
Resident of New Brunswick (ref: Ontario)	-0.053 **	-0.130 **	0.316 ***	-0.403 **
	(0.023)	(0.052)	(0.107)	(0.207)
New Brunswick*2014	0.090 ***		-0.041	
	(0.028)		(0.027)	
2014	-0.011	0.074	0.414	-0.091
	(0.054)	(0.071)	(0.086)	(0.065)
Personal and health behaviour characteristics	YES	YES	YES	YES
Constant	0.509	2.313	0.414	2.513
	(0.029)	(0.076)	(0.086)	(0.209)
Number of observations	n=21,253	n=3,410	n=6,590	n=1,870

Table 11: Negative binomial regression of number of specialist consultations conditional on at least one family doctor consultation, robust standard errors				
	Ages 25-64		Ages 65+	
Variables	0-2 consults	5+ consults	0-2 consults	5+ consults
Supplemental prescription insurance (ref: employer provided)				
No supplemental insurance	-0.093 *	0.011	-0.055 *	-0.044
	(0.053)	(0.035)	(0.029)	(0.068)
Government-provided insurance	0.310 ***	0.006	-0.282***	-0.045
	(0.051)	(0.042)	(0.035)	(0.055)
Privately purchased insurance	0.090	0.001	-0.135 ***	0.137
	(0.063)	(0.047)	(0.046)	(0.091)
Resident of New Brunswick (ref: Ontario)	0.168	-0.096 *	-0.009	-0.062
	(0.137)	(0.052)	(0.027)	(0.071)
New Brunswick*2014	-0.150 *			
	(0.090)			
2014	0.150 ***	-0.128 ***	0.023	0.034
	(0.047)	(0.029)	(0.018)	(0.038)
Personal and health behaviour characteristics	YES	YES	YES	YES
Constant	-0.970	2.228	0.226	1.831
	(0.107)	(0.089)	(0.055)	(0.138)
Number of observations	n=26,930	n=1,904	n=18,711	n=704

Table 12: Tobit Regression of type of supplemental drug insurance on number of physician visits				
	Family Doctor		Specialist	
Variables	Ages 25-64	Ages 65+	Ages 25-64	Ages 65+
Supplemental prescription insurance (ref: employer provided)				
No supplemental insurance	-0.471 ***	-0.408	-0.536 ***	-0.015
	(0.109)	(0.166)	(0.181)	(0.212)
Government-provided insurance	0.278	0.258 **	0.771 ***	0.142
	(0.210)	(0.121)	(0.260)	(0.164)
Privately purchased insurance	-0.057	-0.115	-0.182	0.366
	(0.189)	(0.159)	(0.234)	(0.233)
	-0.630 ***	-0.561 **	-0.439	0.357
Resident of New Brunswick (ref: Ontario)	(0.197)	(0.242)	(0.825)	(1.578)
2014	-0.630 ***	0.331	0.461 ***	0.271 *
	(0.142)	(0.601)	(0.179)	(0.141)
Personal and health behaviour characteristics	YES	YES	YES	YES
Constant	-1.008	-2.444	-3.873	-3.936
	(0.232)	(0.411)	(0.415)	(0.762)
Number of observations	n=35,371	n=14,442	n=27,830	n=12,673

Table 13: Heckman Model: Likelihood and number of family doctor consultations				
	1st Stage		2nd Stage	
Variables	Ages 25-64	Ages 65+	Ages 25-64	Ages 65+
Supplemental prescription insurance (ref: employer provided)				
No supplemental insurance	-0.187 ***	-0.192 ***	-0.217 ***	-0.068
	(0.020)	(0.042)	(0.065)	(0.108)
Government-provided insurance	-0.011	0.048	0.427 ***	0.041
	(0.033)	(0.036)	(0.091)	(0.084)
Privately purchased insurance	0.021	0.043	-0.065	-0.040
	(0.039)	(0.056)	(0.107)	(0.126)
	-0.034	-0.024	-0.432 ***	-0.355 ***
Resident of New Brunswick (ref: Ontario)	(0.027)	(0.045)	(0.078)	(0.106)
2014	-0.141 ***	-0.157 ***	-0.648 ***	-1.008
	(0.022)	(0.029)	(0.063)	(0.070)
Personal and health behaviour characteristics	YES	YES	YES	YES
Constant	0.122 ***	-0.166 **	2.378	3.140
	(0.038)	(0.083)	(0.106)	(0.185)
Mills Ratio	-0.868	-1.548		
	(0.202)	(0.364)		
Number of observations	n=26,930	n=1,904	n=18,711	n=704

Table 14: Heckman Model: Likelihood and number of specialist consultations				
	1st Stage		2nd Stage	
Variables	Ages 25-64	Ages 65+	Ages 25-64	Ages 65+
Supplemental prescription insurance (ref: employer provided)				
No supplemental insurance	-0.110 ***	-0.065 **	-0.120	-0.085
	(0.031)	(0.036)	(0.104)	(0.114)
Government-provided insurance	0.070 **	0.010	0.285 **	0.074
	(0.031)	(0.029)	(0.112)	(0.080)
Privately purchased insurance	0.000	0.000	0.041	-0.107
	(0.036)	(0.043)	(0.135)	(0.118)
	-0.024	-0.104 ***	-0.517 ***	-0.416 ***
Resident of New Brunswick (ref: Ontario)	(0.027)	(0.039)	(0.099)	(0.127)
2014	0.122 ***	0.139 ***	-0.042	0.062
	(0.021)	(0.024)	(0.098)	(0.118)
Personal and health behaviour characteristics	YES	YES	YES	YES
Constant	-0.771	-0.887	2.732	3.055
	(0.046)	(0.098)	(0.868)	(1.201)
Mills Ratio	-0.355	-0.465		
	(0.744)	(1.014)		
Number of observations	n=35,371	n=14,442	n=27,830	n=12,673