

Cross-sectional Study Examining the Differences in the Prevalence of Health Service Deficits among US and Canadian Adults with at least One of the Chronic Illnesses of COPD, Asthma, Arthritis, and/or Diabetes

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Abstract

Background: This study compares health service deficits (HSDs) experienced by US adults with chronic illness with their Canadian counterparts. This study was undertaken in order ascertain if there were differences between the two populations given the differences in health care systems. Further, this comparison allows for a partial assessment of the impact the US Affordable Care Act might have on the prevalence of HSDs for US adults with at least one chronic illness (asthma, diabetes, arthritis, COPD).

Methods: Bivariate and multivariate techniques were used to analyze US and Canadian health surveillance data in order to compare the prevalence of HSDs and ascertain the characteristics of adults with chronic illness who have HSDs.

Results: Multivariate logistic regression analysis using having HSDs as the dependent variable and mutually adjusting for each of the study covariates, yielded that for the study populations non-Caucasians or visible minorities, those under 65 years of age, those with annual household incomes of <\$50,000, and those defining their health as fair to poor all had greater odds of having at least one HSD. In difference to the Canadian population, the US population also had greater odds of being male and not being a university graduate.

Conclusions: Using Canada as a proxy we were able to compare the prevalence of HSDs between a population with and without universal health care insurance. Our analyses revealed a lower prevalence of HSDs among adult Canadians with at least one chronic illness, suggesting that the 2010 US Affordable Care Act may over time result in a reduction of HSDs in the comparable US population.

Keywords: Health service deficits, Affordable care act, Health care reform, Chronic illness, Universal health insurance, Canadian health system

Introduction

In 2010, the United States (US) approved the Affordable Care Act (ACA) as an effort to provide universal health care coverage to all of its citizens.¹ With rising health care costs, the US identified the need to manage this, as well as promote preventive care and

prohibit coverage denial due to pre-existing conditions.^{2,3} In the US, access to care is often determined by a patient's health insurance status.⁴ Prior to the approval of the ACA, Medicare was the only form of universal health care present in the US, available only to adults >65 years of age or some younger disabled persons.⁵ For other individuals, insurance was provided through commercial plans, employers, or other government programs. Universal health care is not a novel idea; various forms have been provided globally in developed countries.⁶ In fact, the US is among the few developed countries that have not provided such insurance.⁶ One example of universal health care is the Canadian system.

Canada passed the Medical Care Act in 1966, which was the start of universal health care for its citizens; however, it was an evolution that began in 1947.⁷ The Canada Health Act, passed in 1984, is the cornerstone of today's system, and the Act has been modified a number of times since its inception. Much of the management for the Canadian health care system is the responsibility of provincial and territorial governments, but the federal government retains responsibility for certain populations (e.g. First Nations people living on reserves; Inuit; those serving in the Canadian Armed Forces; eligible veterans; inmates in federal penitentiaries; and some groups of refugee claimants).^{7,8} Funding comes mainly from income taxes, however, territories or provinces can choose to impose premiums for health care coverage for services beyond what is medically necessary. Although, a failure to pay premiums cannot limit an individual's access to medically necessary care or services.^{7,8} In order to receive provincial or territorial coverage, individuals must be "a person lawfully entitled to be or to remain in Canada who makes his home and is ordinarily present in the province, but does not include a tourist, a transient or a visitor to the province."⁷ Services not covered under the Canada Health Act include prescription drugs, ambulance costs, hearing, vision, dental, and elective services. Outside of financial assistance for those in need, much of this can be covered privately.⁷ Canadians also have the option of purchasing private health insurance if they need additional coverage.⁷ Estimates on contributions to the entire cost of health care are approximately 30% from the private sector with remaining coming from some sort of government funding.^{7,8} A majority of expenditures are on hospital care and medications.^{7,8} In contrast, the US spends a majority of dollars on hospital care and physician/clinical services.⁹

Through the ACA, Americans will be responsible for premiums, unlike most Canadians. Americans can, however, pick from tiered insurance programs that will dictate their premiums and contribution to costs by their chosen plan.¹⁰ For those who are financially needy, income-related premium assistance as well as cost-sharing are available.¹¹ Regardless of chosen plan, individuals in the US must be provided with the following essential health benefits: ambulatory patient services, emergency services, hospitalization, laboratory services, maternity and newborn care, mental health services and addiction treatment, rehabilitation services and devices, pediatric services, prescription drugs, preventive and wellness services and chronic disease treatment.¹⁰ Covered preventive services are determined by a patient's sex, age, and risk factors for specific conditions.¹² Moreover, insurance companies are no longer allowed to deny coverage for pre-existing conditions, nor can they cap their financial contributions.¹⁰

Although the ACA will continue to roll out over the next few years, an initial step began in 2010 when the US expanded insurance coverage to dependents up to the age of 26 years.¹³ In 2009, 31.4% of those 19-25 years of age were uninsured, higher than any other group in the nation.¹⁴⁻¹⁶ Further, there is evidence that those without health insurance are four times more likely to delay or defer care due to cost.¹⁵ One study examining the impact of expanding health care coverage on affordability of and access to care predicted that with coverage expansion, there would be a significant reduction in

deferment of care because of cost¹⁴ suggesting that if access to insurance is increased, there may be an associated improvement in health care access and utilization.

Since Canadians, in contrast to Americans, have guaranteed access to medically-necessary services, it is expected that Canadian adults would have a lower prevalence of health service deficits (HSDs) in comparison to US adults. HSDs for US adults are defined as no routine medical exam, no primary care provider, no health insurance, and/or a deference of medical care because of cost, all within the last 12 months.¹⁷⁻¹⁹ For Canadians, HSDs are defined similarly, minus no health insurance since Canada provides universal health care coverage. In order to partially assess the impact that universal health care coverage may have on those living in the US, Canada was chosen as a comparator. Using two data sets, the 2011 Behavioral Risk Factor Surveillance System (BRFSS) and the 2008 Canadian Community Health Survey (CCHS), this cross-sectional study compared the prevalence of HSDs among US and Canadian adults with at least one chronic illness (COPD, asthma, arthritis, and/or diabetes). Different years were chosen in order to best match survey questions.

Methods

To answer the research question, 2011 BRFSS and 2008 CCHS data were analyzed using bivariate and multivariate techniques. Both of these surveys are random digit dial telephone surveys that are collaborative projects between states and/or provinces and federal level agencies. In the US, BRFSS data are collected under the aegis of the Centers for Disease Control and Prevention (CDC), whereas in Canada, CCHS data are collected under the guidance of Statistics Canada (Stats Can). Both surveys measure several behavioral risk factors and disease states in the non-institutionalized populations of the respective countries. BRFSS includes only adults (≥ 18 years of age), whereas CCHS includes those ≥ 12 years of age (although the youngest respondents to the Canadian survey constitute a small proportion of the sample). These surveillance systems collect information from individuals on health risk behaviours, preventive health practices, and health care access primarily related to chronic disease and injury. Both BRFSS and CCHS are constituted of core questions that must be asked of every survey participant and optional modules that may be chosen by individual states or provinces and asked only of the survey respondents from the participating jurisdictions. These surveys use complex multi-stage sampling approaches, and, subsequently, a weighting factor is calculated from census data for application to the surveillance data in order to ensure that they are representative of their respective populations.

In the analyses presented here, a number of variables were either re-coded (age, education, income and self-reported health status) or computed. All re-coding entailed collapsing categories and removing the responses don't know and refused. Computed variables included health service deficits (HSDs), chronic disease index, and race/ethnicity.

The dependent variable, HSDs, was constructed from four variables included in the BRFSS database and three in the Canadian one. In BRFSS, lack of health insurance, not having a healthcare provider, deferring medical care because of cost and having had no routine medical exam within the past 12 months were combined to create the HSDs variable. In the CCHS data the same variables, minus health insurance status, were used. These variables were chosen because they all impact how individuals interact with and access the health care system. A health service deficit was defined as having at least one of these present.

Using the BRFSS data, the race/ethnicity variable was initially calculated from participant responses to two separate survey questions-one regarding race and the other

regarding Latino/Hispanic ethnicity. All race/ethnicity categories were computed as mutually exclusive entities: Caucasian, African American, Hispanic and Other/multiracial. All respondents who chose white as their racial classification were coded as Caucasian; those who chose black as their racial classification were coded as African American. Respondents who chose other racial classifications including more than one race were coded as Other/multiracial. If a respondent identified themselves as Hispanic or Latino they were classified by that ethnic category regardless of any additional racial classification. After these four race/ethnicity categories were used to compute a race and ethnicity variable, the categories were collapsed for final analysis. The final analysis used a bifurcated race/ethnicity variable with the factors Caucasian and Non-Caucasian. Hispanic or Latino ethnicity were categorized as Non-Caucasian. If a race or ethnicity category was not selected by the respondent then the variable was coded as missing. From the CCHS survey, race/ethnicity was computed as Caucasian/Visible Minority.

For both BRFSS data and CCHS data the chronic disease index was computed from four different variables regarding whether or not the survey respondent had indicated receiving a diagnosis of diabetes, asthma, arthritis, and/or COPD. Adults self-reporting at least one of these chronic conditions were the population of interest for this study.

Bivariate and multivariate analyses were performed on the 2011 BRFSS and 2008 CCHS data. To examine the relationships between the study covariates and the study dependent variable, bivariate analysis was performed using unadjusted odds ratios as the test statistic. Additional bivariate analysis was performed to identify the prevalence of each of the components of the HSDs variable for both the US and Canadian populations of adults with at least one chronic condition. Two multivariate logistic regression models were performed to examine health service deficits experienced by US and Canadian adults with at least one chronic condition mutually adjusting for respondent sex, race/ethnicity, age, education, self-reported health status and annual household income.

All analyses were performed on weighted data as is recommended by both the CDC and Stats Can. SPSS version 22.0 (IBM, Chicago, IL) was used to perform the statistical analyses with alpha set at <0.05 to determine statistical significance. The IRBs at all of the researchers' institutions recognize that the analysis of de-identified, publicly available data does not constitute human subjects research as defined in federal regulations, and as such does not require IRB review. Hence, human subjects' approval was not necessary since this was a de-identified data only study.

Results

Bivariate analysis (Table 1) using unadjusted odds ratios as the test statistic revealed that for both US and Canadian adults with at least one chronic illness (asthma, diabetes, arthritis and/or COPD) all of the study covariates (sex, race/ethnicity, age education, self-reported health status, and income) were significantly associated with the study dependent variable---HSDs. For the Canadian population of adults with chronic illness, males, not being a university graduate, and living in a household with an annual income <\$50,000 all had lesser odds of having a HSD. In difference, American adults with chronic illness who were males, visible minorities, <65 years of age, not a university graduate, self-defining their health as fair to poor, and living in a household with an annual income of <\$50,000 all had greater odds of having at least one HSD.

Overall (Table 2), the percent of Canadians with chronic illness and with at least one HSD was significantly smaller than similar US adults (19.7% vs. 42.0%). Additionally, in comparison to Canadians, the US adult population with chronic illness had higher proportions of each of the components of HSDs.

Multivariate logistic regression analysis (Table 3) using having HSDs as the dependent variable and mutually adjusting for each of the study covariates, yielded that for the study populations non-Caucasians or visible minorities, those under 65 years of age, those with annual household incomes of <\$50,000, and those defining their health as fair to poor all had greater odds of having at least one HSD. In difference to the Canadian population, the US population also had greater odds of being male and not being a university graduate.

Discussion

Our analyses revealed that Canadian adults with at least one chronic illness have fewer HSDs than similar US adults. We carried out this analysis to estimate what impact the ACA might have for the US population of adults with chronic illness as it rolls out over the next few years. Current projections of the impact of the ACA indicate an increase in access to care, the number and proportion of insured individuals, as well as a decrease in health care costs.^{20,21} The initial and obvious impact would be on reducing the overall proportion of uninsured adults with chronic conditions in the US. It might also, over time, reduce the proportion of adults with chronic illness who are males, under 65 years of age, and living in poorer households with HSDs.

Results of this analysis show that the US can expect to see a reduction in HSDs among its citizens with the implementation of the ACA. Between the US and Canada, there was a 53% difference in the prevalence of HSDs (42.0% and 19.7%, respectively). Factors that will potentially remain a concern, specifically related to HSDs include routine medical exams and potentially preventive care as well as out of pocket cost for care. This identifies areas of focus for future modifications or improvements of the ACA. One advantage that the ACA has over the Canadian system is the inclusion of prescription drug coverage, which is potentially a driving factor for continued barriers to care regarding cost in Canada.

Trends seen in our analysis are similar to that of others including socioeconomic status, race/ethnicity, and insurance status.²² Although the prevalence of HSDs differs between the US and Canada, those with at least one HSD have similar characteristics. In each country, age was the strongest predictor of having a HSD, although the effect size was much greater for the US population.

A National Center for Health Statistics 2006 chartbook on trends in health of Americans reported that, as a whole, US adults 18-64 years of age have the highest prevalence for deferring/delaying care due to cost or not having a health care visit in the past 12 months---both components of our HSDs variable.²² This is likely multifactorial. Younger patients more likely to only need care for preventive services, however, this population is the least likely to receive this type of care.^{16,22} This is also supported by the findings from other studies that indicated that those 19-25 years of age have the highest rate of being uninsured, and subsequently deferring health care.¹⁶ With younger individuals remaining at an increased risk for HSDs such as in Canada, a population with universal health care, we can expect to see a reduction in HSDs with the implementation of the ACA, although a complete resolution is unlikely.

Both low income and less education, as indicated in our findings, are risk factors for HSDs in the US population. With the ACA, all adults are responsible for selecting their health insurance plans. Despite health insurance availability, a recent study found that many adults with reduced income or lower education levels may not have the knowledge and skills necessary to effectively navigate the new health insurance system, may not have sufficient financial knowledge to make appropriate selections, and as a result may

still defer care due to cost.²⁰ Consequently, individuals most likely to benefit from implementation of the ACA may remain at risk for HSDs.

Pharmacists are readily accessible health care professionals, who may be able to assist in reducing HSDs. Community pharmacists are readily available without pre-set appointments, consultations do not require payment or proof of health insurance, and treatment options may be available without a prescription. Moreover, pharmacists are well positioned to provide preventive care, such as vaccinations and chronic disease screenings. Additionally, pharmacists' working knowledge of the health care system could assist patients in navigating health insurance enrollment processes as well as enrolling in patient assistance programs related to medication costs.

Limitations

Several potential limitations to this study deserve attention. Most notably, because the survey is based on telephone interview derived data, it may be skewed because those who could not be reached by phone, for any number of reasons, could and did not participate in the survey. For instance, the wide-spread use of answering machines and caller ID allow individuals to filter their telephone calls, potentially leading to a passive refusal to participate in health surveillance surveys including BRFSS and CCHS. The use of answering machines and caller ID to filter out unwanted or unfamiliar callers, however, is beyond the control of survey administrators. Additionally, some individuals of lower SES may have been excluded from the survey because of lack of telephone access; this bias, though, is minimized by the fact that the vast majority of US and Canadian residents live in households with telephones and even those considered "transient" often have their own cell phone. US cell phone numbers are now included in the pool of phones contacted for the BRFSS survey.

A second limitation is that the surveys consisted of close-ended questions, which could limited responders' options to fully explain response choices. The survey questions were worded, however, so that the answer choices covered a wide range of response possibilities. A third and related limitation is that answers were self-reported, which introduces the possibility of exposure and outcome misclassification on the part of the survey participants. A fourth limitation is that only those variables available from the survey questions could be used and these questions may not necessarily reflect a fully comprehensive measure of the concept of HSDs. Furthermore, even though the CCHS survey is modeled after the BRFSS survey, there were some differences in the actual questions asked in the two surveys.

Lastly, this study analyzed cross-sectional data, limiting assessment of causal relationships. At best, associations are detectable in cross-sectional studies and there is uncertainty as to whether identified associations are causal with respect to HSDs. Further analysis should examine those associations. Nevertheless, despite these limitation, the strengths of the study overall are grounded in large sample sizes leading to generalizability of findings.

Conclusions

The ACA was implemented to both increase access to care and reduce health care costs. Using Canada as a proxy we were able to compare the prevalence of HSDs between a population with and without universal health care insurance. Our analyses revealed a lower prevalence of HSDs among adult Canadians with at least one chronic illness, suggesting that the ACA may result in a reduction of HSDs in the comparable US population. Further research to re-evaluate this comparison should be conducted after the

full implementation of the ACA in order to confirm our prediction of the impact of the ACA.

References

1. Rak S, Coffin J. Affordable Care Act. *J Med Pract Manage.* 2013; 28: 317-319
2. US Department of Health and Human Services. Read the law. <http://www.hhs.gov/healthcare/rights/law/index.html>. Accessed on 20 June 2014
3. Centers for Medicare and Medicaid Services. Affordable Care Act. <http://www.medicare.gov/AffordableCareAct/Affordable-Care-Act.html>. Accessed on 20 June 2014
4. Kaiser Family Foundation. Kaiser Commission on Medicaid and the Uninsured. The uninsured and the difference health insurance makes. <http://www.kff.org/uninsured/upload/1420-14.pdf>. Accessed on 20 June 2014
5. Centers for Medicare and Medicaid Services. Original Medicare (Part A and B) Eligibility and Enrollment. <http://www.cms.gov/Medicare/Eligibility-and-Enrollment/OrigMedicarePartABELigEnroll/>. Accessed on 20 June 2014.
6. Park M. Where in the world can you get universal health care. *CNN Health.* <http://www.cnn.com/2012/06/28/health/countries-health-care/>. Accessed on 20 June 2014
7. Health Canada. Canada's Health Care System. <http://www.hc-sc.gc.ca/hcs-sss/pubs/system-regime/2011-hcs-sss/index-eng.php>. Accessed on 20 June 2014
8. Health Canada. Canada Health Act-Frequently Asked Questions. <http://www.hc-sc.gc.ca/hcs-sss/medi-assur/faq-eng.php>. Accessed on 20 June 2014
9. Centers for Disease Control and Prevention. Health Expenditures. <http://www.cdc.gov/nchs/fastats/hexpense.htm>. Accessed on 20 June 2014
10. Folger J. Essential Health Benefits Under the Affordable Care Act. *Forbes.* <http://www.forbes.com/sites/investopedia/2013/10/11/essential-health-benefits-under-the-affordable-care-act/3/> Accessed on 20 June 2014
11. Schoen C, Doty, M, Robertson R, Collins S. Affordable Care Act reforms could reduce the number of underinsured US adults by 70%. 2011. *Health Aff.* 2011; 30: 1762-1771
12. US Department of Health and Human Services. Preventive Services Covered Under the Affordable Care Act. 2014. <http://www.hhs.gov/healthcare/facts/factsheets/2010/07/preventive-services-list.html>. Accessed on 20 June 2014
13. United States Department of Labor. Young Adults and the Affordable Care Act: Protecting Young Adults and Eliminating Burdens on Business and Families. <http://www.dol.gov/ebsa/faqs/faq-dependentcoverage.html>. Accessed on 20 June 2014
14. Sommers BD, Buchmueller T, Decker SL, Carey C, Kronick R. The affordable care act has led to significant gains in health insurance and access to care for young adults. *Health Aff.* 2013; 32: 165-174
15. Cohen RA. Trends in health insurance and access to care from 1997-2008. Hyattsville (MD): National Center for Health Statistics. 2008.
16. De Navas-Walt C, Proctor B, Smith J. Income, Poverty, and Health Insurance coverage in the United States. <http://www.census.gov/prod/2011/pubs/p60-239.pdf> Accessed on 20 June 2014

17. Huot K, Lutfiyya MN, Akers MF, Amaro ML, Swanoski MT, et al. A Population-Based Cross-Sectional Study of Health Service Deficits for U.S. Adults with Depression: are there differences between rural and non-rural adults with depression? BMC Health Services Research. 2013
18. Lutfiyya MN, McCullough JE, Saman DM, Lemieux A, Hendrickson SJ, et al Rural/Urban Differences In Health Services Deficits Among U.S. Adults With Arthritis: A Population-Based Study. Journal of Nursing Education and Practice. 2013; 3: 43-53.
19. Lutfiyya MN, McCullough JE, Lipsky MS. A Population-Based Study of Health Services Deficits for U.S. Adults with Asthma. Journal of Asthma. 2011; 48: 931–944.
20. Barcellos SH, Wuppermann AC, Carman AG, Bauhoff S, McFadden DL et al. Preparedness of Americans for the Affordable Care Act. Proc Natl Acad Sci U S A. 2014; 111: 5497-5502.
21. Buettgens M, Garrett B, Holahan J. American Under the Affordable Care Act. 2014.
22. National Center for Health Statistics. Health, United States. 2006. With Chartbook on Trends in the Health of Americans. 2014.

Table 1: Bivariate Analysis for Canadian and US Adults with at Least One Chronic Illness Having at Least One HSD by Study Covariates 2011 BRFSS and 2008 CCHS Data.

Covariates	Factors	Unadjusted Odds Ratios (95% CI)	
		US Adults	Canadian Adults
Respondents (vs. Female)	Sex Male	1.126 (1.125, 1.126)	0.989 (0.986, 0.992)
Race (vs. Caucasian)	Ethnicity Non-Caucasian/ Visible Minorities	1.280 (1.280, 1.281)	1.098 (1.093, 1.103)
Age Ranges (>=65 Years)	(vs. <65 Years)	2.318 (2.316, 2.320)	2.059 (2.051, 2.067)
Education University Graduate)	(vs. Not a University Graduate)	1.301 (1.300, 1.302)	0.788 (.786, .791)
Self-Reported Health Status (Good to Excellent)	(vs. Fair to Poor)	1.158 (1.157, 1.158)	1.300 (1.295, 1.304)
Income (>= \$50,000)	(vs. <\$50,000)	1.539 (1.538, 1.540)	0.990 (0.987, 0.993)

HSD=Health Service Deficits; BRFSS=Behavioral Risk Factor Surveillance System; CCHS=Canadian Community Health Survey. For US and Canadian adults with at least one chronic illness (asthma, diabetes, arthritis and/or COPD) all of the study covariates (sex, race/ethnicity, age education, self-reported health status, and income) were significantly associated with the study dependent variable-HSDs.

Table 2: Components of Health Service Deficits for US and Canadian Adults with at Least One Chronic Condition 2011 BRFSS and 2008 CCHS Data.

Variable and Factors		%US Adults	%Canadian Adults
Health Service Deficits	No HSDs	58.0	80.3
	Have HSDs	42.0	19.7
Health Provider Care	Have HCP	86.7	92.4
	Do Not Have HCP	13.3	7.6
Last Routine Medical Check-Up	Within Last Year	74.4	93.4
	Longer Than 1 Year Ago	25.6	6.6
Care Deferred Because of Cost	Did Not Defer Care	80.8	86.0
	Deferred Care	19.2	14.0
Health Insurance	Have Health Insurance	85.9	
	Do Not Have Health Insurance	14.1	

BRFSS=Behavioral Risk Factor Surveillance System; CCHS=Canadian Community Health Survey; HSD=Health Service Deficits. The percent of Canadians with chronic illness and with at least one HSD was significantly smaller than similar US adults.

Table 3: Logistic Regression Analysis of US and Canadian Adults with Chronic Illness Using Having at Least One Health Service Deficit as the Dependent Variable 2011 BRFSS and 2008 CCHS Data.

Covariates	Factors	Adjusted Odds Ratios (95% CI)	
		US Adults	Canadian Adults
Respondents Sex	Male	1.239 (1.238, 1.241)	0.976 (0.972, 0.980)
	Female	--*	--*

	Caucasian	--*	--*
Race Ethnicity	Non-Caucasian or Visible Minorities	1.092 (1.091, 1.093)	1.017 (1.010, 1.024)
Age Ranges	<65 Years	4.142 (4.136, 4.149)	2.500 (2.487, 2.514)
	>=65Years	--*	--*
Education	Not University Graduate	1.113 (1.112, 1.115)	0.780 (0.777, 0.784)
	University Graduate	--*	--*
Income	<\$50,000	2.548 (2.545, 2.551)	1.176 (1.170, 1.181)
	≥ \$50,00	--*	--*
Self-Reported Health Status	Good to Excellent	--*	--*
	Fair to Poor	1.118 (1.116, 1.119)	1.589 (1.582, 1.597)

*Reference category

BRFSS=Behavioral Risk Factor Surveillance System; CCHS=Canadian Community Health Survey. Non-Caucasians or visible minorities, those under 65 years of age, those with annual household incomes of <\$50,000, and those defining their health as fair to poor all had greater odds of having at least one HSD