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# Quantitative Evaluation of the Impact of the Healthy Communities Initiative in Cincinnati—Appendix

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# Appendix

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## A1. Statistical Methods

To identify differential impacts of the intervention on the outcome measures in Cincinnati relative to the reference cities in the intervention years, we adopted a difference-in-differences approach. That is, we first generated the pre- and postintervention difference in outcome measures for Cincinnati and the reference cities, respectively, and then took the difference between the two pre- and postintervention differences. Statistically, this was modeled as an interaction between the indicator for Cincinnati residents and postintervention year indicators (2010–2012). Other key model components included preintervention calendar year indicators, individual level characteristics and a set of indicators for the reference cities. We include modeling specifications for each data analysis.

### A1.1 CPS Data Analysis

The CPS data are monthly data, where each individual may be surveyed up to eight times with a gap of eight months. However, individuals cannot be linked over time, although households can be. The analytic sample was limited to the individuals who were employed at the time of the survey because our outcome of interest is missed work due to illness in the previous week. In addition, individuals who were full-time students, retired, or served in the military were excluded from the analysis.

A difference-in-differences model takes the following form.

$$g^{-1}(Y_{it}) = \beta_0 + \text{preintervention year indicators} * \beta_1 + \text{Year 2010} * \beta_2 + \text{Year 2011} * \beta_3 + \text{Year 2012} * \beta_4 + \text{Cincinnati}_i * \beta_5 + \text{Year 2010} * \text{Cincinnati}_i * \beta_6 + \text{Year 2011} * \text{Cincinnati}_i * \beta_7 + \text{Year 2012} * \text{Cincinnati}_i * \beta_8 + X_{it} * \beta_9 + \text{Reference city indicators} * \beta_{10} + \varepsilon_{it} \quad [1]$$

where  $g^{-1}()$  is a link function that transforms the outcome;  $Y$  is the outcome of interest;  $i$  is individual  $i$ ;  $t$  is year  $t$ , 2006–2012; *preintervention year indicators* are 2007–2009 (2006 as the reference);  $X$  is individual characteristics; and  $\varepsilon$  is the error term.

For the number of work hours missed (a continuous variable),  $g$  is an identity link function; for the absence from work (a dichotomous variable),  $g$  is a logistic function. Preintervention year indicators are for 2007, 2008, and 2009, respectively, with 2006 as the reference year. Year 2010, Year 2011, and Year 2012 are postintervention year indicators. The coefficients of the interactions between postintervention years and Cincinnati represent the intervention effect.

Individual characteristics include age, gender, race, ethnicity, family income, marital status, employment classification, education level, and number of children in the household. We also used robust standard errors by clustering individuals at the household level.

Since nearly 9 percent of observations in the 2006–2012 CPS data have missing family income data, we imputed the missing values using the hotdeck method. We conducted an ordered logit regression to model family income categories based on age, gender, race, ethnicity, marital status, number of children, and education. The linear predictions were classified into 20 equally divided bins using the percentiles of the predictions. A missing income value was replaced with a randomly drawn nonmissing income value within the same bin. All other covariates for the analytic sample have no missing values. In the analysis for the number of work hours missed in the past week, we dropped about 8 percent of the sample that did not report a usual number of work hours in a week, which was needed to calculate the number of work hours missed.

### **A1.2 BRFSS Data Analysis**

The BRFSS data are based on cross-sectional telephone surveys and do not allow us to track individuals over time. The difference-in-differences model is similar to that for the CPS data analysis except individual characteristics for BRFSS included comorbid conditions. Equation [2] shows the difference-in-differences model used for the analysis.

$$g^{-1}(Y_{it}) = \beta_0 + \text{Pre-intervention year indicators} * \beta_1 + \text{Year 2010} * \beta_2 + \text{Year 2011} * \beta_3 + \text{Year 2012} * \beta_4 + \text{Cincinnati}_i * \beta_5 + \text{Year 2010} * \text{Cincinnati}_i * \beta_6 + \text{Year 2011} * \text{Cincinnati}_i * \beta_7 + \text{Year 2012} * \text{Cincinnati}_i * \beta_8 + X_{it} * \beta_9 + \text{Reference city indicators} * \beta_{10} + \varepsilon_{it}$$

[2]

where  $g^{-1}()$  is a link function that transforms the outcome;  $Y$  is the outcome of interest;  $i$  is Individual  $I$ ;  $t$  is Year  $t$ , 2006–2012; *preintervention year indicators* are 2007–2009 (2006 as the reference);  $X$  is individual characteristics; and  $\varepsilon$  is the error term.

Since the outcomes from the BRFSS data were classified as dichotomous variables, including self-rated health status, smoking, obesity, and binge drinking,  $g$  is a logistic function. Preintervention year indicators are for 2007, 2008, and 2009, respectively, with 2006 as the reference year. Year 2010, Year 2011, and Year 2012 are postintervention year indicators. The coefficients of the interactions between postintervention years and Cincinnati represent the intervention effect. Individual characteristics include age, gender, race, ethnicity, family income, marital status, employment classification, education level, number of children in the household, and comorbid conditions (such as heart attack, angina or coronary heart disease, stroke, asthma, diabetes, and presence of activity limitations). We also used robust standard errors by clustering individuals at the market level.

Self-reported health status, smoking, binge drinking, and obesity were missing for 0.6 percent, 0.78 percent, 3.9 percent, and 4.9 percent of the overall sample, respectively. We dropped the individuals with a missing dependent variable for the analysis on that dependent variable. All covariates (except family income) have a missing value for less than 1.5 percent of the overall sample. For these covariates, we imputed the missing values using the median of nonmissing values. About 14 percent of the sample has a missing value for family income. Similar to what we did in the CPS analysis, we used the hotdeck imputation method to impute the missing family income variable, based on an ordered logit regression on family income, which was modeled as a function of age, gender, race, ethnicity, marital status, education level, number of children, and employment status. A linear prediction for each individual was classified into 20 equally divided bins using the percentiles of the predictions. A nonmissing income value within the same bin was randomly drawn to replace each missing value.

### **A1.3 MarketScan Data Analysis**

The MarketScan Research Database allowed us to follow the same individual over time and therefore we were able to examine a subsample of individuals who have both pre- and postintervention data. In addition, we made use of propensity score weighting to balance the differences between Cincinnati residents and those in the reference cities and reduce the potential for bias.

This involved two-step analysis. First, a logistic regression was conducted to generate propensity scores for each individual using preintervention data.

$$\text{Logit}(p) = \beta_0 + X_{it} * \beta_1 + \text{preintervention year indicators}_i * \beta_2 \quad [3]$$

where  $p$  is being a Cincinnati resident;  $i$  is Individual  $I$ ;  $t$  is Year  $t$ , 2006–2009; *preintervention year indicators* are 2007–2009 (2006 as the reference); and  $X$  is individual characteristics

Individual characteristics during the preintervention period include age, gender, whether an individual is a dependent, type of health plan, number of years of data available, Charlson comorbid conditions (Charlson, Pompei, Ales, & MacKenzie, 1987; Deyo, Cherkin, & Ciol, 1992), logged total health care cost, number of office-based primary care visits, number of inpatient admissions, number of emergency department visits, and number of prescription fills. For individuals with multiple preintervention years, the average of predicted probabilities was used as the propensity score and they were truncated at 0.1 and 0.9 to generate more robust propensity weights (Stürmer, Rothman, Avorn, & Glynn, 2010; Lee, Lessler & Stuart, 2011). Propensity weights for those in Cincinnati are  $1/\text{propensity}$ , whereas for those in the reference cities propensity weights are  $1/(1-\text{propensity})$ .

Second, we conducted the main regression using the propensity weights. The main regression takes the following form:



$$g^{-1}(Y_{it}) = \beta_0 + \text{Pre-intervention year indicators} * \beta_1 + \text{Year 2010} * \beta_2 + \text{Year 2011} * \beta_3 + \text{Year 2012} * \beta_4 + \text{Cincinnati}_i * \beta_5 + \text{Year 2010} * \text{Cincinnati}_i * \beta_6 + \text{Year 2011} * \text{Cincinnati}_i * \beta_7 + \text{Year 2012} * \text{Cincinnati}_i * \beta_8 + X_{it} * \beta_9 + \text{Reference city indicators} * \beta_{10} + \varepsilon_{it}$$

[4]

where  $g^{-1}()$  is a link function that transforms the outcome;  $Y$  is the outcome of interest;  $i$  is Individual  $I$ ;  $t$  is Year  $t$ , 2006–2012; *preintervention year indicators* are 2007–2009 (2006 as the reference);  $X$  is individual characteristics; and  $\varepsilon$  is the error term.

For health care costs, a generalized linear model was used using a log link ( $g$ ) and a Gaussian family. Utilizations and utilization-based quality measures (e.g., readmissions) were modeled using negative binomial regressions. Logistic regressions were used to model dichotomous quality outcomes. Individual characteristics include age, gender, whether an individual is a dependent, type of health plan, and Charlson comorbid conditions.

To make sure the claims data are complete for the individuals in the analysis, we included only individuals who were enrolled in all 12 months for a calendar year and employees and dependents younger than 65. Individuals ages 65 or older are eligible for Medicare and their claims data may not be complete. Individual enrolled in a health plan that involved capitation payments were also excluded from the analysis because their claims data are likely not complete. In addition, for the purpose of this analysis, we required individuals to have at least one preintervention year and one intervention year of data. All costs were adjusted to the 2013 U.S. dollars using the Consumer Price Index. The cost outliers were truncated at 99.9th percentile and the utilization outliers were truncated at the 11th largest value.

#### **A1.4 Simulation**

All regression outputs are presented in figures using predicted outcomes. We used a representative resident in Cincinnati, defined as having the mean value of individual characteristics of all Cincinnati residents, and predicted an outcome for each of the calendar years. Similarly, we predicted the outcomes for a representative resident of the reference cities. Standard errors of the predictions were generated using the delta method (Oehlert, 1992).

## A2. Additional Results

**Table A.1. Cincinnati and 15 Reference Markets**

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**Metropolitan Statistical Areas**

---

Charlotte-Gastonia-Rock Hill, NC-SC  
 Cincinnati-Middletown, OH-KY-IN  
 Cleveland-Elyria-Mentor, OH  
 Columbus, OH  
 Denver-Aurora-Broomfield, CO  
 Jacksonville, FL  
 Kansas City, MO-KS  
 Las Vegas-Paradise, NV  
 Memphis, TN-MS-AR  
 Nashville-Davidson-Murfreesboro-Franklin, TN  
 Orlando-Kissimmee-Sanford, FL  
 Portland-Vancouver-Hillsboro, OR-WA  
 Providence-New Bedford-Fall River, RI-MA  
 San Antonio-New Braunfels, TX  
 San Jose-Sunnyvale-Santa Clara, CA  
 St. Louis, MO-IL

---

**Table A.2. Specifications of Prevention Quality Indicators for Identifying Ambulatory Sensitive Inpatient Admissions and Potentially Avoidable ED Visits**

<b>Hospital Inpatient</b>	<b>Emergency Room</b>	<b>Prevention Quality Indicators (PQI)</b>
x	x	PQI #1 Diabetes Short-Term Complications Admission Rate
x		PQI #2 Perforated Appendix Admission Rate
x	x	PQI #3 Diabetes Long-Term Complications Admission Rate
x	x	PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate
x	x	PQI #7 Hypertension Admission Rate
x	x	PQI #8 Heart Failure Admission Rate
x	x	PQI #10 Dehydration Admission Rate
x	x	PQI #11 Bacterial Pneumonia Admission Rate
x	x	PQI #12 Urinary Tract Infection Admission Rate
x	x	PQI #13 Angina Without Procedure Admission Rate
x	x	PQI #14 Uncontrolled Diabetes Admission Rate
x	x	PQI #15 Asthma in Younger Adults Admission Rate
x		PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate

---

**Table A.3. PCMH Scoring and Must-Pass Elements**

<b>Standard</b>	<b>Elements</b>	<b>Points</b>
Enhancing access and continuity		20
	<b>Access during office hours*</b>	4
	After-hours access	4
	Electronic access	2
	Continuity	2
	Medical home responsibilities	2
	Culturally and linguistically appropriate services	2
	Practice team	4
Identify and manage patient populations		16
	Patient information	3
	Clinical data	4
	Comprehensive health assessment	4
	<b>Use data for population management</b>	5
Plan and manage care		17
	Implement evidence-based guidelines	4
	Identify high-risk patients	3
	<b>Care management</b>	4
	Medication management	3
	Use electronic prescribing	3
Provide self-care support and community resources		9
	<b>Support self-care processes</b>	6
	Provide referrals to community resources	3
Track and coordinate care		18
	Test tracking and follow-up	6
	<b>Referral tracking and follow-up</b>	6
	Coordinate with facilities/care transitions	6
Measure and improve performance		20
	Measure performance	4
	Measure patient/family experience	4
	<b>Implement continuously quality improvement</b>	4
	Demonstrate continuous quality improvement	3
	Report performance	3
	Report data externally	2
	Use of certified EHR technology	0

SOURCE: NCQA Standards Workshop Patient-Centered Medical Home: PCMH 2011 (NCQA, 2012).

NOTE: Bold text denotes must-pass item

## A2.1 CPS Data Analysis

**Table A.4. Individual Characteristics of the CPS Analytic Sample**

<b>Demographics and Health Related Characteristics</b>	<b>Cincinnati (n=29,192)</b>	<b>Reference Markets (n=540,827)</b>	<b>P Value</b>
Male, No. (percent)	15,309(52)	281,619(52)	0.22
Blue collar worker, No. (percent)	2,279(8)	47,744(9)	<0.01
Hispanic, No. (percent)	931(3)	67,173(12)	<0.01
Married, No. (percent)	21,087(72)	387,903(72)	0.06
<b>Race, No. (percent)</b>			
White	25,807(88)	455,850(84)	<0.01
Black	2,657(9)	48,940(9)	
Other or unknown	728(2)	36,037(7)	
<b>Education, No. (percent)</b>			
Less than high school	2,496(9)	50,172(9)	<0.01
High school diploma	9,396(32)	143,324(27)	
Some college	8,399(29)	157,195(29)	
College and above	8,901(30)	190,136(35)	
<b>Family income, No. (percent)</b>			
\$0–\$25,000	4,070(14)	67,659(13)	<0.01
\$25,000–\$50,000	7,132(24)	131,766(24)	
\$50,000–\$75,000	6,184(21)	120,088(22)	
\$75,000 and above	11,806(40)	221,314(41)	
<b>Number of children, No. (percent)</b>			
0 children	19,025(65)	356,340(66)	<0.01
1 child	4,241(15)	79,753(15)	
2 children and above	5,926(20)	104,734(19)	
<b>Age</b>			
0–34	9,943(34)	180,963(33)	<0.01
35–44	6,791(23)	126,303(23)	
45–54	7,138(24)	129,138(24)	
55–64	4,124(14)	81,445(15)	
65 and above	1,196(4)	22,978(4)	
Hours missed work last week, mean (standard deviation)	0.4(3.58)	0.45(3.86)	0.04
Any missed work last week, No. (percent)	540(2)	11,222(2)	0.01

Table A.5. Regression Results from the CPS Analytic Sample

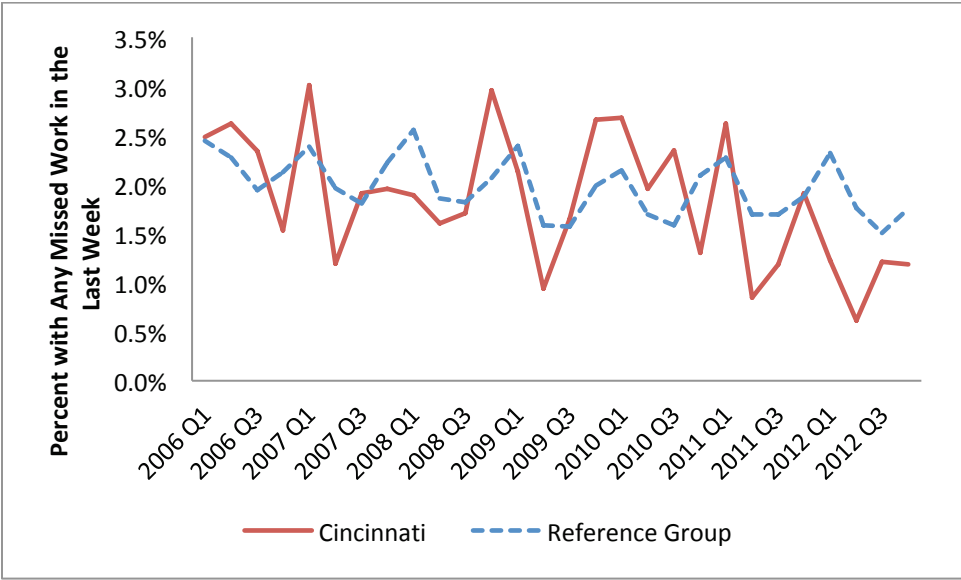
Dependent Variable	Any Missed Work		Hours of Work Missed	
	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>				
2006 (Reference)				
2007	-0.050	0.043	-0.088	0.071
2008	-0.054	0.043	-0.050	0.066
2009	-0.158	0.045**	-0.140	0.069
2010	-0.165	0.046**	-0.140	0.076
2011	-0.158	0.047**	-0.197	0.077*
2012	-0.180	0.046**	-0.360	0.076**
<b>Cities</b>				
Reference cities (reference)				
Cincinnati	-0.309	0.080**	-0.375	0.127**
<b>Cincinnati* intervention year</b>				
Cincinnati*2010	0.085	0.154	-0.069	0.195
Cincinnati*2011	-0.154	0.157	-0.257	0.220
Cincinnati*2012	-0.574	0.185**	-0.572	0.291*
<b>Age</b>				
0–34 (reference)				
35–44	0.226	0.039**	0.408	0.072**
45–54	0.346	0.040**	0.618	0.071**
55–64	0.416	0.045**	0.643	0.071**
65+	0.581	0.065**	0.731	0.105**
<b>Education</b>				
Less than high school (reference)				
High school graduate	0.124	0.050*	0.184	0.083*
Some college	0.110	0.051*	0.145	0.084
College and above	-0.199	0.054**	-0.254	0.090**
<b>Job type</b>				
White collar (reference)				
Blue collar	0.294	0.046	0.215	0.073**

Dependent Variable	Any Missed Work		Hours of Work Missed	
	Coefficient	Standard Error	Coefficient	Standard Error
<b>Income</b>				
\$0–\$25,000 (reference)				
\$25,000–\$50,000	-0.067	0.040	0.104	0.061
\$50,000–\$75,000	-0.170	0.043**	-0.035	0.068
\$75,000 and above	-0.332	0.043**	-0.163	0.064*
<b>Marital status</b>				
Never married (reference)				
Married	0.051	0.038	0.020	0.069
<b>Number of children</b>				
0 children (reference)				
1 child	-0.004	0.038	-0.050	0.065
2 or more children	-0.049	0.040	-0.054	0.065
<b>Race</b>				
White (reference)				
Black	0.101	0.044*	0.201	0.073**
Other	-0.076	0.057	-0.186	0.085*
<b>Ethnicity</b>				
Non-Hispanic (reference)				
Hispanic	-0.048	0.046	-0.066	0.078
<b>Gender</b>				
Male (reference)				
Female	-0.398	0.027**	-0.275	0.047

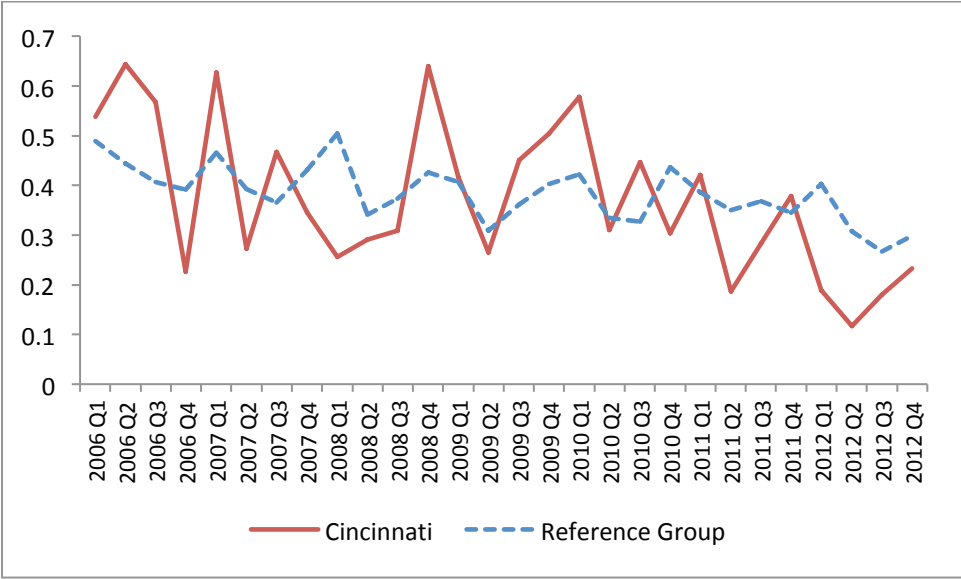
Dependent Variable	Any Missed Work		Hours of Work Missed	
	Coefficient	Standard Error	Coefficient	Standard Error
MSA fixed effects				
San Jose-Sunnyvale-Santa Clara, CA (reference)				
Charlotte-Gastonia-Concord, NC-SC	-0.327	0.069**	-0.347	0.094**
Cleveland-Elyria-Mentor, OH	-0.423	0.069**	-0.554	0.102**
Columbus, OH	0.133	0.061*	0.027	0.099
Denver-Aurora, CO	-0.404	0.052**	-0.582	0.074**
Jacksonville, FL	-0.516	0.082**	-0.641	0.119**
Kansas City, MO-KS	-0.191	0.056**	-0.271	0.083**
Las Vegas-Paradise, NV	-0.412	0.052**	-0.548	0.072**
Memphis, TN-MS-AR	-0.369	0.075**	-0.485	0.120**
Nashville-Davidson--Murfreesboro, TN	-0.410	0.080**	-0.487	0.123**
Orlando, FL	-0.618	0.075**	-0.812	0.110**
Portland-Vancouver-Beaverton, OR-WA	-0.188	0.055**	-0.324	0.079**
Providence-New Bedford-Fall River, RI-M	-0.344	0.057**	-0.412	0.084**
St. Louis, MO-IL	-0.131	0.064*	-0.220	0.101*
San Antonio, TX	-0.240	0.068**	-0.405	0.109**

NOTE: \*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ .

**Figure A.1. Unadjusted Percentage of People with Any Missed Work in the Last Week in Cincinnati and Reference Markets**



**Figure A.2. Unadjusted Mean Hours Missed per Person per Week in Cincinnati and Reference Markets**





## A2.2 BRFSS Data Analysis

**Table A.6. Individual Characteristics of the BRFSS Analytic Sample**

<b>Characteristics</b>	<b>Cincinnati (n=12,469)</b>	<b>Reference Markets (n=251,364)</b>	<b>P Value</b>
Age, mean (standard deviation)	54.21(17.29)	53.95(17.37)	0.11
Male, No. (percent)	4,608(37)	95,764(38)	0.01
Hispanic, No. (percent)	152(1)	17,702(7)	<0.01
Married, No. (percent)	10,628(85)	211,729(84)	0.00
Employed, No. (percent)	6,328(51)	132,055(53)	<0.01
<b>Race, No. (percent)</b>			
White	11,062(89)	214,764(85)	
Black	1,112(9)	20,329(8)	<0.01
Other or unknown	295(2)	16,271(6)	
<b>Education, No. (percent)</b>			
Less than high school	1,110(9)	21,531(9)	
High school diploma	3,997(32)	67,532(27)	<0.01
Some college	3,142(25)	68,208(27)	
College and above	4,220(34)	94,093(37)	
<b>Income, No. (percent)</b>			
\$0–\$25,000	3,544(28)	69,058(27)	
\$25,000–\$50,000	3,222(26)	65,911(26)	0.02
\$50,000–\$75,000	2,119(17)	41,641(17)	
\$75,000 and above	3,584(29)	74,754(30)	
<b>Number of children, No. (percent)</b>			
0 children	8,707(70)	176,591(70)	
1 child	1,506(12)	30,279(12)	0.51
2 or more children	2,256(18)	44,494(18)	
<b>Chronic conditions, No. (percent)</b>			
Ever diagnosed with heart attack	791(6)	14,065(6)	<0.01
Ever diagnosed with angina or coronary heart disease	773(6)	14,249(6)	0.01
Ever diagnosed with a stroke	548(4)	9,198(4)	<0.01
Ever diagnosed with asthma	1,643(13)	34,253(14)	0.12
Ever diagnosed with diabetes	1,697(14)	30,273(12)	<0.01
Activity limitation due to health problem	3,138(25)	60,998(24)	0.03
<b>Binary health outcomes, No. (percent)</b>			
Good or better health	9,961(80)	205,115(82)	<0.01
Obese	3,362(27)	62,896(25)	<0.01
Binge drinker	1,583(13)	29,308(12)	0.00
Current smoker	2,438(20)	41,740(17)	<0.01

**Table A.7. Regression Results from the BRFSS Analytic Sample**

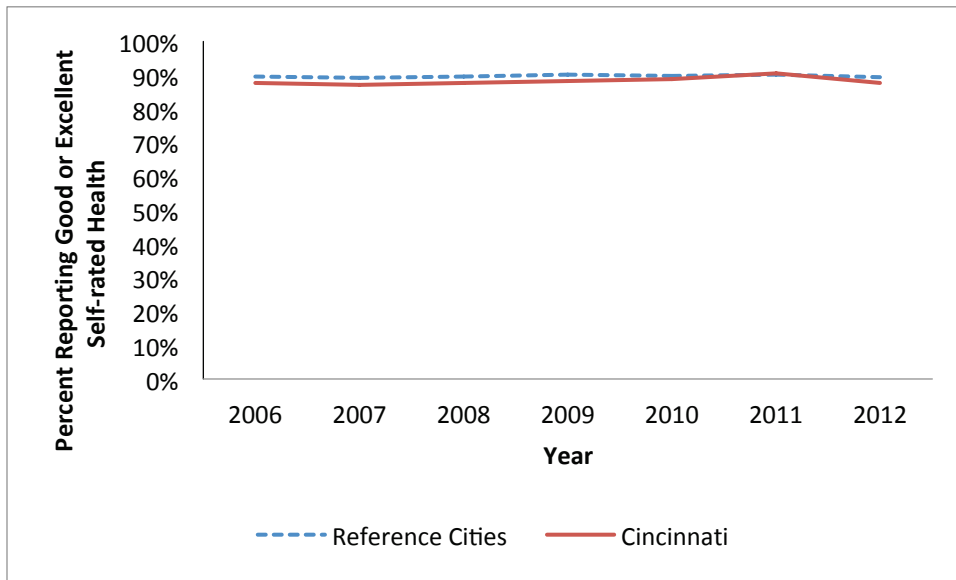
Dependent Variable	Smoking		Obesity		Health Status		Binge Drinking	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>								
2006 (Reference)								
2007	-0.006	0.037	0.034	0.040	-0.046	0.050	0.085	0.043
2008	-0.031	0.037	0.019	0.034	0.007	0.048	0.027	0.037
2009	-0.077	0.036*	0.046	0.048	0.062	0.046	0.085	0.040*
2010	-0.123	0.046**	0.076	0.037*	0.031	0.038	0.035	0.044
2011	-0.049	0.041	0.027	0.035	0.067	0.050	0.311	0.031**
2012	-0.104	0.049*	0.053	0.041	-0.021	0.039	0.240	0.047**
<b>Cities</b>								
Reference cities (Reference)								
Cincinnati	0.710	0.037**	0.394	0.023**	-0.029	0.034	0.281	0.029**
<b>Cincinnati* Intervention Year</b>								
Cincinnati*2010	0.059	0.037	-0.026	0.025	0.089	0.044	0.111	0.023**
Cincinnati*2011	0.026	0.028	-0.024	0.028	0.241	0.037**	0.063	0.018**
Cincinnati*2012	-0.001	0.041	-0.041	0.022	0.035	0.031	-0.020	0.041
<b>Age</b>								
7–34 (Reference)								
35–44	0.075	0.028**	0.356	0.041**	-0.429	0.061**	-0.281	0.033**
45–54	0.027	0.033	0.392	0.033**	-0.612	0.050**	-0.618	0.029**
55–64	-0.301	0.041**	0.382	0.030**	-0.606	0.062**	-1.128	0.044**
65+	-1.380	-0.08**	-0.093	0.037*	-0.302	0.066**	-1.831	0.057**
<b>Education</b>								
Less than high school (Reference)								
High school graduate	-0.366	0.041**	-0.056	0.024*	0.635	0.053**	0.005	0.058
Some college	-0.650	-0.05**	-0.033	0.037	0.855	0.061**	0.002	0.045
College and above	-1.508	-0.06**	-0.348	0.038**	1.222	0.057**	-0.116	0.057*
<b>Employment Status</b>								
Unemployed (Reference)								
Employed	0.090	0.031**	0.141	0.036**	0.368	0.033**	0.259	0.036**

Dependent Variable	Smoking		Obesity		Health Status		Binge Drinking	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Income</b>								
\$0–\$25,000 (Reference)								
\$25,000–\$50,000	-0.195	0.032**	0.002	0.033	0.417	0.027**	0.161	0.039**
\$50,000–\$75,000	-0.530	-0.04**	0.035	0.035	0.750	0.035**	0.202	0.039**
\$75,000 and above	-0.824	-0.04**	-0.141	0.038**	1.102	0.041**	0.342	0.043**
<b>Marital Status</b>								
Never married (Reference)								
Married	-0.110	0.030**	0.125	0.030**	-0.102	0.040*	-0.326	0.042**
<b>Number of Children</b>								
0 Children (Reference)								
1 Child	-0.041	0.037	0.090	0.033**	0.108	0.043*	-0.184	0.043**
2 or more children	-0.127	0.032**	0.067	0.028*	0.143	0.053**	-0.211	0.033**
<b>Race</b>								
White (Reference)								
Black	-0.292	0.048**	0.477	0.027**	-0.340	0.051**	-0.529	0.064**
Other	-0.121	0.062	-0.290	0.106**	-0.217	0.050**	-0.432	0.106**
<b>Ethnicity</b>								
Non-Hispanic (Reference)								
Hispanic	-0.669	-0.06**	0.381	0.047**	-0.565	0.073**	0.041	0.051
<b>Gender</b>								
Female (Reference)								
Male	0.236	0.033**	0.134	0.033**	-0.043	0.028	0.708	0.023**
<b>Chronic Conditions</b>								
Myocardial Infarction	0.262	0.053**	-0.141	0.057*	-0.612	0.055**	-0.053	0.102
Coronary heart disease	-0.116	0.057*	0.137	0.056*	-0.802	0.030**	-0.188	0.087*
Stroke	0.178	0.056**	-0.115	0.063	-0.685	0.029**	-0.042	0.082
Asthma	0.058	0.027*	0.357	0.014**	-0.505	0.034**	0.006	0.043
Diabetes	-0.231	0.028**	1.088	0.024**	-1.030	0.037**	-0.489	0.038**
Limited activity	0.463	0.018**	0.541	0.027**	-1.729	0.031**	-0.062	0.045

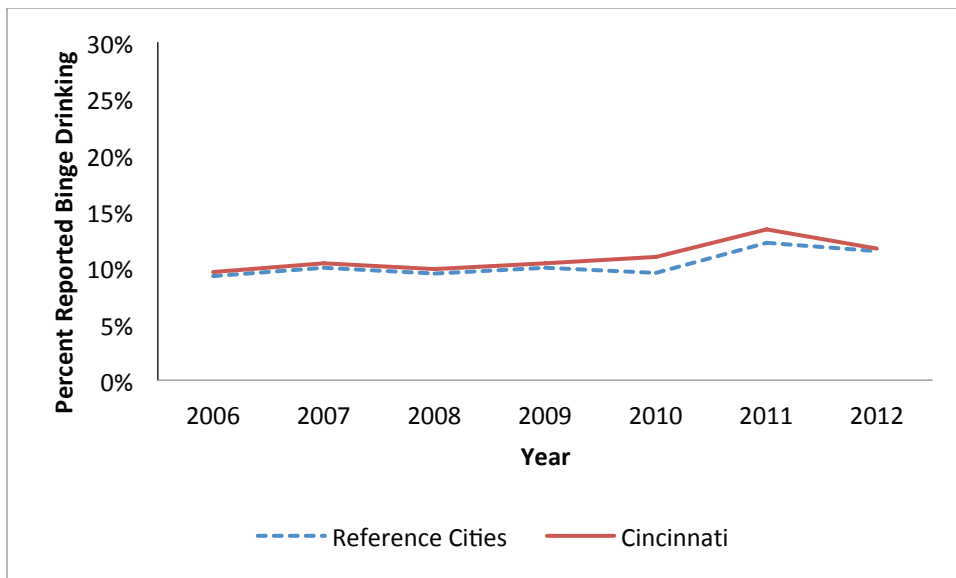
Dependent Variable	Smoking		Obesity		Health Status		Binge Drinking	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
MSA Fixed Effects								
San Jose-Sunnyvale-Santa Clara, CA (reference)								
Charlotte-Gastonia-Concord, NC-SC	0.453	0.023**	0.314	0.017**	-0.053	0.023*	0.010	0.026
Cleveland-Elyria-Mentor, OH	0.577	0.030**	0.304	0.020**	0.024	0.031	0.349	0.030**
Columbus, OH	0.566	0.027**	0.507	0.020**	-0.016	0.029	0.190	0.031**
Denver-Aurora, CO	0.515	0.018**	-0.001	0.015**	0.071	0.016**	0.228	0.022**
Jacksonville, FL	0.635	0.027**	0.286	0.019**	0.012	0.027	0.245	0.028**
Kansas City, MO-KS	0.636	0.026**	0.466	0.018**	0.073	0.027**	0.169	0.026**
Las Vegas-Paradise, NV	0.683	0.012**	0.273	0.010**	-0.188	0.008**	0.195	0.013**
Memphis, TN-MS-AR	0.518	0.036**	0.530	0.026**	-0.001	0.036	-0.184	0.041**
Nashville-Davidson—Murfreesboro, TN	0.533	0.030**	0.407	0.020**	-0.108	0.030**	-0.339	0.030**
Orlando, FL	0.440	0.018**	0.272	0.014**	-0.050	0.014**	0.144	0.022**
Portland-Vancouver-Beaverton, OR-WA	0.236	0.026**	0.302	0.016**	0.108	0.028**	0.044	0.025
Providence-New Bedford-Fall River, RI-M	0.455	0.026**	0.284	0.017**	0.025	0.024	0.291	0.025**
St. Louis, MO-IL	0.673	0.030**	0.452	0.020**	0.035	0.031	0.468	0.031**
San Antonio, TX	0.550	0.012**	0.381	0.016**	-0.009	0.012	0.385	0.021**

NOTE: \*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ .

**Figure A.3. Self-Rated Health Status in Cincinnati Relative to Reference Markets**



**Figure A.4. Binge Drinking Behavior in Cincinnati Relative to Reference Markets**



## A2.3 MarketScan Data Analysis

**Table A.8. Individual Characteristics of the MarketScan Analytic Sample, Preintervention Period**

<b>Characteristics</b>	<b>Cincinnati (n= 364,389)</b>	<b>Reference Markets (n=4,405,605)</b>	<b>P Value</b>
Male, No. (percent)	180,867(50)	2,131,040(48)	<0.01
High Deductible Health Plan, No. (percent)	39,057(11)	254,381(6)	<0.01
<b>Relationship to Employee, No. (percent)</b>			
Employee	161,324(44)	2,121,306(48)	
Spouse	83,108(23)	914,632(21)	<0.01
Child/other	119,957(33)	1,369,667(31)	
<b>Age Group, No. (percent)</b>			
0–17	103,093(28)	1,211,139(27)	
18–34	64,890(18)	798,696(18)	
35–44	64,461(18)	815,378(19)	<0.01
45–54	82,255(23)	973,582(22)	
55–64	49,690(14)	606,810(14)	
<b>Costs</b>			
Annual outpatient costs, mean (standard deviation)	169.25(457.19)	167.35(451.80)	0.02
Annual inpatient costs, mean (standard deviation)	61.14(444.67)	58.16(436.32)	<0.01
ED costs, mean (standard deviation)	3.22(12.88)	2.77(12.92)	<0.01
Annual drug costs, mean (standard deviation)	67.5(188.73)	63.02(188.76)	<0.01
Total annual costs, mean (standard deviation)	305.02(840.59)	295.64(833.43)	<0.01
<b>Utilizations</b>			
Office-based primary care visits, mean (standard deviation)	1.9(2.39)	1.76(2.42)	<0.01
Ambulatory care sensitive inpatient admission, mean (standard deviation)	0.01(0.09)	0.01(0.08)	<0.01
Inpatient admissions, mean (standard deviation)	0.05(0.29)	0.05(0.28)	<0.01
Readmission within 30 days, mean (standard deviation)	0(0.06)	0(0.06)	0.05
ED visits, mean (standard deviation)	0.18(0.59)	0.16(0.61)	<0.01
Potentially avoidable ED visit, mean (standard deviation)	0.01(0.07)	0.01(0.07)	0.57
Prescription drug fills, mean (standard deviation)	6.33(9.60)	5.82(9.22)	<0.01
<b>Chronic Conditions, No. (percent)</b>			
Myocardial infarction	1,052(0)	9,747(0)	<0.01
Chronic renal disease	1,495(0)	19,081(0)	0.04
Congestive heart failure	1,109(0)	13,474(0)	0.88
Chronic pulmonary diseases	21,940(6)	250,921(6)	<0.01
Dementia	42(0)	603(0)	0.28
Cerebrovascular disease	2,787(1)	35,004(1)	0.05
Peptic ulcer disease	702(0)	7,806(0)	0.03
Rheumatologic disease	1,866(1)	26,925(1)	<0.01
HIV/AIDS	273(0)	4,933(0)	<0.01
Hemiplegia or paraplegia	239(0)	2,576(0)	0.09
Liver disease (any)	72(0)	1,043(0)	0.14
Metastatic solid tumor or malignancy	2,042(1)	23,786(1)	0.11
Peripheral vascular disease	1,556(0)	14,758(0)	<0.01
Diabetes (any)	6,507(2)	79,405(2)	0.47

**Table A.9. Individual Characteristics of the MarketScan Analytic Sample, Intervention Period**

<b>Characteristics</b>	<b>Cincinnati (n=427,260)</b>	<b>Reference Markets (n=4,421,969)</b>	<b>P Value</b>
Male, No. (percent)	211,758(50)	2,143,028(48)	<0.01
High Deductible Health Plan, No. (percent)	110,039(26)	463,770(10)	<0.01
<b>Relationship To Employee, No. (percent)</b>			
Employee	188,270(44)	2,087,899(47)	
Spouse	94,806(22)	899,966(20)	<0.01
Child/other	144,184(34)	1,434,104(32)	
<b>Age Group, No. (percent)</b>			
0–17	107,011(25)	1,098,513(25)	
18–34	83,305(20)	870,055(20)	
35–44	68,079(16)	773,717(18)	<0.01
45–54	94,507(22)	923,958(21)	
55–64	74,358(17)	755,726(17)	
<b>Costs</b>			
Annual outpatient costs, mean (standard deviation)	191.5(542.79)	194.18(549.66)	0.00
Annual inpatient costs, mean (standard deviation)	75.31(526.73)	71.59(515.96)	<0.01
ED costs, mean (standard deviation)	3.05(12.41)	2.77(12.79)	<0.01
Annual drug costs, mean (standard deviation)	67.31(215.74)	68.6(222.66)	<0.01
Total annual costs, mean (standard deviation)	344.19(1,009.26)	344.86(1,016.51)	0.68
<b>Utilizations</b>			
Office-based primary care visits, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	<0.01
Ambulatory care sensitive inpatient admission, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	<0.01
Inpatient admissions, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	<0.01
Readmission within 30 days, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	0.28
ED visits, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	<0.01
Potentially avoidable ED visit, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	<0.01
Prescription drug fills, mean (standard deviation)	344.19(1,009.26)	344.86 1,(16.51)	<0.01
<b>Chronic Conditions, No. (percent)</b>			
Myocardial infarction	1,659(0)	12,888(0)	<0.01
Chronic renal disease	2,593(1)	28,403(1)	0.01
Congestive heart failure	2,013(0)	16,550(0)	<0.01
Chronic pulmonary diseases	30,675(7)	271,054(6)	<0.01
Dementia	55(0)	774(0)	0.03
Cerebrovascular disease	3,879(1)	43,864(1)	<0.01
Peptic ulcer disease	891(0)	9,090(0)	0.68
Rheumatologic disease	2,539(1)	31,318(1)	<0.01
HIV/AIDS	331(0)	5,626(0)	<0.01
Hemiplegia or paraplegia	401(0)	3,446(0)	<0.01
Liver disease (any)	123(0)	1,653(0)	0.01
Metastatic solid tumor or malignancy	2,893(1)	27,181(1)	<0.01
Peripheral vascular disease	2,266(1)	18,905(0)	<0.01
Diabetes (any)	8,768(2)	84,531(2)	<0.01

**Table A.10. Regression Results for Costs from the Overall MarketScan Analytic Sample**

Dependent Variable= PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>										
2006 (reference)										
2007	0.006	0.015	0.075	0.041	0.082	0.013**	-0.021	0.009*	0.028	0.013*
2008	0.017	0.016	0.081	0.039*	0.202	0.013**	-0.071	0.016**	0.047	0.013**
2009	0.122	0.015**	0.079	0.039*	0.334	0.012**	-0.05	0.011**	0.103	0.014**
2010	0.154	0.017**	0.131	0.043**	0.396	0.012**	-0.029	0.009**	0.143	0.018**
2011	0.179	0.016**	0.147	0.041**	0.43	0.013**	-0.03	0.010**	0.169	0.016**
2012	0.183	0.017**	0.121	0.049*	0.512	0.013**	0.013	0.001	0.168	0.020**
<b>Cities</b>										
Reference cities (reference)										
Cincinnati	-0.235	0.019**	-0.096	0.049*	-0.176	0.019**	0.227	0.025**	-0.163	0.019**
<b>Cincinnati* Intervention Year</b>										
Cincinnati*2010	0.000	0.023	-0.003	0.075	-0.001	0.026	0.004	0.018	0.015	-0.032
Cincinnati*2011	-0.068	0.040	0.07	0.063	0.05	0.022*	-0.098	0.020**	-0.036	-0.044
Cincinnati*2012	0.032	0.026	0.100	0.074	0.029	0.025	-0.125	0.023**	0.052	-0.032
<b>Gender</b>										
Female (reference)										
Male	-0.228	0.012**	0.028	0.026	-0.164	0.008**	-0.069	0.011**	-0.127	0.013**
<b>Age Group</b>										
0–17 (reference)										
18–34	0.039	0.023	0.531	0.069**	0.439	0.012**	0.511	0.024**	0.234	0.023**
35–44	0.323	0.026**	0.412	0.074**	0.354	0.016**	0.955	0.034**	0.41	0.026**
45–54	0.514	0.027**	0.792	0.073**	0.296	0.017**	1.288	0.033**	0.662	0.027**
55–64	0.564	0.028**	0.892	0.075**	0.181	0.020**	1.528	0.033**	0.778	0.029**



Dependent Variable= PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Employee Relationship										
Employee (reference)										
Spouse	0.028	0.013*	0.033	0.029	0.075	0.011**	0.128	0.010**	0.054	0.014**
Child/other	-0.193	0.023**	-0.371	0.064**	0.118	0.014**	0.066	0.031*	-0.181	0.022**
Insurance										
PPO/other (reference)										
HDHP	0.012	0.015	-0.005	0.033	-0.187	0.014**	0.03	0.015	0.008	-0.014
Point of service	0.104	0.014**	0.127	0.025**	0.033	0.011**	0.162	0.012**	0.114	0.012**
Comorbidities										
Myocardial infarction	0.336	0.067**	0.922	0.077**	0.636	0.055**	0.088	0.073	0.571	0.067**
Chronic renal disease	0.838	0.033**	0.49	0.063**	0.373	0.044**	0.486	0.037**	0.779	0.042**
Congestive heart failure	0.548	0.047**	1.68	0.084**	0.488	0.048**	0.199	0.056**	0.804	0.040**
Chronic pulmonary diseases	0.445	0.015**	0.463	0.037**	0.845	0.010**	0.488	0.017**	0.497	0.016**
Dementia	0.447	0.133**	0.633	0.123**	0.585	0.184**	-0.166	0.356	0.5	0.113**
Cerebrovascular disease	0.484	0.040**	0.65	0.060**	1.231	0.021**	0.176	0.040**	0.566	0.040**
Peptic ulcer disease	0.459	0.065**	0.467	0.091**	0.767	0.057**	0.054	0.166	0.429	0.079**
Rheumatologic disease	0.639	0.035**	0.279	0.086**	0.425	0.044**	1.102	0.031**	0.623	0.040**
HIV/AIDS	0.641	0.093**	0.206	0.226	-0.009	0.345	2.394	0.036**	0.944	0.144**
Hemiplegia or paraplegia	0.573	0.112**	0.491	0.133**	0.469	0.068**	0.261	0.082**	0.616	0.117**
Liver disease (any)	0.534	0.117**	1.102	0.106**	0.726	0.119**	0.607	0.079**	0.817	0.110**
Metastatic solid tumor or malignancy	1.865	0.016**	1.211	0.066**	0.413	0.039**	0.584	0.026**	1.544	0.023**
Peripheral vascular disease	0.381	0.065**	0.253	0.073**	0.048	0.044	0.225	0.044**	0.348	0.066**
Diabetes (any)	0.044	0.036	0.182	0.064**	0.172	0.036**	0.606	0.022**	0.2	0.043**

Dependent Variable= PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Reference Cities										
San Jose-Sunnyvale-Santa Clara, CA (Reference)										
Charlotte-Gastonia-Concord, NC-SC	-0.075	0.016**	0.024	0.042	-0.003	0.018	0.165	0.025**	-0.032	0.016*
Cleveland-Elyria-Mentor, OH	-0.156	0.027**	-0.194	0.090*	-0.047	0.021*	0.087	0.025**	-0.16	0.043**
Columbus, OH	-0.182	0.020**	-0.044	0.057	0.208	0.018**	0.338	0.023**	-0.076	0.027**
Denver-Aurora, CO	-0.16	0.019**	0.073	0.042	0.299	0.018**	0.204	0.028**	-0.042	0.016**
Jacksonville, FL	-0.165	0.023**	0.03	0.059	0.041	0.022	0.22	0.028**	-0.073	0.025**
Kansas City, MO-KS	-0.168	0.021**	0.065	0.042	0.177	0.018**	0.237	0.026**	-0.045	0.018*
Las Vegas-Paradise, NV	-0.371	0.026**	-0.035	0.064	0.085	0.019**	0.116	0.027**	-0.193	0.029**
Memphis, TN-MS-AR	-0.29	0.030**	-0.069	0.043	-0.116	0.019**	0.245	0.027**	-0.17	0.027**
Nashville-Davidson--Murfreesboro, TN	-0.151	0.018**	0.094	0.041*	0.07	0.022**	0.48	0.023**	0.002	-0.017
Orlando, FL	-0.317	0.054**	-0.031	0.135	0.052	0.026*	0.042	0.037	-0.237	0.092*
Portland-Vancouver-Beaverton, OR-WA	-0.04	0.020*	-0.017	0.07	-0.196	0.021**	0.16	0.026**	-0.048	-0.031
Providence-New Bedford-Fall River, RI-M	-0.201	0.020**	-0.101	0.086	-0.075	0.021**	0.227	0.027**	-0.114	0.023**
St. Louis, MO-IL	-0.229	0.016**	-0.236	0.044**	-0.282	0.019**	0.242	0.023**	-0.179	0.018**
San Antonio, TX	-0.298	0.018**	-0.11	0.044*	0.1	0.018**	-0.125	0.027**	-0.216	0.019**

NOTE: \* p<0.05, \*\* p<0.01.

**Table A.11. Regression Results for Costs from the MarketScan Analytic Sample Who Were Always in an HDHP**

Dependent Variable = PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>										
2006 (reference)										
2007	0.048	0.111	0.423	0.223	0.142	0.094	-0.079	0.045	0.104	0.076
2008	0.051	0.119	0.055	0.262	0.281	0.094**	-0.042	0.061	0.067	0.084
2009	0.157	0.112	0.310	0.201	0.408	0.083**	-0.055	0.060	0.153	0.075*
2010	0.207	0.112	0.418	0.209*	0.540	0.083**	0.007	0.059	0.226	0.080**
2011	0.263	0.110*	0.542	0.219*	0.633	0.096**	0.111	0.058	0.337	0.075**
2012	0.314	0.112**	0.457	0.244	0.642	0.090**	0.027	0.075	0.346	0.078**
<b>Cities</b>										
Reference cities (reference)										
Cincinnati	-0.363	0.084**	-0.025	0.296	0.006	0.109	0.400	0.117**	-0.154	0.086
<b>Cincinnati* intervention year</b>										
Cincinnati*2010	0.117	0.087	-0.366	0.442	-0.161	0.087*	-0.036	0.064	0.060	0.094
Cincinnati*2011	0.125	0.092	0.009	0.195	0.003	0.085	-0.208	0.068**	0.052	0.084
Cincinnati*2012	0.025	0.111	0.251	0.309	0.095	0.127	-0.042	0.109	0.041	0.099
<b>Gender</b>										
Female (reference)										
Male	-0.242	0.053**	-0.138	0.177	-0.124	0.059*	-0.063	0.061	-0.172	0.049**
<b>Age group</b>										
0-17 (reference)										
18-34	-0.143	0.123	0.149	0.316	0.404	0.056**	0.636	0.184**	0.089	0.122
35-44	0.239	0.140	-0.036	0.345	0.332	0.080**	1.265	0.227**	0.342	0.133**
45-54	0.215	0.150	0.062	0.344	0.139	0.087	1.463	0.211**	0.371	0.135**
55-64	0.304	0.167	0.334	0.345	0.255	0.146	1.700	0.217**	0.565	0.141**

Dependent Variable = PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Employee relationship										
Employee (reference)										
Spouse	0.129	0.052*	0.013	0.151	0.073	0.054	0.092	0.071	0.114	0.050*
Child/other	-0.155	0.108	-0.573	0.213**	0.192	0.063**	0.434	0.205*	-0.135	0.105
Comorbidities										
Myocardial infarction	0.377	0.186*	0.989	0.451*	1.372	0.311**	0.318	0.208	0.644	0.220**
Chronic renal disease	0.932	0.124**	1.308	0.272**	0.311	0.258	0.687	0.130**	1.055	0.123**
Congestive heart failure	0.745	0.163**	1.470	0.374**	0.886	0.386*	0.340	0.133*	0.930	0.169**
Chronic pulmonary diseases	0.615	0.062**	0.759	0.175**	0.950	0.092**	0.551	0.096**	0.676	0.063**
Dementia	0.062	0.563	0.726	0.322*	0.665	0.505	-0.710	0.577	0.353	0.341
Cerebrovascular disease	0.420	0.124**	0.552	0.448	0.965	0.409*	0.461	0.158**	0.451	0.159**
Peptic ulcer disease	0.468	0.325	1.007	0.335**	1.037	0.189**	-0.053	0.214	0.447	0.316
Rheumatologic disease	0.523	0.194**	-0.551	0.560	-0.232	0.345	1.336	0.117**	0.481	0.158**
HIV/AIDS	0.948	0.200**	1.312	0.546*	1.260	0.307**	2.642	0.167**	1.506	0.139**
Hemiplegia or paraplegia	1.294	0.145**	2.355	0.447**	0.773	0.274**	1.175	0.404**	1.603	0.171**
Liver disease (any)	1.271	0.205**	1.904	0.333**	1.220	0.233**	1.189	0.138**	1.324	0.160**
Metastatic solid tumor or malignancy	2.220	0.090**	1.767	0.191**	0.603	0.156**	1.024	0.145**	1.936	0.089**
Peripheral vascular disease	0.610	0.127**	0.822	0.369*	-0.241	0.309	0.129	0.208	0.587	0.152**
Diabetes (any)	-0.031	0.128	-0.368	0.302	0.418	0.252	0.775	0.077**	0.077	0.139

Dependent Variable = PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Reference Cities										
San Jose-Sunnyvale-Santa Clara, CA (Reference)										
Charlotte-Gastonia-Concord, NC-SC	0.086	0.089	0.038	0.523	0.301	0.100**	0.466	0.105**	0.222	0.096*
Cleveland-Elyria-Mentor, OH	-0.132	0.097	-0.321	0.362	0.146	0.158	-0.031	0.155	-0.092	0.110
Columbus, OH	-0.290	0.097	-0.744	0.362	0.341	0.158	0.421	0.155	-0.225	0.110
Denver-Aurora, CO	-0.238	0.073**	0.092	0.336*	0.489	0.095**	0.280	0.100**	-0.022	0.096*
Jacksonville, FL	-0.116	0.073**	0.293	0.336*	0.380	0.095**	0.353	0.100**	0.101	0.096*
Kansas City, MO-KS	-0.274	0.083**	0.143	0.253	0.178	0.090**	0.221	0.119*	-0.054	0.088
Las Vegas-Paradise, NV	-0.968	0.083**	-0.707	0.253	0.525	0.090**	-0.257	0.119*	-0.709	0.088
Memphis, TN-MS-AR	-0.192	0.097	0.485	0.288	0.271	0.123**	-0.153	0.143*	0.007	0.098
Nashville-Davidson--Murfreesboro, TN	-0.189	0.097	0.023	0.288	0.171	0.123**	0.178	0.143*	-0.046	0.098
Orlando, FL	-0.021	0.112*	0.481	0.329	0.498	0.100	-0.015	0.128	0.171	0.102
Portland-Vancouver-Beaverton, OR-WA	-0.148	0.112*	0.035	0.329	-0.566	0.100	0.180	0.128	-0.061	0.102
Providence-New Bedford-Fall River, RI-M	-0.339	0.293**	-0.281	0.425	0.079	0.127**	0.220	0.314	-0.188	0.330*
St. Louis, MO-IL	-0.292	0.293**	-0.332	0.425	-0.075	0.127**	0.442	0.314	-0.162	0.330*
San Antonio, TX	-0.485	0.151	0.014	0.344	0.299	0.126*	0.371	0.170	-0.239	0.109

NOTE: \* p≤0.05, \*\* p≤0.01.

**Table A.12. Regression Results for Costs from the MarketScan Analytic Sample Who Were Never in an HDHP**

Dependent Variable= PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>										
2006 (reference)										
2007	0.009	0.017	0.062	0.044	0.077	0.014**	-0.016	0.009	0.028	0.013*
2008	0.020	0.016	0.088	0.042*	0.198	0.013**	-0.056	0.016**	0.053	0.013**
2009	0.123	0.016**	0.090	0.042*	0.339	0.013**	-0.032	0.011**	0.113	0.014**
2010	0.155	0.017**	0.135	0.045**	0.397	0.013**	-0.010	0.009	0.150	0.018**
2011	0.180	0.017**	0.147	0.043**	0.427	0.014**	-0.016	0.010	0.175	0.016**
2012	0.184	0.017**	0.131	0.050**	0.513	0.014**	0.031	0.010**	0.175	0.020**
<b>Cities</b>										
Reference cities (reference)										
Cincinnati	-0.211	0.021**	-0.044	0.052	-0.132	0.021**	0.218	0.028**	-0.139	0.020**
<b>Cincinnati* intervention year</b>										
Cincinnati*2010	-0.011	0.025	-0.016	0.083	-0.024	0.028	0.020	0.021	0.006	0.036
Cincinnati*2011	-0.097	0.046*	0.012	0.067	0.024	0.024	-0.120	0.023**	-0.068	0.049
Cincinnati*2012	0.007	0.030	0.033	0.080	-0.005	0.028	-0.161	0.026**	0.019	0.035
<b>Gender</b>										
Female (reference)										
Male	-0.214	0.012**	0.041	0.027	-0.166	0.008**	-0.068	0.011**	-0.115	0.013**
<b>Age Group</b>										
0–17 (reference)										
18–34	0.049	0.025*	0.571	0.079**	0.414	0.013**	0.514	0.025**	0.245	0.025**
35–44	0.322	0.028**	0.468	0.084**	0.325	0.018**	0.956	0.037**	0.417	0.028**
45–54	0.526	0.029**	0.852	0.082**	0.262	0.018**	1.285	0.036**	0.677	0.029**
55–64	0.570	0.030**	0.944	0.083**	0.137	0.021**	1.526	0.036**	0.788	0.031**

Dependent Variable= PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Employee Relationship										
Employee (reference)										
Spouse	0.014	0.013	0.021	0.030	0.075	0.011**	0.122	0.011**	0.039	0.014**
Child/other	-0.227	0.024**	-0.338	0.072**	0.094	0.015**	0.037	0.035	-0.202	0.024**
Insurance										
PPO/other (reference)										
Point of service	0.096	0.015**	0.132	0.027**	0.063	0.012**	0.142	0.012**	0.110	0.013**
Comorbidities										
Myocardial infarction	0.347	0.015**	0.920	0.027**	0.621	0.012**	0.101	0.012**	0.572	0.013**
Chronic renal disease	0.859	0.065**	0.506	0.075**	0.373	0.056**	0.488	0.071	0.803	0.064**
Congestive heart failure	0.859	0.033**	0.506	0.064**	0.373	0.044**	0.488	0.037**	0.803	0.040**
Chronic pulmonary diseases	0.543	0.047**	1.673	0.083**	0.507	0.048**	0.183	0.057**	0.805	0.039**
Dementia	0.543	0.016**	1.673	0.038**	0.507	0.010**	0.183	0.018**	0.805	0.016**
Cerebrovascular disease	0.437	0.116**	0.465	0.127**	0.836	0.186**	0.472	0.352	0.488	0.117**
Peptic ulcer disease	0.437	0.041**	0.465	0.058**	0.836	0.022**	0.472	0.041**	0.488	0.040**
Rheumatologic disease	0.518	0.065**	0.609	0.085**	0.531	0.055**	-0.107	0.178	0.512	0.080**
HIV/AIDS	0.518	0.035**	0.609	0.084**	0.531	0.045**	-0.107	0.032**	0.512	0.039**
Hemiplegia or paraplegia	0.484	0.101**	0.641	0.242	1.212	0.376	0.168	0.036**	0.561	0.158**
Liver disease (any)	0.484	0.113**	0.641	0.139**	1.212	0.071**	0.168	0.085**	0.561	0.118**
Metastatic solid tumor or malignancy	0.460	0.129**	0.495	0.111**	0.811	0.134**	0.025	0.084**	0.425	0.119**
Peripheral vascular disease	0.460	0.017**	0.495	0.067**	0.811	0.041**	0.025	0.027**	0.425	0.024**
Diabetes (any)	0.644	0.064**	0.321	0.075**	0.431	0.046	1.065	0.045**	0.629	0.065**

Dependent Variable= PMPM Cost	Outpatient Costs		Inpatient Costs		ED Costs		Prescription Costs		Total Costs	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Reference cities										
San Jose-Sunnyvale-Santa Clara, CA (Reference)										
Charlotte-Gastonia-Concord, NC-SC	-0.062	0.017**	0.050	0.044	0.000	0.019	0.175	0.027**	-0.017	0.017
Cleveland-Elyria-Mentor, OH	-0.148	0.027**	-0.170	0.089	-0.037	0.022	0.098	0.026**	-0.145	0.042**
Columbus, OH	-0.168	0.021**	-0.028	0.060	0.204	0.020**	0.360	0.025**	-0.062	0.029*
Denver-Aurora, CO	-0.140	0.020**	0.071	0.045	0.300	0.019**	0.243	0.030**	-0.024	0.017
Jacksonville, FL	-0.154	0.024**	0.035	0.062	0.039	0.023	0.224	0.030**	-0.064	0.026*
Kansas City, MO-KS	-0.142	0.023**	0.102	0.045*	0.198	0.019**	0.251	0.028**	-0.019	0.019
Las Vegas-Paradise, NV	-0.363	0.027**	-0.018	0.063	0.084	0.020**	0.138	0.028**	-0.185	0.029**
Memphis, TN-MS-AR	-0.278	0.030**	-0.068	0.045	-0.133	0.020**	0.278	0.028**	-0.159	0.027**
Nashville-Davidson--Murfreesboro, TN	-0.130	0.019**	0.113	0.044**	0.085	0.023**	0.511	0.024**	0.025	0.018
Orlando, FL	-0.303	0.052**	-0.015	0.136	0.044	0.027	0.055	0.037	-0.217	0.088*
Portland-Vancouver-Beaverton, OR-WA	-0.022	0.023	-0.008	0.078	-0.123	0.023**	0.188	0.028**	-0.028	0.036
Providence-New Bedford-Fall River, RI-M	-0.187	0.021**	-0.091	0.087	-0.065	0.022**	0.250	0.029**	-0.098	0.023**
St. Louis, MO-IL	-0.214	0.017**	-0.223	0.046**	-0.284	0.020**	0.249	0.024**	-0.168	0.018**
San Antonio, TX	-0.288	0.018**	-0.097	0.045*	0.104	0.019**	-0.118	0.028**	-0.208	0.019**

NOTE: \* p≤0.05,\*\* p≤0.01.



**Table A.13. Regression Results for Utilizations from the Overall MarketScan Analytic Sample**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standar d Error
<b>Year</b>								
2006 (reference)								
2007	-0.021	0.003**	0.004	0.014	0.027	0.008**	0.035	0.002**
2008	0.042	0.003**	0.008	0.013	0.099	0.008**	0.085	0.003**
2009	0.076	0.003**	0.011	0.012	0.132	0.007**	0.120	0.003**
2010	0.017	0.003**	0.011	0.011	0.104	0.007**	0.136	0.003**
2011	-0.026	0.003**	-0.004	0.011	0.121	0.007**	0.144	0.003**
2012	-0.016	0.003**	-0.046	0.012**	0.141	0.007**	0.166	0.003**
<b>Cities</b>								
Reference cities (reference)								
Cincinnati	0.126	0.005**	0.353	0.015**	0.583	0.010**	0.444	0.006**
<b>Cincinnati* intervention year</b>								
Cincinnati*2010	-0.022	0.003**	-0.008	0.016	0.029	0.009**	-0.024	0.003**
Cincinnati*2011	-0.024	0.004**	-0.008	0.018	0.041	0.010**	-0.123	0.004**
Cincinnati*2012	-0.110	0.004**	0.005	0.020	0.024	0.011*	-0.135	0.005**
<b>Gender</b>								
Female (reference)								
Male	-0.195	0.002**	-0.529	0.008**	-0.139	0.005**	-0.362	0.003**
<b>Age Group</b>								
0–17 (reference)								
18–34	-0.662	0.005**	0.713	0.022**	0.317	0.010**	0.452	0.007**
35–44	-0.478	0.006**	0.045	0.024	0.132	0.013**	0.676	0.008**
45–54	-0.333	0.006**	-0.014	0.024	0.037	0.013**	0.981	0.008**
55–64	-0.191	0.006**	0.182	0.024**	-0.017	0.013	1.209	0.008**
<b>Employee Relationship</b>								
Employee (reference)								
Spouse	-0.018	0.003**	0.236	0.008**	0.050	0.007**	0.050	0.004**
Child/other	-0.128	0.006**	-0.694	0.019**	0.187	0.011**	-0.134	0.007**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Insurance</b>								
PPO/other (reference)								
HDHP	0.022	0.003**	-0.120	0.012**	-0.293	0.008**	0.052	0.004**
Point of service	0.157	0.003**	0.068	0.010**	-0.063	0.006**	0.117	0.004**
<b>Comorbidities</b>								
Myocardial infarction	0.264	0.013**	2.334	0.021**	1.544	0.019**	0.542	0.013**
Chronic renal disease	0.461	0.010**	1.518	0.024**	1.022	0.020**	0.765	0.011**
Congestive heart failure	0.420	0.012**	1.881	0.027**	1.246	0.022**	0.592	0.014**
Chronic pulmonary diseases	0.660	0.003**	0.928	0.011**	1.002	0.007**	0.730	0.004**
Dementia	0.334	0.048**	1.257	0.092**	1.096	0.074**	0.477	0.047**
Cerebrovascular disease	0.536	0.006**	1.623	0.017**	1.295	0.012**	0.501	0.009**
Peptic ulcer disease	0.627	0.012**	1.779	0.034**	1.471	0.033**	0.568	0.014**
Rheumatologic disease	0.496	0.009**	0.706	0.026**	0.683	0.020**	0.796	0.011**
HIV/AIDS	0.375	0.030**	1.034	0.058**	0.825	0.046**	0.916	0.026**
Hemiplegia or paraplegia	0.320	0.025**	1.908	0.051**	1.138	0.042**	0.722	0.052**
Liver disease (any)	0.417	0.040**	2.014	0.077**	1.282	0.061**	0.603	0.044**
Metastatic solid tumor or malignancy	0.119	0.010**	2.169	0.025**	0.652	0.020**	0.409	0.011**
Peripheral vascular disease	0.423	0.009**	1.095	0.026**	0.662	0.021**	0.442	0.011**
Diabetes (any)	0.533	0.004**	0.795	0.017**	0.422	0.013**	0.724	0.006**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Reference Cities								
San Jose-Sunnyvale-Santa Clara, CA (Reference)								
Charlotte-Gastonia-Concord, NC-SC	0.222	0.004**	0.202	0.014**	0.391	0.010**	0.436	0.006**
Cleveland-Elyria-Mentor, OH	-0.064	0.005**	0.325	0.015**	0.770	0.010**	0.258	0.007**
Columbus, OH	0.208	0.005**	0.294	0.014**	0.635	0.010**	0.437	0.006**
Denver-Aurora, CO	0.056	0.005**	0.271	0.015**	0.521	0.011**	0.319	0.007**
Jacksonville, FL	0.198	0.005**	0.361	0.016**	0.617	0.012**	0.306	0.008**
Kansas City, MO-KS	0.051	0.005**	0.420	0.014**	0.647	0.011**	0.400	0.007**
Las Vegas-Paradise, NV	0.103	0.005**	0.268	0.015**	0.342	0.010**	0.172	0.007**
Memphis, TN-MS-AR	0.078	0.005**	0.264	0.015**	0.495	0.010**	0.531	0.006**
Nashville-Davidson--Murfreesboro, TN	0.207	0.005**	0.337	0.014**	0.658	0.010**	0.606	0.006**
Orlando, FL	0.053	0.005**	0.391	0.015**	0.468	0.011**	0.145	0.008**
Portland-Vancouver-Beaverton, OR- WA	-0.035	0.005**	0.273	0.015**	0.244	0.011**	0.359	0.007**
Providence-New Bedford-Fall River, RI-M	0.143	0.005**	0.355	0.016**	0.709	0.011**	0.548	0.007**
St. Louis, MO-IL	-0.123	0.004**	0.427	0.013**	0.584	0.009**	0.433	0.006**
San Antonio, TX	0.102	0.004**	0.302	0.013**	0.570	0.010**	0.311	0.006**

NOTE:\* p≤0.05, \*\* p≤0.01.

**Table A.14. Regression Results for Utilizations from the MarketScan Analytic Sample Who Were Always in an HDHP**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>								
2006 (reference)								
2007	-0.000	0.020	0.016	0.131	0.080	0.068	-0.022	0.020
2008	-0.002	0.021	0.149	0.119	0.237	0.061**	0.015	0.023
2009	0.024	0.021	0.181	0.116	0.290	0.059**	0.043	0.023
2010	-0.068	0.020**	0.184	0.112	0.244	0.057**	0.043	0.022*
2011	-0.096	0.020**	0.155	0.113	0.254	0.058**	0.089	0.022**
2012	-0.158	0.020**	0.083	0.115	0.265	0.059**	0.066	0.022**
<b>Cities</b>								
Reference cities (reference)								
Cincinnati	0.108	0.016**	0.288	0.063**	0.640	0.040**	0.445	0.024**
<b>Cincinnati* Intervention Year</b>								
Cincinnati*2010	0.011	0.010	-0.081	0.058	0.025	0.033	0.043	0.010**
Cincinnati*2011	0.023	0.012*	-0.052	0.065	0.045	0.037	-0.016	0.013
Cincinnati*2012	0.017	0.014	0.023	0.080	0.072	0.044	0.032	0.017
<b>Gender</b>								
Female (reference)								
Male	-0.159	0.008**	-0.677	0.035**	-0.078	0.021**	-0.410	0.013**
<b>Age Group</b>								
0–17 (reference)								
18–34	-0.743	0.018**	0.582	0.085**	0.311	0.040**	0.441	0.027**
35–44	-0.558	0.023**	-0.204	0.095*	0.068	0.054	0.637	0.033**
45–54	-0.410	0.024**	-0.310	0.098**	-0.050	0.053	0.929	0.033**
55–64	-0.258	0.025**	-0.027	0.101	-0.087	0.057	1.205	0.034**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Employee Relationship</b>								
Employee (reference)								
Spouse	0.070	0.012**	0.417	0.035**	0.138	0.029**	0.126	0.015**
Child/other	-0.020	0.021	-0.816	0.079**	0.286	0.046**	-0.075	0.029*
<b>Comorbidities</b>								
Myocardial infarction	0.210	0.056**	2.628	0.115**	1.816	0.071**	0.698	0.069**
Chronic renal disease	0.576	0.043**	1.678	0.125**	1.064	0.094**	0.861	0.058**
Congestive heart failure	0.412	0.054**	2.138	0.135**	1.479	0.085**	0.667	0.071**
Chronic pulmonary diseases	0.728	0.011**	0.923	0.048**	1.052	0.031**	0.862	0.016**
Dementia	0.065	0.218	0.816	0.925	1.441	0.603*	0.475	0.290
Cerebrovascular disease	0.692	0.032**	1.906	0.105**	1.442	0.063**	0.687	0.095**
Peptic ulcer disease	0.702	0.057**	2.097	0.286**	1.631	0.121**	0.580	0.068**
Rheumatologic disease	0.554	0.041**	0.638	0.118**	0.821	0.119**	0.946	0.061**
HIV/AIDS	0.603	0.264*	0.904	0.252**	0.975	0.281**	1.101	0.155**
Hemiplegia or paraplegia	0.486	0.118**	2.839	0.390**	1.361	0.158**	1.160	0.194**
Liver disease (any)	0.345	0.094**	2.332	0.334**	1.623	0.282**	0.696	0.131**
Metastatic solid tumor or malignancy	0.118	0.041**	2.521	0.139**	0.844	0.089**	0.631	0.057**
Peripheral vascular disease	0.492	0.051**	1.292	0.166**	0.675	0.133**	0.481	0.052**
Diabetes (any)	0.621	0.021**	0.952	0.097**	0.730	0.075**	0.952	0.033**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Reference Cities								
San Jose-Sunnyvale-Santa Clara, CA (Reference)								
Charlotte-Gastonia-Concord, NC- SC	0.205	0.019**	0.217	0.077**	0.654	0.048**	0.508	0.028**
Cleveland-Elyria-Mentor, OH	-0.029	0.020	0.285	0.070**	0.908	0.043**	0.278	0.028**
Columbus, OH	0.223	0.020	0.177	0.070**	0.753	0.043**	0.473	0.028**
Denver-Aurora, CO	0.048	0.017**	0.268	0.062**	0.646	0.040**	0.269	0.025**
Jacksonville, FL	0.224	0.017**	0.237	0.062**	0.729	0.040**	0.422	0.025**
Kansas City, MO-KS	0.108	0.017**	0.178	0.067**	0.617	0.045**	0.314	0.026**
Las Vegas-Paradise, NV	0.038	0.017**	0.419	0.067**	0.677	0.045**	0.224	0.026**
Memphis, TN-MS-AR	0.122	0.023**	0.378	0.084**	0.764	0.053**	0.103	0.034**
Nashville-Davidson--Murfreeseboro, TN	0.188	0.023**	0.171	0.084**	0.803	0.053**	0.224	0.034**
Orlando, FL	0.148	0.020**	0.461	0.076*	0.696	0.046**	0.210	0.029**
Portland-Vancouver-Beaverton, OR-WA	-0.008	0.020**	0.101	0.076*	-0.094	0.046**	0.150	0.029**
Providence-New Bedford-Fall River, RI-M	0.082	0.034	0.151	0.094**	0.713	0.062**	0.346	0.042**
St. Louis, MO-IL	-0.010	0.034	0.353	0.094**	0.749	0.062**	0.478	0.042**
San Antonio, TX	0.111	0.024**	0.159	0.081**	0.606	0.052**	0.159	0.039**

NOTE: \* p≤0.05, \*\* p≤0.01.

**Table A.15. Regression Results for Utilizations from the MarketScan Analytic Sample Who Were Never in an HDHP**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Year</b>								
2006 (reference)								
2007	-0.028	0.003**	-0.003	0.014	0.021	0.008**	0.043	0.003**
2008	0.050	0.003**	0.005	0.013	0.093	0.008**	0.122	0.003**
2009	0.086	0.003**	0.004	0.013	0.127	0.008**	0.159	0.003**
2010	0.029	0.003**	0.006	0.011	0.098	0.007**	0.177	0.003**
2011	-0.017	0.003**	-0.012	0.012	0.115	0.007**	0.183	0.003**
2012	0.000	0.003	-0.054	0.012**	0.138	0.007**	0.207	0.003**
<b>Cities</b>								
Reference cities (reference)								
Cincinnati	0.134	0.005**	0.387	0.017**	0.629	0.011**	0.440	0.007**
<b>Cincinnati* Intervention Year</b>								
Cincinnati*2010	-0.001	0.004	-0.018	0.018	0.017	0.010	-0.017	0.004**
Cincinnati*2011	0.000	0.004	-0.026	0.021	0.029	0.011**	-0.166	0.005**
Cincinnati*2012	-0.085	0.005**	-0.015	0.023	-0.000	0.013	-0.182	0.006**
<b>Gender</b>								
Female (reference)								
Male	-0.198	0.002**	-0.515	0.008**	-0.141	0.005**	-0.356	0.003**
<b>Age Group</b>								
0–17 (reference)								
18–34	-0.659	0.006**	0.726	0.023**	0.288	0.011**	0.443	0.007**
35–44	-0.479	0.007**	0.075	0.025**	0.095	0.014**	0.669	0.009**
45–54	-0.328	0.007**	0.018	0.026	-0.003	0.014	0.972	0.009**
55–64	-0.194	0.007**	0.199	0.026**	-0.073	0.014**	1.193	0.009**

Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Employee Relationship</b>								
Employee (reference)								
Spouse	-0.024	0.003**	0.232	0.008**	0.047	0.007**	0.046	0.004**
Child/other	-0.158	0.006**	-0.668	0.020**	0.157	0.012**	-0.163	0.008**
<b>Insurance</b>								
PPO/other (reference)								
Point of service	0.173	0.003**	0.072	0.010**	-0.004	0.006	0.105	0.004**
<b>Comorbidities</b>								
Myocardial infarction	0.252	0.003**	2.277	0.010**	1.508	0.006	0.518	0.004**
Chronic renal disease	0.457	0.014**	1.496	0.022**	1.013	0.021**	0.751	0.014**
Congestive heart failure	0.457	0.010**	1.496	0.026**	1.013	0.021**	0.751	0.012**
Chronic pulmonary diseases	0.396	0.013**	1.845	0.028**	1.233	0.023**	0.570	0.015**
Dementia	0.396	0.003**	1.845	0.011**	1.233	0.007**	0.570	0.004**
Cerebrovascular disease	0.657	0.051**	0.919	0.098**	0.991	0.076**	0.721	0.050**
Peptic ulcer disease	0.657	0.007**	0.919	0.017**	0.991	0.012**	0.721	0.009**
Rheumatologic disease	0.342	0.013**	1.260	0.037**	1.093	0.036**	0.468	0.015**
HIV/AIDS	0.342	0.010**	1.260	0.028**	1.093	0.021**	0.468	0.012**
Hemiplegia or paraplegia	0.525	0.030**	1.593	0.056**	1.276	0.047**	0.490	0.028**
Liver disease (any)	0.525	0.026**	1.593	0.049**	1.276	0.044**	0.490	0.043**
Metastatic solid tumor or malignancy	0.624	0.044**	1.763	0.081**	1.469	0.065**	0.559	0.050**
Peripheral vascular disease	0.624	0.011**	1.763	0.025**	1.469	0.020**	0.559	0.012**
Diabetes (any)	0.492	0.010**	0.722	0.027**	0.682	0.022**	0.783	0.012**



Dependent Variable = Utilization per 1,000 Member Years	Office-Based Primary Care Visit		Inpatient Admission		ED Visit		Prescription Drug Fill	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Reference Cities								
San Jose-Sunnyvale-Santa Clara, CA (Reference)								
Charlotte-Gastonia-Concord, NC-SC	0.243	0.005**	0.234	0.015**	0.397	0.011**	0.445	0.007**
Cleveland-Elyria-Mentor, OH	-0.054	0.005**	0.357	0.016**	0.787	0.010**	0.259	0.007**
Columbus, OH	0.219	0.005**	0.319	0.015**	0.627	0.011**	0.431	0.007**
Denver-Aurora, CO	0.055	0.005**	0.292	0.016**	0.511	0.012**	0.348	0.007**
Jacksonville, FL	0.211	0.006**	0.386	0.018**	0.624	0.013**	0.287	0.008**
Kansas City, MO-KS	0.061	0.005**	0.462	0.015**	0.666	0.011**	0.402	0.007**
Las Vegas-Paradise, NV	0.127	0.005**	0.288	0.015**	0.344	0.011**	0.182	0.007**
Memphis, TN-MS-AR	0.090	0.005**	0.278	0.015**	0.474	0.011**	0.555	0.007**
Nashville-Davidson--Murfreesboro, TN	0.225	0.005**	0.373	0.015**	0.664	0.011**	0.636	0.007**
Orlando, FL	0.057	0.006**	0.417	0.016**	0.470	0.012**	0.144	0.008**
Portland-Vancouver-Beaverton, OR- WA	-0.053	0.006**	0.316	0.016**	0.320	0.012**	0.434	0.007**
Providence-New Bedford-Fall River, RI-M	0.159	0.006**	0.389	0.017**	0.727	0.011**	0.569	0.008**
St. Louis, MO-IL	-0.121	0.005**	0.453	0.014**	0.590	0.010**	0.436	0.006**
San Antonio, TX	0.121	0.005**	0.325	0.014**	0.579	0.010**	0.322	0.007**

NOTE: \* p≤0.05, \*\* p≤0.01.