



Modeling Results Access Health CT 2015

July 2015

Overview

Access Health CT's success in decreasing the uninsured population in the state of Connecticut results in very specific challenges moving forward.

The remaining, significantly reduced population is uninsured for far more idiosyncratic reasons than in the past, and will be increasingly more difficult to reach and persuade. The best messaging moving forward will be value-based.

Background & Approach

Using new 2015 data, we updated last year's modeling analyses.

In 2014 we leveraged the large sample of the Enrollee Understanding Study to create an index by zip code of the "Propensity to Have Been Uninsured". This index, together with AHCT's enrollment counts by zip code, provided guidance for where to direct outreach efforts to capture the remaining uninsured. We also provided an additional model of just QHP respondents based on the long questionnaire to understand what other factors could partially explain previous insurance status.

In 2015, we have updated the Propensity to Have Been Uninsured Index using additional data from new enrollees and renewals in the 2015 Enrollee Understanding Study and updated data from the American Community Survey. We pooled both years of survey data and reexamined the structure to provide the most robust model. In the 2015 survey, we asked the renewals about their status before enrolling the first time (i.e. during 2014 enrollment). That means we only added less than 300 valid new enrollee respondents to our model that answered if they had been uninsured in 2014. **Therefore we should view the 2015 model as an improved 2014/2015 model rather than a look at the landscape from 2014.** Like last year, we also created explanatory models for the QHP population, this time broken down by New Enrollees and Renewals.

The index value indicates (on a relative basis) the geographies with higher or lower predicted concentrations of those that were uninsured. If the currently uninsured have the same characteristics as those enrollees that were previously uninsured, then the index will indicate predicted higher or lower concentrations of those that still lack insurance. The index takes a value from 0 to 1, with 1 indicating the highest predicted concentration among zip codes and 0 indicating the lowest predicted concentration. See the Excel workbook provided for more detailed, zip-code specific results.

Model Inputs: Which variables best predict being previously uninsured?

While holding other factors constant, the predicted probability of being previously uninsured is:

- **Lower** for those who are Married
- **Lower** for those who are Age 26 -34
- **Higher** for those with an education level below a Bachelor's degree.
- **Higher** for those with less income (all the way up to 400% of the Federal Poverty Level)
- **Higher** for males
- **Higher** for African Americans or Black Race
- **Higher** for Hispanics
- **Higher** for Other Non-white Race
- **Lower** for those that speak English as their primary language
- Slightly **lower** for those in New Haven County zip codes
- **Higher** for those from towns with higher populations

The dependent variable for the binary logistic model is whether that respondent was previously uninsured before signing up with AHCT (so for renewals in 2015, it refers to their status before signing up for 2014). N = 6,488 The model correctly classifies 71% of those previously uninsured and 58% of those previously insured for an overall classification rate of 65%.

What changed from 2014?

Structure

- We switched from a proportional linear model (which aggregated all the data into shares by zip code) to an individual-level logistic prediction model using stepwise regression because 1) the new data could have a larger impact if we did not aggregate at the first step and 2) the logistic option was a more robust model than the pooled 2014/2015 proportional model.

Common Variables

- **Race/Ethnicity:** Being African American or Black or being Hispanic (any race) continued to be associated with higher rates of uninsured status. The 2015 model added “Other race” to this list as well.
- **Marital Status:** The 2014 model included “single or living together” while the 2015 model replaced that with “married” with the opposite sign, so this is essentially the same.
- **Age:** Being 26-34 is in both models but it was associated with higher uninsured rates in 2014 (except for African Americans or Blacks) and it is associated with lower rates in 2015. When we replicated the 2014 model using the pooled data, this variable still had the original sign but was no longer statistically significant suggesting that the sign change in the 2015 final model is the combined result of the new respondents being different and the change in the model.
- **Income:** The 2015 model predicts a higher uninsured rate for all FPL statuses included in the data (“Less than 100%” up to “301-400%”) and the lower the income the more likely to have been uninsured. The 2014 model only found an effect for FPL levels of 100-300%.

What changed from 2014? Continued

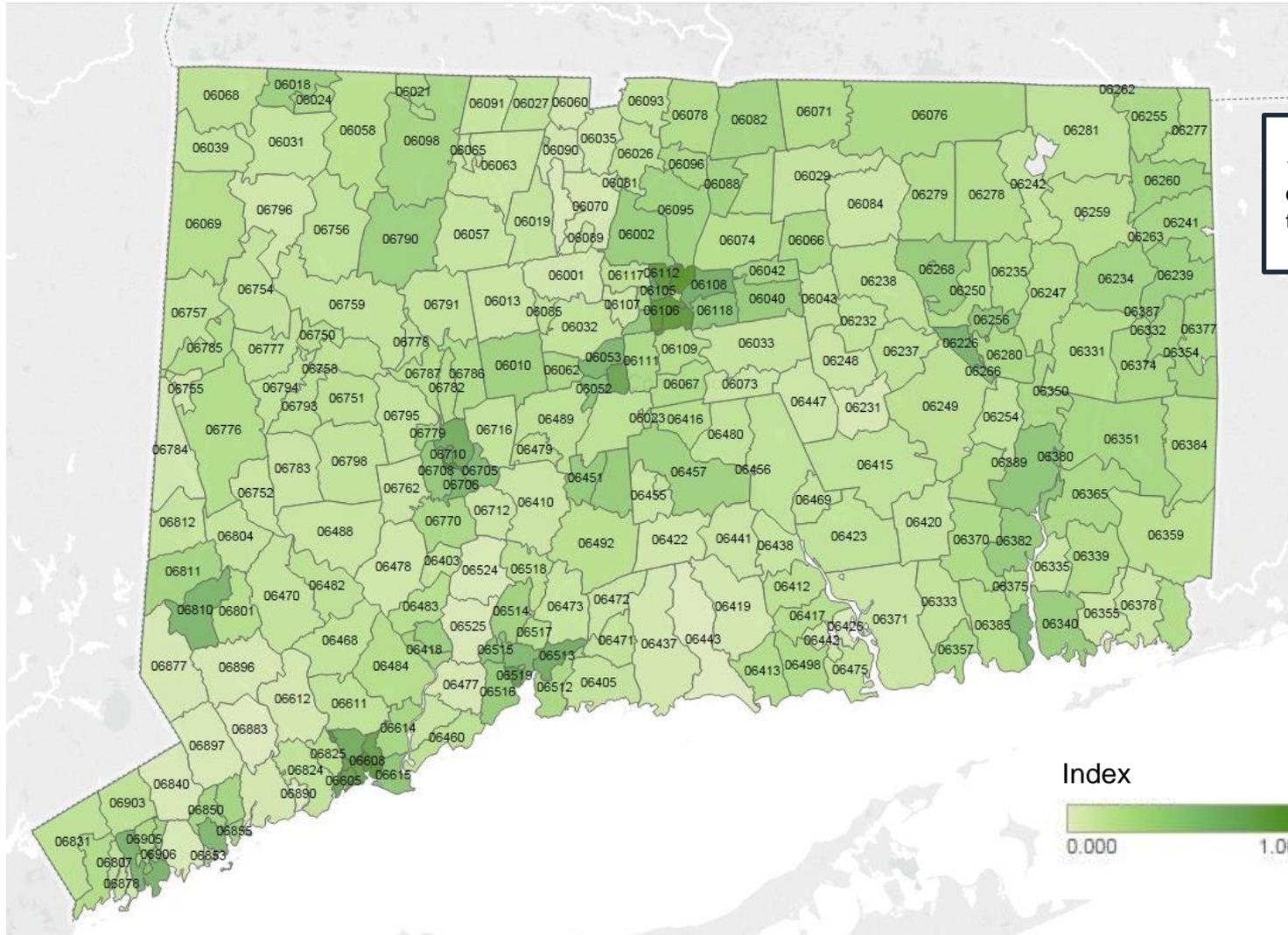
Common Variables

- **Education:** The two lowest categories remain very importantly associated with higher uninsured status; however, the 2014 model included “Graduate or Professional Degree” being associated with a lower uninsured rate and the 2015 model includes “Some college or Associate’s Degree” predicting a higher likelihood of previously uninsured.
- **Sex:** In both models, being male or the proportion of males predicts higher rates of previously uninsured.

New Variables in the 2015 Model

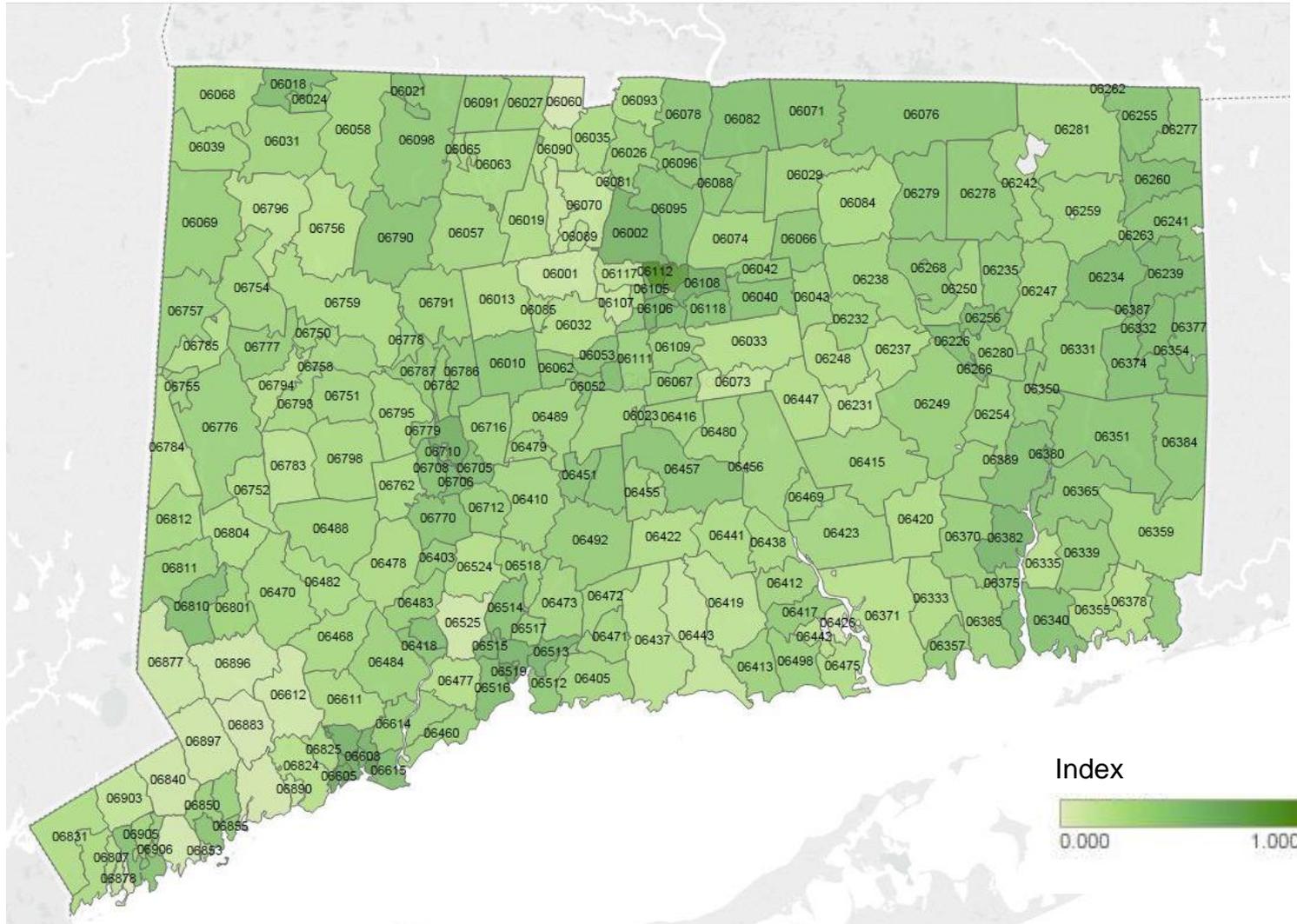
- **Language:** Speaking English predicts a lower rate of previously uninsured. We also found language (specifically if individuals chose to take the survey in Spanish or English) to be important in the QHP-only models of New Enrollees and Renewals as well.
- **County:** Living in New Haven county was associated with a lower likelihood of being previously uninsured when we account for all the other variables.
- **Town size:** Living in a town or city with a higher population increases the predicted rate of having been uninsured.

“Propensity to Have Been Uninsured” Index by Zip Code 2015



See Excel workbook for list of zip codes with town names and index scores.

“Propensity to Have Been Uninsured” Index by Zip Code 2014 (Previous Model)



Top Zip Codes & Opportunity Areas

Top Zip Codes

The 10 zip codes with the highest index scores (with at least 500 in population) were also high intensity enrollment areas.



Zip Code	Name	"Propensity to Have Been Uninsured" Index	Primary Enrollees	Population (15 years+, 2009-2013 ACS)	Primary Enrollees as Share of Population
6120	Hartford	0.95	2,796	9,328	30%
6702	Waterbury	0.92	1,106	2,571	43%
6608	Bridgeport	0.92	2584	10,317	25%
6607	Bridgeport	0.92	1,486	5,747	26%
6106	Hartford	0.90	6,705	30,709	22%
6114	Hartford	0.88	4751	21,296	22%
6112	Hartford	0.88	3988	17,423	23%
6519	New Haven	0.83	2,872	12,251	23%
6604	Bridgeport	0.81	3,934	24,275	16%
6610	Bridgeport	0.80	3,399	17,421	20%

Zip Code	Name	"Propensity to Have Been Uninsured" Index	Primary Enrollees	Population (15 years+, 2009-2013 ACS)	Primary Enrollees as Share of Population
6269	Storrs Mansfield	0.50	12	9863	0%
6510	New Haven	0.45	196	2357	8%
6382	Uncasville	0.43	844	10109	8%
6268	Storrs Mansfield	0.43	331	9944	3%
6811	Danbury	0.34	1926	27397	7%
6357	Niantic	0.28	725	11005	7%
6103	Hartford	0.28	84	1284	7%
6067	Rocky Hill	0.27	1018	16352	6%
6071	Somers*	0.27	405	9802	4%
6078	Suffield	0.27	394	10551	4%
6023	East Berlin	0.23	54	983	5%
6074	South Windsor	0.23	1144	20617	6%
6518	Hamden	0.21	698	17118	4%

Possible Opportunity Zip Codes

These zip codes have high index scores for their rate of enrollees as a share of population, suggesting that these could be fruitful areas for outreach.



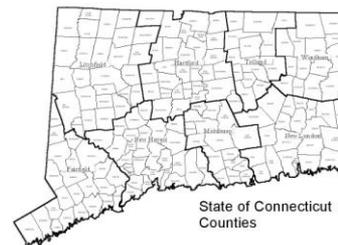
A deeper dive into the QHP Population



Understanding the QHP-Eligible Uninsured

We also re-examined the respondent-level binary logistic regression model of QHP enrollees to see which variables are related to previous insurance status (looking at new enrollees and renewals separately). Key findings include:

- Several factors that mattered in 2014 were no longer statistically significant in the new models including having a primary care physician or not, decision making role, having APTC and CSR, metal tier of plan, getting info from a broker, gender and marital status. Some of this may reflect smaller sample sizes for 2015 which make it harder to find statistical significance.
- Education level still matters: the odds of being previously uninsured are twice as high for new enrollees with some college or an associates degree and more than cut in half for renewals with a graduate or professional degree.
- Race and ethnicity matter differently among new enrollees and renewals. New Enrollees are significantly more likely to have been uninsured if they are African American/Black or Other race while that is not true for Renewals. New Enrollees that opted to take the survey in Spanish and Hispanic Renewals were both much more likely to have been uninsured.
- Household income plays a role for both New Enrollees and Renewals.
- Region can help predict previous insurance status for both populations. Specifically, living in Tolland County increases the uninsured likelihood for New Enrollees, and living in Middlesex or New Haven Counties reduces the uninsured likelihood among Renewals.
- Previous insurance status is also related to enrollment decisions for both groups. Among New Enrollees, enrolling at the Access Health Connecticut enrollment center is associated with lower odds of being uninsured while having coverage start in February 2015 raises those odds. Among renewals, getting information from the AHCT website significantly increases the odds of being previously uninsured as well as having coverage begin in April 2014, while enrolling outside the open enrollment period reduces the odds they were previously uninsured.



QHP Just New Enrollees

Using the 2014 model with just the variables available in both studies, we can compare QHP enrollees that were new to AHCT in the 2014 vs. 2015 enrollments. The small base in 2015 does make it harder to find statistical significance (as shown in the middle column) but this cannot explain all the changes. The variables used in the 2014 model do not do as well at explaining the variance for the 2015 new enrollees, but a few findings are shown at the right below when we use the same model.

Variable	2014 QHP			(Random Sample of) 2014 QHP			2015 New QHP			Change in Statistically Significant Variables
	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	
Less than high school graduate	3.561	.001	35.209	2.663	.028	14.339	1.621	.074	5.057	↓ Still large impact but much smaller
High school graduate or G.E.D.	1.176	.000	3.243	.915	.030	2.497	.148	.705	1.159	
Some college or an Associate's Degree	.522	.015	1.686	.241	.545	1.273	.693	.065	2.000	↑ Slightly larger impact
FPL 301-400%	.917	.002	2.502	1.557	.002	4.744	.069	.884	1.071	
Married	-.562	.014	.570	-.822	.038	.440	.307	.371	1.360	
Primary Decision Maker	-.603	.036	.547	-.927	.079	.396	.266	.567	1.305	
African American or Black	.905	.001	2.472	1.385	.004	3.994	1.450	.023	4.265	↑ Nearly as important as "Less than high school"
Hispanic	.714	.007	2.043	.985	.047	2.679	.529	.193	1.698	
Other race	.943	.007	2.569	1.289	.011	3.631	1.501	.010	4.486	↑
Male	.383	.031	1.467	.655	.045	1.925	.411	.211	1.508	
APTC+CSR	.556	.009	1.743	.707	.087	2.028	.503	.163	1.653	
Gold Tier Plan	-1.004	.000	.366	-.726	.172	.484	.247	.671	1.280	
Has a primary care physician	-.731	.000	.481	-.893	.015	.409	-.471	.166	.624	
Sources of information: An insurance broker	-.598	.004	.550	-.831	.033	.435	.300	.382	1.351	
Constant	-.272	.500	.762	-.294	.690	.746	-1.320	.055	.267	

N = 703

N = 234

N = 209

Modeling Previous Insurance Status among New Enrollees in 2015

As the previous slide shows, the factors behind previous lack of insurance are a bit different among the 2015 new enrollee population versus all the new enrollees last year. Improving the model for our small sample of QHP new enrollees, we see that **previous insurance status is related to education, race/ethnicity, income, region, language, and when and how people enrolled.**

Variable	B	Sig.	Exp(B)	Holding all else constant, the odds of being previously uninsured are...
Some college or an Associate's Degree	.674	.046	1.962	Twice as high if you have some college or an Associate's degree versus other education statuses.
African American or Black	1.999	.002	7.384	Over 7 times higher if you African American/Black compared to the White and Hispanic groups
Other race (Non-Hispanic)	1.630	.004	5.104	Five times higher if you are in the Other Race group compared with the White and Hispanic groups
Coverage started in February 2015	.794	.083	2.212	More than twice as high if your coverage started in the month of February 2015
Federal Poverty Level 201-250%	.707	.092	2.028	Twice as high if you have income at 201-250% of FPL compared with all other income levels.
Enrolled at Access Health Connecticut enrollment center	-1.826	.054	.161	Less than a fifth as high if you enrolled at an Access Health CT enrollment center
Live in Tolland County	1.981	.087	7.252	Over 7 times higher if you live in Tolland County
Survey taken in Spanish	2.081	.000	8.016	More than 8 times higher if you opted to take the survey in Spanish
Constant	-3.005	.000	.050	

QHP Just Renewals

Using the 2014 model with just the variables available in both studies, we can compare QHP enrollees that were new to AHCT in 2014 vs. those renewing in 2015 (the latter could be a subset of the former). The dependent variable in both cases is whether they were uninsured before signing up with AHCT for the first time. The smaller base in 2015 makes it harder to find statistical significance; however the variables used in the 2014 model just do not do as well at explaining the variance for the 2015 renewals. A few findings are shown at the right below when we use the same model.

Variable	2014 QHP			2015 Renewal QHP			Change in Statistically Significant Variables
	B	Sig.	Exp(B)	B	Sig.	Exp(B)	
Less than high school graduate	3.561	.001	35.209	.697	.249	2.007	↓ Smaller but still major impact
High school graduate or G.E.D.	1.176	.000	3.243	.818	.005	2.267	
Some college or an Associate's Degree	.522	.015	1.686	.521	.071	1.683	
FPL 301-400%	.917	.002	2.502	.645	.133	1.905	=
Married	-.562	.014	.570	-.080	.747	.923	
Primary Decision Maker	-.603	.036	.547	.063	.868	1.065	↑ More than double impact, most important
African American or Black	.905	.001	2.472	-.284	.610	.753	
Hispanic	.714	.007	2.043	1.498	.000	4.473	
Other race	.943	.007	2.569	.786	.063	2.195	
Male	.383	.031	1.467	.088	.714	1.092	
APTC+CSR	.556	.009	1.743	.330	.208	1.390	↓ Slightly smaller impact
Gold Tier Plan	-1.004	.000	.366	-.186	.593	.831	
Has a primary care physician	-.731	.000	.481	.052	.856	1.053	
Sources of information: An insurance broker	-.598	.004	.550	.080	.791	1.083	
Constant	-.272	.500	.762	-1.275	.016	.279	

N = 703

N = 376

Modeling Previous Insurance Status among Renewals in 2015

As the previous slide shows, the factors behind previous lack of insurance are a bit different among the renewal population versus all the new enrollees last year. Improving the model for our small sample of QHP renewals, we see that **previous insurance status is related to education, income, being Hispanic, region, what information people used and when they enrolled.**

Variable	B	Sig.	Exp(B)	Holding all else constant, the odds of being previously uninsured are...
Graduate or professional degree	-1.055	.003	.348	More than cut in half if you have a graduate or professional degree versus another educational status
Federal Poverty Level 100-138%	1.026	.034	2.791	Nearly 3 times higher if your income is 100-138% FPL
Federal Poverty Level 301-400%	.874	.044	2.396	2.4 times higher if your income is 301-400% of FPL (<i>This variable is significant now thanks to an improved model</i>)
Hispanic	1.293	.000	3.644	3.6 times higher if you are Hispanic compared to Non-Hispanic
Middlesex County	-1.791	.008	.167	Just one sixth as high if you live in Middlesex County
New Haven County	-.756	.010	.470	More than cut in half if you live in New Haven County
Source of Info Used: Access Health CT Website	1.063	.000	2.895	Nearly 3 times higher if you used the Access Health CT Website for information.
First month of coverage was April 2014	.994	.017	2.703	2.7 times as high if your coverage started in April 2014 (probably you waited until the last minute to sign up)
Coverage started between June and December 2014	-.935	.020	.392	More than cut in half if your coverage began between June and December, outside the normal open enrollment period.
Constant	-1.564	.000	.209	