SECTION VI.
SCIENTIFIC SOUNDNESS OF THE MEASURE

VI.B. Validity

VI.B.1 Construct Validity

To examine construct validity, we performed comparative analyses between our metrics and two existing metrics: the Continuity Ratio, also based on MAX administrative data (Ku 2009, Ku 2013), and a metric derived from the American Community Survey (Boudreaux 2013).

Continuity Ratio:

The Continuity Ratio calculates the average number of children enrolled per month divided by the number of children enrolled at any point in the year (Ku 2009, Ku 2013). Like Coverage PE, the continuity ratio will tend to underestimate continuity, as the implied assumption is that any child eligible during an interval of time is presumed to be eligible across the entire interval. Unlike Coverage PE, the Continuity Ratio makes no adjustments to the denominator for children who enroll for the first time mid-year or who age out of Medicaid.

ACS Metric:

For the purpose of using survey data to validate our metric, we selected the American Community Survey conducted by the U.S. Census. The ACS provides the largest national sample, with over 2.8 million households interviewed annually, and is aggregated at the state level, allowing us to most accurately compare survey-based findings with our metrics utilizing administrative data (Call et al. 2013; Davern et al. 2009). The ACS contains one health insurance question, and details of respondent's annual income and employment status, from which we can define eligibility (U. S. Census Bureau). Because the logical edits to reported Medicaid enrollment (to correct the documented issue with Medicaid undercounting) in the ACS were only implemented in 2009, we also coded these same edits into the 2008 ACS data (Lynch, Boudreaux, and Davern).

Although primarily based on one question in the survey, there are nevertheless several ways of defining a metric for the ACS. We opted to use a definition similar to that used in a study by the Census Bureau which linked ACS data with administrative records (Boudreaux et al. 2013), because it would create a denominator most similar to what we see in the MAX data. In MAX, children who have dual eligibility or dual enrollment in Medicaid/CHIP and other insurance types are included in the records, and we allowed similar reports of dual enrollment in the ACS. Using the ACS health insurance question), we measured the ratio of children who reported enrollment in "Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability", or children who reported enrollment in other types of insurance in addition to Medicaid (the numerator) to those children plus those who reported no enrollment in any of the options listed in the survey question (the denominator). For inclusion in the denominator, each child's reported household income also had to be below the age-specific income thresholds in a given state.

Using survey data to validate our metrics allows us to ensure accuracy despite one of the primary problems with using administrative datasets like MAX: the inability to observe children who are eligible but not enrolled.

Methods

In order to maximize the significance of our comparisons, we expanded these analyses to 43 states which passed a filter test developed to determine whether a state's managed care claims were sufficiently complete to assess appendicitis coverage, and thus generate an Informed Coverage metric (see Informed Coverage CPCF for detailed description of filter).

To examine construct validity, we report Pearson correlations and absolute errors between the external standard of the ACS-based metric and the various metrics now used to assess insurance enrollment in the pediatric Medicaid/CHIP population. We used data from an initial time period, January 2008-June 2009, compared to the 2008 ACS, in order to construct our metrics. A second time period, July 2008-December 2009, was used with the 2009 ACS for validation.

Results

APPENDIX IVa describes Coverage PE, Coverage PI, Informed Coverage, ACS, the Continuity Ratio, Appendicitis Coverage, and Duration as measured in the 43 states.

APPENDIX IVb describes the correlations between all metrics based on the 43 states included in the analysis. Informed Coverage was well correlated with the ACS metric across the 43 states ($r = 0.81$ (0.66, 0.89)), and showed similar correlation with ACS in the validation set ($r = 0.75$ (0.57, 0.85)). Duration displayed lower correlations with all metrics ($r = 0.44$ (0.15, 0.65) and ($r = 0.50$ (0.23, 0.69) respectively.

APPENDIX IVc describes the median absolute errors between Informed Coverage, Coverage PE, Coverage PI, and the Continuity Ratio relative to the ACS survey and Appendicitis coverage rates. In the development set, the median absolute errors between IC or CR and the ACS survey were similar. However, in the validation set, the median absolute error between the 2009 ACS estimate and IC was 2.69%, and 4.09% between ACS and the Continuity Ratio, with significant difference between these errors ($P < 0.05$). Of note, the median absolute errors in the "uninformed" PE and PI versus 2009 ACS were 6.39% and 5.54% respectively, with a significant difference between the PI error versus the error associated with IC ($P < 0.0001$). In other words, using appendectomy to inform coverage reduced the error with respect to the ACS survey.

VI.B.2 Predictive Validity

We also measure validity in terms of predictive validity (whether the measures of coverage predict an outcome of interest) and construct validity (whether the measures of coverage are associated with other measures of performance) (McDowell, 2006). To this end we have completed regression models to demonstrate the statistical association of coverage measures at the county level (as a measure of performance) and the probability that an individual child will be at risk for an ambulatory care sensitive condition (ACSC), after controlling for other known risk factors for ACSCs, and regressions to demonstrate the probability that an individual child will be at risk for selected health outcomes from the initial pediatric core quality measurement set (also termed the CHIPRA core quality metrics) after controlling for other known risk factors for these outcomes available in the MAX data.

CHIPRA Core Measures: Positive Outcomes & Utilization

Methods

First, we examined how the Duration and Coverage metrics related to five of the CHIPRA core set measures: Preventive Dental, Emergency Dental, Well-child visits (15 months), Asthma, and ADHD follow-up (Centers for Medicare and CHIP Services, 2011). We selected these measures out of the full 24-measure CHIPRA core set because they affect a wide swath of the pediatric population and/or are sensitive to continuity of insurance (Halterman, 2008; Cassedy, 2008; DeVoe, 2008; Federico, 2007; Lavarreda, 2008; Olson, 2005; Schoen, 2000, Jones, 2008; Ortega, 2001, Shatin, 1998). They are also evaluable with standard administrative claims datasets, such as MAX. Patient outcomes (0, 1 denoting achievement or non-achievement of a specific core measure) were the dependent variables. The independent variables included the continuity metric of interest, as well as specific patient level variables such as neighborhood education level, neighborhood percent poverty, and specific chronic diseases versus a reference of no chronic disease. Tables in the Appendix (one for each of the five analyzed core measures) are displayed with seven models each, each model adding additional patient characteristics. As most of the outcomes are dichotomous variables, we report logit models and their C-statistics.

In the validation models using the CHIPRA quality outcomes, two different sampling schemes were used to avoid the mathematical tautology of using a patient characteristic as an explanatory and outcome variable. Specifically, since the metrics were stratified by county, using a patient in the calculation for their respective county and then applying that estimate to that patient is cyclical, in that the patient affects the estimate which affects the patient, and thus biases the resulting regression coefficients.

For some of the CHIPRA measures in the validation studies applicable to a particular subset of patients (i.e. those with asthma, ADHD, etc.), we used the classic method of applying the estimation set to the validation set such that all patients who did not possess the specific CHIPRA outcome were used as the estimation set for the coverage and duration metric numbers which were then applied to the patients who had the specific CHIPRA outcome. Another sampling scheme was used for the dental and well child visit outcomes that are applicable to all patients. For these outcomes, the patients were randomly split into two samples and the coverage and duration metrics were calculated in each outcome stratum. Then, the

estimates from each of the samples were applied to the other sample, thus avoiding the mathematical tautology that a patient did not influence or contribute to the estimate used for that patient in the modeling process. After the estimates for each sample were applied to the other sample, the models were calculated at each step. Using these two sampling schemes for the metric estimates provided a way to avoid a cyclical estimation process between the metrics and the patient outcomes that would alter the estimates within each outcome stratum and thus biased the regression coefficients from the CHIPRA validation models.

Results

As seen in Appendix Va, for Illinois and Louisiana, Coverage PE demonstrated predictive validity, with higher Coverage generally being significantly associated with better outcomes ($p<0.05$). One unexpected exception was that better Coverage was associated with a higher likelihood of Asthma-related emergency room visits in Illinois in the single item base model (i.e. including the average county-level coverage measure as the sole predictor). We posit that patients with better insurance continuity may be more willing to make discretionary visits to the ED, a hypothesis that is supported by the literature (Jones, 2008; Ortega, 2001; Shatin, 1998). In the fully adjusted model, the opposite was shown in Illinois with a significant association ($p<0.05$) of better coverage being associated with a higher likelihood of no asthma-related emergency room visits.

APPENDIX Va: CHIPRA Core Set outcome tables

Ambulatory Care-Sensitive Conditions: Negative Outcomes and Unnecessary Hospitalization

We predicted that hospitalizations related to ambulatory care-sensitive conditions would be positively associated with poor performance on both the Duration and Coverage metrics. From the pediatric literature, we identified 22 ACSCs for use in our analysis: asthma, pediatric gastroenteritis, bacterial pneumonia, dehydration, UTIs, perforated appendix, seizure disorders, skin infection/cellulitis, failure to thrive, severe ENT infection, pelvic inflammatory disease, diabetes mellitus (short-term complications), immunization-preventable conditions, tuberculosis, anemia, congenital syphilis, congestive heart failure, dental conditions, hypoglycemia, nutritional deficiencies, and meningitis (Flores, 2003; Gadomski, 1998, Garg, 2003; Herrod, 2008; Parker, 2000; Tom, 2010). We divided the population into those who had at least one inpatient admission associated with any of these conditions (=1) and those who did not (=0), and looked for correlations with their Duration and/or Coverage metrics.

Results

In brief, both Coverage and Duration measures often showed a significant association with ACSC hospitalizations, but in the direction of increased Coverage and Duration leading to increased likelihood of hospitalization. Specific results from the single item and fully adjusted models are described in the ensuing paragraphs. Notably, statistically significant results using conventional thresholds for p-values of

<0.05 should be interpreted with caution because the sample sizes in each of the analyzed states are quite large.

APPENDIX Vb: ACSC VALIDATION TABLES

In single item base models (i.e. including the average county-level coverage measure as the sole predictor), the average county-level coverage was significantly association ($p<0.01$) with an increase in a child's probability of an ACSC hospitalization in Illinois, Louisiana, North Carolina, New York, and Oregon. Specifically, for every 1% increase in the average county-level coverage there was a 1.0%-4.5% increase in a child's odds of being hospitalized for an ACSC. These associations were not significant for Montana, New Hampshire, and Utah.

In the fully adjusted models, the average county-level coverage was significantly associated ($p<0.0001$) with an increase in a child's probability of an ACSC hospitalization in Illinois and Louisiana. Specifically, for every 1% increase in the average county-level coverage there was a 1.3% and 2.5% increase respectively in a child's odds of being hospitalized for an ACSC. In contrast, the opposite association was found in North Carolina and New York, such that the average county-level coverage was significantly associated ($p<0.05$) with a 0.9% and 0.7% decreased odds of hospitalization for an ACSC condition. Finally, these associations were not significant in Montana, New Hampshire, Oregon, and Utah.

APPENDIX IV: Construct Validity

APPENDIX IVa: **Measured rates for Coverage PE, Coverage PI, Appendicitis Coverage, Informed Coverage, Continuity Ratio, ACS, and Duration in 43 states**

State	Coverage PE	Coverage PI	Appendicitis Coverage	Informed Coverage	Continuity Ratio	ACS	Duration
AK	0.699 (0.697,0.701)	0.853 (0.852,0.855)	0.829 (0.725,0.906)	0.853 (0.852,0.855)	0.755 (0.753,0.757)	0.931 (0.902,0.953)	0.371 (0.365,0.377)
AL	0.765 (0.764,0.766)	0.905 (0.904,0.905)	0.868 (0.821,0.907)	0.905 (0.904,0.905)	0.814 (0.814,0.815)	0.840 (0.827,0.853)	0.572 (0.569,0.575)
AR	0.780 (0.779,0.781)	0.877 (0.876,0.878)	0.881 (0.835,0.919)	0.877 (0.876,0.878)	0.809 (0.808,0.810)	0.867 (0.853,0.879)	0.497 (0.495,0.500)
AZ	0.729 (0.728,0.730)	0.862 (0.862,0.863)	0.752 (0.723,0.780)	0.794 (0.793,0.794)	0.764 (0.763,0.764)	0.728 (0.714,0.740)	0.412 (0.410,0.414)
CA	0.693 (0.693,0.693)	0.851 (0.851,0.851)	0.795 (0.782,0.808)	0.772 (0.772,0.772)	0.764 (0.764,0.764)	0.767 (0.762,0.772)	0.414 (0.413,0.415)
CO	0.733 (0.732,0.734)	0.872 (0.872,0.873)	0.656 (0.585,0.723)	0.727 (0.726,0.728)	0.770 (0.769,0.771)	0.648 (0.628,0.668)	0.473 (0.470,0.475)
CT	0.824 (0.822,0.825)	0.927 (0.926,0.928)	0.512 (0.355,0.667)	0.824 (0.822,0.825)	0.847 (0.846,0.848)	0.833 (0.813,0.851)	0.682 (0.678,0.686)
DE	0.756 (0.754,0.758)	0.879 (0.876,0.879)	0.889 (0.518,0.997)	0.756 (0.754,0.758)	0.785 (0.783,0.787)	0.811 (0.768,0.850)	0.464 (0.458,0.469)
FL	0.710 (0.710,0.711)	0.873 (0.872,0.873)	0.594 (0.558,0.628)	0.710 (0.710,0.711)	0.753 (0.752,0.753)	0.647 (0.638,0.657)	0.471 (0.470,0.473)
GA	0.707 (0.706,0.707)	0.860 (0.860,0.861)	0.711 (0.656,0.762)	0.774 (0.773,0.774)	0.763 (0.762,0.764)	0.763 (0.753,0.772)	0.424 (0.423,0.426)
HI	0.813 (0.811,0.815)	0.928 (0.927,0.929)	0.889 (0.708,0.977)	0.871 (0.869,0.872)	0.855 (0.853,0.857)	0.891 (0.862,0.916)	0.711 (0.705,0.717)
IA	0.743 (0.742,0.745)	0.896 (0.895,0.897)	0.866 (0.782,0.927)	0.896 (0.895,0.897)	0.790 (0.789,0.792)	0.873 (0.855,0.890)	0.525 (0.521,0.529)
ID	0.787 (0.786,0.789)	0.901 (0.900,0.902)	0.729 (0.647,0.800)	0.786 (0.784,0.787)	0.813 (0.812,0.815)	0.740 (0.713,0.765)	0.668 (0.663,0.673)
IL	0.848 (0.848,0.849)	0.934 (0.934,0.935)	0.941 (0.924,0.955)	0.930 (0.930,0.930)	0.867 (0.867,0.867)	0.889 (0.882,0.897)	0.722 (0.720,0.724)
IN	0.790 (0.789,0.790)	0.911 (0.910,0.911)	0.805 (0.746,0.855)	0.850 (0.849,0.850)	0.821 (0.821,0.822)	0.765 (0.752,0.777)	0.560 (0.597,0.602)
KS	0.673 (0.672,0.674)	0.848 (0.847,0.849)	0.752 (0.668,0.824)	0.761 (0.760,0.762)	0.748 (0.747,0.750)	0.766 (0.743,0.787)	0.460 (0.456,0.464)
LA	0.811 (0.810,0.811)	0.944 (0.943,0.944)	0.921 (0.890,0.946)	0.943 (0.943,0.944)	0.882 (0.881,0.882)	0.870 (0.859,0.880)	0.728 (0.725,0.731)
MD	0.801 (0.780,0.801)	0.917 (0.917,0.918)	0.837 (0.785,0.881)	0.859 (0.858,0.860)	0.830 (0.830,0.831)	0.818 (0.802,0.832)	0.640 (0.637,0.643)
MI	0.810 (0.809,0.810)	0.916 (0.915,0.916)	0.668 (0.602,0.730)	0.810 (0.809,0.810)	0.831 (0.830,0.831)	0.880 (0.871,0.888)	0.632 (0.630,0.634)
MN	0.723 (0.722,0.724)	0.874 (0.873,0.874)	0.702 (0.641,0.759)	0.723 (0.722,0.724)	0.778 (0.777,0.779)	0.776 (0.759,0.793)	0.461 (0.458,0.464)

MO	0.772 (0.771,0.773)	0.893 (0.892,0.894)	0.844 (0.802,0.880)	0.832 (0.832,0.833)	0.814 (0.814,0.815)	0.807 (0.795,0.818)	0.572 (0.569,0.575)
MT	0.725 (0.722,0.727)	0.870 (0.868,0.871)	0.653 (0.504,0.783)	0.798 (0.796,0.800)	0.778 (0.776,0.780)	0.659 (0.610,0.706)	0.461 (0.454,0.468)
NC	0.811 (0.811,0.812)	0.915 (0.915,0.916)	0.761 (0.723,0.796)	0.808 (0.807,0.808)	0.831 (0.830,0.831)	0.808 (0.798,0.818)	0.610 (0.608,0.611)
ND	0.706 (0.703,0.709)	0.866 (0.864,0.869)	0.821 (0.631,0.939)	0.750 (0.748,0.753)	0.755 (0.752,0.758)	0.831 (0.771,0.881)	0.378 (0.370,0.386)
NE	0.739 (0.738,0.741)	0.882 (0.881,0.883)	0.798 (0.692,0.880)	0.811 (0.809,0.812)	0.796 (0.795,0.797)	0.773 (0.743,0.801)	0.513 (0.508,0.518)
NH	0.781 (0.779,0.783)	0.891 (0.890,0.893)	0.927 (0.801,0.985)	0.891 (0.890,0.892)	0.807 (0.805,0.809)	0.831 (0.796,0.862)	0.548 (0.541,0.554)
NJ	0.777 (0.776,0.778)	0.909 (0.909,0.910)	0.843 (0.807,0.874)	0.836 (0.836,0.837)	0.839 (0.838,0.839)	0.771 (0.758,0.784)	0.598 (0.595,0.600)
NM	0.823 (0.822,0.824)	0.926 (0.926,0.927)	0.850 (0.806,0.887)	0.875 (0.874,0.875)	0.849 (0.848,0.850)	0.837 (0.819,0.854)	0.593 (0.590,0.597)
NV	0.641 (0.640,0.643)	0.831 (0.830,0.833)	0.389 (0.276,0.511)	0.641 (0.640,0.643)	0.696 (0.695,0.698)	0.453 (0.425,0.482)	0.358 (0.355,0.362)
NY	0.754 (0.753,0.754)	0.900 (0.900,0.901)	0.894 (0.876,0.911)	0.900 (0.900,0.901)	0.816 (0.816,0.817)	0.859 (0.852,0.865)	0.613 (0.611,0.614)
OK	0.750 (0.749,0.751)	0.869 (0.868,0.870)	0.846 (0.808,0.879)	0.869 (0.868,0.870)	0.789 (0.788,0.790)	0.839 (0.824,0.852)	0.486 (0.483,0.489)
OR	0.695 (0.694,0.696)	0.842 (0.841,0.842)	0.745 (0.679,0.804)	0.769 (0.768,0.769)	0.756 (0.755,0.757)	0.687 (0.664,0.709)	0.361 (0.358,0.364)
RI	0.768 (0.766,0.770)	0.881 (0.880,0.883)	0.831 (0.733,0.905)	0.881 (0.880,0.883)	0.811 (0.809,0.813)	0.824 (0.787,0.857)	0.388 (0.382,0.393)
SC	0.772 (0.771,0.773)	0.909 (0.909,0.910)	0.800 (0.730,0.859)	0.772 (0.771,0.773)	0.812 (0.811,0.813)	0.756 (0.741,0.772)	0.577 (0.574,0.579)
SD	0.751 (0.749,0.753)	0.884 (0.882,0.885)	0.844 (0.705,0.935)	0.884 (0.882,0.885)	0.802 (0.800,0.804)	0.873 (0.838,0.902)	0.533 (0.526,0.539)
TN	0.809 (0.808,0.810)	0.910 (0.910,0.911)	0.881 (0.834,0.919)	0.860 (0.859,0.860)	0.842 (0.841,0.842)	0.824 (0.812,0.835)	0.685 (0.683,0.688)
TX	0.677 (0.676,0.677)	0.828 (0.828,0.828)	0.695 (0.678,0.712)	0.677 (0.676,0.677)	0.738 (0.737,0.738)	0.685 (0.679,0.692)	0.357 (0.356,0.358)
UT	0.642 (0.641,0.644)	0.836 (0.835,0.837)	0.611 (0.505,0.709)	0.640 (0.639,0.642)	0.710 (0.709,0.711)	0.614 (0.587,0.640)	0.388 (0.385,0.392)
VA	0.807 (0.806,0.808)	0.919 (0.918,0.919)	0.814 (0.753,0.865)	0.860 (0.860,0.861)	0.827 (0.826,0.828)	0.788 (0.773,0.803)	0.628 (0.625,0.630)
VT	0.837 (0.835,0.839)	0.925 (0.923,0.926)	0.954 (0.842,0.994)	0.924 (0.923,0.925)	0.848 (0.846,0.850)	0.940 (0.914,0.961)	0.492 (0.484,0.500)
WA	0.796 (0.796,0.797)	0.912 (0.911,0.912)	0.862 (0.827,0.893)	0.854 (0.853,0.855)	0.822 (0.821,0.822)	0.813 (0.800,0.825)	0.615 (0.612,0.617)
WI	0.784 (0.783,0.785)	0.892 (0.891,0.892)	0.845 (0.795,0.888)	0.837 (0.837,0.838)	0.788 (0.787,0.789)	0.831 (0.817,0.845)	0.517 (0.514,0.519)
WY	0.675 (0.672,0.678)	0.854 (0.852,0.856)	0.871 (0.702,0.964)	0.854 (0.852,0.856)	0.751 (0.749,0.754)	0.792 (0.736,0.841)	0.462 (0.454,0.470)

APPENDIX IVb: **Correlations between all metrics, across 43 states in two time periods**

		Coverage PE	Coverage PI	Informed Coverage	Continuity Ratio	Appendicitis Coverage	Duration	ACS
Coverage PE	**Development**	1	0.92[d] (0.85, 0.96)	0.71[d] (0.51, 0.83)	0.94[d] (0.89, 0.97)	0.42[b] (0.13, 0.63)	0.84[d] (0.72, 0.91)	0.60[d] (0.36, 76)
	Validation		0.89[d] (0.80, 0.94)	0.79[d] (0.64, 0.88)	0.88[d] (0.79, 0.93)	0.66[d] (0.45, 0.80)	0.73[d] (0.54, 0.84)	0.64[d] (0.42, 0.79)
Coverage PI	**Development**		1	0.69[d] (0.49, 0.82)	0.95[d] (0.91, 0.97)	0.41[b] (0.12, 0.63)	0.90[d] (0.81, 0.94)	0.60[d] (0.36, 0.76)
	Validation			0.80[d] (0.64, 0.88)	0.96[d] (0.92, 0.98)	0.62[d] (0.39, 0.77)	0.87[d] (0.76, 0.92)	0.65[d] (0.43, 0.79)
Informed Coverage	**Development**			1	0.78[d] (0.62, 0.87)	.74[d] (0.55, 0.85)	0.59[d] (0.34, 0.75)	0.81[d] (0.66, 0.89)
	Validation				0.84[d] (0.71, 0.91)	0.86[d] (0.75, 0.92)	0.64[d] (0.41, 0.78)	0.75[d] (0.57, 0.85)
Continuity Ratio	**Development**				1	0.51[c] (0.25, 0.70)	0.87[d] (0.76, 0.92)	0.69[d] (0.49, 0.82)
	Validation					0.73[d] (0.54, 0.84)	0.85[d] (0.73, 0.91)	0.75[d] (0.57, 0.85)
Appendicitis Coverage*	**Development**					1	0.29 (-0.01, 0.54)	0.72[d] (0.53, 0.83)
	Validation						0.48[b] (0.20, 0.68)	0.76[d] (0.59, 0.86)
Duration	**Development**						1	0.44[d] (0.15, 0.65)
	Validation							0.50[c] (0.23, 0.69)

APPENDIX IVc**: Median Absolute Errors**

		Informed Coverage	Continuity Ratio	Coverage PE	Coverage PI	Appendicitis Coverage
ACS	**Development**	4.14%	4.06%	5.17%	9.38%	4.49%
			IC vs. CR P = 0.962	IC vs. PE P = 0.1355	IC vs PI P < 0.0001	
	Validation	2.69%	4.09%	6.39%	5.54%	3.76%
			IC vs. CR P = 0.035	IC vs. PE P < 0.0001	IC vs PI P = 0.0022	
Appendicitis	**Development**	2.33%	4.06%	7.93%	5.05%	N/A
			IC vs. CR P < 0.0001	IC vs. PE P < 0.0001	IC vs PI P < 0.0001	
	Validation	2.75%	5.69%	7.42%	5.58%	N/A
			IC vs. CR P < 0.0001	IC vs. PE P < 0.0001	IC vs PI P < 0.0001	

APPENDIX V: Predictive Validity

APPENDIX Va: CHIPRA Core Measures: Positive Outcomes & Utilization

ADHD

Dependent variable: *likelihood to receive at least three follow-up care visits within 10 months after the first prescription of medication for ADHD, one of which occurred within the first 30 days. We coded the receiving of follow-up care as a 1, and lack or care as a 0.*

Illinois (N= 31,703)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.535	0.535	0.535	0.538	0.576	0.585	0.594
Intercept (log odds)	-0.4167[d]	-0.4171[d]	-0.4030[d]	-0.4897[d]	-0.7544[d]	-0.9316[d]	-0.7295[d]
Centered Coverage (odds ratio)	1.020[d]	1.020[d]	1.020[d]	1.014[d]	1.013[d]	1.012[d]	1.009[c]
Age							
6-12 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
1-5 years old	/	5.780[a]	5.794[a]	5.492[a]	5.575[d]	5.911[a]	5.509[a]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.950[a]	0.960	0.979	0.983	0.983
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.149[d]	1.131[d]	1.001	0.974
Hispanic	/	/	/	1.426[d]	1.396[d]	1.237[d]	1.111[a]
Other	/	/	/	1.214[c]	1.215[c]	1.117	1.061
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.591[d]	1.598[d]	1.601[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	2.824	2.880
Urban Cluster	/	/	/	/	/	1.050	1.117[a]
Urbanized Area	/	/	/	/	/	1.368[d]	1.224[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.905[a]
Missing income level	/	/	/	/	/	/	0.826[a]
25-50% income level	/	/	/	/	/	/	0.788[d]
< 25% income level	/	/	/	/	/	/	0.544[d]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	0.987
25-50% with HS Degree	/	/	/	/	/	/	1.048
< 25% with HS Degree	/	/	/	/	/	/	1.194[c]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.026
50-75% below FPL	/	/	/	/	/	/	1.094
≥ 75% below FPL	/	/	/	/	/	/	1.455[d]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

ADHD

Dependent variable: *likelihood to receive at least three follow-up care visits within 10 months after the first prescription of medication for ADHD, one of which occurred within the first 30 days. We coded the receiving of follow-up care as a 1, and lack or care as a 0.*

Louisiana (N= 33,109)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.495	0.496	0.505	0.526	0.554	0.563	0.565
Intercept (log odds)	-0.4126[d]	-0.4129[d]	-0.4332[d]	-0.3510[d]	-0.4962[d]	-0.7178[d]	-0.7252[d]
Centered Coverage (odds ratio)	1.005	1.005	1.005	1.004	1.004	1.011[c]	1.012[d]
Age							
6-12 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
1-5 years old	/	2.493	2.438	2.556	2.504	2.541	2.538
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.070[b]	1.058[a]	1.074[b]	1.075[b]	1.076[b]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.827[d]	0.816[d]	0.794[d]	0.782[d]
Hispanic	/	/	/	1.149	1.158	1.122	1.124
Other	/	/	/	0.922	0.894	0.875[a]	0.872[a]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.396[d]	1.395[d]	1.394[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	1.014	0.934
Urban Cluster	/	/	/	/	/	1.168[d]	1.181[d]
Urbanized Area	/	/	/	/	/	1.358[d]	1.337[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.001
Missing income level	/	/	/	/	/	/	1.114
25-50% income level	/	/	/	/	/	/	0.952
< 25% income level	/	/	/	/	/	/	1.057
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.050
25-50% with HS Degree	/	/	/	/	/	/	0.938
< 25% with HS Degree	/	/	/	/	/	/	0.895[a]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.054
50-75% below FPL	/	/	/	/	/	/	1.067
≥ 75% below FPL	/	/	/	/	/	/	1.092

[a] $p<0.05$, [b] $p<0.01$, [c] $p<0.001$, [d] $p<0.0001$

Asthma-Related Emergency Room Visits

Dependent variable: *likelihood of never experiencing an asthma-related emergency room visit.*

Illinois (N=1,162,415)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.498	0.543	0.568	0.645	0.854	0.855	0.855
Intercept (log odds)	4.6714[d]	4.9481[d]	4.7842[d]	5.2140[d]	7.9978[d]	8.2027[d]	8.2660[d]
Centered Coverage (odds ratio)	0.993[b]	0.992[b]	0.992[b]	1.008[b]	1.006[a]	1.007[b]	1.006[a]
Age							
≥ 13 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.777[d]	0.782[d]	0.728[d]	0.764[d]	0.764[d]	0.763[d]
1-5 years old	/	0.638[d]	0.642[d]	0.560[d]	0.685[d]	0.686[d]	0.685[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.423[d]	1.429[d]	1.115[d]	1.115[d]	1.115[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.407[d]	0.385[d]	0.402[d]	0.417[d]
Hispanic	/	/	/	1.204[d]	1.104[b]	1.152[d]	1.130[c]
Other	/	/	/	0.944	0.810[d]	0.841[c]	0.832[c]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	0.023[d]	0.023[d]	0.023[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	1.299	1.199
Urban Cluster	/	/	/	/	/	0.802[c]	0.816[c]
Urbanized Area	/	/	/	/	/	0.778[d]	0.764[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.010
Missing income level	/	/	/	/	/	/	1.003
25-50% income level	/	/	/	/	/	/	0.970
< 25% income level	/	/	/	/	/	/	0.979
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.090[a]
25-50% with HS Degree	/	/	/	/	/	/	1.055
< 25% with HS Degree	/	/	/	/	/	/	1.201[d]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	0.864[c]
50-75% below FPL	/	/	/	/	/	/	0.877[b]
≥ 75% below FPL	/	/	/	/	/	/	0.810[c]

[a] $p<0.05$, [b] $p<0.01$, [c] $p<0.001$, [d] $p<0.0001$

Asthma-Related Emergency Room Visits

Dependent variable: *likelihood of never experiencing an asthma-related emergency room visit.*

Louisiana (N= 595,558)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.514	0.584	0.603	0.655	0.868	0.869	0.870
Intercept (log odds)	4.5172[d]	4.9870[d]	4.8095[d]	5.4372[d]	8.4714[d]	8.6164[d]	8.7363[d]
Centered Coverage (odds ratio)	1.032[d]	1.032[d]	0.0312[d]	1.024[d]	1.027[d]	1.025[d]	1.023[d]
Age							
≥ 13 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.644[d]	0.648[d]	0.638[d]	0.771[d]	0.772[d]	0.772[d]
1-5 years old	/	0.470[d]	0.473[d]	0.451[d]	0.690[d]	0.692[d]	0.693[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.472[d]	1.481[d]	1.201[d]	1.200[d]	1.203[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.403[d]	0.376[d]	0.383[d]	0.407[d]
Hispanic	/	/	/	1.152	0.975	1.000	1.001
Other	/	/	/	0.767[d]	0.826[b]	0.841[b]	0.853[a]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	0.015[d]	0.015[d]	0.015[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.862	0.800
Urban Cluster	/	/	/	/	/	0.885[a]	0.845[b]
Urbanized Area	/	/	/	/	/	0.824[d]	0.787[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.723[d]
Missing income level	/	/	/	/	/	/	0.930
25-50% income level	/	/	/	/	/	/	0.896
< 25% income level	/	/	/	/	/	/	0.730[c]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.065
25-50% with HS Degree	/	/	/	/	/	/	1.156[b]
< 25% with HS Degree	/	/	/	/	/	/	1.215[c]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.098
50-75% below FPL	/	/	/	/	/	/	0.877
≥ 75% below FPL	/	/	/	/	/	/	0.964

[a] $p<0.05$, [b] $p<0.01$, [c] $p<0.001$, [d] $p<0.0001$

Preventive Dental Services

Dependent variable: *likelihood of receiving at least one preventive dental service per calendar year.*

Illinois (N=1,590,925)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.557	0.627	0.627	0.650	0.660	0.661	0.663
Intercept (log odds)	-1.3516[d]	-1.7791[d]	-1.7845[d]	-2.0130[d]	-2.1619[d]	-2.2020[d]	-2.2634[d]
Centered Coverage (odds ratio)	1.063[d]	1.065[d]	1.065[d]	1.046[d]	1.046[d]	1.044[d]	1.038[d]
Age							
≥ 13 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	2.136[d]	2.136[d]	2.085[d]	2.071[d]	2.071[d]	2.075[d]
1-5 years old	/	1.655[d]	1.656[d]	1.570[d]	1.514[d]	1.513[d]	1.515[d]
0-1 years old	/	0.151[d]	0.152[d]	0.141[d]	0.135[d]	0.135[d]	0.135[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.010[b]	1.008	1.050[d]	1.050[d]	1.049[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.147[d]	1.144[d]	1.117[d]	1.073[d]
Hispanic	/	/	/	1.925[d]	1.954[d]	1.907[d]	1.756[d]
Other	/	/	/	1.325[d]	1.362[d]	1.332[d]	1.317[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.550[d]	1.552[d]	1.546[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.403[c]	0.421[c]
Urban Cluster	/	/	/	/	/	0.995	0.982
Urbanized Area	/	/	/	/	/	1.071[d]	1.073[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.987
Missing income level	/	/	/	/	/	/	1.062[d]
25-50% income level	/	/	/	/	/	/	1.002
< 25% income level	/	/	/	/	/	/	1.018
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	0.998
25-50% with HS Degree	/	/	/	/	/	/	1.085[d]
< 25% with HS Degree	/	/	/	/	/	/	1.247[d]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.030[c]
50-75% below FPL	/	/	/	/	/	/	1.079[d]
≥ 75% below FPL	/	/	/	/	/	/	0.972[a]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Preventive Dental Services

Dependent variable: *likelihood of receiving at least one preventive dental service per calendar year.*

Louisiana (N= 761,676)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.508	0.594	0.598	0.599	0.614	0.652	0.627
Intercept (log odds)	-1.0611[d]	-1.1085[d]	-1.1618[d]	-1.1739[d]	-1.2827[d]	-1.2682[d]	-1.1939[d]
Centered Coverage (odds ratio)	1.010[d]	1.010[d]	1.010[d]	1.011[d]	1.009[d]	1.006[d]	1.005[d]
Age							
≥ 13 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	1.464[d]	1.466[d]	1.468[d]	1.444[d]	1.456[d]	1.456[d]
1-5 years old	/	0.948[d]	0.949[d]	0.954[d]	0.911[d]	0.912[d]	0.913[d]
0-1 years old	/	0.074[d]	0.074[d]	0.074[d]	0.070[d]	0.069[d]	0.069[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.111[d]	1.111[d]	1.139[d]	1.138	1.138[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.019[c]	1.022[c]	1.021[c]	1.052[d]
Hispanic	/	/	/	0.832[d]	0.850[d]	0.844[d]	0.845[d]
Other	/	/	/	1.057[d]	1.047[d]	1.040[c]	1.049[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.443[d]	1.425[d]	1.426[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.127[d]	0.119[d]
Urban Cluster	/	/	/	/	/	0.961[d]	0.985
Urbanized Area	/	/	/	/	/	1.045[d]	1.016
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.905[d]
Missing income level	/	/	/	/	/	/	0.972
25-50% income level	/	/	/	/	/	/	0.841[d]
< 25% income level	/	/	/	/	/	/	0.946[b]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.027[b]
25-50% with HS Degree	/	/	/	/	/	/	1.125[d]
< 25% with HS Degree	/	/	/	/	/	/	1.095[d]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	0.973[a]
50-75% below FPL	/	/	/	/	/	/	0.929[d]
≥ 75% below FPL	/	/	/	/	/	/	0.876[d]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Dental Treatment Services

Dependent variable: *likelihood of receiving at least one dental treatment service per calendar year.*

Illinois (N= 1,590,925)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.533	0.612	0.612	0.648	0.656	0.656	0.659
Intercept (log odds)	-2.1472[d]	-2.1661[d]	-2.1722[d]	-2.2720[d]	-2.3892[d]	-2.4467[d]	-2.3950[d]
Centered Coverage (odds ratio)	1.042[d]	1.042[d]	1.042[d]	1.032[d]	1.031[d]	1.030[d]	1.027[d]
Age							
≥ 13 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	1.440[d]	1.441[d]	1.377[d]	1.365[d]	1.364[d]	1.361[d]
1-5 years old	/	0.811[d]	0.811[d]	0.743[d]	0.718[d]	0.717[d]	0.715[d]
0-1 years old	/	0.014[d]	0.014[d]	0.013[d]	0.012[d]	0.012[d]	0.012[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.012[a]	1.009	1.042[d]	1.042[d]	1.042[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.818[d]	0.816[d]	0.791[d]	0.831[d]
Hispanic	/	/	/	1.798[d]	1.816[d]	1.761[d]	1.687[d]
Other	/	/	/	1.235[d]	1.262[d]	1.227[d]	1.216[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.424[d]	1.427[d]	1.429[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.637	0.589
Urban Cluster	/	/	/	/	/	1.004	1.020
Urbanized Area	/	/	/	/	/	1.098[d]	1.057[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.968[c]
Missing income level	/	/	/	/	/	/	1.028
25-50% income level	/	/	/	/	/	/	0.899[d]
< 25% income level	/	/	/	/	/	/	0.831[d]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.012
25-50% with HS Degree	/	/	/	/	/	/	1.048
< 25% with HS Degree	/	/	/	/	/	/	1.197[d]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.030[b]
50-75% below FPL	/	/	/	/	/	/	1.022
≥ 75% below FPL	/	/	/	/	/	/	0.930[d]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Dental Treatment Services

Dependent variable: *likelihood of receiving at least one dental treatment service per calendar year.*

Louisiana (N= 785,131)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.507	0.609	0.616	0.617	0.627	0.635	0.637
Intercept (log odds)	-1.7016[d]	-1.4879[d]	-1.5539[d]	-1.5188[d]	-1.6076[d]	-1.5385[d]	-1.4833[d]
Centered Coverage (odds ratio)	1.014[d]	1.015[d]	1.015[d]	1.014[d]	1.013[d]	1.009[d]	1.008[d]
Age							
≥ 13 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	1.106[d]	1.107[d]	1.107[d]	1.091[d]	1.097[d]	1.097[d]
1-5 years old	/	0.575[d]	0.576[d]	0.576[d]	0.555[d]	0.555[d]	0.555[d]
0-1 years old	/	0.024[d]	0.024[d]	0.024[d]	0.023[d]	0.023[d]	0.023[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.138[d]	1.139[d]	1.161[d]	1.160[d]	1.160[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.939[d]	0.941[d]	0.947[d]	0.980[b]
Hispanic	/	/	/	0.818[d]	0.833[d]	0.836[d]	0.839[d]
Other	/	/	/	1.046[c]	1.036[b]	1.038[b]	1.051[c]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.349[d]	1.334[d]	1.335[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.138[d]	0.134[d]
Urban Cluster	/	/	/	/	/	0.918[d]	0.940[d]
Urbanized Area	/	/	/	/	/	0.965[c]	0.949[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.932[d]
Missing income level	/	/	/	/	/	/	0.947[b]
25-50% income level	/	/	/	/	/	/	0.930[d]
< 25% income level	/	/	/	/	/	/	1.080[c]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.036[b]
25-50% with HS Degree	/	/	/	/	/	/	1.116[d]
< 25% with HS Degree	/	/	/	/	/	/	1.057[d]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	0.962[b]
50-75% below FPL	/	/	/	/	/	/	0.864[d]
≥ 75% below FPL	/	/	/	/	/	/	0.793[d]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Well-child Visits, 15 months

Dependent variable: *likelihood of each child 15 months of age to have had at least 5 well-child visits.*

Illinois (N=116,119)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.476	0.480	0.498	0.545	0.619	0.628	0.633
Intercept (log odds)	0.4755[d]	0.4690[d]	0.5015[d]	0.6749[d]	0.3583[d]	0.6532[d]	0.5650[d]
Centered Coverage (odds ratio)	1.012[d]	1.012[d]	1.012[d]	1.019[d]	1.018[d]	1.020[d]	1.021[d]
Age							
0-1 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
1-5 years old	/	1.027	1.027	1.028	1.016	1.016	1.016
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.937d	0.938d	1.015	1.015	1.014
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.648[d]	0.634[d]	0.746[d]	0.810[d]
Hispanic	/	/	/	0.882[d]	0.898[d]	1.054[b]	1.098[d]
Other	/	/	/	0.824[d]	0.860[d]	0.995	1.022
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	2.536d	2.524[d]	2.523[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.093[a]	0.100[a]
Urban Cluster	/	/	/	/	/	1.030	1.004
Urbanized Area	/	/	/	/	/	0.623[d]	0.670[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.971
Missing income level	/	/	/	/	/	/	1.064
25-50% income level	/	/	/	/	/	/	1.097[c]
< 25% income level	/	/	/	/	/	/	1.163[d]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.070[b]
25-50% with HS Degree	/	/	/	/	/	/	0.957
< 25% with HS Degree	/	/	/	/	/	/	1.035
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.106[d]
50-75% below FPL	/	/	/	/	/	/	0.913[b]
≥ 75% below FPL	/	/	/	/	/	/	0.734[d]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Well-child Visits, 15 months

Dependent variable: *likelihood of each child 15 months of age to have had at least 5 well-child visits.*

Louisiana (N= 58,530)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.524	0.533	0.533	0.536	0.585	0.596	0.605
Intercept (log odds)	0.3999[d]	0.3636[d]	0.3609[d]	0.3848[d]	0.1504[d]	-0.1154[c]	-0.2967[d]
Centered Coverage (odds ratio)	1.022[d]	1.022[d]	1.022[d]	1.021[d]	1.018[d]	1.024[d]	1.023[d]
Age							
0-1 years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
1-5 years old	/	1.158[d]	1.158[d]	1.157[d]	1.150[d]	1.153[d]	1.153[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.005	1.006	1.050[b]	1.050[b]	1.050[b]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.993	0.989	0.952[b]	0.980
Hispanic	/	/	/	0.735[d]	0.762[d]	0.737[d]	0.754[d]
Other	/	/	/	0.937	0.955	0.924[a]	0.934
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	1.771[d]	1.769[d]	1.758[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.599[d]	0.572[d]
Urban Cluster	/	/	/	/	/	1.234[d]	1.206[d]
Urbanized Area	/	/	/	/	/	1.465[d]	1.524[d]
ZIP CODE-LEVEL SES VARIABLES: REPORTED IN QUARTILES							
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.006
Missing income level	/	/	/	/	/	/	1.256[d]
25-50% income level	/	/	/	/	/	/	1.032
< 25% income level	/	/	/	/	/	/	0.828[c]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.066[a]
25-50% with HS Degree	/	/	/	/	/	/	1.195[d]
< 25% with HS Degree	/	/	/	/	/	/	1.122[b]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.209[d]
50-75% below FPL	/	/	/	/	/	/	1.195[b]
≥ 75% below FPL	/	/	/	/	/	/	1.122

[a] $p<0.05$, [b] $p<0.01$, [c] $p<0.001$, [d] $p<0.0001$

APPENDIX Vb: ACSC outcome tables

Illinois

Coverage PE (N=1,818,535)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.521	0.643	0.644	0.655	0.792	0.792	0.793
Intercept (log odds)	-4.4116[d]	-4.4505[d]	-4.4138[d]	-4.4761[d]	-5.5034[d]	-5.5135[d]	-5.6581[d]
Centered Coverage (odds ratio)	1.021[d]	1.021[d]	1.021[d]	1.019[d]	1.015[d]	1.016[d]	1.013[d]
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.507[d]	0.507[d]	0.517[d]	0.486[d]	0.486[d]	0.487[d]
1-5 years old	/	0.985	0.984	1.021	0.847[d]	0.847[d]	0.848[d]
0-1 years old	/	2.406[d]	2.403[d]	2.499[d]	2.445[d]	2.446[d]	2.450[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.931[d]	0.931[d]	1.111[d]	1.111[d]	1.110[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.281[d]	1.238[d]	1.265[d]	1.202[d]
Hispanic	/	/	/	0.896[d]	0.940[b]	0.961	0.926[c]
Other	/	/	/	0.795[d]	0.898[c]	0.916[b]	0.920[b]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	7.410[d]	7.400[d]	7.366[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.770	0.911
Urban Cluster	/	/	/	/	/	1.076[a]	1.051
Urbanized Area	/	/	/	/	/	0.986	1.026
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.019
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	1.060
≥ 75% below FPL	/	/	/	/	/	/	1.014
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.011
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	1.070[b]
< 25% with HS Degree	/	/	/	/	/	/	1.053
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.063[a]
Missing	/	/	/	/	/	/	0.977
25-50% income level	/	/	/	/	/	/	1.170[d]
< 25% income level	/	/	/	/	/	/	1.125[b]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.000

Louisiana

Coverage PE (N=891,463)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.561	0.682	0.682	0.683	0.778	0.781	0.783
Intercept (log odds)	-3.8549[d]	-4.2534[d]	-4.2361[d]	-4.2256[d]	-4.9781[d]	-4.7677[d]	-4.9601[d]
Centered Coverage (odds ratio)	1.045[d]	1.045[d]	1.045[d]	1.043[d]	1.035[d]	1.024[d]	1.025[d]
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.665[d]	0.665[d]	0.666[d]	0.601[d]	0.605[d]	0.607[d]
1-5 years old	/	1.537[d]	1.536[d]	1.551[d]	1.241[d]	1.252[d]	1.256[d]
0-1 years old	/	3.742[d]	3.741[d]	3.799[d]	3.245[d]	3.260[d]	3.270[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.966	0.966[a]	1.081[d]	1.079[d]	1.079[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	0.999	1.006	1.040[a]	0.980
Hispanic	/	/	/	0.620[d]	0.694[d]	0.734[d]	0.746[d]
Other	/	/	/	0.944	0.940	0.977	0.969
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	5.286[d]	5.240[d]	5.230[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.301[d]	0.300[d]
Urban Cluster	/	/	/	/	/	0.942[a]	0.915[c]
Urbanized Area	/	/	/	/	/	0.728[d]	0.783[d]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.023
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	1.022
≥ 75% below FPL	/	/	/	/	/	/	1.042
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.106[c]
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	0.915[b]
< 25% with HS Degree	/	/	/	/	/	/	0.916[b]
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.077[a]
Missing	/	/	/	/	/	/	1.252[d]
25-50% income level	/	/	/	/	/	/	1.310[d]
< 25% income level	/	/	/	/	/	/	1.395[d]

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Montana

Coverage PE (N= 102,287)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.506	0.670	0.670	0.686	0.816	0.818	0.819
Intercept (log odds)	-4.3619[d]	-4.4717[d]	-4.4592[d]	-4.6309[d]	-5.4718[d]	-5.4767[d]	-5.6284[d]
Centered Coverage (odds ratio)	1.023	1.023	1.023	1.010	1.000	0.999	0.996
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.463[d]	0.463[d]	0.466[d]	0.426[d]	0.426[d]	0.428[d]
1-5 years old	/	0.970	0.970	0.972	0.742[c]	0.742[c]	0.743[c]
0-1 years old	/	2.957[d]	2.956[d]	2.946[d]	2.619[d]	2.621[d]	2.619[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.975	0.973	1.127[a]	1.128[d]	1.128[a]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.117	1.005	1.043	1.023
Hispanic	/	/	/	1.093	1.066	1.089	1.056
Other	/	/	/	1.769 [d]	1.745[d]	1.734[d]	1.525[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	8.043[d]	8.048[d]	7.947[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.680	0.728
Urban Cluster	/	/	/	/	/	1.085	1.156
Urbanized Area	/	/	/	/	/	0.906	0.999
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.080
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	0.974
≥ 75% below FPL	/	/	/	/	/	/	1.007
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	0.855
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	0.995
< 25% with HS Degree	/	/	/	/	/	/	1.119
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.104
Missing	/	/	/	/	/	/	1.123
25-50% income level	/	/	/	/	/	/	1.167
< 25% income level	/	/	/	/	/	/	1.292

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

North Carolina

Coverage PE (N= 1,296,473)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.506	0.660	0.661	0.664	0.788	0.789	0.791
Intercept (log odds)	-4.4036[d]	-4.4669[d]	-4.4784[d]	-4.5488[d]	-5.3517[d]	-5.2505[d]	-5.4901[d]
Centered Coverage (odds ratio)	1.031[d]	1.035[d]	1.035[d]	1.036[d]	1.022[d]	1.009[a]	0.991[a]
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.467[d]	0.467[d]	0.468[d]	0.391[d]	0.392[d]	0.393[d]
1-5 years old	/	0.972	0.973	0.979	0.651[d]	0.654[d]	0.656[d]
0-1 years old	/	2.577[d]	2.578[d]	2.582[d]	2.065[d]	2.071[d]	2.077[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.023	1.024	1.174[d]	1.174[d]	1.174[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.106[d]	1.042[a]	1.052[b]	1.030
Hispanic	/	/	/	0.995	1.072[b]	1.085[b]	1.084[b]
Other	/	/	/	1.300[d]	1.236[d]	1.245[d]	1.235[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	6.721[d]	6.688[d]	6.671[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.606[d]	0.608[d]
Urban Cluster	/	/	/	/	/	0.964	0.981
Urbanized Area	/	/	/	/	/	0.859[d]	0.937[a]
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.052
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	1.004
≥ 75% below FPL	/	/	/	/	/	/	1.001
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.246[d]
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	1.346[d]
< 25% with HS Degree	/	/	/	/	/	/	1.382[d]
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.899[b]
Missing	/	/	/	/	/	/	1.260[d]
25-50% income level	/	/	/	/	/	/	0.895[b]
< 25% income level	/	/	/	/	/	/	1.043

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

New Hampshire

Coverage PE (N= 111,010)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	**	0.658	0.658	0.660	0.811	0.814	0.818
Intercept (log odds)	-5.0014[d]	-5.3170[d]	-5.2828[d]	-5.2935[d]	-6.3391[d]	-6.5136[d]	-6.5577[d]
Centered Coverage (odds ratio)	1.012	1.013	1.013	1.014	1.006	1.039	0.999
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.692[b]	0.692[b]	0.690[b]	0.655[c]	0.654[c]	0.651
1-5 years old	/	1.467[d]	1.467[c]	1.464[c]	1.082	1.074	1.062[c]
0-1 years old	/	3.580[d]	3.580[d]	3.558[d]	2.951[d]	2.928[d]	2.877[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.930	0.931	1.092	1.090	1.087
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.429	1.447	1.367	1.273
Hispanic	/	/	/	1.251	1.253	1.174	1.033
Other	/	/	/	0.448	0.544	0.523	0.523
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	9.506[d]	9.468[d]	9.379[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	1.093	1.390
Urban Cluster	/	/	/	/	/	1.197	1.167
Urbanized Area	/	/	/	/	/	1.312[a]	1.208
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	0.867
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	0.806
≥ 75% below FPL	/	/	/	/	/	/	0.999
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.055
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	1.155
< 25% with HS Degree	/	/	/	/	/	/	1.388
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	1.025
Missing	/	/	/	/	/	/	0.847
25-50% income level	/	/	/	/	/	/	1.157
< 25% income level	/	/	/	/	/	/	1.092

**Note: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

New York

Coverage PE (N= 2,291,206)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.509	0.645	0.646	0.666	0.790	0.791	0.793
Intercept (log odds)	-4.0876[d]	-4.3502[d]	-4.2988[d]	-4.6828[d]	-5.5340[d]	-5.5897[d]	-5.6212[d]
Centered Coverage (odds ratio)	1.010[d]	1.014[d]	1.014[d]	1.011[d]	1.002	1.000	0.993[d]
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.671[d]	0.670[d]	0.669[d]	0.586[d]	0.586[d]	0.587[d]
1-5 years old	/	1.302[d]	1.300[d]	1.316[d]	0.917[d]	0.917[d]	0.922[d]
0-1 years old	/	3.027[d]	3.023[d]	3.172[d]	2.578[d]	2.574[d]	2.591[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.900[d]	0.898[d]	1.029[b]	1.029[b]	1.028[b]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.700[d]	1.702[d]	1.664[d]	1.534[d]
Hispanic	/	/	/	1.837[d]	1.708[d]	1.666[d]	1.507[d]
Other	/	/	/	1.153[d]	1.234[d]	1.206[d]	1.145[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	6.870[d]	6.860[d]	6.852[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.658[d]	0.807
Urban Cluster	/	/	/	/	/	0.997	0.998
Urbanized Area	/	/	/	/	/	1.092[c]	1.035
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.031
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	0.919[b]
≥ 75% below FPL	/	/	/	/	/	/	1.112[b]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.112[d]
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	1.204[d]
< 25% with HS Degree	/	/	/	/	/	/	1.229[d]
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.966
Missing	/	/	/	/	/	/	0.889
25-50% income level	/	/	/	/	/	/	0.969
< 25% income level	/	/	/	/	/	/	1.036

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Oregon

Coverage PE (N= 411,301)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	0.500	0.683	0.683	0.690	0.801	0.801	0.802
Intercept (log odds)	-4.9744[d]	-5.0291[d]	-5.0270[d]	-5.1414[d]	-5.8817[d]	-5.8174[d]	-5.9170[d]
Centered Coverage (odds ratio)	1.031[b]	1.033[b]	1.033[b]	1.035[b]	1.023[b]	1.023[a]	1.023
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.405[d]	0.405[d]	0.397[d]	0.374[d]	0.374[d]	0.374[d]
1-5 years old	/	0.838[b]	0.838[b]	0.816[c]	0.652[d]	0.651[d]	0.651[d]
0-1 years old	/	2.853[d]	2.853[d]	2.757[d]	2.485[d]	2.483[d]	2.492[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	0.996	0.995	1.129[b]	1.129[b]	1.129[b]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.352[c]	1.243[a]	1.205[a]	1.190
Hispanic	/	/	/	1.396[d]	1.444 [d]	1.434[d]	1.460[d]
Other	/	/	/	1.202[c]	1.268[d]	1.257[d]	1.266[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	6.812[d]	6.823[d]	6.825[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.997	1.682
Urban Cluster	/	/	/	/	/	0.868	0.833[a]
Urbanized Area	/	/	/	/	/	0.975	1.000
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	1.251[b]
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	1.269[b]
≥ 75% below FPL	/	/	/	/	/	/	1.229[a]
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.207[b]
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	1.051
< 25% with HS Degree	/	/	/	/	/	/	0.949
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.844[a]
Missing	/	/	/	/	/	/	0.588[b]
25-50% income level	/	/	/	/	/	/	0.860
< 25% income level	/	/	/	/	/	/	0.868

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001

Utah

Coverage PE (N= 300,225)

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C-statistic	**	0.711	0.710	0.726	0.834	0.834	0.838
Intercept (log odds)	-4.7169[d]	-5.0560[d]	-5.0742[d]	-5.2087[d]	-5.885[d]	-5.8401[d]	-6.0957[d]
Centered Coverage (odds ratio)	0.999	0.999	0.999	0.997	1.001	1.000	1.008
Age							
13+ years old	/	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
6-12 years old	/	0.434[d]	0.434[d]	0.432[d]	0.448[d]	0.448[d]	0.455[d]
1-5 years old	/	0.992	0.993	0.984	0.811[b]	0.812[b]	0.826[b]
0-1 years old	/	4.187[d]	4.189[d]	4.088[d]	3.126[d]	3.132[d]	3.177[d]
Sex							
Male	/	/	Ref.	Ref.	Ref.	Ref.	Ref.
Female	/	/	1.037	1.035	1.186[d]	1.185[d]	1.184[d]
Race							
Non-Hispanic White	/	/	/	Ref.	Ref.	Ref.	Ref.
Non-Hispanic Black	/	/	/	1.537[c]	1.448[b]	1.443[c]	1.302[a]
Hispanic	/	/	/	1.422[d]	1.488[d]	1.481[d]	1.340[d]
Other	/	/	/	1.564[d]	1.668[d]	1.663[d]	1.535[d]
Chronic Condition							
No	/	/	/	/	Ref.	Ref.	Ref.
Yes	/	/	/	/	7.665[d]	7.665[d]	7.665[d]
Geography							
Rural	/	/	/	/	/	Ref.	Ref.
Missing	/	/	/	/	/	0.852	1.064
Urban Cluster	/	/	/	/	/	0.905	1.012
Urbanized Area	/	/	/	/	/	0.963	1.073
Poverty							
< 25% below FPL	/	/	/	/	/	/	Ref.
25-50% below FPL	/	/	/	/	/	/	0.982
Missing	/	/	/	/	/	/	--
50-75% below FPL	/	/	/	/	/	/	1.226[a]
≥ 75% below FPL	/	/	/	/	/	/	0.904
Education							
≥ 75% with HS Degree	/	/	/	/	/	/	Ref.
50-75% with HS Degree	/	/	/	/	/	/	1.090
Missing	/	/	/	/	/	/	--
25-50% with HS Degree	/	/	/	/	/	/	1.116
< 25% with HS Degree	/	/	/	/	/	/	1.638[d]
Income							
≥ 75% income level	/	/	/	/	/	/	Ref.
50-75% income level	/	/	/	/	/	/	0.930
Missing	/	/	/	/	/	/	1.055
25-50% income level	/	/	/	/	/	/	0.913
< 25% income level	/	/	/	/	/	/	1.028

**Note: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

[a] p<0.05, [b] p<0.01, [c] p<0.001, [d] p<0.0001