



PREVENTION QUALITY INDICATORS (PQI) PARAMETER ESTIMATES ICD-9-CM Version 6.0

Prepared for:

Agency for Healthcare Research and Quality
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Executive Summary

This document provides statistical parameters associated with version 6.0 of Agency for Healthcare Research and Quality (AHRQ) Quality Indicators™ (QI) Prevention Quality Indicators (PQI). The parameter estimates derived for the AHRQ QI are based on analysis of the 2013 Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. The SID contain all-payer, encounter-level information on inpatient discharges, including clinical and resource information typically found on a billing record, such as patient demographics, up to 30 International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnoses and procedures, length of stay (LOS), expected payer, admission and discharge dates and discharge disposition. To calculate parameter estimates we used a subset of 40 states that report information about whether a diagnosis was present on admission (POA) and information on the timing of procedures during the hospitalizations representing 97 percent of the US community hospital discharges². These coefficients are used by the prediction module to calculate risk-adjusted rates that account for differences in patient populations across areas. Covariates that are considered as potential risk adjusters include gender and age and the interaction of gender and age. Descriptions of the population age categories are provided in the Table A.1. Every covariate in every model is binary indicator variable, coded using 0 or 1. The AHRQ QI software user does not need to manipulate or adjust these coefficients; rather this document is intended to make it transparent to the user how the risk adjusted QI rates are calculated.

Additional information on the risk adjustment process and composite indicators maybe found in *Quality Indicator Empirical Methods*, available on the AHRQ QI™ website.
(<http://www.qualityindicators.ahrq.gov/modules/Default.aspx>)

¹The AHRQ QI program would like to acknowledge the HCUP Partner organizations that participated in the HCUP SID: **Alaska** State Hospital and Nursing Home Association, **Arizona** Department of Health Services, **Arkansas** Department of Health, **California** Office of Statewide Health Planning and Development, **Colorado** Hospital Association, **Connecticut** Hospital Association, **Florida** Agency for Health Care Administration, **Georgia** Hospital Association, **Hawaii** Health Information Corporation, **Illinois** Department of Public Health, **Indiana** Hospital Association, **Iowa** Hospital Association, **Kansas** Hospital Association, **Kentucky** Cabinet for Health and Family Services, **Louisiana** Department of Health and Hospitals, **Maine** Health Data Organization, **Maryland** Health Services Cost Review Commission, **Massachusetts** Division of Health Care Finance and Policy, **Michigan** Health & Hospital Association, **Minnesota** Hospital Association (provides data for Minnesota and **North Dakota**), **Missouri** Hospital Industry Data Institute, **Montana** MHA - An Association of Montana Health Care Providers, **Nebraska** Hospital Association, **Nevada** Department of Health and Human Services, **New Jersey** Department of Health, **New Mexico** Department of Health, **New York** State Department of Health, **North Carolina** Department of Health and Human Services, **North Dakota** (data provided by the Minnesota Hospital Association), **Ohio** Hospital Association, **Oklahoma** State Department of Health, **Oregon** Association of Hospitals and Health Systems, **Pennsylvania** Health Care Cost Containment Council, **Rhode Island** Department of Health, **South Carolina** Budget & Control Board, **South Dakota** Association of Healthcare Organizations, **Tennessee** Hospital Association, **Texas** Department of State Health Services, **Utah** Department of Health, **Vermont** Association of Hospitals and Health Systems, **Virginia** Health Information, **Washington** State Department of Health, **West Virginia** Health Care Authority, **Wisconsin** Department of Health Services, **Wyoming** Hospital Association.

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²The states included in the analysis are Alaska, Arkansas, Arizona, California, Colorado, Florida, Georgia, Hawaii, Iowa, Illinois, Indiana, Kansas, Kentucky, Massachusetts, Maryland, Maine, Michigan, Minnesota, Montana, North Carolina, Nebraska, New Jersey, New Mexico, Nevada, New York, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, Vermont, Washington, Wisconsin.

Table 1. Risk Adjustment Coefficients for PQI 01 Diabetes Short-Term Complications Admission Rate

| Parameter | | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -7.999257159 | 0.039847641 | 40298.98383 | <.0001 |
| SEX | | 1 | -0.136479714 | 0.050235069 | 7.381119033 | 0.0066 |
| AGE | Male, Age 18-24 | 1 | 1.084363291 | 0.040769832 | 707.4109218 | <.0001 |
| AGE | Male, Age 25-29 | 1 | 0.848438508 | 0.041414302 | 419.7010377 | <.0001 |
| AGE | Male, Age 30-34 | 1 | 0.88698586 | 0.041390652 | 459.2285303 | <.0001 |
| AGE | Male, Age 35-39 | 1 | 0.868615156 | 0.041554911 | 436.9282258 | <.0001 |
| AGE | Male, Age 40-44 | 1 | 0.873687738 | 0.041454853 | 444.1827925 | <.0001 |
| AGE | Male, Age 45-49 | 1 | 0.883666927 | 0.041422797 | 455.0911114 | <.0001 |
| AGE | Male, Age 50-54 | 1 | 0.785828479 | 0.041497404 | 358.6028023 | <.0001 |
| AGE | Male, Age 55-59 | 1 | 0.687195971 | 0.04180483 | 270.2142712 | <.0001 |
| AGE | Male, Age 60-64 | 1 | 0.475206474 | 0.042685844 | 123.9358519 | <.0001 |
| AGE | Male, Age 65-69 | 1 | 0.280619471 | 0.044100783 | 40.48955462 | <.0001 |
| AGE | Male, Age 70-74 | 1 | 0.17653511 | 0.046339402 | 14.51313831 | 0.0001 |
| AGE | Male, Age 75-79 | 1 | 0.207644024 | 0.048657633 | 18.2111306 | <.0001 |
| AGE | Male, Age 80-84 | 1 | 0.077493678 | 0.053454002 | 2.101706684 | 0.1471 |
| AGE | Female, Age 18-24 | 1 | 0.326956131 | 0.051599822 | 40.14972451 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.168500087 | 0.052707362 | 10.22016016 | 0.0014 |
| AGE | Female, Age 30-34 | 1 | -0.031012677 | 0.052899685 | 0.34369432 | 0.5577 |
| | | | | | | |

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| | | | | | | |
|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | -0.094617372 | 0.053263081 | 3.155652619 | 0.0757 |
| AGE | Female, Age 40-44 | 1 | -0.07797525 | 0.053049521 | 2.160481835 | 0.1416 |
| AGE | Female, Age 45-49 | 1 | -0.087735306 | 0.052997919 | 2.740508511 | 0.0978 |
| AGE | Female, Age 50-54 | 1 | -0.043995646 | 0.053035581 | 0.688152577 | 0.4068 |
| AGE | Female, Age 55-59 | 1 | 9.94817E-05 | 0.053441283 | 3.4652E-06 | 0.9985 |
| AGE | Female, Age 60-64 | 1 | 0.087033239 | 0.054622254 | 2.538815025 | 0.1111 |
| AGE | Female, Age 65-69 | 1 | 0.129537023 | 0.05659693 | 5.23844119 | 0.0221 |
| AGE | Female, Age 70-74 | 1 | 0.196413388 | 0.059436134 | 10.92046327 | 0.001 |
| AGE | Female, Age 75-79 | 1 | 0.140133856 | 0.062598068 | 5.011460165 | 0.0252 |
| AGE | Female, Age 80-84 | 1 | 0.168019374 | 0.068219942 | 6.065911057 | 0.0138 |

c-statistic=0.588

Table 2. Risk Adjustment Coefficients for PQI 02 Perforated Appendix Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | 0.297049823 | 0.064040557 | 21.51534898 | <.0001 |
| SEX | Female | 1 | -0.01513657 | 0.084889445 | 0.031794175 | 0.8585 |
| AGE | Male, Age 18-24 | 1 | -1.42016761 | 0.066908873 | 450.5176127 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -1.387268749 | 0.068808935 | 406.472839 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -1.309289823 | 0.068929785 | 360.7926999 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -1.0568994 | 0.069204232 | 233.2394446 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -0.896974478 | 0.069200052 | 168.0147178 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -0.626145757 | 0.069109068 | 82.08821623 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -0.443333483 | 0.068967942 | 41.32059127 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -0.211283021 | 0.069535183 | 9.232514232 | 0.0024 |
| AGE | Male, Age 60-64 | 1 | -0.235839091 | 0.070867693 | 11.07477707 | 0.0009 |
| AGE | Male, Age 65-69 | 1 | -0.108173446 | 0.071956154 | 2.259984408 | 0.1328 |
| AGE | Male, Age 70-74 | 1 | -0.080982541 | 0.074485252 | 1.18206734 | 0.2769 |
| AGE | Male, Age 75-79 | 1 | -0.122745577 | 0.079760177 | 2.368315085 | 0.1238 |
| AGE | Male, Age 80-84 | 1 | -0.024607848 | 0.08506213 | 0.083690229 | 0.7724 |
| AGE | Female, Age 18-24 | 1 | -0.382692638 | 0.090699464 | 17.80290083 | <.0001 |
| AGE | Female, Age 25-29 | 1 | -0.361394842 | 0.09410086 | 14.7494801 | 0.0001 |
| AGE | Female, Age 30-34 | 1 | -0.302021491 | 0.09394307 | 10.33585004 | 0.0013 |
| AGE | Female, Age 35-39 | 1 | -0.438373137 | 0.094522376 | 21.50891991 | <.0001 |

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|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 40-44 | 1 | -0.313185871 | 0.093514274 | 11.21627144 | 0.0008 |
| AGE | Female, Age 45-49 | 1 | -0.335494095 | 0.093021427 | 13.00779756 | 0.0003 |
| AGE | Female, Age 50-54 | 1 | -0.247470967 | 0.092309401 | 7.187148956 | 0.0073 |
| AGE | Female, Age 55-59 | 1 | -0.30205384 | 0.093081621 | 10.53030245 | 0.0012 |
| AGE | Female, Age 60-64 | 1 | -0.147249597 | 0.094873319 | 2.408907042 | 0.1206 |
| AGE | Female, Age 65-69 | 1 | -0.183314347 | 0.096677646 | 3.595346706 | 0.0579 |
| AGE | Female, Age 70-74 | 1 | -0.193423168 | 0.100770037 | 3.684292885 | 0.0549 |
| AGE | Female, Age 75-79 | 1 | -0.018360412 | 0.107736768 | 0.029042699 | 0.8647 |
| AGE | Female, Age 80-84 | 1 | -0.035428478 | 0.114849016 | 0.095159123 | 0.7577 |

c-statistic=0.583

Table 3. Risk Adjustment Coefficients for PQI 03 Diabetes Long-Term Complications Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -5.842352089 | 0.013587807 | 184874.3859 | <.0001 |
| SEX | Female | 1 | -0.481741844 | 0.018384003 | 686.6707801 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -3.690642115 | 0.034669816 | 11331.84921 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -2.620953687 | 0.025633859 | 10454.19748 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -2.014900868 | 0.021176487 | 9053.146162 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -1.640426062 | 0.019549244 | 7041.308632 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -1.216006976 | 0.017516242 | 4819.370139 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -0.855739161 | 0.016401861 | 2722.052937 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -0.582010453 | 0.015674797 | 1378.661801 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -0.421696545 | 0.015517783 | 738.4833914 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -0.345367664 | 0.0156964 | 484.1313719 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -0.281372474 | 0.016041673 | 307.6549515 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -0.149282598 | 0.016572866 | 81.13778536 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.03334269 | 0.017319351 | 3.706278379 | 0.0542 |
| AGE | Male, Age 80-84 | 1 | 0.0063837 | 0.01852344 | 0.118768613 | 0.7304 |
| AGE | Female, Age 18-24 | 1 | 0.969056964 | 0.044860305 | 466.6316342 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.782081078 | 0.034226032 | 522.1442077 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 0.400792541 | 0.029838288 | 180.422818 | <.0001 |
| AGE | Female, Age 35-39 | 1 | 0.309400822 | 0.02773673 | 124.4320956 | <.0001 |

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|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 40-44 | 1 | 0.159366232 | 0.025036398 | 40.51808549 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.036870635 | 0.023484357 | 2.464925879 | 0.1164 |
| AGE | Female, Age 50-54 | 1 | -0.101726115 | 0.02246035 | 20.51312763 | <.0001 |
| AGE | Female, Age 55-59 | 1 | -0.092559643 | 0.022090945 | 17.5555633 | <.0001 |
| AGE | Female, Age 60-64 | 1 | -0.024857577 | 0.022216732 | 1.25186419 | 0.2632 |
| AGE | Female, Age 65-69 | 1 | 0.041825818 | 0.02262323 | 3.418060031 | 0.0645 |
| AGE | Female, Age 70-74 | 1 | 0.034768377 | 0.023406901 | 2.206383447 | 0.1374 |
| AGE | Female, Age 75-79 | 1 | 0.105028571 | 0.024211243 | 18.81831496 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.148546826 | 0.025514419 | 33.89654081 | <.0001 |

c-statistic=0.574

Table 4. Risk Adjustment Coefficients for PQI 05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -4.360232035 | 0.006539819 | 444516.3615 | <.0001 |
| SEX | Female | 1 | -0.173677487 | 0.008296138 | 438.2632732 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -2.911685999 | 0.013928391 | 43700.57497 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -2.301886038 | 0.011143932 | 42666.86487 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -1.755224704 | 0.009362852 | 35143.83238 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -1.371729271 | 0.008709316 | 24806.68233 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -1.110311715 | 0.008546356 | 16878.26953 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -0.764452579 | 0.008351252 | 8379.111097 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -0.402676306 | 0.008332875 | 2335.191304 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.191342045 | 0.0085981 | 495.240106 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.058928521 | 0.00905004 | 42.39845783 | <.0001 |
| AGE | Male, Age 85+ | 0 | 0 | . | . | . |
| AGE | Female, Age 18-24 | 1 | 0 | . | . | . |
| AGE | Female, Age 25-29 | 1 | 0 | . | . | . |
| AGE | Female, Age 40-44 | 1 | 0.929767359 | 0.017039828 | 2977.269552 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.851527603 | 0.013817522 | 3797.844302 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.69910372 | 0.01180691 | 3505.990248 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.535137727 | 0.011121704 | 2315.19978 | <.0001 |

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|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 60-64 | 1 | 0.426280175 | 0.010987294 | 1505.250396 | <.0001 |
| AGE | Female, Age 65-69 | 1 | 0.38246402 | 0.010746961 | 1266.51344 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.323653822 | 0.010729844 | 909.8601754 | <.0001 |
| AGE | Female, Age 75-79 | 1 | 0.249035147 | 0.01108624 | 504.6063705 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.155557802 | 0.011654915 | 178.1416265 | <.0001 |
| AGE | Female, Age 85+ | 0 | 0 | . | . | . |

c-statistic=0.533

Table 5. Risk Adjustment Coefficients for PQI 07 Hypertension Admission Rate

| I | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|---------------------------------|
| INTERCEPT | | 1 | -6.66331566 | 0.020451023 | 106157.5097 | <.0001 |
| SEX | Female | 1 | 0.737620044 | 0.022833713 | 1043.5478 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -4.15453759 | 0.063990524 | 4215.159899 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -2.824562214 | 0.041642928 | 4600.656154 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -2.081091351 | 0.032535384 | 4091.385664 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -1.477769169 | 0.028277168 | 2731.123745 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -1.083625417 | 0.025715824 | 1775.650424 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -0.861087995 | 0.024714448 | 1213.92888 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -0.776367114 | 0.024217077 | 1027.757866 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -0.75301379 | 0.024404775 | 952.0423345 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -0.751504906 | 0.025065482 | 898.9002982 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -0.773676085 | 0.026224548 | 870.3668048 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -0.598854921 | 0.027163489 | 486.0401418 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.457237892 | 0.028585515 | 255.8541121 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.254561315 | 0.029732771 | 73.30169828 | <.0001 |
| AGE | Female, Age 18-24 | 1 | -0.586209644 | 0.0867194 | 45.69549587 | <.0001 |
| AGE | Female, Age 25-29 | 1 | -0.88784308 | 0.05843507 | 230.8475586 | <.0001 |

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|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 30-34 | 1 | -0.855012803 | 0.043451175 | 387.2060935 | <.0001 |
| AGE | Female, Age 35-39 | 1 | -0.961774087 | 0.037123149 | 671.2070931 | <.0001 |
| AGE | Female, Age 40-44 | 1 | -0.922834953 | 0.032458571 | 808.3310792 | <.0001 |
| AGE | Female, Age 45-49 | 1 | -0.887403636 | 0.030552948 | 843.5992112 | <.0001 |
| AGE | Female, Age 50-54 | 1 | -0.849879536 | 0.029514717 | 829.1583658 | <.0001 |
| AGE | Female, Age 55-59 | 1 | -0.795810599 | 0.029595294 | 723.0596575 | <.0001 |
| AGE | Female, Age 60-64 | 1 | -0.638956132 | 0.030100135 | 450.61455 | <.0001 |
| AGE | Female, Age 65-69 | 1 | -0.397663415 | 0.031033228 | 164.2015977 | <.0001 |
| AGE | Female, Age 70-74 | 1 | -0.272668478 | 0.031818443 | 73.43650653 | <.0001 |
| AGE | Female, Age 75-79 | 1 | -0.075230358 | 0.032914853 | 5.223991053 | 0.0223 |
| AGE | Female, Age 80-84 | 1 | 0.014794867 | 0.033780586 | 0.191817311 | 0.6614 |

c-statistic=0.596

Table 6. Risk Adjustment Coefficients for PQI 08 Heart Failure Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -3.295898626 | 0.003933044 | 702247.2613 | <.0001 |
| SEX | Female | 1 | -0.206518994 | 0.005011697 | 1698.049607 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -6.71219268 | 0.040638402 | 27280.70427 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -5.545878498 | 0.026555638 | 43614.12999 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -4.803745376 | 0.018750746 | 65633.09318 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -4.195007843 | 0.014650042 | 81995.08387 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -3.686363024 | 0.011345531 | 105571.4583 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -3.225811063 | 0.009287011 | 120649.6145 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -2.794898173 | 0.007698954 | 131785.7923 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -2.442161896 | 0.006982327 | 122334.3991 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -2.130614005 | 0.006666842 | 102133.7336 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -1.799085396 | 0.006454686 | 77687.87754 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -1.363435471 | 0.006289437 | 46994.35054 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.960777034 | 0.006231841 | 23769.08957 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.523658539 | 0.006113646 | 7336.616547 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 0.091169889 | 0.059928895 | 2.314356838 | 0.1282 |
| AGE | Female, Age 25-29 | 1 | -0.166570143 | 0.041809008 | 15.87283841 | <.0001 |
| AGE | Female, Age 30-34 | 1 | -0.372879987 | 0.031084977 | 143.8921292 | <.0001 |

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|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | -0.464838049 | 0.024746262 | 352.8451353 | <.0001 |
| AGE | Female, Age 40-44 | 1 | -0.393594091 | 0.018499064 | 452.6865808 | <.0001 |
| AGE | Female, Age 45-49 | 1 | -0.343364343 | 0.014702572 | 545.4108535 | <.0001 |
| AGE | Female, Age 50-54 | 1 | -0.342023903 | 0.011912664 | 824.3187303 | <.0001 |
| AGE | Female, Age 55-59 | 1 | -0.298267568 | 0.010499422 | 807.0144309 | <.0001 |
| AGE | Female, Age 60-64 | 1 | -0.200246448 | 0.00969057 | 427.0030969 | <.0001 |
| AGE | Female, Age 65-69 | 1 | -0.109332935 | 0.009134495 | 143.2626452 | <.0001 |
| AGE | Female, Age 70-74 | 1 | -0.076558388 | 0.00873807 | 76.7634641 | <.0001 |
| AGE | Female, Age 75-79 | 1 | -0.037608665 | 0.008483073 | 19.65483775 | <.0001 |
| AGE | Female, Age 80-84 | 1 | -0.017237543 | 0.008126343 | 4.49946056 | 0.0339 |

c-statistic=0.644

Table 7. Risk Adjustment Coefficients for PQI 10 Dehydration Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -4.508185248 | 0.00702974 | 411268.0264 | <.0001 |
| SEX | Female | 1 | -0.077071334 | 0.008764567 | 77.32586363 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -3.966809193 | 0.02006719 | 39075.94423 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -3.78517626 | 0.021167754 | 31975.89249 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -3.676662491 | 0.020381732 | 32540.58371 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -3.510638179 | 0.019670012 | 31853.92017 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -3.312892225 | 0.017639861 | 35271.53005 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -2.938266051 | 0.01508483 | 37940.35354 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -2.639044959 | 0.013230033 | 39789.79603 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -2.317758845 | 0.012156631 | 36350.47234 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -2.045792768 | 0.011762944 | 30247.62281 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -1.694292935 | 0.011316158 | 22417.0796 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -1.276656698 | 0.011077617 | 13281.75724 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.895132466 | 0.01102596 | 6590.855955 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.495552078 | 0.010903891 | 2065.454272 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 0.09092982 | 0.028220683 | 10.38191889 | 0.0013 |
| AGE | Female, Age 25-29 | 1 | 0.026005937 | 0.030137028 | 0.744636244 | 0.3882 |
| AGE | Female, Age 30-34 | 1 | 0.145679456 | 0.028063128 | 26.94787116 | <.0001 |

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|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.167340065 | 0.026862189 | 38.80762515 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.210771965 | 0.023768814 | 78.63405254 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.112656579 | 0.020584427 | 29.95267127 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.143456753 | 0.017771613 | 65.16108407 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.101163815 | 0.016300069 | 38.51869056 | <.0001 |
| AGE | Female, Age 60-64 | 1 | 0.10999291 | 0.015644016 | 49.43481341 | <.0001 |
| AGE | Female, Age 65-69 | 1 | 0.157477011 | 0.014852216 | 112.422136 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.089802196 | 0.014555385 | 38.06506106 | <.0001 |
| AGE | Female, Age 75-79 | 1 | 0.098292855 | 0.014315129 | 47.14692371 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.058335061 | 0.013993823 | 17.37747136 | <.0001 |

c-statistic=0.588

Table 8. Risk Adjustment Coefficients for PQI 11 Bacterial Pneumonia Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -3.66528898 | 0.00467869 | 613716.6988 | <.0001 |
| SEX | Female | 1 | -0.279488199 | 0.00604931 | 2134.594094 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -4.589923753 | 0.017478296 | 68962.46011 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -4.389771541 | 0.01833194 | 57341.22813 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -4.078833686 | 0.016047053 | 64607.2724 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -3.836232554 | 0.014938807 | 65944.41222 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -3.54263049 | 0.012796822 | 76638.57821 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -3.188818058 | 0.010977105 | 84388.619 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -2.835898267 | 0.009371328 | 91575.44931 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -2.528216049 | 0.008616941 | 86083.9401 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -2.237514378 | 0.00826998 | 73201.97448 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -1.845703123 | 0.007837944 | 55452.28144 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -1.369054413 | 0.007532142 | 33037.29112 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.933179272 | 0.007383288 | 15974.62092 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.514522095 | 0.007272734 | 5005.099372 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 0.355633224 | 0.024423665 | 212.0230091 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.465388268 | 0.024897812 | 349.3884251 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 0.426999623 | 0.021847583 | 381.9866462 | <.0001 |

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| | | | | | | |
|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.473913157 | 0.020075517 | 557.2679203 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.477619907 | 0.017132876 | 777.1490173 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.452888342 | 0.014718136 | 946.840133 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.403693537 | 0.012598248 | 1026.793912 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.311804823 | 0.011693736 | 710.9827923 | <.0001 |
| AGE | Female, Age 60-64 | 1 | 0.25100798 | 0.011268723 | 496.1644262 | <.0001 |
| AGE | Female, Age 65-69 | 1 | 0.214750924 | 0.01067583 | 404.6380859 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.147331207 | 0.010261988 | 206.1230112 | <.0001 |
| AGE | Female, Age 75-79 | 1 | 0.083954539 | 0.01002593 | 70.11953084 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.021433446 | 0.009771885 | 4.810910821 | 0.0283 |

c-statistic=0.578

Table 9. Risk Adjustment Coefficients for PQI 12 Urinary Tract Infection Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -4.456950668 | 0.00685587 | 422620.4387 | <.0001 |
| SEX | Female | 1 | 0.534272379 | 0.007835674 | 4649.140567 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -4.981929083 | 0.031192987 | 25508.27823 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -4.644912852 | 0.030684794 | 22914.41137 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -4.430381329 | 0.028029579 | 24983.25689 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -4.283246514 | 0.027222717 | 24756.15589 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -4.034197093 | 0.023629541 | 29147.6576 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -3.746345018 | 0.020651134 | 32909.98793 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -3.422870255 | 0.017553636 | 38023.02856 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -3.054176269 | 0.015555235 | 38550.94679 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -2.6406428 | 0.014142532 | 34863.01594 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -2.224226556 | 0.013180586 | 28476.63005 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -1.649587895 | 0.012163158 | 18393.23948 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -1.087435913 | 0.01140137 | 9096.896649 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.604300231 | 0.010979014 | 3029.5548 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 1.815361677 | 0.032869747 | 3050.237228 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 1.398668813 | 0.033010191 | 1795.286263 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 1.156541114 | 0.030620145 | 1426.617896 | <.0001 |

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| | | | | | | |
|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 1.023808627 | 0.030020798 | 1163.035894 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.836098468 | 0.026482183 | 996.7983317 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.595049906 | 0.023694284 | 630.6953116 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.383466132 | 0.020572898 | 347.4266026 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.187325845 | 0.018594686 | 101.4887042 | <.0001 |
| AGE | Female, Age 60-64 | 1 | 0.046047921 | 0.017119484 | 7.235003057 | 0.0071 |
| AGE | Female, Age 65-69 | 1 | 0.096709692 | 0.015772055 | 37.59788868 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.039992323 | 0.014525751 | 7.580120101 | 0.0059 |
| AGE | Female, Age 75-79 | 1 | 0.036623044 | 0.013481158 | 7.379967476 | 0.0066 |
| AGE | Female, Age 80-84 | 1 | 0.037133158 | 0.012817181 | 8.393416452 | 0.0038 |

c-statistic=0.61

Table 10. Risk Adjustment Coefficients for PQI 14 Uncontrolled Diabetes Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -8.277540757 | 0.045792644 | 32674.6704 | <.0001 |
| SEX | Female | 1 | -0.07231564 | 0.05706126 | 1.606133883 | 0.205 |
| AGE | Male, Age 18-24 | 1 | -1.911686579 | 0.063701052 | 900.6170696 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -1.531941013 | 0.062545559 | 599.9169554 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -1.143583156 | 0.057935427 | 389.625233 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -0.927872048 | 0.056586638 | 268.8737467 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -0.672698518 | 0.053908517 | 155.713467 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -0.447241739 | 0.052307234 | 73.10736721 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -0.329874455 | 0.051354775 | 41.26061666 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -0.297330166 | 0.051588821 | 33.217484 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -0.343915645 | 0.052899477 | 42.26697018 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -0.277765644 | 0.054044861 | 26.41485664 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -0.112552304 | 0.05552821 | 4.108482403 | 0.0427 |
| AGE | Male, Age 75-79 | 1 | -0.067277703 | 0.058756277 | 1.311093823 | 0.2522 |
| AGE | Male, Age 80-84 | 1 | 0.012327324 | 0.06234042 | 0.039101927 | 0.8432 |
| AGE | Female, Age 18-24 | 1 | 0.080366422 | 0.085216848 | 0.889402481 | 0.3456 |
| AGE | Female, Age 25-29 | 1 | -0.088072236 | 0.085257671 | 1.067114746 | 0.3016 |
| AGE | Female, Age 30-34 | 1 | -0.308249324 | 0.079839662 | 14.90619803 | 0.0001 |

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| | | | | | | |
|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | -0.263831438 | 0.076824521 | 11.79378939 | 0.0006 |
| AGE | Female, Age 40-44 | 1 | -0.254272392 | 0.071929804 | 12.49627747 | 0.0004 |
| AGE | Female, Age 45-49 | 1 | -0.151926239 | 0.068411247 | 4.931857926 | 0.0264 |
| AGE | Female, Age 50-54 | 1 | -0.09955146 | 0.066447259 | 2.244611191 | 0.1341 |
| AGE | Female, Age 55-59 | 1 | -0.087160243 | 0.066666002 | 1.709338376 | 0.1911 |
| AGE | Female, Age 60-64 | 1 | 0.091829631 | 0.067737775 | 1.837823621 | 0.1752 |
| AGE | Female, Age 65-69 | 1 | 0.046143774 | 0.069560989 | 0.44004261 | 0.5071 |
| AGE | Female, Age 70-74 | 1 | 0.034974749 | 0.071525862 | 0.239101887 | 0.6249 |
| AGE | Female, Age 75-79 | 1 | 0.175310369 | 0.074696919 | 5.508201641 | 0.0189 |
| AGE | Female, Age 80-84 | 1 | 0.110725033 | 0.079060009 | 1.961453088 | 0.1614 |

c-statistic=0.524

Table 11. Risk Adjustment Coefficients for PQI 15 Asthma in Younger Adults Admission Rate

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -7.967194755 | 0.017903106 | 198040.5482 | <.0001 |
| SEX | Female | 1 | 0.841066573 | 0.021409645 | 1543.269678 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -0.371987943 | 0.025078902 | 220.0091195 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -0.332185568 | 0.026862301 | 152.9238087 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -0.222429228 | 0.026234905 | 71.88275394 | <.0001 |
| AGE | Female, Age 18-24 | 1 | -0.353688 | 0.031081249 | 129.4922359 | <.0001 |
| AGE | Female, Age 25-29 | 1 | -0.189817153 | 0.032790867 | 33.50928188 | <.0001 |
| AGE | Female, Age 30-34 | 1 | -0.044422294 | 0.031519469 | 1.986297008 | 0.1587 |

c-statistic=0.56

Table 12. Risk Adjustment Coefficients for PQI 16 Lower-Extremity Amputation Among Patients With Diabetes

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -7.491070537 | 0.030913473 | 58720.82742 | <.0001 |
| SEX | Female | 1 | -0.760612155 | 0.044792151 | 288.3518074 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -6.159860235 | 0.251884945 | 598.0497265 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -4.27348496 | 0.117372294 | 1325.663127 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -3.241220288 | 0.075024276 | 1866.43759 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -2.395459514 | 0.056028207 | 1827.949631 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -1.645408223 | 0.043936385 | 1402.486467 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -1.085487888 | 0.038816374 | 782.0239379 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -0.633012717 | 0.035902142 | 310.8738134 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -0.274392832 | 0.034741987 | 62.37868422 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -0.109453533 | 0.034763284 | 9.913293552 | 0.0016 |
| AGE | Male, Age 65-69 | 1 | 0.030354773 | 0.035093981 | 0.748150049 | 0.3871 |
| AGE | Male, Age 70-74 | 1 | 0.177756485 | 0.03594442 | 24.4561416 | <.0001 |
| AGE | Male, Age 75-79 | 1 | 0.170762271 | 0.03798135 | 20.21357118 | <.0001 |
| AGE | Male, Age 80-84 | 1 | 0.216687221 | 0.04025612 | 28.97362119 | <.0001 |
| AGE | Female, Age 18-24 | 1 | -0.351951479 | 0.514167168 | 0.468551041 | 0.4937 |
| AGE | Female, Age 25-29 | 1 | 0.405249967 | 0.183561914 | 4.873947214 | 0.0273 |
| AGE | Female, Age 30-34 | 1 | 0.047700593 | 0.127651179 | 0.139636157 | 0.7086 |

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| | | | | | | |
|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.171366697 | 0.09006405 | 3.620344588 | 0.0571 |
| AGE | Female, Age 40-44 | 1 | 0.065581169 | 0.07008356 | 0.875640825 | 0.3494 |
| AGE | Female, Age 45-49 | 1 | -0.103810609 | 0.061977446 | 2.805537824 | 0.0939 |
| AGE | Female, Age 50-54 | 1 | -0.180663185 | 0.056244789 | 10.31750626 | 0.0013 |
| AGE | Female, Age 55-59 | 1 | -0.304474114 | 0.054264291 | 31.48273722 | <.0001 |
| AGE | Female, Age 60-64 | 1 | -0.207909127 | 0.053570481 | 15.06246366 | 0.0001 |
| AGE | Female, Age 65-69 | 1 | -0.190269987 | 0.054061341 | 12.38702291 | 0.0004 |
| AGE | Female, Age 70-74 | 1 | -0.223454535 | 0.055765201 | 16.05653415 | <.0001 |
| AGE | Female, Age 75-79 | 1 | -0.062315764 | 0.058057945 | 1.152053198 | 0.2831 |
| AGE | Female, Age 80-84 | 1 | -0.048349887 | 0.060954185 | 0.629192992 | 0.4277 |

c-statistic=0.658

Table 13. Risk Adjustment Coefficients for PQI 90 - Overall Composite

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -2.188929099 | 0.002424819 | 814901.1218 | <.0001 |
| SEX | Female | 1 | -0.082594211 | 0.003018445 | 748.7429022 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -4.046947653 | 0.006607105 | 375173.9879 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -3.927729 | 0.007160326 | 300896.7169 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -3.657329829 | 0.00643194 | 323328.7626 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -3.400940193 | 0.005985439 | 322853.867 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -3.056596715 | 0.005098652 | 359389.6622 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -2.697878288 | 0.004455074 | 366720.2422 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -2.367208469 | 0.003934065 | 362067.846 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -2.089088799 | 0.003711353 | 316846.6912 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -1.858018749 | 0.003655722 | 258317.4944 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -1.558500825 | 0.003595154 | 187922.5989 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -1.164007515 | 0.003568824 | 106380.3548 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.811909595 | 0.003607033 | 50665.82701 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.455173387 | 0.003648026 | 15568.18328 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 0.555830858 | 0.008466713 | 4309.784897 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.449603102 | 0.00932757 | 2323.387211 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 0.300479218 | 0.008569263 | 1229.538046 | <.0001 |

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| | | | | | | |
|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.228791962 | 0.008053959 | 806.9797984 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.202434311 | 0.006847709 | 873.9319249 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.166361614 | 0.005975429 | 775.118537 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.118710504 | 0.005257729 | 509.77892 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.059804797 | 0.004961119 | 145.3157918 | <.0001 |
| AGE | Female, Age 60-64 | 1 | 0.048454966 | 0.004867469 | 99.09922737 | <.0001 |
| AGE | Female, Age 65-69 | 1 | 0.082876496 | 0.004740941 | 305.5862056 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.062260424 | 0.004682897 | 176.764467 | <.0001 |
| AGE | Female, Age 75-79 | 1 | 0.056619198 | 0.004692924 | 145.5594553 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.031887142 | 0.004687508 | 46.27507318 | <.0001 |

c-statistic=0.531

Table 14. PQI 91 - Prevention Quality Acute Composite

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -3.002309811 | 0.003437456 | 762845.5245 | <.0001 |
| SEX | Female | 1 | 0.025662379 | 0.004213345 | 37.09708783 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -4.506126448 | 0.012095027 | 138801.1545 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -4.2915773 | 0.012596698 | 116070.1235 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -4.066915166 | 0.011484549 | 125401.3788 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -3.863949671 | 0.010888385 | 125931.9747 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -3.606414273 | 0.009478004 | 144782.9555 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -3.255899537 | 0.008139313 | 160017.1291 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -2.922910386 | 0.006997637 | 174472.99 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -2.601781402 | 0.006399508 | 165290.711 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -2.296400082 | 0.006111296 | 141197.9688 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -1.910265525 | 0.005804816 | 108295.545 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -1.429233397 | 0.005575796 | 65704.10381 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.977706446 | 0.005449198 | 32192.28206 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.543511513 | 0.005357586 | 10291.51116 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 0.858413337 | 0.014516239 | 3496.912137 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.691237856 | 0.015449497 | 2001.826041 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 0.575316065 | 0.014294563 | 1619.83662 | <.0001 |

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| | | | | | | |
|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.517114325 | 0.013652563 | 1434.646068 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.451486564 | 0.011987734 | 1418.454639 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.322264985 | 0.010487043 | 944.3221733 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.243522225 | 0.009073364 | 720.34497 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.142940142 | 0.008373913 | 291.3744737 | <.0001 |
| AGE | Female, Age 60-64 | 1 | 0.092610993 | 0.008007527 | 133.7606306 | <.0001 |
| AGE | Female, Age 65-69 | 1 | 0.105714988 | 0.007542083 | 196.4673987 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.053941124 | 0.007227714 | 55.69780113 | <.0001 |
| AGE | Female, Age 75-79 | 1 | 0.045061668 | 0.006989721 | 41.56184918 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.020687776 | 0.006778906 | 9.313401556 | 0.0023 |

c-statistic=0.55

Table 15. PQI 92 - Prevention Quality Chronic Composite

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -2.874498494 | 0.00324546 | 784461.4054 | <.0001 |
| SEX | Female | 1 | -0.180135905 | 0.004111453 | 1919.596482 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -3.691003136 | 0.007937143 | 216252.1253 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -3.61173399 | 0.008725203 | 171348.5351 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -3.321974411 | 0.007798774 | 181442.8543 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -3.044557719 | 0.007215669 | 178030.853 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -2.669175517 | 0.006128947 | 189662.9883 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -2.308802759 | 0.005408293 | 182244.0256 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -1.980442471 | 0.004837655 | 167592.5742 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -1.719452216 | 0.004613066 | 138931.5411 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -1.519299297 | 0.004584144 | 109842.4382 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -1.261441181 | 0.004557399 | 76612.54334 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -0.917910825 | 0.004573803 | 40275.9853 | <.0001 |
| AGE | Male, Age 75-79 | 1 | -0.634846735 | 0.004684727 | 18364.08428 | <.0001 |
| AGE | Male, Age 80-84 | 1 | -0.348165586 | 0.004797934 | 5265.785023 | <.0001 |
| AGE | Female, Age 18-24 | 1 | 0.431879193 | 0.010596608 | 1661.081057 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.339464186 | 0.011841871 | 821.764376 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 0.180116267 | 0.01085907 | 275.1190019 | <.0001 |

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| | | | | | | |
|-----|-------------------|---|-------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.116070437 | 0.010126357 | 131.3822671 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.138543199 | 0.008472435 | 267.395421 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.153834117 | 0.00738097 | 434.3886736 | <.0001 |
| AGE | Female, Age 50-54 | 1 | 0.120783369 | 0.0065525 | 339.7819231 | <.0001 |
| AGE | Female, Age 55-59 | 1 | 0.07665421 | 0.006234025 | 151.1941498 | <.0001 |
| AGE | Female, Age 60-64 | 1 | 0.076503773 | 0.006166479 | 153.9186142 | <.0001 |
| AGE | Female, Age 65-69 | 1 | 0.112736217 | 0.006078384 | 343.993824 | <.0001 |
| AGE | Female, Age 70-74 | 1 | 0.102140158 | 0.006069516 | 283.1946106 | <.0001 |
| AGE | Female, Age 75-79 | 1 | 0.088462815 | 0.006178485 | 205.0017242 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.054624093 | 0.00626177 | 76.09817984 | <.0001 |

c-statistic=0.547

Table 16. Risk Adjustment Coefficients for PQI 93 - PQI Diabetes Composite

| Parameter | Label | DF | Estimate | Standard Error | Wald Chi-Square | Pr > Chi-Square |
|-----------|-------------------|----|--------------|----------------|-----------------|-----------------|
| INTERCEPT | | 1 | -5.561027853 | 0.01181595 | 221499.5416 | <.0001 |
| SEX | Female | 1 | -0.431273316 | 0.015805575 | 744.5340293 | <.0001 |
| AGE | Male, Age 18-24 | 1 | -1.248343018 | 0.014371182 | 7545.410476 | <.0001 |
| AGE | Male, Age 25-29 | 1 | -1.29398337 | 0.015309395 | 7143.997938 | <.0001 |
| AGE | Male, Age 30-34 | 1 | -1.089133444 | 0.014787085 | 5424.966625 | <.0001 |
| AGE | Male, Age 35-39 | 1 | -0.949868405 | 0.014645813 | 4206.297113 | <.0001 |
| AGE | Male, Age 40-44 | 1 | -0.733188868 | 0.014022731 | 2733.798441 | <.0001 |
| AGE | Male, Age 45-49 | 1 | -0.514292684 | 0.013600956 | 1429.821557 | <.0001 |
| AGE | Male, Age 50-54 | 1 | -0.357793554 | 0.013286527 | 725.1737655 | <.0001 |
| AGE | Male, Age 55-59 | 1 | -0.254897891 | 0.01325061 | 370.0502856 | <.0001 |
| AGE | Male, Age 60-64 | 1 | -0.234057485 | 0.01346834 | 302.0069278 | <.0001 |
| AGE | Male, Age 65-69 | 1 | -0.196885255 | 0.013789342 | 203.8634128 | <.0001 |
| AGE | Male, Age 70-74 | 1 | -0.091333478 | 0.014278451 | 40.91643507 | <.0001 |
| AGE | Male, Age 75-79 | 1 | 0.001085954 | 0.014963149 | 0.005267168 | 0.9421 |
| AGE | Male, Age 80-84 | 1 | 0.03591723 | 0.016000228 | 5.039104206 | 0.0248 |
| AGE | Female, Age 18-24 | 1 | 0.638493635 | 0.01933764 | 1090.200109 | <.0001 |
| AGE | Female, Age 25-29 | 1 | 0.513263869 | 0.020848227 | 606.0983895 | <.0001 |
| AGE | Female, Age 30-34 | 1 | 0.275039423 | 0.020543505 | 179.2424181 | <.0001 |

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| | | | | | | |
|-----|-------------------|---|--------------|-------------|-------------|--------|
| AGE | Female, Age 35-39 | 1 | 0.212300532 | 0.020433377 | 107.9498069 | <.0001 |
| AGE | Female, Age 40-44 | 1 | 0.150591483 | 0.019529479 | 59.45925846 | <.0001 |
| AGE | Female, Age 45-49 | 1 | 0.076518647 | 0.018936811 | 16.32754512 | <.0001 |
| AGE | Female, Age 50-54 | 1 | -0.004604237 | 0.018484787 | 0.06204209 | 0.8033 |
| AGE | Female, Age 55-59 | 1 | -0.017386632 | 0.018405154 | 0.892384576 | 0.3448 |
| AGE | Female, Age 60-64 | 1 | 0.034897048 | 0.018666973 | 3.494858129 | 0.0616 |
| AGE | Female, Age 65-69 | 1 | 0.061234615 | 0.019127477 | 10.24893224 | 0.0014 |
| AGE | Female, Age 70-74 | 1 | 0.053248264 | 0.019846966 | 7.198179366 | 0.0073 |
| AGE | Female, Age 75-79 | 1 | 0.109768193 | 0.020638587 | 28.28740598 | <.0001 |
| AGE | Female, Age 80-84 | 1 | 0.128168843 | 0.021823731 | 34.49109201 | <.0001 |

c-statistic=0.516

Table A.1. Population Age Categories

| 1 | low - 4 |
|----|-----------|
| 2 | 5 - 9 |
| 3 | 10 - 14 |
| 4 | 15 - 17 |
| 5 | 18 - 24 |
| 6 | 25 - 29 |
| 7 | 30 - 34 |
| 8 | 35 - 39 |
| 9 | 40 - 44 |
| 10 | 45 - 49 |
| 11 | 50 - 54 |
| 12 | 55 - 59 |
| 13 | 60 - 64 |
| 14 | 65 - 69 |
| 15 | 70 - 74 |
| 16 | 75 - 79 |
| 17 | 80 - 84 |
| 18 | 85 - high |