# Sample Market Analysis

Included is a compilation of unrelated market analyses done over many years.

The results are from at least ten very different market analyses.

No effort was made to make the results consistent.

The purpose is to demonstrate tools used to analyze market data.

The results have been anonymized.

# Example Target Marketing

* Profile customers that make multiple purchases
* Identify new customers likely to make multiple purchases

# Customer List and External Databases

##### Customers with multiple purchases

* 100,000 records in the customer list
* Assign 1 to customers with multiple purchases and 0 to customers with less than 2 purchases.
* 30% (30,000) current client customers have multiple purchases.
* Create comparative graphical and tabular analyses of multiple purchasers vs. single purchases.

##### Match customer list with the universe of data sources and add over 50 characteristics

* Match the 100,000 customer list to the 1,000,000 records in universe of data sources
* An 80% match rate yields 80,000 customer records with 50+ variables.
* Income, age, gender, real estate holdings, stocks, occupation….
* Model the probability of multiple purchases using the 50 added variables on the customer list.
* Apply the model to the one million universe of data sources, identify new customers email and snail mail.
* List the thousands of new customers with a probability greater than 90% for multiple purchases.

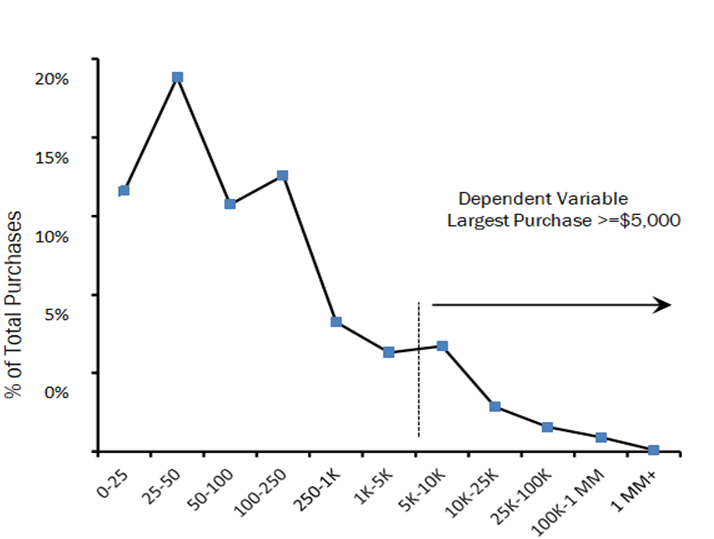
**Modeling Process**

Model Design Data Model Build Model Results Delivery Repeat Runs

* Understanding Client Goals
* Defining Dependent Variable(s)
* Determining Analytic Approach
* Aggregating Data Sources
* Creating Build & Validation Samples
* Chi-Square
* Variable Selection
* Final Variable Selection
* Segmentation
* Fit Assessment & Lift Charts
* Model Validation
* Scoring Algorithm(s)
* Implementation Recommendations

**Example Graphical Analysis**

Percent of Total Annual Purchase Amount by Purchase Ranges

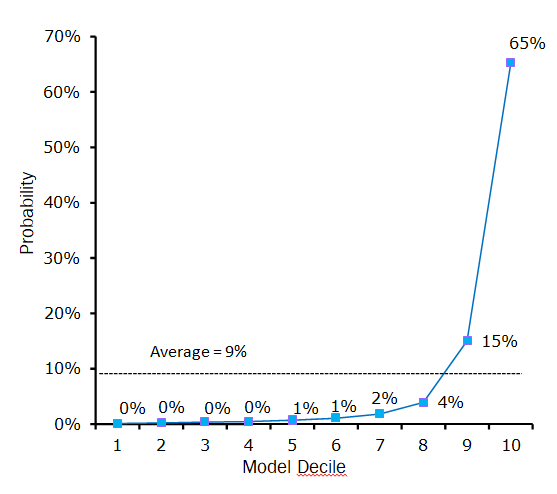


Dollars

After applying the model to the 1,000,000 universe

The 8,000 new customers in the top decile have a 65% probability of multiple purchases

On average only 9% of the 100,000 customer list have multiple purchases.



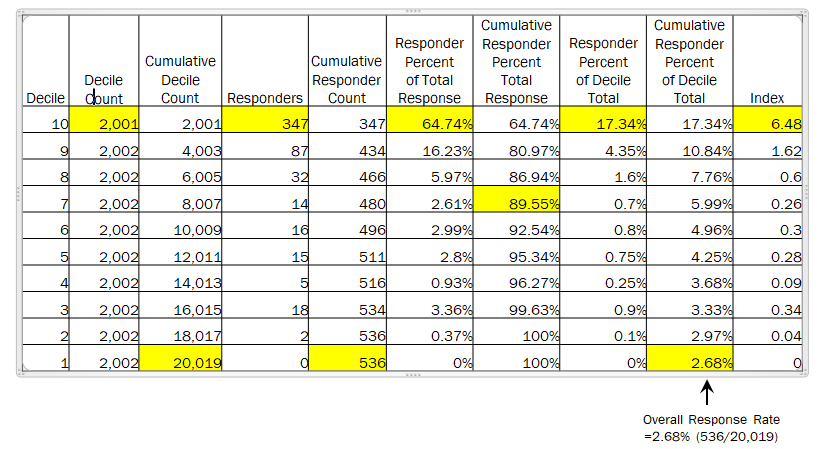
Example tabular analysis

**Example Gains Chart the 2001 customers in the 10th decile are 6.5 times more likely**

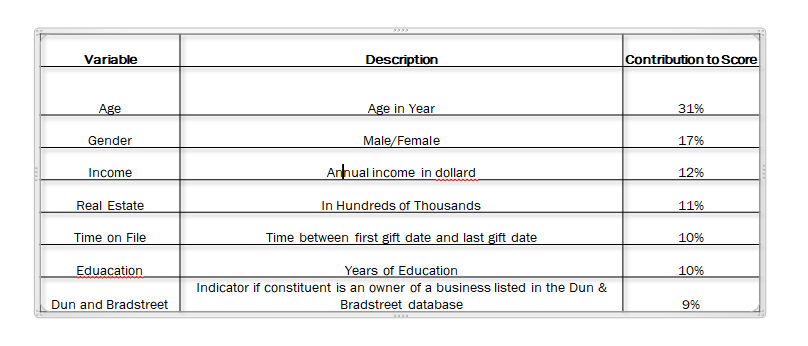
**to make multiple purchases then the overall average 2,68%**

**The 2002 in decile 10 are a combination of current customers and potential new customers.**

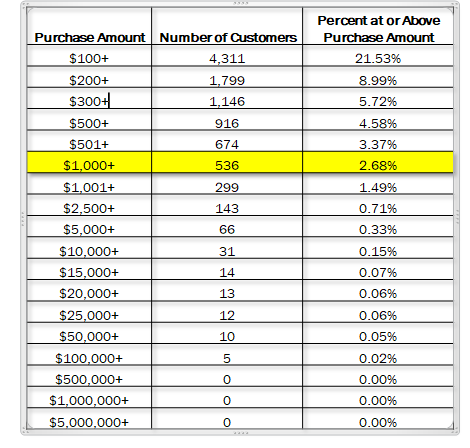
**Only 347 of the 2001 were current customers with more then one purchase.**



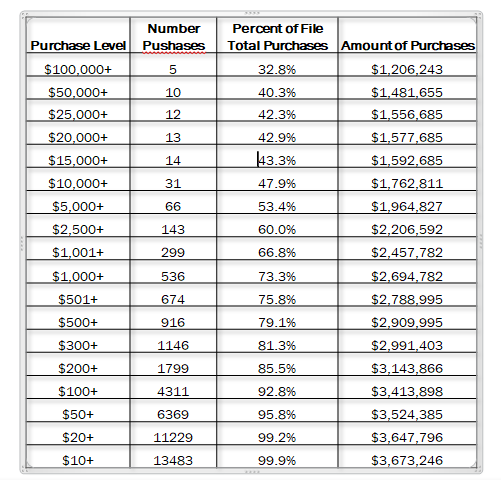
**Selected Model Variables and Contibution to Decile 10 Top Probability**



**536 customers had purchases or $1,000 Dollars or More**



**Purchases at or above $5,000 account for 53.4% of the total annual purchases**

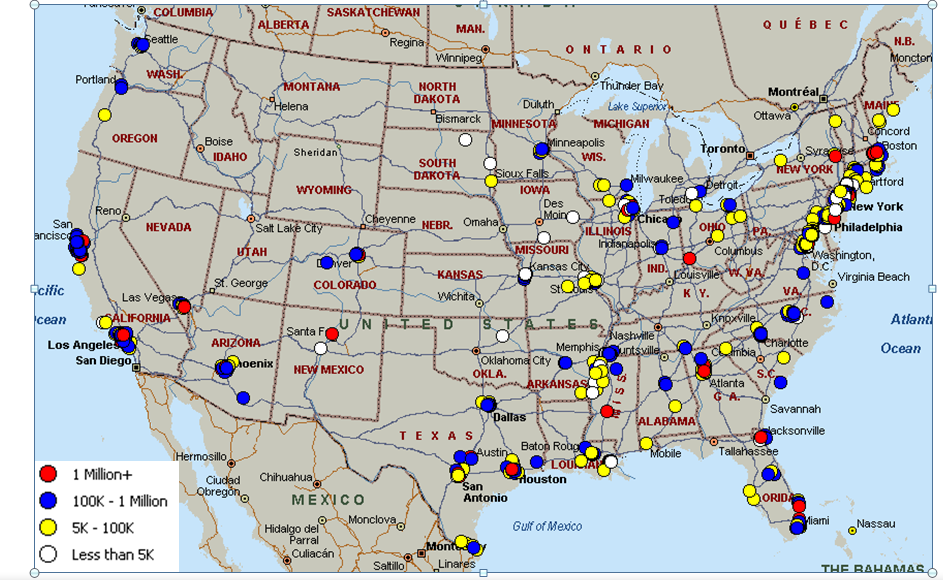


No collinearity in selected variables

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Variable** | **r** **>** **,t,** | **Variance** **Inflation** |
|  | **WINDEX** | **<.0001** | **1.49841** |
|  | **CANCALL** | **<.0001** | **1.29273** |
|  | **AGEBIN** | **<.0001** | **1.33563** |
|  | **DEMENTIA** | **<.0001** | **1.20243** |
|  | **AGE\_CHF** | **<.0001** | **1.36299** |
|  | **SEX** | **<.0001** | **1.02710** |
|  |  |

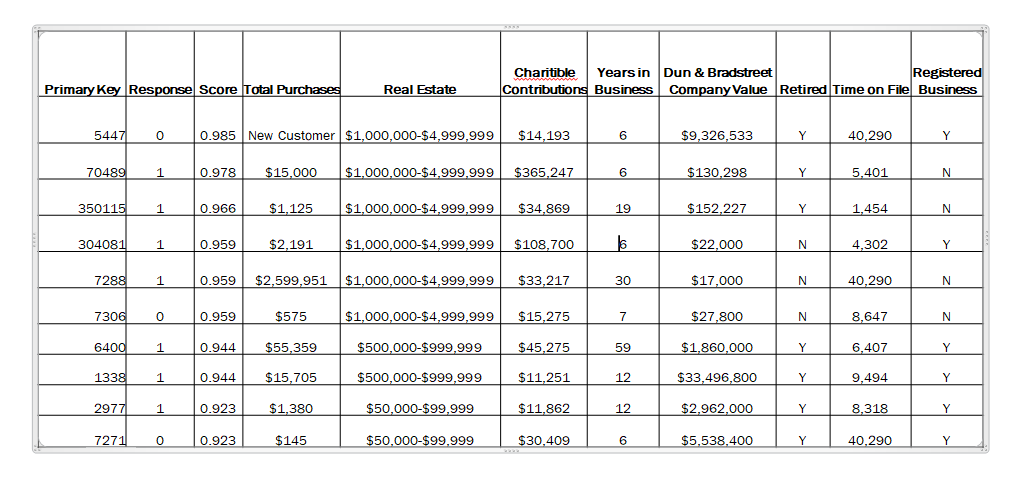
Logistic Model Beta's positive signs are easy to explain effects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Estimate**  **Error** | **Standard** | **Wald**  **Chi-Square** | **Pr** **>** **ChiSq** |
| **INTERCEPT** | **-7.2768** | **0.048** | **23026** | **<.0001** |
| **\_WINDEX** | **0.6049** | **0.00567** | **11368** | **<.0001** |
| **\_CANCALL** | **0.564** | **0.00275** | **42006** | **<.0001** |
| **\_AGEBIN** | **0.0755** | **0.000558** | **18276** | **<.0001** |
| **\_DEMENTIA** | **0.8094** | **0.00585** | **19141** | **<.0001** |
| **\_AGE\_CHF** | **0.4446** | **0.0069** | **4154** | **<.0001** |
| **\_SEX** | **1.5901** | **0.0456** | **1216** | **<.0001** |

**Decile 10 Prospects** 

**Customers and prospects with highest scores, greater than 80% probability of multiple purchases.**

**Primary key is customer ID**



Levels with the Highest Indices

Patients with metastatic cancer and dementia are 3.5 times as likely to die within a year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Categories | Deceased Victims | Non Deceased | Total | Index | Death Percent Response |
| DIE | 1<=DIE<=1 | 246503 | 0 | 246503 | 5.221 | 100.00% |
| METACANC\_DEMENTIA | 1<=METACANC\_DEMENTIA<=1 | 3577 | 1728 | 5305 | 3.521 | 67.43% |
| METACANC\_CHF | 1<=METACANC\_CHF<=1 | 7133 | 3950 | 11083 | 3.360 | 64.36% |
| METACANC\_REND | 1<=METACANC\_REND<=1 | 7655 | 4517 | 12172 | 3.284 | 62.89% |
| METACANC | 1<=METACANC<=1 | 36920 | 22590 | 59510 | 3.239 | 62.04% |
| METACANC\_AGE | 3<=METACANC\_AGE<=106 | 36920 | 22590 | 59510 | 3.239 | 62.04% |
| DEMENTIA\_CANC | 1<=DEMENTIA\_CANC<=1 | 10645 | 10172 | 20817 | 2.670 | 51.14% |
| CANC\_CHF | 1<=CANC\_CHF<=1 | 17397 | 19627 | 37024 | 2.453 | 46.99% |
| AGE\_CANC | 68<=AGE\_CANC<=108 | 59369 | 71657 | 131026 | 2.366 | 45.31% |
| CANC\_REND | 1<=CANC\_REND<=1 | 17179 | 20775 | 37954 | 2.363 | 45.26% |
| CANC | 1<=CANC<=1 | 71509 | 90569 | 162078 | 2.304 | 44.12% |
| MSLD | 1<=MSLD<=1 | 6996 | 9104 | 16100 | 2.269 | 43.45% |
| AMI\_CANC | 1<=AMI\_CANC<=1 | 7055 | 9453 | 16508 | 2.231 | 42.74% |
| DEMENTIA\_CHF | 1<=DEMENTIA\_CHF<=1 | 30072 | 43071 | 73143 | 2.147 | 41.11% |
| AGE\_CANC | 3<=AGE\_CANC<=67 | 12140 | 18912 | 31052 | 2.041 | 39.10% |
| DEMENTIA\_REND | 1<=DEMENTIA\_REND<=1 | 25688 | 40064 | 65752 | 2.040 | 39.07% |
| AGE\_CHF | 84<=AGE\_CHF<=113 | 47228 | 77697 | 124925 | 1.974 | 37.81% |
| WINDEX | 4<=WINDEX<=4 | 97640 | 173559 | 271199 | 1.880 | 36.00% |
| WINDEXFMT | >=5 (97640, 271199, 36.0%) | 97640 | 173559 | 271199 | 1.880 | 36.00% |
| DEMENTIA | 1<=DEMENTIA<=1 | 84017 | 156583 | 240600 | 1.823 | 34.92% |
| INDEX | 4<=INDEX<=4 | 34815 | 65084 | 99899 | 1.820 | 34.85% |
| INDEXFMT | >=5 (34815, 99899, 34.9%) | 34815 | 65084 | 99899 | 1.820 | 34.85% |
| AGE\_REND | 81<=AGE\_REND<=113 | 43380 | 85401 | 128781 | 1.759 | 33.69% |
| WSCORE | 4<=WSCORE<=22 | 125395 | 265902 | 391297 | 1.673 | 32.05% |
| SCORE | 4<=SCORE<=11 | 68800 | 146595 | 215395 | 1.668 | 31.94% |
| CHF\_REND | 1<=CHF\_REND<=1 | 47484 | 102417 | 149901 | 1.654 | 31.68% |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Categories | Deceased Victims | Non Deceased | Total | Index | Death Percent Response |
| AMI\_CHF | 1<=AMI\_CHF<=1 | 24017 | 58337 | 82354 | 1.523 | 29.16% |
| CHF | 1<=CHF<=1 | 95060 | 241615 | 336675 | 1.474 | 28.23% |
| CEVD | 1<=CEVD<=1 | 49133 | 133220 | 182353 | 1.407 | 26.94% |
| INDEX | 3<=INDEX<=3 | 82117 | 225346 | 307463 | 1.395 | 26.71% |
| INDEXFMT | 3-4 (82117, 307463, 26.7%) | 82117 | 225346 | 307463 | 1.395 | 26.71% |
| AGE | 76<=AGE<=115 | 168931 | 483286 | 652217 | 1.352 | 25.90% |
| REND | 1<=REND<=1 | 77463 | 222256 | 299719 | 1.349 | 25.85% |
| STATE | GU (50, 207, 24.2%)&#10;HI (789, 3014, 26.2%)&#10;OR (2973, | 5121 | 14884 | 20005 | 1.337 | 25.60% |
|  | 12323, 24.1%)&#10;PR (1309, 4461, 29.3%) |  |  |  |  |  |
| MLD | 1<=MLD<=1 | 12848 | 37470 | 50318 | 1.333 | 25.53% |
| HP | 1<=HP<=1 | 11257 | 32885 | 44142 | 1.332 | 25.50% |
| AGE\_CHF | 70<=AGE\_CHF<=83 | 33960 | 101187 | 135147 | 1.312 | 25.13% |
| SCORE | 3<=SCORE<=3 | 48132 | 143835 | 191967 | 1.309 | 25.07% |
| AMI\_REND | 65<=AMI\_REND<=113 | 31674 | 96217 | 127891 | 1.293 | 24.77% |
| PVD | 1<=PVD<=1 | 41355 | 131703 | 173058 | 1.248 | 23.90% |
| AMI | 1<=AMI<=1 | 34622 | 112807 | 147429 | 1.226 | 23.48% |
| AGE\_REND | 65<=AGE\_REND<=80 | 27627 | 99971 | 127598 | 1.131 | 21.65% |
| WINDEX | 3<=WINDEX<=3 | 61355 | 222060 | 283415 | 1.130 | 21.65% |
| WINDEXFMT | 3-4 (61355, 283415, 21.6%) | 61355 | 222060 | 283415 | 1.130 | 21.65% |
| STATE | AS (5, 22, 22.7%)&#10;AZ (4945, 21840, 22.6%)&#10;OH (10852, | 32212 | 117188 | 149400 | 1.126 | 21.56% |
|  | 50728, 21.4%)&#10;PA (11643, 54760, 21.3%)&#10;WI (4767, 22050, |  |  |  |  |  |
|  | 21.6%) |  |  |  |  |  |
| COPD | 1<=COPD<=1 | 81063 | 295932 | 376995 | 1.123 | 21.50% |
| PUD | 1<=PUD<=1 | 6241 | 24030 | 30271 | 1.076 | 20.62% |
| WSCORE | 3<=WSCORE<=3 | 33600 | 129717 | 163317 | 1.074 | 20.57% |
| SCORE | 2<=SCORE<=2 | 59133 | 231011 | 290144 | 1.064 | 20.38% |
| SEX | M (113952, 561755, 20.3%) | 113952 | 447803 | 561755 | 1.059 | 20.28% |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Categories | Deceased Victims | Non Deceased | Total | Index | Death Percent Response |
| STATE | CA (21228, 105608, 20.1%)&#10;CO (3142, 15318, 20.5%)&#10;GA | 60394 | 238633 | 299027 | 1.055 | 20.20% |
|  | (6935, 34427, 20.1%)&#10;IA (3013, 14968, 20.1%)&#10;ID (1219, 5956, |  |  |  |  |  |
|  | 20.5%)&#10;NC (8250, 41146, 20.1%) |  |  |  |  |  |
| RACE\_CD | 1 (200924, 1009092, 19.9%) | 200924 | 808168 | 1009092 | 1.040 | 19.91% |
| DIAB | 0<=DIAB<=0 | 178830 | 734051 | 912881 | 1.023 | 19.59% |
| DIABWC | 0<=DIABWC<=0 | 219311 | 913383 | 1132694 | 1.011 | 19.36% |
| RHEUMD | 0<=RHEUMD<=0 | 237697 | 993770 | 1231467 | 1.008 | 19.30% |
| AIDS | 0<=AIDS<=0 | 245893 | 1037342 | 1283235 | 1.001 | 19.16% |
| PUD | 0<=PUD<=0 | 240262 | 1016551 | 1256813 | 0.998 | 19.12% |
| METACANC\_DEMENTIA | 0<=METACANC\_DEMENTIA<=0 | 242926 | 1038853 | 1281779 | 0.990 | 18.95% |
| HP | 0<=HP<=0 | 235246 | 1007696 | 1242942 | 0.988 | 18.93% |
| MLD | 0<=MLD<=0 | 233655 | 1003111 | 1236766 | 0.986 | 18.89% |
| AMI\_CANC | 0<=AMI\_CANC<=0 | 239448 | 1031128 | 1270576 | 0.984 | 18.85% |
| MSLD | 0<=MSLD<=0 | 239507 | 1031477 | 1270984 | 0.984 | 18.84% |
| STATE | AR (3019, 15801, 19.1%)&#10;CT (2929, 15678, 18.7%)&#10;FL | 85148 | 367035 | 452183 | 0.983 | 18.83% |
|  | (18710, 97653, 19.2%)&#10;IN (5813, 30001, 19.4%)&#10;KS (2598, |  |  |  |  |  |
|  | 14024, 18.5%)&#10;KY (4253, 22284, 19.1%) |  |  |  |  |  |
| METACANC\_CHF | 0<=METACANC\_CHF<=0 | 239370 | 1036631 | 1276001 | 0.979 | 18.76% |
| METACANC\_REND | 0<=METACANC\_REND<=0 | 238848 | 1036064 | 1274912 | 0.978 | 18.73% |
| DEMENTIA\_CANC | 0<=DEMENTIA\_CANC<=0 | 235858 | 1030409 | 1266267 | 0.973 | 18.63% |
| AMI | 0<=AMI<=0 | 211881 | 927774 | 1139655 | 0.971 | 18.59% |
| AMI\_REND | 0<=AMI\_REND<=0 | 211881 | 927774 | 1139655 | 0.971 | 18.59% |
| AMI\_CHF | 0<=AMI\_CHF<=0 | 222486 | 982244 | 1204730 | 0.964 | 18.47% |
| PVD | 0<=PVD<=0 | 205148 | 908878 | 1114026 | 0.962 | 18.42% |
| CANC\_REND | 0<=CANC\_REND<=0 | 229324 | 1019806 | 1249130 | 0.959 | 18.36% |
| CANC\_CHF | 0<=CANC\_CHF<=0 | 229106 | 1020954 | 1250060 | 0.957 | 18.33% |
| INDEX | 2<=INDEX<=2 | 118987 | 531660 | 650647 | 0.955 | 18.29% |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Categories | Deceased Victims | Non Deceased | Total | Index | Death Percent Response |
| INDEXFMT | 1-2 (118987, 650647, 18.3%) | 118987 | 531660 | 650647 | 0.955 | 18.29% |
| SEX | F (132551, 725329, 18.3%) | 132551 | 592778 | 725329 | 0.954 | 18.27% |
| COPD | 0<=COPD<=0 | 165440 | 744649 | 910089 | 0.949 | 18.18% |
| AGE\_CHF | 7<=AGE\_CHF<=69 | 13872 | 62731 | 76603 | 0.946 | 18.11% |
| DEMENTIA\_REND | 0<=DEMENTIA\_REND<=0 | 220815 | 1000517 | 1221332 | 0.944 | 18.08% |
| DIAB | 1<=DIAB<=1 | 67673 | 306530 | 374203 | 0.944 | 18.08% |
| CEVD | 0<=CEVD<=0 | 197370 | 907361 | 1104731 | 0.933 | 17.87% |
| DEMENTIA\_CHF | 0<=DEMENTIA\_CHF<=0 | 216431 | 997510 | 1213941 | 0.931 | 17.83% |
| DIABWC | 1<=DIABWC<=1 | 27192 | 127198 | 154390 | 0.920 | 17.61% |
| CHF\_REND | 0<=CHF\_REND<=0 | 199019 | 938164 | 1137183 | 0.914 | 17.50% |
| WSCORE | 2<=WSCORE<=2 | 40165 | 189596 | 229761 | 0.913 | 17.48% |
| STATE | (49, 312, 15.7%)&#10;AK (289, 1899, 15.2%)&#10;AL (4801, 26814, | 63628 | 302841 | 366469 | 0.906 | 17.36% |
|  | 17.9%)&#10;DC (431, 2434, 17.7%)&#10;DE (896, 5246, 17.1%)&#10;IL |  |  |  |  |  |
|  | (9999, 57550, 17.4%)&#10;LA (3867, |  |  |  |  |  |
| RACE\_CD | 3 (1300, 7694, 16.9%)&#10;4 (4371, 24982, 17.5%)&#10;5 (14472, | 20143 | 96249 | 116392 | 0.904 | 17.31% |
|  | 83716, 17.3%) |  |  |  |  |  |
| AGE\_REND | 0<=AGE\_REND<=0 | 169041 | 818326 | 987367 | 0.894 | 17.12% |
| REND | 0<=REND<=0 | 169040 | 818325 | 987365 | 0.894 | 17.12% |
| METACANC | 0<=METACANC<=0 | 209583 | 1017991 | 1227574 | 0.891 | 17.07% |
| METACANC\_AGE | 0<=METACANC\_AGE<=0 | 209583 | 1017991 | 1227574 | 0.891 | 17.07% |
| SCORE | 1<=SCORE<=1 | 59854 | 300649 | 360503 | 0.867 | 16.60% |
| RACE\_CD | 2 (23308, 144312, 16.2%)&#10;6 (1229, 7851, 15.7%) | 24537 | 127626 | 152163 | 0.842 | 16.13% |
| AGE\_CHF | 0<=AGE\_CHF<=0 | 151443 | 798966 | 950409 | 0.832 | 15.93% |
| CHF | 0<=CHF<=0 | 151443 | 798966 | 950409 | 0.832 | 15.93% |
| AIDS | 1<=AIDS<=1 | 610 | 3239 | 3849 | 0.827 | 15.85% |
| RHEUMD | 1<=RHEUMD<=1 | 8806 | 46811 | 55617 | 0.827 | 15.83% |
| AGE | 73<=AGE<=75 | 18508 | 99189 | 117697 | 0.821 | 15.73% |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Categories | Deceased Victims | Non Deceased | Total | Index | Death Percent Response |
| AGE\_CANC | 0<=AGE\_CANC<=0 | 174994 | 950012 | 1125006 | 0.812 | 15.55% |
| CANC | 0<=CANC<=0 | 174994 | 950012 | 1125006 | 0.812 | 15.55% |
| DEMENTIA | 0<=DEMENTIA<=0 | 162486 | 883998 | 1046484 | 0.811 | 15.53% |

Chi Square and Index Analysis of Character Variables

Patients with a Charlson index of 5 or more ar 1.88 times as likely to die within a year

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Response Decile from Low to High | Variable |  | Similar Deceased Levels | Responders Deceased Victims | Non-Responders  All Others | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent Deceased |
| **Bucketed** **Unweighted** **Charlson** **Index** **INDEXFMT** | | | | | | | | | |
| 1 | INDEXFMT | 0 | (10584, 229075, 4.6%) | 10584 | 218491 | 229075 | 17.80% | 0.24 | 4.62% |
| 2 |  | 1-2 | (118987, 650647, 18.3%) | 118987 | 531660 | 650647 | 50.55% | 0.95 | 18.29% |
| 3 |  | 3-4 | (82117, 307463, 26.7%) | 82117 | 225346 | 307463 | 23.89% | 1.39 | 26.71% |
| 4 |  | >=5 | (34815, 99899, 34.9%) | 34815 | 65084 | 99899 | 7.76% | 1.82 | 34.85% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **RACE\_CD** | | | | | | | | | |
| 1 | RACE\_CD |  | 0 (899, 9437, 9.5%) | 899 | 8538 | 9437 | 0.73% | 0.50 | 9.53% |
| 2 |  | 2 | (23308, 144312, 16.2%)  6 (1229, 7851, 15.7%) | 24537 | 127626 | 152163 | 11.82% | 0.84 | 16.13% |
| 3 |  |  | 3 (1300, 7694, 16.9%) | 20143 | 96249 | 116392 | 9.04% | 0.90 | 17.31% |
|  |  |  | 4 (4371, 24982, 17.5%) |  |  |  |  |  |  |
|  |  | 5 | (14472, 83716, 17.3%) |  |  |  |  |  |  |
| 4 |  | 1 | (200924, 1009092, 19.9%) | 200924 | 808168 | 1009092 | 78.40% | 1.04 | 19.91% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **SEX** | | | | | | | | | |
| 1 | SEX | F | (132551, 725329, 18.3%) | 132551 | 592778 | 725329 | 56.35% | 0.95 | 18.27% |
| 2 |  | M | (113952, 561755, 20.3%) | 113952 | 447803 | 561755 | 43.65% | 1.06 | 20.28% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **STATE** | | | | | | | | | |

|  |  |  |
| --- | --- | --- |
|  | | |
| 1 | STATE | (49, 312, 15.7%) |
|  |  | AK (289, 1899, 15.2%) |
|  |  | AL (4801, 26814, 17.9%) |
|  |  | DC (431, 2434, 17.7%) |
|  |  | DE (896, 5246, 17.1%) |
|  |  | IL (9999, 57550, 17.4%) |
|  |  | LA (3867, 21819, 17.7%) |
|  |  | MA (5324, 32608, 16.3%) |
|  |  | MD (4465, 25990, 17.2%) |
|  |  | MS (3084, 18290, 16.9%) |
|  |  | ND (548, 3361, 16.3%) |
|  |  | NH (1221, 7048, 17.3%) |
|  |  | OK (3668, 21365, 17.2%) |
|  |  | SD (733, 4298, 17.1%) |
|  |  | TX (17028, 96629, 17.6%) |
|  |  | VA (6200, 34876, 17.8%) |
|  |  | VT (593, 3351, 17.7%) |
|  |  | WY (432, 2579, 16.8%) |
| 2 |  | AR (3019, 15801, 19.1%) |
|  |  | CT (2929, 15678, 18.7%) |
|  |  | FL (18710, 97653, 19.2%) |
|  |  | IN (5813, 30001, 19.4%) |
|  |  | KS (2598, 14024, 18.5%) |
|  |  | KY (4253, 22284, 19.1%) |
|  |  | ME (1356, 6967, 19.5%) |
|  |  | MI (8855, 48204, 18.4%) |
|  |  | MN (4142, 22731, 18.2%) |
|  |  | MO (5357, 27563, 19.4%) |
|  |  | MT (866, 4453, 19.4%) |
|  |  | NE (1624, 8834, 18.4%) |
|  |  | NJ (7096, 38504, 18.4%) |
|  |  | NY (12249, 65475, 18.7%) |
|  |  | SC (4262, 23089, 18.5%) |
|  |  | VI (64, 337, 19.0%) |
|  |  | WV (1955, 10585, 18.5%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Responders Deceased Victims | Non-Responders  All Others | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent Deceased |
| 63628 | 302841 | 366469 | 28.47% | 0.91 | 17.36% |
| 85148 | 367035 | 452183 | 35.13% | 0.98 | 18.83% |

3

CA (21228, 105608, 20.1%)

CO (3142, 15318, 20.5%)

GA IA ID NC NM NV

RI TN UT WA

(6935, 34427, 20.1%)

(3013, 14968, 20.1%)

(1219, 5956, 20.5%)

(8250, 41146, 20.1%)

(1542, 7370, 20.9%)

(2011, 10109, 19.9%)

(919, 4620, 19.9%)

(5753, 28583, 20.1%)

(1562, 7660, 20.4%)

(4820, 23262, 20.7%)

4

AS (5, 22, 22.7%)

AZ OH PA

WI

(4945, 21840, 22.6%)

(10852, 50728, 21.4%)

(11643, 54760, 21.3%)

(4767, 22050, 21.6%)

5

GU (50, 207, 24.2%)

HI (789, 3014, 26.2%)

OR (2973, 12323, 24.1%)

PR (1309, 4461, 29.3%)

**Bucketed** **Weighted** **Charlson** **Index** **WINDEXFMT**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | WINDEXFMT | 0 | (10584, 229075, 4.6%) |
| 2 |  | 1-2 | (76924, 503395, 15.3%) |
| 3 |  | 3-4 | (61355, 283415, 21.6%) |
| 4 |  | >=5 | (97640, 271199, 36.0%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Responders Deceased Victims | Non-Responders  All Others | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent Deceased |
| 60394 | 238633 | 299027 | 23.23% | 1.05 | 20.20% |
| 32212 | 117188 | 149400 | 11.61% | 1.13 | 21.56% |
| 5121 | 14884 | 20005 | 1.55% | 1.34 | 25.60% |
| *246503* | *1040581* | 1287084 |  |  |  |
| 10584 | 218491 | 229075 | 17.80% | 0.24 | 4.62% |
| 76924 | 426471 | 503395 | 39.11% | 0.80 | 15.28% |
| 61355 | 222060 | 283415 | 22.02% | 1.13 | 21.65% |
| 97640 | 173559 | 271199 | 21.07% | 1.88 | 36.00% |
| *246503* | *1040581* | 1287084 |  |  |  |

Chi Square and Index Analysis of Numeric Variables

Patients over 67 with cancer are almost 2.4 times as likely die within a year

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased Decile from Low to High | Variable | Similar Deceased Levels | Mean  in | Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent with Deceased |
| **AGE** **Chi-Square=** **42077.451443** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE | 0<=AGE<=58 | 47.71 | | 9798 | 123984 | 133782 | 10.39% | 0.38 | 7.32% |
| 3 |  | 59<=AGE<=69 | 65.63 | | 33460 | 234590 | 268050 | 20.83% | 0.65 | 12.48% |
| 4 |  | 70<=AGE<=72 | 70.97 | | 15806 | 99532 | 115338 | 8.96% | 0.72 | 13.70% |
| 5 |  | 73<=AGE<=75 | 73.98 | | 18508 | 99189 | 117697 | 9.14% | 0.82 | 15.73% |
| 6 |  | 76<=AGE<=115 | 85.00 | | 168931 | 483286 | 652217 | 50.67% | 1.35 | 25.90% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Age** **&** **Cancer** **Chi-Square=** **75281.628032** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE\_CANC | 0<=AGE\_CANC<=0 | 0.00 | | 174994 | 950012 | 1125006 | 87.41% | 0.81 | 15.55% |
| 3 |  | 3<=AGE\_CANC<=67 | 61.26 | | 12140 | 18912 | 31052 | 2.41% | 2.04 | 39.10% |
| 4 |  | 68<=AGE\_CANC<=108 | 79.44 | | 59369 | 71657 | 131026 | 10.18% | 2.37 | 45.31% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Age** **&** **Congestive** **heart** **failure** **Chi-Square=** **37596.788079** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE\_CHF | 0<=AGE\_CHF<=0 | 0.00 | | 151443 | 798966 | 950409 | 73.84% | 0.83 | 15.93% |
| 3 |  | 7<=AGE\_CHF<=69 | 61.44 | | 13872 | 62731 | 76603 | 5.95% | 0.95 | 18.11% |
| 4 |  | 70<=AGE\_CHF<=83 | 76.83 | | 33960 | 101187 | 135147 | 10.50% | 1.31 | 25.13% |
| 5 |  | 84<=AGE\_CHF<=113 | 89.65 | | 47228 | 77697 | 124925 | 9.71% | 1.97 | 37.81% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Age** **&** **Renal** **disease** **Chi-Square=** **21220.564265** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE\_REND | 1<=AGE\_REND<=64 | 54.00 | | 6455 | 36883 | 43338 | 3.37% | 0.78 | 14.89% |
| 3 |  | 0<=AGE\_REND<=0 | 0.00 | | 169041 | 818326 | 987367 | 76.71% | 0.89 | 17.12% |
| 4 |  | 65<=AGE\_REND<=80 | 72.99 | | 27627 | 99971 | 127598 | 9.91% | 1.13 | 21.65% |
| 5 |  | 81<=AGE\_REND<=113 | 87.80 | | 43380 | 85401 | 128781 | 10.01% | 1.76 | 33.69% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **AIDS/HIV** **Chi-Square=** **27.213632565** **P-Value=** **0.00000** | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased |  |  |  |  |  |  |  | Index Response  Rate |  |
| Decile from  Low to |  |  | Mean Value | Responders | Non-Responders |  | Percent | divided by Overall | Percent with |
| High | Variable | Similar Deceased Levels | in Level | Deceased | Deceased | Total | Coverage | 19.1521% | Deceased |
| 1 | AIDS | 1<=AIDS<=1 | 1.00 | 610 | 3239 | 3849 | 0.30% | 0.83 | 15.85% |
| 3 |  | 0<=AIDS<=0 | 0.00 | 245893 | 1037342 | 1283235 | 99.70% | 1.00 | 19.16% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Myocardial** **infarction** **Chi-Square=** **2017.7517345** **P-Value=** **0.00000** | | | | | | | | |  |
| 1 | AMI | 0<=AMI<=0 | 0.00 | 211881 | 927774 | 1139655 | 88.55% | 0.97 | 18.59% |
| 3 |  | 1<=AMI<=1 | 1.00 | 34622 | 112807 | 147429 | 11.45% | 1.23 | 23.48% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **AMI** **&** **Cancer** **Chi-Square=** **6007.3215438** **P-Value=** **0.00000** | | | | | |  |  | |  |
| 1 | AMI\_CANC | 0<=AMI\_CANC<=0 | 0.00 | 239448 | 1031128 | 1270576 | 98.72% | 0.98 | 18.85% |
| 3 |  | 1<=AMI\_CANC<=1 | 1.00 | 7055 | 9453 | 16508 | 1.28% | 2.23 | 42.74% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **AMI** **&** **Congestive** **heart** **failure** **Chi-Square=** **5694.8040661** **P-Value=** **0.00000** | | | | | | | | |  |
| 1 | AMI\_CHF | 0<=AMI\_CHF<=0 | 0.00 | 222486 | 982244 | 1204730 | 93.60% | 0.96 | 18.47% |
| 3 |  | 1<=AMI\_CHF<=1 | 1.00 | 24017 | 58337 | 82354 | 6.40% | 1.52 | 29.16% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **AMI** **&** **Renal** **disease** **Chi-Square=** **3042.9552547** **P-Value=** **0.00000** | | | | | | | | | |
| 1 | AMI\_REND | 19<=AMI\_REND<=64 | 56.43 | 2948 | 16590 |  | 1.52% | 0.79 | 15.09% |
| 3 |  | 0<=AMI\_REND<=0 | 0.00 | 211881 | 927774 |  | 88.55% | 0.97 | 18.59% |
| 4 |  | 65<=AMI\_REND<=113 | 78.74 | 31674 | 96217 |  | 9.94% | 1.29 | 24.77% |
|  |  |  |  | *246503* | *1040581* |  |  |  |  |
| **Any** **malignancy** **Chi-Square=** **74655.446792** **P-Value=** **0.00000** | | | | | |  |  | |  |
| 1 | CANC | 0<=CANC<=0 | 0.00 | 174994 | 950012 | 1125006 | 87.41% | 0.81 | 15.55% |
| 3 |  | 1<=CANC<=1 | 1.00 | 71509 | 90569 | 162078 | 12.59% | 2.30 | 44.12% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |

|  |
| --- |
| 19538 |
| 1139655 |
| 127891 |
| 1287084 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased Decile from  Low to High | Variable | Similar Deceased Levels | Mean  in | Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent with Deceased |
| **Cancer** **&** **Congestive** **heart** **failure** **Chi-Square=** **19076.592618** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CANC\_CHF | 0<=CANC\_CHF<=0 | 0.00 | | 229106 | 1020954 | 1250060 | 97.12% | 0.96 | 18.33% |
| 3 |  | 1<=CANC\_CHF<=1 | 1.00 | | 17397 | 19627 | 37024 | 2.88% | 2.45 | 46.99% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Cancer** **&** **Renal** **disease** **Chi-Square=** **17218.9763** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CANC\_REND | 0<=CANC\_REND<=0 | 0.00 | | 229324 | 1019806 | 1249130 | 97.05% | 0.96 | 18.36% |
| 3 |  | 1<=CANC\_REND<=1 | 1.00 | | 17179 | 20775 | 37954 | 2.95% | 2.36 | 45.26% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Cerebrovascular** **disease** **Chi-Square=** **8330.2733674** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CEVD | 0<=CEVD<=0 | 0.00 | | 197370 | 907361 | 1104731 | 85.83% | 0.93 | 17.87% |
| 3 |  | 1<=CEVD<=1 | 1.00 | | 49133 | 133220 | 182353 | 14.17% | 1.41 | 26.94% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Congestive** **heart** **failure** **Chi-Square=** **24292.445951** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CHF | 0<=CHF<=0 | 0.00 | | 151443 | 798966 | 950409 | 73.84% | 0.83 | 15.93% |
| 3 |  | 1<=CHF<=1 | 1.00 | | 95060 | 241615 | 336675 | 26.16% | 1.47 | 28.23% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Congestive** **heart** **failure** **&** **Renal** **disease** **Chi-Square=** **17188.664128** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CHF\_REND | 0<=CHF\_REND<=0 | 0.00 | | 199019 | 938164 | 1137183 | 88.35% | 0.91 | 17.50% |
| 3 |  | 1<=CHF\_REND<=1 | 1.00 | | 47484 | 102417 | 149901 | 11.65% | 1.65 | 31.68% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Chronic** **pulmonary** **disease** **Chi-Square=** **1902.1344454** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | COPD | 0<=COPD<=0 | 0.00 | | 165440 | 744649 | 910089 | 70.71% | 0.95 | 18.18% |
| 3 |  | 1<=COPD<=1 | 1.00 | | 81063 | 295932 | 376995 | 29.29% | 1.12 | 21.50% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased  Decile from Low to High | Variable | Similar Deceased Levels | in | Mean Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent  with Deceased |
| **Dementia** **Chi-Square=** **47514.268064** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA | 0<=DEMENTIA<=0 | 0.00 | | 162486 | 883998 | 1046484 | 81.31% | 0.81 | 15.53% |
| 3 |  | 1<=DEMENTIA<=1 | 1.00 | | 84017 | 156583 | 240600 | 18.69% | 1.82 | 34.92% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Dementia** **Cancer** **Chi-Square=** **13979.190555** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA\_CANC | 0<=DEMENTIA\_CANC<=0 | 0.00 | | 235858 | 1030409 | 1266267 | 98.38% | 0.97 | 18.63% |
| 3 |  | 1<=DEMENTIA\_CANC<=1 | 1.00 | | 10645 | 10172 | 20817 | 1.62% | 2.67 | 51.14% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Dementia** **Congestive** **heart** **failure** **Chi-Square=** **24156.764624** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA\_CHF | 0<=DEMENTIA\_CHF<=0 | 0.00 | | 216431 | 997510 | 1213941 | 94.32% | 0.93 | 17.83% |
| 3 |  | 1<=DEMENTIA\_CHF<=1 | 1.00 | | 30072 | 43071 | 73143 | 5.68% | 2.15 | 41.11% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Dementia** **Renal** **disease** **Chi-Square=** **17750.080831** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA\_REND | 0<=DEMENTIA\_REND<=0 | 0.00 | | 220815 | 1000517 | 1221332 | 94.89% | 0.94 | 18.08% |
| 3 |  | 1<=DEMENTIA\_REND<=1 | 1.00 | | 25688 | 40064 | 65752 | 5.11% | 2.04 | 39.07% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Diabetes** **without** **complication** **Chi-Square=** **388.27349036** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DIAB | 1<=DIAB<=1 | 1.00 | | 67673 | 306530 | 374203 | 29.07% | 0.94 | 18.08% |
| 3 |  | 0<=DIAB<=0 | 0.00 | | 178830 | 734051 | 912881 | 70.93% | 1.02 | 19.59% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Diabetes** **with** **chronic** **complication** **Chi-Square=** **268.5317337** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DIABWC | 1<=DIABWC<=1 | 1.00 | | 27192 | 127198 | 154390 | 12.00% | 0.92 | 17.61% |
| 3 |  | 0<=DIABWC<=0 | 0.00 | | 219311 | 913383 | 1132694 | 88.00% | 1.01 | 19.36% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |

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| Deceased | |  |  |  |  |  |  |  | Index Response |  |
| Decile from | |  |  | Mean |  |  |  |  | Rate divided by | Percent |
| Low to | |  |  | Value | Responders | Non-Responders |  | Percent | Overall | with |
| High | | Variable | Similar Deceased Levels | in Level | Deceased | Deceased | Total | Coverage | 19.1521% | Deceased |
| **DIE** **Chi-Square=** **1287084** | | **P-Value=** **0.00000** |  |  |  |  |  |  |  |  |
| 1 | | DIE | 0<=DIE<=0 | 0.00 | 0 | 1040581 | 1040581 | 80.85% | 0.00 | 0.00% |
| 3 | |  | 1<=DIE<=1 | 1.00 | 246503 | 0 | 246503 | 19.15% | 5.22 | 100.00% |
|  | |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Hemiplegia** **or** **paraplegia** **Chi-Square=** **1190.2419489** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | | HP | 0<=HP<=0 | 0.00 | 235246 | 1007696 | 1242942 | 96.57% | 0.99 | 18.93% |
| 3 | |  | 1<=HP<=1 | 1.00 | 11257 | 32885 | 44142 | 3.43% | 1.33 | 25.50% |
|  | |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **INDEX** **Chi-Square=** **58790.891217** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | | INDEX | 1<=INDEX<=1 | 1.00 | 10584 | 218491 |  | 17.80% | 0.24 | 4.62% |
| 3 | |  | 2<=INDEX<=2 | 2.00 | 118987 | 531660 |  | 50.55% | 0.95 | 18.29% |
| 4 | |  | 3<=INDEX<=3 | 3.00 | 82117 | 225346 |  | 23.89% | 1.39 | 26.71% |
| 5 | |  | 4<=INDEX<=4 | 4.00 | 34815 | 65084 |  | 7.76% | 1.82 | 34.85% |
|  | |  |  |  | *246503* | *1040581* |  |  |  |  |
| **Metastatic** **solid** **tumour** **Chi-Square=** **74119.970335** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | | METACANC | 0<=METACANC<=0 | 0.00 | 209583 | 1017991 | 1227574 | 95.38% | 0.89 | 17.07% |
| 3 | |  | 1<=METACANC<=1 | 1.00 | 36920 | 22590 | 59510 | 4.62% | 3.24 | 62.04% |
|  | |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Metastatic** **AGE** **Chi-Square=** **74119.970335** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | METACANC\_AGE | | 0<=METACANC\_AGE<=0 | 0.00 | 209583 | 1017991 | 1227574 | 95.38% | 0.89 | 17.07% |
| 3 |  | | 3<=METACANC\_AGE<=106 | 74.48 | 36920 | 22590 | 59510 | 4.62% | 3.24 | 62.04% |
|  |  | |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Metastatic** **Cancer** **Congestive** **heart** **failure** **Chi-Square=** **14755.543746** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | METACANC\_CHF | | 0<=METACANC\_CHF<=0 | 0.00 | 239370 | 1036631 | 1276001 | 99.14% | 0.98 | 18.76% |

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| 229075 |
| 650647 |
| 307463 |
| 99899 |
| 1287084 |

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| --- | --- | --- | --- | --- | --- | --- |
| Deceased  Decile  from Mean  Low to Value  High Variable Similar Deceased Levels in Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent  with Deceased |
| 3 1<=METACANC\_CHF<=1 1.00 | 7133 | 3950 | 11083 | 0.86% | 3.36 | 64.36% |
|  | *246503* | *1040581* | 1287084 |  | |  |
| **Metastatic** **Cancer** **Dementia** **Chi-Square=** **8017.4754335** **P-Value=** **0.00000** | | | | | | |
| 1 METACANC\_DEMENTIA 0<=METACANC\_DEMENTIA<=0 0.00 | 242926 | 1038853 | 1281779 | 99.59% | 0.99 | 18.95% |
| 3 1<=METACANC\_DEMENTIA<=1 1.00 | 3577 | 1728 | 5305 | 0.41% | 3.52 | 67.43% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Metastatic** **Cancer** **Renal** **disease** **Chi-Square=** **15181.891231** **P-Value=** **0.00000** | | | | | | |
| 1 METACANC\_REND 0<=METACANC\_REND<=0 0.00 | 238848 | 1036064 | 1274912 | 99.05% | 0.98 | 18.73% |
| 3 1<=METACANC\_REND<=1 1.00 | 7655 | 4517 | 12172 | 0.95% | 3.28 | 62.89% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Mild** **liver** **disease** **Chi-Square=** **1377.2453282** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 MLD 0<=MLD<=0 0.00 | 233655 | 1003111 | 1236766 | 96.09% | 0.99 | 18.89% |
| 3 1<=MLD<=1 1.00 | 12848 | 37470 | 50318 | 3.91% | 1.33 | 25.53% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Moderate** **or** **severe** **liver** **disease** **Chi-Square=** **6218.2712746** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 MSLD 0<=MSLD<=0 0.00 | 239507 | 1031477 | 1270984 | 98.75% | 0.98 | 18.84% |
| 3 1<=MSLD<=1 1.00 | 6996 | 9104 | 16100 | 1.25% | 2.27 | 43.45% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Pepticulcer** **disease** **Chi-Square=** **42.971217676** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 PUD 0<=PUD<=0 0.00 | 240262 | 1016551 | 1256813 | 97.65% | 1.00 | 19.12% |
| 3 1<=PUD<=1 1.00 | 6241 | 24030 | 30271 | 2.35% | 1.08 | 20.62% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Peripheral** **vascular** **disease** **Chi-Square=** **2906.7715286** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 PVD 0<=PVD<=0 0.00 205148 908878 | | | 1114026 | 86.55% | 0.96 | 18.42% |

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| --- |
| 229075 |
| 360503 |
| 290144 |
| 191967 |
| 215395 |
| 1287084 |

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| --- |
| 229075 |
| 503395 |
| 283415 |
| 271199 |
| 1287084 |

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| --- | --- |
| Index  Deceased Response  Decile Rate  from Mean divided by Percent  Low to Value Responders Non-Responders Percent Overall with High Variable Similar Deceased Levels in Level Deceased Deceased Total Coverage 19.1521% Deceased | |
| 3 1<=PVD<=1 1.00 41355 131703 173058 13.45% 1.25  *246503 1040581* 1287084 | 23.90% |
|  |
| **Renal** **disease** **Chi-Square=** **11303.710578** **P-Value=** **0.00000**  1 REND 0<=REND<=0 0.00 169040 818325 987365 76.71% 0.89  3 1<=REND<=1 1.00 77463 222256 299719 23.29% 1.35  *246503 1040581* 1287084  **Rheumatic** **disease** **Chi-Square=** **413.48528334** **P-Value=** **0.00000**  1 RHEUMD 1<=RHEUMD<=1 1.00 8806 46811 55617 4.32% 0.83  3 0<=RHEUMD<=0 0.00 237697 993770 1231467 95.68% 1.01  *246503 1040581* 1287084  **SCORE** **Chi-Square=** **60136.529988** **P-Value=** **0.00000**  1 SCORE 0<=SCORE<=0 0.00 10584 218491 17.80% 0.24  3 1<=SCORE<=1 1.00 59854 300649 28.01% 0.87  4 2<=SCORE<=2 2.00 59133 231011 22.54% 1.06  5 3<=SCORE<=3 3.00 48132 143835 14.91% 1.31  6 4<=SCORE<=11 4.72 68800 146595 16.74% 1.67  *246503 1040581*  **WINDEX** **Chi-Square=** **86987.856114** **P-Value=** **0.00000**  1 WINDEX 1<=WINDEX<=1 1.00 10584 218491 17.80% 0.24  3 2<=WINDEX<=2 2.00 76924 426471 39.11% 0.80  4 3<=WINDEX<=3 3.00 61355 222060 22.02% 1.13  5 4<=WINDEX<=4 4.00 97640 173559 21.07% 1.88  *246503 1040581*  **WSCORE** **Chi-Square=** **79661.250203** **P-Value=** **0.00000**  1 WSCORE 0<=WSCORE<=0 0.00 10584 218491 229075 17.80% 0.24 | 17.12% |
| 25.85% |
| 15.83% |
| 19.30% |
| 4.62% |
| 16.60% |
| 20.38% |
| 25.07% |
| 31.94% |
| 4.62% |
| 15.28% |
| 21.65% |
| 36.00% |
| 4.62% |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased  Decile from Low to High | Variable | Similar Deceased Levels | in | Mean Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent  with Deceased |
| 3 | 1<=WSCORE<=1 | | 1.00 | | 36759 | 236875 | 273634 | 21.26% | 0.70 | 13.43% |
| 4 | 2<=WSCORE<=2 | | 2.00 | | 40165 | 189596 | 229761 | 17.85% | 0.91 | 17.48% |
| 5 | 3<=WSCORE<=3 | | 3.00 | | 33600 | 129717 | 163317 | 12.69% | 1.07 | 20.57% |
| 6 | 4<=WSCORE<=22 | | 5.79 | | 125395 | 265902 | 391297 | 30.40% | 1.67 | 32.05% |
|  |  | |  | | *246503* | *1040581* | 1287084 |  |  |  |

Diagnostics on 1.5% Sample - PDF Size issue

|  |  |
| --- | --- |
| Model | Information |
| Data Set | REG.REG\_BUILDSAVALL |
| Response Variable | DIE |
| Number of Response Levels | 2 |
| Model | binary logit |
| Optimization Technique | Fisher's scoring |

Number of Observations Read

Number of Observations Used

19282

19282

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ordered  Value | DIE | Response | Profile | Total Frequency |
| 1 | 1 | 3655 | | |
| 2 | 0 | 15627 | | |

**Probability** **modeled** **is** **DIE=1.**

Convergence criterion (GCONV=1E-8) satisfied.

Model Convergence Status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Criterion | Model | Fit | Statistics  Intercept Only | Intercept | and | Covariates |
| AIC | 18727.795 | | | 15911.828 | | |
| SC | 18735.662 | | | 15966.896 | | |
| -2 Log L | 18725.795 | | | 15897.828 | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test | Testing Global Null Hypothesis: BETA=0  Chi-Square | DF | Pr | > ChiSq |
| Likelihood Ratio | 2827.9676 | 6 | <.0001 | |
| Score | 3081.3593 | 6 | <.0001 | |
| Wald | 2376.9113 | 6 | <.0001 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | DF | Analysis of Maximum Likelihood Estimates  Standard  Estimate Error | | Wald Chi-Square | Pr | > ChiSq |
| INTERCEPT | 1 | -7.5450 | 0.3949 | 365.1171 | <.0001 | |
| \_WINDEX | 1 | 0.5377 | 0.0469 | 131.4075 | <.0001 | |
| \_CANCALL | 1 | 0.5890 | 0.0226 | 676.3435 | <.0001 | |
| \_AGEBIN | 1 | 0.0697 | 0.00455 | 233.9602 | <.0001 | |
| \_DEMENTIA | 1 | 0.8011 | 0.0483 | 275.0527 | <.0001 | |
| \_AGE\_CHF | 1 | 0.5670 | 0.0562 | 101.9482 | <.0001 | |
| \_SEX | 1 | 1.8292 | 0.3748 | 23.8209 | <.0001 | |

|  |  |  |  |
| --- | --- | --- | --- |
| Effect | Odds Ratio Estimates  Point Estimate | 95% Wald Confidence Limits | |
| \_WINDEX | 1.712 | 1.562 | 1.877 |
| \_CANCALL | 1.802 | 1.724 | 1.884 |
| \_AGEBIN | 1.072 | 1.063 | 1.082 |
| \_DEMENTIA | 2.228 | 2.027 | 2.449 |
| \_AGE\_CHF | 1.763 | 1.579 | 1.968 |
| \_SEX | 6.229 | 2.988 | 12.984 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Group | Total | Partition for the Hosmer and Lemeshow Test DIE = 1  Observed Expected | | DIE  Observed | = | 0 | Expected |
| 1 | 2138 | 51 | 106.50 | 2087 | 2031.50 | | |
| 2 | 1490 | 73 | 96.36 | 1417 | 1393.64 | | |
| 3 | 1798 | 88 | 136.14 | 1710 | 1661.86 | | |
| 4 | 1673 | 140 | 151.48 | 1533 | 1521.52 | | |
| 5 | 1920 | 231 | 205.52 | 1689 | 1714.48 | | |
| 6 | 1972 | 272 | 261.11 | 1700 | 1710.89 | | |
| 7 | 1802 | 325 | 309.68 | 1477 | 1492.32 | | |
| 8 | 1775 | 498 | 405.07 | 1277 | 1369.93 | | |
| 9 | 1939 | 661 | 557.35 | 1278 | 1381.65 | | |
| 10 | 2775 | 1316 | 1425.79 | 1459 | 1349.21 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Hosmer and Lemeshow Goodness-of-Fit Test  Chi-Square DF | | Pr | > ChiSq |
| 132.9097 | 8 | <.0001 | |

**ROC** **Curves** **for** **Comparisons**

1.00

0.75

0.50

0.25

0.00

0.00 0.25 0.50 0.75 1.00

**1** **-** **Specificity**

**ROC** **Curve** **(Area)**

Model (0.7753)

\_WINDEX (0.6753)

\_CANCALL (0.6129)

\_AGEBIN (0.6383)

\_DEMENTIA (0.5897)

\_AGE\_CHF (0.5902)

\_SEX (0.5201)

**Sensitivity**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ROC Model | Area | ROC Association Statistics Mann-Whitney  Standard 95% Wald Error Confidence Limits | |  | Somers' D  (Gini) | Gamma | Tau-a |
| Model | 0.7753 | 0.00412 | 0.7672 | 0.7834 | 0.5506 | 0.5556 | 0.1692 |
| \_WINDEX | 0.6753 | 0.00455 | 0.6664 | 0.6842 | 0.3506 | 0.4735 | 0.1077 |
| \_CANCALL | 0.6129 | 0.00405 | 0.6050 | 0.6208 | 0.2258 | 0.6333 | 0.0694 |
| \_AGEBIN | 0.6383 | 0.00492 | 0.6287 | 0.6480 | 0.2766 | 0.3675 | 0.0850 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ROC Model | Area | ROC Association Statistics Mann-Whitney  Standard 95% Wald Error Confidence Limits | |  | Somers' D  (Gini) | Gamma | Tau-a |
| \_DEMENTIA | 0.5897 | 0.00414 | 0.5816 | 0.5979 | 0.1795 | 0.4713 | 0.0552 |
| \_AGE\_CHF | 0.5902 | 0.00458 | 0.5812 | 0.5992 | 0.1804 | 0.3588 | 0.0554 |
| \_SEX | 0.5201 | 0.00458 | 0.5112 | 0.5291 | 0.0403 | 0.0813 | 0.0124 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | | Variable Desc | Chi-Square | Prob | > | Chi\_square |
| WINDEX |  | Weighted Charlson Index WINDEX | 86,988 | 0 | | |
| WINDEXFMT | | Bucketed Weighted Charlson Index WINDEXFMT | 86,988 | 0 | | |
| WSCORE | | Weighted Charlson Score WSCORE | 79,661 | 0 | | |
| AGE\_CANC | | Age & Cancer AGE\_CANC | 75,282 | 0 | | |
| CANC | | Any malignancy CANC | 74,655 | 0 | | |
| METACANC | | Metastatic solid tumour METACANC | 74,120 | 0 | | |
| SCORE | | Unweighted Charlson Score SCORE | 60,137 | 0 | | |
| INDEX | | Unweighted Charlson Index INDEX | 58,791 | 0 | | |
| INDEXFMT | | Bucketed Unweighted Charlson Index INDEXFMT | 58,791 | 0 | | |
| DEMENTIA | | Dementia DEMENTIA | 47,514 | 0 | | |
| AGE | | AGE | 42,077 | 0 | | |
| AGE\_CHF | | Age & Congestive heart failure AGE\_CHF | 37,597 | 0 | | |
| CHF | | Congestive heart failure CHF | 24,292 | 0 | | |
| DEMENTIA\_CHF | | Dementia Congestive heart failure DEMENTIA\_CHF | 24,157 | 0 | | |
| AGE\_REND | | Age & Renal disease AGE\_REND | 21,221 | 0 | | |
| CANC\_CHF | | Cancer & Congestive heart failure CANC\_CHF | 19,077 | 0 | | |
| DEMENTIA\_REND | | Dementia Renal disease DEMENTIA\_REND | 17,750 | 0 | | |
| CANC\_REND | | Cancer & Renal disease CANC\_REND | 17,219 | 0 | | |
| CHF\_REND | | Congestive heart failure & Renal disease CHF\_REND | 17,189 | 0 | | |
| METACANC\_REND | | Metastatic Cancer Renal disease METACANC\_REND | 15,182 | 0 | | |
| METACANC\_CHF | | Metastatic Cancer Congestive heart failure METACANC\_CHF | 14,756 | 0 | | |
| DEMENTIA\_CANC | | Dementia Cancer DEMENTIA\_CANC | 13,979 | 0 | | |
| REND | | Renal disease REND | 11,304 | 0 | | |
| CEVD | | Cerebrovascular disease CEVD | 8,330 | 0 | | |
| METACANC\_DEMENTIA | | Metastatic Cancer Dementia METACANC\_DEMENTIA | 8,017 | 0 | | |
| MSLD | | Moderate or severe liver disease MSLD | 6,218 | 0 | | |
| AMI\_CANC | | AMI & Cancer AMI\_CANC | 6,007 | 0 | | |

Patients with metastatic cancer and dementia are 3.5 times more likely to die within a year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Categories | Deceased Victims | Non Deceased | Total | Index | Death Percent Response |
|  |  |  |  |  |  |  |
| METACANC\_DEMENTIA | 1<=METACANC\_DEMENTIA<=1 | 3577 | 1728 | 5305 | 3.521 | 67.43% |
| METACANC\_CHF | 1<=METACANC\_CHF<=1 | 7133 | 3950 | 11083 | 3.360 | 64.36% |
| METACANC\_REND | 1<=METACANC\_REND<=1 | 7655 | 4517 | 12172 | 3.284 | 62.89% |
| METACANC | 1<=METACANC<=1 | 36920 | 22590 | 59510 | 3.239 | 62.04% |
| METACANC\_AGE | 3<=METACANC\_AGE<=106 | 36920 | 22590 | 59510 | 3.239 | 62.04% |
| DEMENTIA\_CANC | 1<=DEMENTIA\_CANC<=1 | 10645 | 10172 | 20817 | 2.670 | 51.14% |
| CANC\_CHF | 1<=CANC\_CHF<=1 | 17397 | 19627 | 37024 | 2.453 | 46.99% |
| AGE\_CANC | 68<=AGE\_CANC<=108 | 59369 | 71657 | 131026 | 2.366 | 45.31% |
| CANC\_REND | 1<=CANC\_REND<=1 | 17179 | 20775 | 37954 | 2.363 | 45.26% |
| CANC | 1<=CANC<=1 | 71509 | 90569 | 162078 | 2.304 | 44.12% |
| MSLD | 1<=MSLD<=1 | 6996 | 9104 | 16100 | 2.269 | 43.45% |
| AMI\_CANC | 1<=AMI\_CANC<=1 | 7055 | 9453 | 16508 | 2.231 | 42.74% |
| DEMENTIA\_CHF | 1<=DEMENTIA\_CHF<=1 | 30072 | 43071 | 73143 | 2.147 | 41.11% |
| AGE\_CANC | 3<=AGE\_CANC<=67 | 12140 | 18912 | 31052 | 2.041 | 39.10% |
| DEMENTIA\_REND | 1<=DEMENTIA\_REND<=1 | 25688 | 40064 | 65752 | 2.040 | 39.07% |
| AGE\_CHF | 84<=AGE\_CHF<=113 | 47228 | 77697 | 124925 | 1.974 | 37.81% |
| WINDEX | 4<=WINDEX<=4 | 97640 | 173559 | 271199 | 1.880 | 36.00% |
| WINDEXFMT | >=5 (97640, 271199, 36.0%) | 97640 | 173559 | 271199 | 1.880 | 36.00% |
| DEMENTIA | 1<=DEMENTIA<=1 | 84017 | 156583 | 240600 | 1.823 | 34.92% |
| INDEX | 4<=INDEX<=4 | 34815 | 65084 | 99899 | 1.820 | 34.85% |
| INDEXFMT | >=5 (34815, 99899, 34.9%) | 34815 | 65084 | 99899 | 1.820 | 34.85% |
| AGE\_REND | 81<=AGE\_REND<=113 | 43380 | 85401 | 128781 | 1.759 | 33.69% |
| WSCORE | 4<=WSCORE<=22 | 125395 | 265902 | 391297 | 1.673 | 32.05% |
| SCORE | 4<=SCORE<=11 | 68800 | 146595 | 215395 | 1.668 | 31.94% |
| CHF\_REND | 1<=CHF\_REND<=1 | 47484 | 102417 | 149901 | 1.654 | 31.68% |

Chi Square and Index Analysis of Character Variables

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Response Decile from Low to High | Variable |  | Similar Deceased Levels | Responders Deceased Victims | Non-Responders  All Others | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent Deceased |
| **Bucketed** **Unweighted** **Charlson** **Index** **INDEXFMT** | | | | | | | | | |
| 1 | INDEXFMT | 0 | (10584, 229075, 4.6%) | 10584 | 218491 | 229075 | 17.80% | 0.24 | 4.62% |
| 2 |  | 1-2 | (118987, 650647, 18.3%) | 118987 | 531660 | 650647 | 50.55% | 0.95 | 18.29% |
| 3 |  | 3-4 | (82117, 307463, 26.7%) | 82117 | 225346 | 307463 | 23.89% | 1.39 | 26.71% |
| 4 |  | >=5 | (34815, 99899, 34.9%) | 34815 | 65084 | 99899 | 7.76% | 1.82 | 34.85% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **RACE\_CD** | | | | | | | | | |
| 1 | RACE\_CD |  | 0 (899, 9437, 9.5%) | 899 | 8538 | 9437 | 0.73% | 0.50 | 9.53% |
| 2 |  | 2 | (23308, 144312, 16.2%)  6 (1229, 7851, 15.7%) | 24537 | 127626 | 152163 | 11.82% | 0.84 | 16.13% |
| 3 |  |  | 3 (1300, 7694, 16.9%) | 20143 | 96249 | 116392 | 9.04% | 0.90 | 17.31% |
|  |  |  | 4 (4371, 24982, 17.5%) |  |  |  |  |  |  |
|  |  | 5 | (14472, 83716, 17.3%) |  |  |  |  |  |  |
| 4 |  | 1 | (200924, 1009092, 19.9%) | 200924 | 808168 | 1009092 | 78.40% | 1.04 | 19.91% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **SEX** | | | | | | | | | |
| 1 | SEX | F | (132551, 725329, 18.3%) | 132551 | 592778 | 725329 | 56.35% | 0.95 | 18.27% |
| 2 |  | M | (113952, 561755, 20.3%) | 113952 | 447803 | 561755 | 43.65% | 1.06 | 20.28% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **STATE** | | | | | | | | | |

|  |  |  |
| --- | --- | --- |
|  | | |
| 1 | STATE | (49, 312, 15.7%) |
|  |  | AK (289, 1899, 15.2%) |
|  |  | AL (4801, 26814, 17.9%) |
|  |  | DC (431, 2434, 17.7%) |
|  |  | DE (896, 5246, 17.1%) |
|  |  | IL (9999, 57550, 17.4%) |
|  |  | LA (3867, 21819, 17.7%) |
|  |  | MA (5324, 32608, 16.3%) |
|  |  | MD (4465, 25990, 17.2%) |
|  |  | MS (3084, 18290, 16.9%) |
|  |  | ND (548, 3361, 16.3%) |
|  |  | NH (1221, 7048, 17.3%) |
|  |  | OK (3668, 21365, 17.2%) |
|  |  | SD (733, 4298, 17.1%) |
|  |  | TX (17028, 96629, 17.6%) |
|  |  | VA (6200, 34876, 17.8%) |
|  |  | VT (593, 3351, 17.7%) |
|  |  | WY (432, 2579, 16.8%) |
| 2 |  | AR (3019, 15801, 19.1%) |
|  |  | CT (2929, 15678, 18.7%) |
|  |  | FL (18710, 97653, 19.2%) |
|  |  | IN (5813, 30001, 19.4%) |
|  |  | KS (2598, 14024, 18.5%) |
|  |  | KY (4253, 22284, 19.1%) |
|  |  | ME (1356, 6967, 19.5%) |
|  |  | MI (8855, 48204, 18.4%) |
|  |  | MN (4142, 22731, 18.2%) |
|  |  | MO (5357, 27563, 19.4%) |
|  |  | MT (866, 4453, 19.4%) |
|  |  | NE (1624, 8834, 18.4%) |
|  |  | NJ (7096, 38504, 18.4%) |
|  |  | NY (12249, 65475, 18.7%) |
|  |  | SC (4262, 23089, 18.5%) |
|  |  | VI (64, 337, 19.0%) |
|  |  | WV (1955, 10585, 18.5%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Responders Deceased Victims | Non-Responders  All Others | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent Deceased |
| 63628 | 302841 | 366469 | 28.47% | 0.91 | 17.36% |
| 85148 | 367035 | 452183 | 35.13% | 0.98 | 18.83% |

3

CA (21228, 105608, 20.1%)

CO (3142, 15318, 20.5%)

GA IA ID NC NM NV

RI TN UT WA

(6935, 34427, 20.1%)

(3013, 14968, 20.1%)

(1219, 5956, 20.5%)

(8250, 41146, 20.1%)

(1542, 7370, 20.9%)

(2011, 10109, 19.9%)

(919, 4620, 19.9%)

(5753, 28583, 20.1%)

(1562, 7660, 20.4%)

(4820, 23262, 20.7%)

4

AS (5, 22, 22.7%)

AZ OH PA

WI

(4945, 21840, 22.6%)

(10852, 50728, 21.4%)

(11643, 54760, 21.3%)

(4767, 22050, 21.6%)

5

GU (50, 207, 24.2%)

HI (789, 3014, 26.2%)

OR (2973, 12323, 24.1%)

PR (1309, 4461, 29.3%)

**Bucketed** **Weighted** **Charlson** **Index** **WINDEXFMT**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | WINDEXFMT | 0 | (10584, 229075, 4.6%) |
| 2 |  | 1-2 | (76924, 503395, 15.3%) |
| 3 |  | 3-4 | (61355, 283415, 21.6%) |
| 4 |  | >=5 | (97640, 271199, 36.0%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Responders Deceased Victims | Non-Responders  All Others | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent Deceased |
| 60394 | 238633 | 299027 | 23.23% | 1.05 | 20.20% |
| 32212 | 117188 | 149400 | 11.61% | 1.13 | 21.56% |
| 5121 | 14884 | 20005 | 1.55% | 1.34 | 25.60% |
| *246503* | *1040581* | 1287084 |  |  |  |
| 10584 | 218491 | 229075 | 17.80% | 0.24 | 4.62% |
| 76924 | 426471 | 503395 | 39.11% | 0.80 | 15.28% |
| 61355 | 222060 | 283415 | 22.02% | 1.13 | 21.65% |
| 97640 | 173559 | 271199 | 21.07% | 1.88 | 36.00% |
| *246503* | *1040581* | 1287084 |  |  |  |

Chi Square and Index Analysis of Numeric Variables

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased Decile from Low to High | Variable | Similar Deceased Levels | Mean  in | Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent with Deceased |
| **AGE** **Chi-Square=** **42077.451443** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE | 0<=AGE<=58 | 47.71 | | 9798 | 123984 | 133782 | 10.39% | 0.38 | 7.32% |
| 3 |  | 59<=AGE<=69 | 65.63 | | 33460 | 234590 | 268050 | 20.83% | 0.65 | 12.48% |
| 4 |  | 70<=AGE<=72 | 70.97 | | 15806 | 99532 | 115338 | 8.96% | 0.72 | 13.70% |
| 5 |  | 73<=AGE<=75 | 73.98 | | 18508 | 99189 | 117697 | 9.14% | 0.82 | 15.73% |
| 6 |  | 76<=AGE<=115 | 85.00 | | 168931 | 483286 | 652217 | 50.67% | 1.35 | 25.90% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Age** **&** **Cancer** **Chi-Square=** **75281.628032** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE\_CANC | 0<=AGE\_CANC<=0 | 0.00 | | 174994 | 950012 | 1125006 | 87.41% | 0.81 | 15.55% |
| 3 |  | 3<=AGE\_CANC<=67 | 61.26 | | 12140 | 18912 | 31052 | 2.41% | 2.04 | 39.10% |
| 4 |  | 68<=AGE\_CANC<=108 | 79.44 | | 59369 | 71657 | 131026 | 10.18% | 2.37 | 45.31% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Age** **&** **Congestive** **heart** **failure** **Chi-Square=** **37596.788079** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE\_CHF | 0<=AGE\_CHF<=0 | 0.00 | | 151443 | 798966 | 950409 | 73.84% | 0.83 | 15.93% |
| 3 |  | 7<=AGE\_CHF<=69 | 61.44 | | 13872 | 62731 | 76603 | 5.95% | 0.95 | 18.11% |
| 4 |  | 70<=AGE\_CHF<=83 | 76.83 | | 33960 | 101187 | 135147 | 10.50% | 1.31 | 25.13% |
| 5 |  | 84<=AGE\_CHF<=113 | 89.65 | | 47228 | 77697 | 124925 | 9.71% | 1.97 | 37.81% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Age** **&** **Renal** **disease** **Chi-Square=** **21220.564265** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | AGE\_REND | 1<=AGE\_REND<=64 | 54.00 | | 6455 | 36883 | 43338 | 3.37% | 0.78 | 14.89% |
| 3 |  | 0<=AGE\_REND<=0 | 0.00 | | 169041 | 818326 | 987367 | 76.71% | 0.89 | 17.12% |
| 4 |  | 65<=AGE\_REND<=80 | 72.99 | | 27627 | 99971 | 127598 | 9.91% | 1.13 | 21.65% |
| 5 |  | 81<=AGE\_REND<=113 | 87.80 | | 43380 | 85401 | 128781 | 10.01% | 1.76 | 33.69% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **AIDS/HIV** **Chi-Square=** **27.213632565** **P-Value=** **0.00000** | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased |  |  |  |  |  |  |  | Index Response  Rate |  |
| Decile from  Low to |  |  | Mean Value | Responders | Non-Responders |  | Percent | divided by Overall | Percent with |
| High | Variable | Similar Deceased Levels | in Level | Deceased | Deceased | Total | Coverage | 19.1521% | Deceased |
| 1 | AIDS | 1<=AIDS<=1 | 1.00 | 610 | 3239 | 3849 | 0.30% | 0.83 | 15.85% |
| 3 |  | 0<=AIDS<=0 | 0.00 | 245893 | 1037342 | 1283235 | 99.70% | 1.00 | 19.16% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Myocardial** **infarction** **Chi-Square=** **2017.7517345** **P-Value=** **0.00000** | | | | | | | | |  |
| 1 | AMI | 0<=AMI<=0 | 0.00 | 211881 | 927774 | 1139655 | 88.55% | 0.97 | 18.59% |
| 3 |  | 1<=AMI<=1 | 1.00 | 34622 | 112807 | 147429 | 11.45% | 1.23 | 23.48% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **AMI** **&** **Cancer** **Chi-Square=** **6007.3215438** **P-Value=** **0.00000** | | | | | |  |  | |  |
| 1 | AMI\_CANC | 0<=AMI\_CANC<=0 | 0.00 | 239448 | 1031128 | 1270576 | 98.72% | 0.98 | 18.85% |
| 3 |  | 1<=AMI\_CANC<=1 | 1.00 | 7055 | 9453 | 16508 | 1.28% | 2.23 | 42.74% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **AMI** **&** **Congestive** **heart** **failure** **Chi-Square=** **5694.8040661** **P-Value=** **0.00000** | | | | | | | | |  |
| 1 | AMI\_CHF | 0<=AMI\_CHF<=0 | 0.00 | 222486 | 982244 | 1204730 | 93.60% | 0.96 | 18.47% |
| 3 |  | 1<=AMI\_CHF<=1 | 1.00 | 24017 | 58337 | 82354 | 6.40% | 1.52 | 29.16% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **AMI** **&** **Renal** **disease** **Chi-Square=** **3042.9552547** **P-Value=** **0.00000** | | | | | | | | | |
| 1 | AMI\_REND | 19<=AMI\_REND<=64 | 56.43 | 2948 | 16590 |  | 1.52% | 0.79 | 15.09% |
| 3 |  | 0<=AMI\_REND<=0 | 0.00 | 211881 | 927774 |  | 88.55% | 0.97 | 18.59% |
| 4 |  | 65<=AMI\_REND<=113 | 78.74 | 31674 | 96217 |  | 9.94% | 1.29 | 24.77% |
|  |  |  |  | *246503* | *1040581* |  |  |  |  |
| **Any** **malignancy** **Chi-Square=** **74655.446792** **P-Value=** **0.00000** | | | | | |  |  | |  |
| 1 | CANC | 0<=CANC<=0 | 0.00 | 174994 | 950012 | 1125006 | 87.41% | 0.81 | 15.55% |
| 3 |  | 1<=CANC<=1 | 1.00 | 71509 | 90569 | 162078 | 12.59% | 2.30 | 44.12% |
|  |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |

|  |
| --- |
| 19538 |
| 1139655 |
| 127891 |
| 1287084 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased Decile from  Low to High | Variable | Similar Deceased Levels | Mean  in | Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent with Deceased |
| **Cancer** **&** **Congestive** **heart** **failure** **Chi-Square=** **19076.592618** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CANC\_CHF | 0<=CANC\_CHF<=0 | 0.00 | | 229106 | 1020954 | 1250060 | 97.12% | 0.96 | 18.33% |
| 3 |  | 1<=CANC\_CHF<=1 | 1.00 | | 17397 | 19627 | 37024 | 2.88% | 2.45 | 46.99% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Cancer** **&** **Renal** **disease** **Chi-Square=** **17218.9763** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CANC\_REND | 0<=CANC\_REND<=0 | 0.00 | | 229324 | 1019806 | 1249130 | 97.05% | 0.96 | 18.36% |
| 3 |  | 1<=CANC\_REND<=1 | 1.00 | | 17179 | 20775 | 37954 | 2.95% | 2.36 | 45.26% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Cerebrovascular** **disease** **Chi-Square=** **8330.2733674** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CEVD | 0<=CEVD<=0 | 0.00 | | 197370 | 907361 | 1104731 | 85.83% | 0.93 | 17.87% |
| 3 |  | 1<=CEVD<=1 | 1.00 | | 49133 | 133220 | 182353 | 14.17% | 1.41 | 26.94% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Congestive** **heart** **failure** **Chi-Square=** **24292.445951** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CHF | 0<=CHF<=0 | 0.00 | | 151443 | 798966 | 950409 | 73.84% | 0.83 | 15.93% |
| 3 |  | 1<=CHF<=1 | 1.00 | | 95060 | 241615 | 336675 | 26.16% | 1.47 | 28.23% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Congestive** **heart** **failure** **&** **Renal** **disease** **Chi-Square=** **17188.664128** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | CHF\_REND | 0<=CHF\_REND<=0 | 0.00 | | 199019 | 938164 | 1137183 | 88.35% | 0.91 | 17.50% |
| 3 |  | 1<=CHF\_REND<=1 | 1.00 | | 47484 | 102417 | 149901 | 11.65% | 1.65 | 31.68% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Chronic** **pulmonary** **disease** **Chi-Square=** **1902.1344454** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | COPD | 0<=COPD<=0 | 0.00 | | 165440 | 744649 | 910089 | 70.71% | 0.95 | 18.18% |
| 3 |  | 1<=COPD<=1 | 1.00 | | 81063 | 295932 | 376995 | 29.29% | 1.12 | 21.50% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased  Decile from Low to High | Variable | Similar Deceased Levels | in | Mean Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent  with Deceased |
| **Dementia** **Chi-Square=** **47514.268064** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA | 0<=DEMENTIA<=0 | 0.00 | | 162486 | 883998 | 1046484 | 81.31% | 0.81 | 15.53% |
| 3 |  | 1<=DEMENTIA<=1 | 1.00 | | 84017 | 156583 | 240600 | 18.69% | 1.82 | 34.92% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Dementia** **Cancer** **Chi-Square=** **13979.190555** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA\_CANC | 0<=DEMENTIA\_CANC<=0 | 0.00 | | 235858 | 1030409 | 1266267 | 98.38% | 0.97 | 18.63% |
| 3 |  | 1<=DEMENTIA\_CANC<=1 | 1.00 | | 10645 | 10172 | 20817 | 1.62% | 2.67 | 51.14% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Dementia** **Congestive** **heart** **failure** **Chi-Square=** **24156.764624** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA\_CHF | 0<=DEMENTIA\_CHF<=0 | 0.00 | | 216431 | 997510 | 1213941 | 94.32% | 0.93 | 17.83% |
| 3 |  | 1<=DEMENTIA\_CHF<=1 | 1.00 | | 30072 | 43071 | 73143 | 5.68% | 2.15 | 41.11% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Dementia** **Renal** **disease** **Chi-Square=** **17750.080831** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DEMENTIA\_REND | 0<=DEMENTIA\_REND<=0 | 0.00 | | 220815 | 1000517 | 1221332 | 94.89% | 0.94 | 18.08% |
| 3 |  | 1<=DEMENTIA\_REND<=1 | 1.00 | | 25688 | 40064 | 65752 | 5.11% | 2.04 | 39.07% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Diabetes** **without** **complication** **Chi-Square=** **388.27349036** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DIAB | 1<=DIAB<=1 | 1.00 | | 67673 | 306530 | 374203 | 29.07% | 0.94 | 18.08% |
| 3 |  | 0<=DIAB<=0 | 0.00 | | 178830 | 734051 | 912881 | 70.93% | 1.02 | 19.59% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |
| **Diabetes** **with** **chronic** **complication** **Chi-Square=** **268.5317337** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | DIABWC | 1<=DIABWC<=1 | 1.00 | | 27192 | 127198 | 154390 | 12.00% | 0.92 | 17.61% |
| 3 |  | 0<=DIABWC<=0 | 0.00 | | 219311 | 913383 | 1132694 | 88.00% | 1.01 | 19.36% |
|  |  |  |  | | *246503* | *1040581* | 1287084 |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased | |  |  |  |  |  |  |  | Index Response |  |
| Decile from | |  |  | Mean |  |  |  |  | Rate divided by | Percent |
| Low to | |  |  | Value | Responders | Non-Responders |  | Percent | Overall | with |
| High | | Variable | Similar Deceased Levels | in Level | Deceased | Deceased | Total | Coverage | 19.1521% | Deceased |
| **DIE** **Chi-Square=** **1287084** | | **P-Value=** **0.00000** |  |  |  |  |  |  |  |  |
| 1 | | DIE | 0<=DIE<=0 | 0.00 | 0 | 1040581 | 1040581 | 80.85% | 0.00 | 0.00% |
| 3 | |  | 1<=DIE<=1 | 1.00 | 246503 | 0 | 246503 | 19.15% | 5.22 | 100.00% |
|  | |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Hemiplegia** **or** **paraplegia** **Chi-Square=** **1190.2419489** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | | HP | 0<=HP<=0 | 0.00 | 235246 | 1007696 | 1242942 | 96.57% | 0.99 | 18.93% |
| 3 | |  | 1<=HP<=1 | 1.00 | 11257 | 32885 | 44142 | 3.43% | 1.33 | 25.50% |
|  | |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **INDEX** **Chi-Square=** **58790.891217** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | | INDEX | 1<=INDEX<=1 | 1.00 | 10584 | 218491 |  | 17.80% | 0.24 | 4.62% |
| 3 | |  | 2<=INDEX<=2 | 2.00 | 118987 | 531660 |  | 50.55% | 0.95 | 18.29% |
| 4 | |  | 3<=INDEX<=3 | 3.00 | 82117 | 225346 |  | 23.89% | 1.39 | 26.71% |
| 5 | |  | 4<=INDEX<=4 | 4.00 | 34815 | 65084 |  | 7.76% | 1.82 | 34.85% |
|  | |  |  |  | *246503* | *1040581* |  |  |  |  |
| **Metastatic** **solid** **tumour** **Chi-Square=** **74119.970335** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | | METACANC | 0<=METACANC<=0 | 0.00 | 209583 | 1017991 | 1227574 | 95.38% | 0.89 | 17.07% |
| 3 | |  | 1<=METACANC<=1 | 1.00 | 36920 | 22590 | 59510 | 4.62% | 3.24 | 62.04% |
|  | |  |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Metastatic** **AGE** **Chi-Square=** **74119.970335** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | METACANC\_AGE | | 0<=METACANC\_AGE<=0 | 0.00 | 209583 | 1017991 | 1227574 | 95.38% | 0.89 | 17.07% |
| 3 |  | | 3<=METACANC\_AGE<=106 | 74.48 | 36920 | 22590 | 59510 | 4.62% | 3.24 | 62.04% |
|  |  | |  |  | *246503* | *1040581* | 1287084 |  |  |  |
| **Metastatic** **Cancer** **Congestive** **heart** **failure** **Chi-Square=** **14755.543746** **P-Value=** **0.00000** | | | | | | | | | | |
| 1 | METACANC\_CHF | | 0<=METACANC\_CHF<=0 | 0.00 | 239370 | 1036631 | 1276001 | 99.14% | 0.98 | 18.76% |

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| 229075 |
| 650647 |
| 307463 |
| 99899 |
| 1287084 |

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| --- | --- | --- | --- | --- | --- | --- |
| Deceased  Decile  from Mean  Low to Value  High Variable Similar Deceased Levels in Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent  with Deceased |
| 3 1<=METACANC\_CHF<=1 1.00 | 7133 | 3950 | 11083 | 0.86% | 3.36 | 64.36% |
|  | *246503* | *1040581* | 1287084 |  | |  |
| **Metastatic** **Cancer** **Dementia** **Chi-Square=** **8017.4754335** **P-Value=** **0.00000** | | | | | | |
| 1 METACANC\_DEMENTIA 0<=METACANC\_DEMENTIA<=0 0.00 | 242926 | 1038853 | 1281779 | 99.59% | 0.99 | 18.95% |
| 3 1<=METACANC\_DEMENTIA<=1 1.00 | 3577 | 1728 | 5305 | 0.41% | 3.52 | 67.43% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Metastatic** **Cancer** **Renal** **disease** **Chi-Square=** **15181.891231** **P-Value=** **0.00000** | | | | | | |
| 1 METACANC\_REND 0<=METACANC\_REND<=0 0.00 | 238848 | 1036064 | 1274912 | 99.05% | 0.98 | 18.73% |
| 3 1<=METACANC\_REND<=1 1.00 | 7655 | 4517 | 12172 | 0.95% | 3.28 | 62.89% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Mild** **liver** **disease** **Chi-Square=** **1377.2453282** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 MLD 0<=MLD<=0 0.00 | 233655 | 1003111 | 1236766 | 96.09% | 0.99 | 18.89% |
| 3 1<=MLD<=1 1.00 | 12848 | 37470 | 50318 | 3.91% | 1.33 | 25.53% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Moderate** **or** **severe** **liver** **disease** **Chi-Square=** **6218.2712746** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 MSLD 0<=MSLD<=0 0.00 | 239507 | 1031477 | 1270984 | 98.75% | 0.98 | 18.84% |
| 3 1<=MSLD<=1 1.00 | 6996 | 9104 | 16100 | 1.25% | 2.27 | 43.45% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Pepticulcer** **disease** **Chi-Square=** **42.971217676** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 PUD 0<=PUD<=0 0.00 | 240262 | 1016551 | 1256813 | 97.65% | 1.00 | 19.12% |
| 3 1<=PUD<=1 1.00 | 6241 | 24030 | 30271 | 2.35% | 1.08 | 20.62% |
|  | *246503* | *1040581* | 1287084 |  |  |  |
| **Peripheral** **vascular** **disease** **Chi-Square=** **2906.7715286** **P-Value=** **0.00000** |  |  |  |  |  |  |
| 1 PVD 0<=PVD<=0 0.00 205148 908878 | | | 1114026 | 86.55% | 0.96 | 18.42% |

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| --- |
| 229075 |
| 360503 |
| 290144 |
| 191967 |
| 215395 |
| 1287084 |

|  |
| --- |
| 229075 |
| 503395 |
| 283415 |
| 271199 |
| 1287084 |

|  |  |
| --- | --- |
| Index  Deceased Response  Decile Rate  from Mean divided by Percent  Low to Value Responders Non-Responders Percent Overall with High Variable Similar Deceased Levels in Level Deceased Deceased Total Coverage 19.1521% Deceased | |
| 3 1<=PVD<=1 1.00 41355 131703 173058 13.45% 1.25  *246503 1040581* 1287084 | 23.90% |
|  |
| **Renal** **disease** **Chi-Square=** **11303.710578** **P-Value=** **0.00000**  1 REND 0<=REND<=0 0.00 169040 818325 987365 76.71% 0.89  3 1<=REND<=1 1.00 77463 222256 299719 23.29% 1.35  *246503 1040581* 1287084  **Rheumatic** **disease** **Chi-Square=** **413.48528334** **P-Value=** **0.00000**  1 RHEUMD 1<=RHEUMD<=1 1.00 8806 46811 55617 4.32% 0.83  3 0<=RHEUMD<=0 0.00 237697 993770 1231467 95.68% 1.01  *246503 1040581* 1287084  **SCORE** **Chi-Square=** **60136.529988** **P-Value=** **0.00000**  1 SCORE 0<=SCORE<=0 0.00 10584 218491 17.80% 0.24  3 1<=SCORE<=1 1.00 59854 300649 28.01% 0.87  4 2<=SCORE<=2 2.00 59133 231011 22.54% 1.06  5 3<=SCORE<=3 3.00 48132 143835 14.91% 1.31  6 4<=SCORE<=11 4.72 68800 146595 16.74% 1.67  *246503 1040581*  **WINDEX** **Chi-Square=** **86987.856114** **P-Value=** **0.00000**  1 WINDEX 1<=WINDEX<=1 1.00 10584 218491 17.80% 0.24  3 2<=WINDEX<=2 2.00 76924 426471 39.11% 0.80  4 3<=WINDEX<=3 3.00 61355 222060 22.02% 1.13  5 4<=WINDEX<=4 4.00 97640 173559 21.07% 1.88  *246503 1040581*  **WSCORE** **Chi-Square=** **79661.250203** **P-Value=** **0.00000**  1 WSCORE 0<=WSCORE<=0 0.00 10584 218491 229075 17.80% 0.24 | 17.12% |
| 25.85% |
| 15.83% |
| 19.30% |
| 4.62% |
| 16.60% |
| 20.38% |
| 25.07% |
| 31.94% |
| 4.62% |
| 15.28% |
| 21.65% |
| 36.00% |
| 4.62% |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Deceased  Decile from Low to High | Variable | Similar Deceased Levels | in | Mean Value Level | Responders Deceased | Non-Responders  Deceased | Total | Percent Coverage | Index Response  Rate divided by Overall 19.1521% | Percent  with Deceased |
| 3 | 1<=WSCORE<=1 | | 1.00 | | 36759 | 236875 | 273634 | 21.26% | 0.70 | 13.43% |
| 4 | 2<=WSCORE<=2 | | 2.00 | | 40165 | 189596 | 229761 | 17.85% | 0.91 | 17.48% |
| 5 | 3<=WSCORE<=3 | | 3.00 | | 33600 | 129717 | 163317 | 12.69% | 1.07 | 20.57% |
| 6 | 4<=WSCORE<=22 | | 5.79 | | 125395 | 265902 | 391297 | 30.40% | 1.67 | 32.05% |
|  |  | |  | | *246503* | *1040581* | 1287084 |  |  |  |

Diagnostics on 1.5% Sample - PDF Size issue

|  |  |
| --- | --- |
| Model | Information |
| Data Set | REG.REG\_BUILDSAVALL |
| Response Variable | DIE |
| Number of Response Levels | 2 |
| Model | binary logit |
| Optimization Technique | Fisher's scoring |

Number of Observations Read

Number of Observations Used

19282

19282

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ordered  Value | DIE | Response | Profile | Total Frequency |
| 1 | 1 | 3655 | | |
| 2 | 0 | 15627 | | |

**Probability** **modeled** **is** **DIE=1.**

Convergence criterion (GCONV=1E-8) satisfied.

Model Convergence Status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Criterion | Model | Fit | Statistics  Intercept Only | Intercept | and | Covariates |
| AIC | 18727.795 | | | 15911.828 | | |
| SC | 18735.662 | | | 15966.896 | | |
| -2 Log L | 18725.795 | | | 15897.828 | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test | Testing Global Null Hypothesis: BETA=0  Chi-Square | DF | Pr | > ChiSq |
| Likelihood Ratio | 2827.9676 | 6 | <.0001 | |
| Score | 3081.3593 | 6 | <.0001 | |
| Wald | 2376.9113 | 6 | <.0001 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | DF | Analysis of Maximum Likelihood Estimates  Standard  Estimate Error | | Wald Chi-Square | Pr | > ChiSq |
| INTERCEPT | 1 | -7.5450 | 0.3949 | 365.1171 | <.0001 | |
| \_WINDEX | 1 | 0.5377 | 0.0469 | 131.4075 | <.0001 | |
| \_CANCALL | 1 | 0.5890 | 0.0226 | 676.3435 | <.0001 | |
| \_AGEBIN | 1 | 0.0697 | 0.00455 | 233.9602 | <.0001 | |
| \_DEMENTIA | 1 | 0.8011 | 0.0483 | 275.0527 | <.0001 | |
| \_AGE\_CHF | 1 | 0.5670 | 0.0562 | 101.9482 | <.0001 | |
| \_SEX | 1 | 1.8292 | 0.3748 | 23.8209 | <.0001 | |

|  |  |  |  |
| --- | --- | --- | --- |
| Effect | Odds Ratio Estimates  Point Estimate | 95% Wald Confidence Limits | |
| \_WINDEX | 1.712 | 1.562 | 1.877 |
| \_CANCALL | 1.802 | 1.724 | 1.884 |
| \_AGEBIN | 1.072 | 1.063 | 1.082 |
| \_DEMENTIA | 2.228 | 2.027 | 2.449 |
| \_AGE\_CHF | 1.763 | 1.579 | 1.968 |
| \_SEX | 6.229 | 2.988 | 12.984 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Group | Total | Partition for the Hosmer and Lemeshow Test DIE = 1  Observed Expected | | DIE  Observed | = | 0 | Expected |
| 1 | 2138 | 51 | 106.50 | 2087 | 2031.50 | | |
| 2 | 1490 | 73 | 96.36 | 1417 | 1393.64 | | |
| 3 | 1798 | 88 | 136.14 | 1710 | 1661.86 | | |
| 4 | 1673 | 140 | 151.48 | 1533 | 1521.52 | | |
| 5 | 1920 | 231 | 205.52 | 1689 | 1714.48 | | |
| 6 | 1972 | 272 | 261.11 | 1700 | 1710.89 | | |
| 7 | 1802 | 325 | 309.68 | 1477 | 1492.32 | | |
| 8 | 1775 | 498 | 405.07 | 1277 | 1369.93 | | |
| 9 | 1939 | 661 | 557.35 | 1278 | 1381.65 | | |
| 10 | 2775 | 1316 | 1425.79 | 1459 | 1349.21 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Hosmer and Lemeshow Goodness-of-Fit Test  Chi-Square DF | | Pr | > ChiSq |
| 132.9097 | 8 | <.0001 | |

**ROC** **Curves** **for** **Comparisons**

1.00

0.75

0.50

0.25

0.00

0.00 0.25 0.50 0.75 1.00

**1** **-** **Specificity**

**ROC** **Curve** **(Area)**

Model (0.7753)

\_WINDEX (0.6753)

\_CANCALL (0.6129)

\_AGEBIN (0.6383)

\_DEMENTIA (0.5897)

\_AGE\_CHF (0.5902)

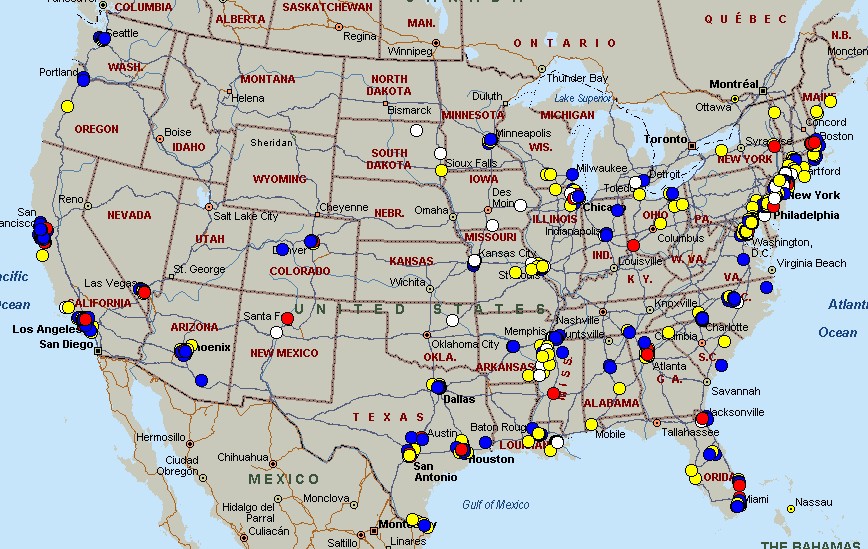
\_SEX (0.5201)

**Sensitivity**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ROC Model | Area | ROC Association Statistics Mann-Whitney  Standard 95% Wald Error Confidence Limits | |  | Somers' D  (Gini) | Gamma | Tau-a |
| Model | 0.7753 | 0.00412 | 0.7672 | 0.7834 | 0.5506 | 0.5556 | 0.1692 |
| \_WINDEX | 0.6753 | 0.00455 | 0.6664 | 0.6842 | 0.3506 | 0.4735 | 0.1077 |
| \_CANCALL | 0.6129 | 0.00405 | 0.6050 | 0.6208 | 0.2258 | 0.6333 | 0.0694 |
| \_AGEBIN | 0.6383 | 0.00492 | 0.6287 | 0.6480 | 0.2766 | 0.3675 | 0.0850 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ROC Model | Area | ROC Association Statistics Mann-Whitney  Standard 95% Wald Error Confidence Limits | |  | Somers' D  (Gini) | Gamma | Tau-a |
| \_DEMENTIA | 0.5897 | 0.00414 | 0.5816 | 0.5979 | 0.1795 | 0.4713 | 0.0552 |
| \_AGE\_CHF | 0.5902 | 0.00458 | 0.5812 | 0.5992 | 0.1804 | 0.3588 | 0.0554 |
| \_SEX | 0.5201 | 0.00458 | 0.5112 | 0.5291 | 0.0403 | 0.0813 | 0.0124 |

# Decile 10 Geographic Distribution



Decile 10 by Region

|  |  |  |  |
| --- | --- | --- | --- |
| **TFA Regions** | **Total** | **Decile 10** | **New in Decile 10** |
| **MAR** | 88 | 13 | 3 |
| **ALB** | 30 | 12 | 4 |
| **ALL** | 2 | 1 | 0 |
| **ATL** | 453 | 67 | 21 |
| **BAL** | 402 | 65 | 29 |
| **BAY** | 888 | 183 | 47 |
| **BOS** | 111 | 20 | 1 |
| **CHA** | 282 | 60 | 7 |
| **CHI** | 1448 | 150 | 41 |
| **COL** | 111 | 18 | 1 |
| **CT** | 366 | 164 | 72 |
| **DAL** | 122 | 30 | 10 |
| **DC** | 528 | 94 | 32 |
| **DEL** | 770 | 53 | 39 |
| **DET** | 2 |  | 0 |
| **DO** | 7015 | 2 | 2 |
| **ENC** | 319 | 17 | 11 |
| **GNO** | 512 | 89 | 34 |
| **HI** | 319 | 23 | 13 |
| **HOU** | 965 | 257 | 120 |
| **IND** | 40 | 4 | 0 |
| **JAC** | 40 | 18 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **TFA Regions** | **Total** | **Decile 10** | **New in Decile 10** |
| **KCM** | 71 | 17 | 3 |
| **LOS** | 697 | 149 | 60 |
| **LV** | 138 | 9 | 2 |
| **MEM** | 194 | 46 | 1 |
| **MIA** | 358 | 27 | 15 |
| **MKE** | 13 | 1 | 0 |
| **NA** | 4801 | 188 | 128 |
| **NC** | 5 |  | 0 |
| **NJ** | 203 | 28 | 14 |
| **NM** | 132 | 1 | 0 |
| **NSH** | 4 |  | 0 |
| **NY** | 1611 | 292 | 86 |
| **PHI** | 469 | 73 | 11 |
| **PHX** | 633 | 130 | 36 |
| **RGV** | 309 | 13 | 9 |
| **RHI** | 18 | 12 | 0 |
| **SAN** | 57 | 40 | 17 |
| **SD** | 355 | 4 | 3 |
| **SLA** | 292 | 34 | 14 |
| **STL** | 392 | 113 | 15 |
| **TUL** | 3 | 1 | 0 |
| **TWC** | 168 | 1 | 0 |
| **Grand Total** | 25736 | 2519 | 902 |

24

# Agenda

* Overview
* Model
* Segmentation
* **Insights & Recommendations**

# Insights

###### Teach For America has been successful at raising large gifts:

* + 99% of total giving to Teach For America has come from 12% of the donors in the active file. These represent donors of gifts of $5,000 and above.

###### The three key Teach For America constituencies have unique characteristics:

* + „Other‟ are neither alumni or parents, and are the most supportive contributing 99% of all giving. 99%

are donors.

* + Parents represent 13% of donors capable of giving at the $100K and above levels, but only 16% are donors.
  + 74% of Alumni are contributors, but only 11% are capable of giving at the $100K level or above.

###### WealthEngine has developed a model for TFA that predicts likelihood of giving at the $5K and above levels:

* + The model exhibits strong performance including lift and prediction accuracy
  + The variables used in the model are intuitive and demonstrate correct directionality

###### The predictive model and subsequent analysis has uncovered substantial untapped fundraising potential within the TFA active file:

* + Over 2,519 constituents have a high likelihood to give a gift of $5,000 or above.
  + Of these, 1,585 (63%) have a giving capacity of over $100K.\*
  + 902 are newly identified potential leadership, major or principal donors.

###### Geographic Analysis

* + Results of the analysis have been viewed through a geographic lens.

*\* Capacity measured over 5 years*

# Recommendations

###### Decile 10 members and those who have given at the $5K level should be the initial fundraising focus

* + 2,519 constituents in decile 10 + 621 donors in deciles 1 through 9

###### Divide the above group into new and previously identified and rank order by capacity

* + 2,238 who have given at the $5K level

**-** 902 are newly identified

###### For previously identified group, confirm ratings and assign prospect manager

* + Compare WealthEngine capacity to internal ratings and confirm
  + Assign top prospects (based on capacity) to appropriate prospect managers

###### For the newly identified group, begin validation and research qualification process

* + Assign prospects to appropriate prospect managers as they are qualified

###### Consolidate regions where possible

* + Several defined regions have few viable prospects
  + Provide support from National Office where consolidation is not feasible

###### Parent and Alumni constituent groups require unique strategies

* + Alumni are qualified primarily at the $5K to $100K and below $5K levels. A strategy to meet these key constituents “where they are,” possibly introducing a giving level below $5K, may be warranted.
  + Parents of alumni should be engaged as quickly as possible to maximize potential fundraising benefits

###### As the constituent base matures Planned Giving Strategies should be considered

* + 5% of the file has a length of time on the file of 5 years or more and 378 are aged 60 or older