Combined files

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Import data from personsxcsv and sampleadult files

```
#Import CondPerson.csv file
person2 <- read.csv(file = "C:/Users/Christine/Documents/Bellevue/DSC 630/Project/Datasets/CondPerson.cs

#Import condsamadult.csv file
adult2 <- read.csv(file = "C:/Users/Christine/Documents/Bellevue/DSC 630/Project/Datasets/condsamadult.
```

Create new file to link person with sampleadult

```
new <-merge(x = person2, y = adult2, by="ID")

head(new)
```

```
##                 ID FPX.x FMX.x HHX.x AGE_CHG INTV_QRT SEX.x ASTATFLG CSTATFLG
## 1     FPX1FMX1HHX1     1     1     1      NA        1     2        1       NA
## 2    FPX1FMX1HHX10     1     1    10      NA        1     1        1       NA
## 3   FPX1FMX1HHX100     1     1   100      NA        1     2        1       NA
## 4  FPX1FMX1HHX1000     1     1  1000      NA        1     2        1       NA
## 5 FPX1FMX1HHX10003     1     1 10003      NA        1     2        1       NA
## 6 FPX1FMX1HHX10005     1     1 10005      NA        1     1        1       NA
##   PDMED12M PNMED12M SSTYPEA SSTYPEB SSTYPEC SSTYPED SSTYPEE SSTYPEF SSTYPEG
## 1        2        2      NA      NA      NA      NA      NA      NA      NA
## 2        2        2       1       2       2       2       1       1       2
## 3        2        2       2       2       2       2       1       2       2
## 4        2        2      NA      NA      NA      NA      NA      NA      NA
## 5        2        2      NA      NA      NA      NA      NA      NA      NA
## 6        2        2      NA      NA      NA      NA      NA      NA      NA
##   SSTYPEH SSTYPEI SSTYPEJ SSTYPEK SSTYPEL HILAST2 HISTOP1 HISTOP2 HISTOP3
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
## 2       2       2       2       1       2      NA      NA      NA      NA
## 3       2       2       2       1       2      NA      NA      NA      NA
## 4      NA      NA      NA      NA      NA       6       2       2       2
## 5      NA      NA      NA      NA      NA      NA      NA      NA      NA
## 6      NA      NA      NA      NA      NA      NA      NA      NA      NA
##   HISTOP4 HISTOP5 HISTOP6 HISTOP7 HISTOP8 HISTOP9 HISTOP10 HINOTYR HINOTMYR
## 1      NA      NA      NA      NA      NA      NA       NA       2       NA
## 2      NA      NA      NA      NA      NA      NA       NA       2       NA
## 3      NA      NA      NA      NA      NA      NA       NA       2       NA
## 4       2       1       2       2       2       2        2      NA       NA
## 5      NA      NA      NA      NA      NA      NA       NA       2       NA
## 6      NA      NA      NA      NA      NA      NA       NA       2       NA
##   FHICHNG MEDBILL MEDBPAY MEDBNOP FSA PRIVATE MEDICARE MEDICAID SCHIP MILITARN
## 1       1       2       2      NA   2       3        1        3     3        3
## 2       1       1       1       1   2       1        3        3     3        3
## 3       1       2       2      NA   1       1        3        3     3        3
```

```
## 4      NA       2       2      NA   2       3        3        3     3        3
## 5       1       2       2      NA   2       1        1        3     3        3
## 6       1       2       2      NA   2       3        1        3     3        1
##   MILSPC2I IHS OTHPUB OTHGOV SINGLE HISTOP11 HISTOP12 HISTOP13 HISTOP14
## 1       NA   2      3      3      3       NA       NA       NA       NA
## 2       NA   2      3      3      1       NA       NA       NA       NA
## 3       NA   2      3      3      1       NA       NA       NA       NA
## 4       NA   2      3      3      3        2        2        2        2
## 5       NA   2      3      3      3       NA       NA       NA       NA
## 6       NA   2      3      3      3       NA       NA       NA       NA
##   HISTOP15 NOTCOV PRPLPLUS PWRKBR1 COVER COVER65O COVER65 REGIONBR WHYNOWKP
## 1       NA      2       NA      NA    NA        3       4        1        3
## 2       NA      2        2      NA     1       NA      NA        1       NA
## 3       NA      2        2      NA     1       NA      NA        1       NA
## 4        2      1       NA      NA     4       NA      NA        2       NA
## 5       NA      2        2      NA    NA        1       1        1        3
## 6       NA      2       NA      NA    NA        4       5        1        3
##   WRKFTALL WRKMYR HIEMPOF FPX.y FMX.y HHX.y SEX.y AGE_P WHYNOWKA EVERWRK
## 1       NA     NA      NA     1     1     1     2    79        3       1
## 2       NA     12       1     1     1    10     1    39       NA      NA
## 3        2      5       1     1     1   100     2    44       NA      NA
## 4        2     12       2     1     1  1000     2    41       NA      NA
## 5       NA     12      NA     1     1 10003     2    79        3       1
## 6       NA     NA      NA     1     1 10005     1    74        3       1
##   PDSICKA ONEJOB WRKLYR4 INDSTRN1 INDSTRN2 OCCUPN1 OCCUPN2 YRSWRKPA DIFAGE2
## 1       2     NA       2       73       18      40      13       15       3
## 2       1      2       0       31        5       4       1       14      NA
## 3       2      2       0       63       14      22       8        0      NA
## 4       2      2       0       63       14      44      14        2      NA
## 5       2     NA       2       63       14       4       1       15      NA
## 6       1     NA       2       25        5      79      21       14      24
##   HYPEV HYPDIFV HYPMDEV2 HYPMED2 CHLEV CHLYR CHLMDEV2 CHLMDNW2 CHDEV ANGEV MIEV
## 1     1       1        1       1     1     1        1        1     2     2    2
## 2     2      NA       NA      NA     2    NA       NA       NA     2     2    2
## 3     2      NA       NA      NA     2    NA       NA       NA     2     2    2
## 4     2      NA       NA      NA     2    NA       NA       NA     2     2    2
## 5     1       1        1       1     2    NA       NA       NA     2     2    2
## 6     1       1        1       1     1     1        1        1     1     2    1
##   HRTEV STREV DIBEV1 DIBPRE2 DIBPILL1 INSLN1 JNTSYMP JNTHP ARTH1 ARTHLMT
## 1     2     2      1      NA        1      2       2    NA     1       2
## 2     2     2      2       2       NA     NA       2    NA     2      NA
## 3     2     2      2       1        2      2       2    NA     2      NA
## 4     2     2      2       2       NA     NA       2    NA     2      NA
## 5     2     2      2       2       NA     NA       2    NA     2      NA
## 6     1     2      1      NA        1      2       1     2     2       2
##   PAINECK PAINLB AMIGR ACOLD2W HRAIDNOW HRAIDEV AHEARST1 AVISION ABLIND LUPPRT
## 1       2      2     2       1        1      NA        5       2     NA      1
## 2       1      1     2       1        2       2        3       2     NA      2
## 3       1      1     1       2        2       2        1       2     NA      2
## 4       2      2     2       2        2       2        1       2     NA      2
## 5       1      1     2       2        2       2        2       2     NA      2
## 6       2      2     2       2        2       2        2       2     NA      2
##   HYPYR1 AFLHC20_ AFLHCA1 AFLHCA10 AFLHCA17 AFLHCA2 AFLHCA3 AFLHCA4 AFLHCA7
## 1      1        2       2        2        2       2       2       2       2
```

```
## 2     NA        2       2        2        2       2       2       1       2
## 3     NA       NA      NA       NA       NA      NA      NA      NA      NA
## 4     NA       NA      NA       NA       NA      NA      NA      NA      NA
## 5      1       NA      NA       NA       NA      NA      NA      NA      NA
## 6      1        2       2        2        2       2       2       2       2
##   AFLHCA8 AFLHCA9 AHCAFYR1 AHCAFYR2 AHCAFYR3 AHCAFYR4 AWORPAY ARX12MO ARX12_1
## 1       2       2        2        2        2        2       3       1       2
## 2       2       2        2        2        2        2       2       1       2
## 3      NA      NA        1        2        2        2       3       1       2
## 4      NA      NA        2        2        2        2       1       2      NA
## 5      NA      NA        2        2        2        2       3       1       2
## 6       2       2        2        2        2        2       3       1       2
##   ARX12_2 ARX12_3 ARX12_4 ARX12_5 ARX12_6 ADNLONG2 AHCSYR1 AHCSYR2 AHCSYR3
## 1       2       2       2       2       2        5       2       1       2
## 2       2       2       1       2       2        5       2       2       2
## 3       2       2       2       2       2        1       2       1       2
## 4      NA      NA      NA       2       2        4       2       2       2
## 5       2       2       1       2       2        1       2       1       2
## 6       2       2       1       2       2        4       2       1       2
##   AHCSYR4 AHCSYR5 AHCSYR8 AHCSYR9 APSBPCHK APSCHCHK APSBSCHK ASISATHC
## 1       2       2       2       1        1        1        1        2
## 2       2       1       1       1        1        1        1        1
## 3       2       1       1       1        1        1        1        1
## 4       2       2       2       2        2        2        2        5
## 5       1       1       1       1        1        1        1        1
## 6       2       2       2       1        1        1        1        1
```

```
describe(new)
```

```
## new
##
##  149  Variables      25417  Observations
## ---------------------------------------------------------------------------
## ID
##        n  missing distinct
##    25417        0    25417
##
## lowest : FPX1FMX1HHX1     FPX1FMX1HHX10    FPX1FMX1HHX100   FPX1FMX1HHX1000  FPX1FMX1HHX10003
## highest: FPX8FMX1HHX13416 FPX8FMX1HHX38081 FPX9FMX1HHX29177 FPX9FMX1HHX30271 FPX9FMX1HHX54295
## ---------------------------------------------------------------------------
## FPX.x
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        9    0.639    1.371   0.5591
##
## lowest : 1 2 3 4 5, highest: 5 6 7 8 9
##
## Value          1     2     3     4     5     6     7     8     9
## Frequency  17829  6311   884   278    71    28    11     2     3
## Proportion 0.701 0.248 0.035 0.011 0.003 0.001 0.000 0.000 0.000
## ---------------------------------------------------------------------------
## FMX.x
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        6    0.049    1.023  0.04561
##
```

```
## lowest : 1 2 3 4 5, highest: 2 3 4 5 6
##
## Value          1     2     3     4     5     6
## Frequency  24999   310    69    23    10     6
## Proportion 0.984 0.012 0.003 0.001 0.000 0.000
## ---------------------------------------------------------------------------
## HHX.x
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    25417        0    25021        1    27698    18578     2768     5545
##      .25      .50      .75      .90      .95
##    13828    27513    41788    50113    52836
##
## lowest :     1     6     8     9    10, highest: 55556 55557 55560 55562 55563
## ---------------------------------------------------------------------------
## INTV_QRT
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.929    2.364    1.154
##
## Value          1     2     3     4
## Frequency   6672  6886  7785  4074
## Proportion 0.263 0.271 0.306 0.160
## ---------------------------------------------------------------------------
## SEX.x
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        2    0.744    1.546   0.4959
##
## Value          1     2
## Frequency  11550 13867
## Proportion 0.454 0.546
## ---------------------------------------------------------------------------
## ASTATFLG
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        1        0        1        0
##
## Value          1
## Frequency  25417
## Proportion     1
## ---------------------------------------------------------------------------
## PDMED12M
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.293    1.893   0.1981
##
## Value          1     2     7     9
## Frequency   2776 22634     2     5
## Proportion 0.109 0.891 0.000 0.000
## ---------------------------------------------------------------------------
## PNMED12M
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.204    1.929   0.1401
##
## Value          1     2     7     9
## Frequency   1860 23548     3     6
## Proportion 0.073 0.926 0.000 0.000
## ---------------------------------------------------------------------------
```

```
## SSTYPEA
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.192    1.967   0.1807
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    620  9038     3    32    13
## Proportion 0.064 0.931 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEB
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5      0.1    2.001   0.1187
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    288  9370     3    32    13
## Proportion 0.030 0.965 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEC
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.167    1.976   0.1638
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    527  9131     3    32    13
## Proportion 0.054 0.941 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPED
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.122    1.993   0.1333
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    364  9294     3    32    13
## Proportion 0.038 0.958 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEE
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.408    1.193   0.3327
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   8133  1525     3    32    13
## Proportion 0.838 0.157 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEF
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5     0.15    1.983   0.1522
##
```

```
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    464  9194     3    32    13
## Proportion 0.048 0.947 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEG
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.073    2.011   0.1005
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    195  9463     3    32    13
## Proportion 0.020 0.975 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEH
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.118    1.995   0.1306
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    350  9308     3    32    13
## Proportion 0.036 0.959 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEI
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5     0.09    2.005   0.1119
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    253  9405     3    32    13
## Proportion 0.026 0.969 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEJ
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.586     1.77   0.4463
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   2527  7131     3    32    13
## Proportion 0.260 0.735 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEK
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.744    1.477   0.5553
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   5378  4280     3    32    13
```

```
## Proportion 0.554 0.441 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## SSTYPEL
##        n  missing distinct     Info     Mean      Gmd
##     9706    15711        5    0.065    2.013  0.09494
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    167  9491     3    32    13
## Proportion 0.017 0.978 0.000 0.003 0.001
## ---------------------------------------------------------------------------
## HILAST2
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        8    0.958    3.963    2.052
##
## lowest : 1 2 3 4 5, highest: 4 5 6 7 9
##
## Value          1     2     3     4     5     6     7     9
## Frequency    370   201   142   345   593   420     1    28
## Proportion 0.176 0.096 0.068 0.164 0.282 0.200 0.000 0.013
## ---------------------------------------------------------------------------
## HISTOP1
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.527    1.828   0.4365
##
## Value          1     2     7     9
## Frequency    461  1624     3    12
## Proportion 0.220 0.773 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP2
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4     0.11    2.016   0.1537
##
## Value          1     2     7     9
## Frequency     65  2020     3    12
## Proportion 0.031 0.962 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP3
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.183    1.989   0.2032
##
## Value          1     2     7     9
## Frequency    122  1963     3    12
## Proportion 0.058 0.935 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP4
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.291    1.946   0.2761
##
## Value          1     2     7     9
## Frequency    213  1872     3    12
## Proportion 0.101 0.891 0.001 0.006
## ---------------------------------------------------------------------------
```

```
## HISTOP5
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4     0.75    1.591     0.59
##
## Value          1     2     7     9
## Frequency    957  1128     3    12
## Proportion 0.456 0.537 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP6
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.081    2.027   0.1338
##
## Value          1     2     7     9
## Frequency     43  2042     3    12
## Proportion 0.020 0.972 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP7
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.114    2.015   0.1564
##
## Value          1     2     7     9
## Frequency     68  2017     3    12
## Proportion 0.032 0.960 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP8
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.165    1.996   0.1913
##
## Value          1     2     7     9
## Frequency    108  1977     3    12
## Proportion 0.051 0.941 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP9
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.135    2.007   0.1705
##
## Value          1     2     7     9
## Frequency     84  2001     3    12
## Proportion 0.040 0.953 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP10
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.188    1.987   0.2065
##
## Value          1     2     7     9
## Frequency    126  1959     3    12
## Proportion 0.060 0.933 0.001 0.006
## ---------------------------------------------------------------------------
## HINOTYR
##        n  missing distinct     Info     Mean      Gmd
##    23219     2198        5    0.121    1.965  0.09194
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
```

```
## Value          1     2     7     8     9
## Frequency    958 22239     1     3    18
## Proportion 0.041 0.958 0.000 0.000 0.001
## ---------------------------------------------------------------------------
## HINOTMYR
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##      958    24459       14    0.982    5.723    5.794        1        1
##      .25      .50      .75      .90      .95
##        2        4        6       11       12
##
## lowest :  1  2  3  4  5, highest: 10 11 12 97 99
##
## Value          1     2     3     4     5     6     7     8     9    10    11
## Frequency    200   135   120    98    49   121    30    32    33    36    36
## Proportion 0.209 0.141 0.125 0.102 0.051 0.126 0.031 0.033 0.034 0.038 0.038
##
## Value         12    97    99
## Frequency     57     1    10
## Proportion 0.059 0.001 0.010
## ---------------------------------------------------------------------------
## FHICHNG
##        n  missing distinct     Info     Mean      Gmd
##    22258     3159        4    0.083    1.033  0.06351
##
## Value          1     2     7     9
## Frequency  21622   623     1    12
## Proportion 0.971 0.028 0.000 0.001
## ---------------------------------------------------------------------------
## MEDBILL
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.335     1.88   0.2371
##
## Value          1     2     7     9
## Frequency   3231 22157     5    24
## Proportion 0.127 0.872 0.000 0.001
## ---------------------------------------------------------------------------
## MEDBPAY
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.493    1.813   0.3616
##
## Value          1     2     7     9
## Frequency   5203 20147     5    62
## Proportion 0.205 0.793 0.000 0.002
## ---------------------------------------------------------------------------
## MEDBNOP
##        n  missing distinct     Info     Mean      Gmd
##     3260    22157        4    0.756    1.553   0.6364
##
## Value          1     2     7     9
## Frequency   1681  1546     3    30
## Proportion 0.516 0.474 0.001 0.009
## ---------------------------------------------------------------------------
## FSA
##        n  missing distinct     Info     Mean      Gmd
```

```
##    25417        0        4    0.352    1.934   0.3429
##
## Value          1     2     7     9
## Frequency   3226 21967     7   217
## Proportion 0.127 0.864 0.000 0.009
## ---------------------------------------------------------------------------
## PRIVATE
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.724     1.78   0.9809
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency  15488   524  9319    12    74
## Proportion 0.609 0.021 0.367 0.000 0.003
## ---------------------------------------------------------------------------
## MEDICARE
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.645    2.402   0.8897
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency   7827    10 17498    11    71
## Proportion 0.308 0.000 0.688 0.000 0.003
## ---------------------------------------------------------------------------
## MEDICAID
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.312    2.792   0.4419
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency   2871    41 22419    12    74
## Proportion 0.113 0.002 0.882 0.000 0.003
## ---------------------------------------------------------------------------
## SCHIP
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.011    3.019  0.04024
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency     10     1 25320    12    74
## Proportion 0.000 0.000 0.996 0.000 0.003
## ---------------------------------------------------------------------------
## MILITARN
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.198    2.884   0.2901
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency   1719     1 23613    11    73
```

```
## Proportion 0.068 0.000 0.929 0.000 0.003
## ---------------------------------------------------------------------------
## MILSPC2I
##        n  missing distinct     Info     Mean      Gmd
##     1289    24128        4    0.735     1.68   0.6474
##
## Value          1     2     7     9
## Frequency    520   753     2    14
## Proportion 0.403 0.584 0.002 0.011
## ---------------------------------------------------------------------------
## IHS
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.028    2.017  0.05738
##
## Value          1     2     7     9
## Frequency    154 25177    12    74
## Proportion 0.006 0.991 0.000 0.003
## ---------------------------------------------------------------------------
## OTHPUB
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.027    3.008  0.06144
##
## Value          1     3     7     9
## Frequency    146 25185    12    74
## Proportion 0.006 0.991 0.000 0.003
## ---------------------------------------------------------------------------
## OTHGOV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.018    3.014  0.04911
##
## Value          1     3     7     9
## Frequency     67 25264    12    74
## Proportion 0.003 0.994 0.000 0.003
## ---------------------------------------------------------------------------
## SINGLE
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.711    2.251     0.97
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency   9674    32 15653     6    52
## Proportion 0.381 0.001 0.616 0.000 0.002
## ---------------------------------------------------------------------------
## HISTOP11
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.032    2.043   0.1013
##
## Value          1     2     7     9
## Frequency      8  2077     3    12
## Proportion 0.004 0.989 0.001 0.006
## ---------------------------------------------------------------------------
## HISTOP12
##        n  missing distinct     Info     Mean      Gmd
```

```
##     2100    23317        4    0.078    2.028    0.132
##
## Value          1     2     7     9
## Frequency     41  2044     3    12
## Proportion 0.020 0.973 0.001 0.006
## ------------------------------------------------------------------------------
## HISTOP13
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.027    2.045  0.09749
##
## Value          1     2     7     9
## Frequency      4  2081     3    12
## Proportion 0.002 0.991 0.001 0.006
## ------------------------------------------------------------------------------
## HISTOP14
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        4    0.102    2.019   0.1483
##
## Value          1     2     7     9
## Frequency     59  2026     3    12
## Proportion 0.028 0.965 0.001 0.006
## ------------------------------------------------------------------------------
## HISTOP15
##        n  missing distinct     Info     Mean      Gmd
##     2100    23317        3    0.021    2.047  0.09369
##
## Value          2     7     9
## Frequency   2085     3    12
## Proportion 0.993 0.001 0.006
## ------------------------------------------------------------------------------
## NOTCOV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        3    0.256    1.931   0.2101
##
## Value          1     2     9
## Frequency   2316 23020    81
## Proportion 0.091 0.906 0.003
## ------------------------------------------------------------------------------
## PRPLPLUS
##        n  missing distinct     Info     Mean      Gmd
##    15887     9530        3    0.083    2.147   0.3007
##
## Value          1     2     8
## Frequency     55 15433   399
## Proportion 0.003 0.971 0.025
## ------------------------------------------------------------------------------
## PWRKBR1
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##     1830    23587       11    0.536    2.328    2.274        1        1
##      .25      .50      .75      .90      .95
##        1        1        1        5        6
##
## lowest :  1  2  3  4  5, highest:  7  8  9 10 99
##
```

```
## Value          1     2     3     4     5     6     7     8     9    10    99
## Frequency   1414    23    10    11   268    27     7     9    41    14     6
## Proportion 0.773 0.013 0.005 0.006 0.146 0.015 0.004 0.005 0.022 0.008 0.003
## ---------------------------------------------------------------------------
## COVER
##        n  missing distinct     Info     Mean      Gmd
##    18120     7297        5    0.674    1.635   0.9684
##
## lowest : 1 2 3 4 5, highest: 1 2 3 4 5
##
## Value          1     2     3     4     5
## Frequency  12418  2328  1022  2279    73
## Proportion 0.685 0.128 0.056 0.126 0.004
## ---------------------------------------------------------------------------
## COVER65O
##        n  missing distinct     Info     Mean      Gmd
##     7297    18120        6    0.843    2.053    1.193
##
## lowest : 1 2 3 4 5, highest: 2 3 4 5 6
##
## Value          1     2     3     4     5     6
## Frequency   3594   540  2407   708    37    11
## Proportion 0.493 0.074 0.330 0.097 0.005 0.002
## ---------------------------------------------------------------------------
## COVER65
##        n  missing distinct     Info     Mean      Gmd
##     7297    18120        7    0.907    2.457    1.576
##
## lowest : 1 2 3 4 5, highest: 3 4 5 6 7
##
## Value          1     2     3     4     5     6     7
## Frequency   3066   561  1755  1159   708    37    11
## Proportion 0.420 0.077 0.241 0.159 0.097 0.005 0.002
## ---------------------------------------------------------------------------
## REGIONBR
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    25417        0       12    0.406    1.815    1.517        1        1
##      .25      .50      .75      .90      .95
##        1        1        1        2        7
##
## lowest :  1  2  3  4  5, highest:  8  9 10 11 99
##
## Value          1     2     3     4     5     6     7     8     9    10    11
## Frequency  21358  1666   278   451    85   227   126   338   315   360   160
## Proportion 0.840 0.066 0.011 0.018 0.003 0.009 0.005 0.013 0.012 0.014 0.006
##
## Value         99
## Frequency     53
## Proportion 0.002
## ---------------------------------------------------------------------------
## WHYNOWKP
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    10365    15052       11    0.796    4.103      2.6        1        1
##      .25      .50      .75      .90      .95
```

```
##        3        3        4        9        9
##
## lowest :  1  2  3  4  5, highest:  7  8  9 10 97
##
## Value          1     2     3     4     5     6     7     8     9    10    97
## Frequency   1150   467  6043   256    47   204   133    76  1689   299     1
## Proportion 0.111 0.045 0.583 0.025 0.005 0.020 0.013 0.007 0.163 0.029 0.000
## ------------------------------------------------------------------------------
## WRKFTALL
##        n  missing distinct     Info     Mean      Gmd
##     3387    22030        4    0.529    1.833   0.4467
##
## Value          1     2     7     9
## Frequency    744  2616     6    21
## Proportion 0.220 0.772 0.002 0.006
## ------------------------------------------------------------------------------
## WRKMYR
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    15996     9421       14     0.47    11.18    2.202        4        7
##      .25      .50      .75      .90      .95
##       12       12       12       12       12
##
## lowest :  1  2  3  4  5, highest: 10 11 12 97 99
##
## Value          1     2     3     4     5     6     7     8     9    10    11
## Frequency    238   168   248   201   178   470   191   259   364   421   278
## Proportion 0.015 0.011 0.016 0.013 0.011 0.029 0.012 0.016 0.023 0.026 0.017
##
## Value         12    97    99
## Frequency  12942     5    33
## Proportion 0.809 0.000 0.002
## ------------------------------------------------------------------------------
## HIEMPOF
##        n  missing distinct     Info     Mean      Gmd
##    14911    10506        4    0.665    1.365   0.5109
##
## Value          1     2     7     9
## Frequency   9986  4850     6    69
## Proportion 0.670 0.325 0.000 0.005
## ------------------------------------------------------------------------------
## FPX.y
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        9    0.639    1.371   0.5591
##
## lowest : 1 2 3 4 5, highest: 5 6 7 8 9
##
## Value          1     2     3     4     5     6     7     8     9
## Frequency  17829  6311   884   278    71    28    11     2     3
## Proportion 0.701 0.248 0.035 0.011 0.003 0.001 0.000 0.000 0.000
## ------------------------------------------------------------------------------
## FMX.y
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        6    0.049    1.023  0.04561
##
```

```
## lowest : 1 2 3 4 5, highest: 2 3 4 5 6
##
## Value          1     2     3     4     5     6
## Frequency  24999   310    69    23    10     6
## Proportion 0.984 0.012 0.003 0.001 0.000 0.000
## ---------------------------------------------------------------------------
## HHX.y
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    25417        0    25021        1    27698    18578     2768     5545
##      .25      .50      .75      .90      .95
##    13828    27513    41788    50113    52836
##
## lowest :     1     6     8     9    10, highest: 55556 55557 55560 55562 55563
## ---------------------------------------------------------------------------
## SEX.y
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        2    0.744    1.546   0.4959
##
## Value          1     2
## Frequency  11550 13867
## Proportion 0.454 0.546
## ---------------------------------------------------------------------------
## AGE_P
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    25417        0       68        1    51.69    21.14       23       26
##      .25      .50      .75      .90      .95
##       36       53       66       76       82
##
## lowest : 18 19 20 21 22, highest: 81 82 83 84 85
## ---------------------------------------------------------------------------
## WHYNOWKA
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    10357    15060       11    0.797    4.116     2.62        1        1
##      .25      .50      .75      .90      .95
##        3        3        4        9        9
##
## lowest :  1  2  3  4  5, highest:  7  8  9 10 97
##
## Value          1     2     3     4     5     6     7     8     9    10    97
## Frequency   1148   462  6029   258    47   212   134    79  1694   292     2
## Proportion 0.111 0.045 0.582 0.025 0.005 0.020 0.013 0.008 0.164 0.028 0.000
## ---------------------------------------------------------------------------
## EVERWRK
##        n  missing distinct     Info     Mean      Gmd
##    10495    14922        4    0.275    1.111    0.202
##
## Value          1     2     7     9
## Frequency   9425  1053    10     7
## Proportion 0.898 0.100 0.001 0.001
## ---------------------------------------------------------------------------
## PDSICKA
##        n  missing distinct     Info     Mean      Gmd
##    24347     1070        4    0.738    1.516   0.6763
##
```

```
## Value          1     2     7     9
## Frequency  14120  9883    37   307
## Proportion 0.580 0.406 0.002 0.013
## ---------------------------------------------------------------------------
## ONEJOB
##        n  missing distinct     Info     Mean      Gmd
##    14922    10495        4    0.267     1.91   0.1908
##
## Value          1     2     7     9
## Frequency   1454 13447    18     3
## Proportion 0.097 0.901 0.001 0.000
## ---------------------------------------------------------------------------
## WRKLYR4
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        6    0.765   0.8249    1.044
##
## lowest : 0 1 2 3 7, highest: 1 2 3 7 9
##
## Value          0     1     2     3     7     9
## Frequency  14922  1307  8096  1052    24    16
## Proportion 0.587 0.051 0.319 0.041 0.001 0.001
## ---------------------------------------------------------------------------
## INDSTRN1
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    24347     1070       82    0.998    52.67    23.85       10       11
##      .25      .50      .75      .90      .95
##       39       61       66       76       78
##
## lowest :  1  2  3  4  5, highest: 78 79 97 98 99
## ---------------------------------------------------------------------------
## INDSTRN2
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    24347     1070       24    0.993    12.89    8.356        4        5
##      .25      .50      .75      .90      .95
##        7       12       16       19       20
##
## lowest :  1  2  3  4  5, highest: 20 21 97 98 99
## ---------------------------------------------------------------------------
## OCCUPN1
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    24347     1070       97    0.999    43.76     32.3        4        5
##      .25      .50      .75      .90      .95
##       21       44       63       84       89
##
## lowest :  1  2  3  4  5, highest: 93 94 97 98 99
## ---------------------------------------------------------------------------
## OCCUPN2
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    24347     1070       26    0.994    13.49    9.761        1        2
##      .25      .50      .75      .90      .95
##        8       14       17       21       22
##
## lowest :  1  2  3  4  5, highest: 22 23 97 98 99
## ---------------------------------------------------------------------------
```

```
## YRSWRKPA
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##    24347     1070       39    0.996     12.1    13.43        0        0
##      .25      .50      .75      .90      .95
##        2        8       19       30       35
##
## lowest :  0  1  2  3  4, highest: 34 35 97 98 99
## ------------------------------------------------------------------------------
## DIFAGE2
##        n  missing distinct     Info     Mean      Gmd      .05      .10
##     2935    22482       83    0.999    16.94    17.34        1        2
##      .25      .50      .75      .90      .95
##        5       11       21       35       54
##
## lowest :  0  1  2  3  4, highest: 82 83 96 97 99
## ------------------------------------------------------------------------------
## HYPEV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.696    1.649   0.4848
##
## Value          1     2     7     9
## Frequency   9217 16153    21    26
## Proportion 0.363 0.636 0.001 0.001
## ------------------------------------------------------------------------------
## HYPDIFV
##        n  missing distinct     Info     Mean      Gmd
##     9217    16200        3    0.333    1.141   0.2505
##
## Value          1     2     9
## Frequency   8047  1151    19
## Proportion 0.873 0.125 0.002
## ------------------------------------------------------------------------------
## HYPMDEV2
##        n  missing distinct     Info     Mean      Gmd
##     9217    16200        4    0.288    1.116    0.208
##
## Value          1     2     7     9
## Frequency   8227   979     1    10
## Proportion 0.893 0.106 0.000 0.001
## ------------------------------------------------------------------------------
## HYPMED2
##        n  missing distinct     Info     Mean      Gmd
##     8227    17190        3    0.275    1.105   0.1885
##
## Value          1     2     9
## Frequency   7387   837     3
## Proportion 0.898 0.102 0.000
## ------------------------------------------------------------------------------
## CHLEV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.648     1.71   0.4728
##
## Value          1     2     7     9
## Frequency   7922 17410    19    66
```

```
## Proportion 0.312 0.685 0.001 0.003
## ---------------------------------------------------------------------------
## CHLYR
##        n  missing distinct     Info     Mean      Gmd
##     7922    17495        3    0.618    1.426   0.6824
##
## Value          1     2     9
## Frequency   5654  2110   158
## Proportion 0.714 0.266 0.020
## ---------------------------------------------------------------------------
## CHLMDEV2
##        n  missing distinct     Info     Mean      Gmd
##     7922    17495        3    0.557    1.261   0.3996
##
## Value          1     2     9
## Frequency   5970  1936    16
## Proportion 0.754 0.244 0.002
## ---------------------------------------------------------------------------
## CHLMDNW2
##        n  missing distinct     Info     Mean      Gmd
##     5970    19447        3    0.391    1.156   0.2654
##
## Value          1     2     9
## Frequency   5050   918     2
## Proportion 0.846 0.154 0.000
## ---------------------------------------------------------------------------
## CHDEV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.172    1.955   0.1376
##
## Value          1     2     7     9
## Frequency   1493 23870    17    37
## Proportion 0.059 0.939 0.001 0.001
## ---------------------------------------------------------------------------
## ANGEV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.074    1.997  0.08223
##
## Value          1     2     7     9
## Frequency    568 24774    17    58
## Proportion 0.022 0.975 0.001 0.002
## ---------------------------------------------------------------------------
## MIEV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.121    1.967  0.09329
##
## Value          1     2     7     9
## Frequency   1036 24349    16    16
## Proportion 0.041 0.958 0.001 0.001
## ---------------------------------------------------------------------------
## HRTEV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.264    1.911   0.1891
##
```

```
## Value          1     2     7     9
## Frequency   2444 22941    15    17
## Proportion 0.096 0.903 0.001 0.001
## ---------------------------------------------------------------------------
## STREV
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.116    1.967  0.08693
##
## Value          1     2     7     9
## Frequency    997 24395    14    11
## Proportion 0.039 0.960 0.001 0.000
## ---------------------------------------------------------------------------
## DIBEV1
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.374    1.918   0.2698
##
## lowest : 1 2 3 7 9, highest: 1 2 3 7 9
##
## Value          1     2     3     7     9
## Frequency   2935 21720   742    13     7
## Proportion 0.115 0.855 0.029 0.001 0.000
## ---------------------------------------------------------------------------
## DIBPRE2
##        n  missing distinct     Info     Mean      Gmd
##    22482     2935        4    0.228    1.926   0.1648
##
## Value          1     2     7     9
## Frequency   1834 20620    14    14
## Proportion 0.082 0.917 0.001 0.001
## ---------------------------------------------------------------------------
## DIBPILL1
##        n  missing distinct     Info     Mean      Gmd
##     4769    20648        3     0.75    1.517   0.5116
##
## Value          1     2     9
## Frequency   2333  2432     4
## Proportion 0.489 0.510 0.001
## ---------------------------------------------------------------------------
## INSLN1
##        n  missing distinct     Info     Mean      Gmd
##     4769    20648        2     0.47    1.805   0.3135
##
## Value          1     2
## Frequency    928  3841
## Proportion 0.195 0.805
## ---------------------------------------------------------------------------
## JNTSYMP
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.708    1.624   0.4804
##
## Value          1     2     7     9
## Frequency   9661 15736    12     8
## Proportion 0.380 0.619 0.000 0.000
## ---------------------------------------------------------------------------
```

```
## JNTHP
##        n  missing distinct     Info     Mean      Gmd
##     9661    15756        3     0.57    1.257   0.3842
##
## Value          1     2     9
## Frequency   7199  2459     3
## Proportion 0.745 0.255 0.000
## ---------------------------------------------------------------------------
## ARTH1
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.611    1.726   0.4236
##
## Value          1     2     7     9
## Frequency   7189 18192    12    24
## Proportion 0.283 0.716 0.000 0.001
## ---------------------------------------------------------------------------
## ARTHLMT
##        n  missing distinct     Info     Mean      Gmd
##    11380    14037        3    0.701    1.635    0.479
##
## Value          1     2     9
## Frequency   4221  7149    10
## Proportion 0.371 0.628 0.001
## ---------------------------------------------------------------------------
## PAINECK
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.428    1.833   0.2923
##
## Value          1     2     7     9
## Frequency   4357 21042    11     7
## Proportion 0.171 0.828 0.000 0.000
## ---------------------------------------------------------------------------
## PAINLB
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.651    1.687   0.4425
##
## Value          1     2     7     9
## Frequency   8062 17335    11     9
## Proportion 0.317 0.682 0.000 0.000
## ---------------------------------------------------------------------------
## AMIGR
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.388    1.851   0.2643
##
## Value          1     2     7     9
## Frequency   3870 21533    10     4
## Proportion 0.152 0.847 0.000 0.000
## ---------------------------------------------------------------------------
## ACOLD2W
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.275    1.902   0.1889
##
## Value          1     2     7     9
## Frequency   2576 22827     6     8
```

```
## Proportion 0.101 0.898 0.000 0.000
## ---------------------------------------------------------------------------
## HRAIDNOW
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.134    1.955  0.09175
##
## Value          1     2     7     9
## Frequency   1182 24228     5     2
## Proportion 0.047 0.953 0.000 0.000
## ---------------------------------------------------------------------------
## HRAIDEV
##        n  missing distinct     Info     Mean      Gmd
##    24235     1182        4    0.034     1.99  0.02467
##
## Value          1     2     7     9
## Frequency    275 23955     4     1
## Proportion 0.011 0.988 0.000 0.000
## ---------------------------------------------------------------------------
## AHEARST1
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        8    0.864    1.857    1.007
##
## lowest : 1 2 3 4 5, highest: 4 5 6 7 9
##
## Value          1     2     3     4     5     6     7     9
## Frequency  11281  9181  3049  1196   639    64     3     4
## Proportion 0.444 0.361 0.120 0.047 0.025 0.003 0.000 0.000
## ---------------------------------------------------------------------------
## AVISION
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.363    1.861   0.2454
##
## Value          1     2     7     9
## Frequency   3572 21837     4     4
## Proportion 0.141 0.859 0.000 0.000
## ---------------------------------------------------------------------------
## ABLIND
##        n  missing distinct     Info     Mean      Gmd
##     3572    21845        2    0.098    1.966  0.06547
##
## Value          1     2
## Frequency    121  3451
## Proportion 0.034 0.966
## ---------------------------------------------------------------------------
## LUPPRT
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        4    0.253    1.909   0.1708
##
## Value          1     2     7     9
## Frequency   2351 23059     6     1
## Proportion 0.092 0.907 0.000 0.000
## ---------------------------------------------------------------------------
## HYPYR1
##        n  missing distinct     Info     Mean      Gmd
```

```
##     8047    17370        3     0.39    1.187   0.3274
##
## Value          1     2     9
## Frequency   6812  1196    39
## Proportion 0.847 0.149 0.005
## ---------------------------------------------------------------------------
## AFLHC20_
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.566    1.833   0.5103
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   2612  8142    13    16    91
## Proportion 0.240 0.749 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA1
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.144    2.034   0.2212
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    430 10324    13    16    91
## Proportion 0.040 0.949 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA10
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.164    2.026   0.2346
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    510 10244    13    16    91
## Proportion 0.047 0.942 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA17
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.242    1.996    0.288
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    841  9913    13    16    91
## Proportion 0.077 0.912 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA2
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.105    2.048   0.1942
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    273 10481    13    16    91
```

```
## Proportion 0.025 0.964 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA3
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.699     1.72   0.6025
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   3847  6907    13    16    91
## Proportion 0.354 0.635 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA4
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.625    1.791   0.5505
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   3070  7684    13    16    91
## Proportion 0.282 0.707 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA7
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.184    2.019   0.2485
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    594 10160    13    16    91
## Proportion 0.055 0.934 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA8
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.099     2.05   0.1903
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    251 10503    13    16    91
## Proportion 0.023 0.966 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AFLHCA9
##        n  missing distinct     Info     Mean      Gmd
##    10874    14543        5    0.169    2.024   0.2385
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    533 10221    13    16    91
## Proportion 0.049 0.940 0.001 0.001 0.008
## ---------------------------------------------------------------------------
## AHCAFYR1
##        n  missing distinct     Info     Mean      Gmd
```

```
##    25417        0        5    0.205    1.977   0.2109
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   1689 23542     8   174     4
## Proportion 0.066 0.926 0.000 0.007 0.000
## ---------------------------------------------------------------------------
## AHCAFYR2
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.098    2.019   0.1399
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    665 24562     8   175     7
## Proportion 0.026 0.966 0.000 0.007 0.000
## ---------------------------------------------------------------------------
## AHCAFYR3
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.323    1.931   0.2944
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   2922 22301     8   178     8
## Proportion 0.115 0.877 0.000 0.007 0.000
## ---------------------------------------------------------------------------
## AHCAFYR4
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.204    1.979   0.2132
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   1676 23549     6   179     7
## Proportion 0.066 0.927 0.000 0.007 0.000
## ---------------------------------------------------------------------------
## AWORPAY
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        6    0.788    2.488   0.8157
##
## lowest : 1 2 3 7 8, highest: 2 3 7 8 9
##
## Value          1     2     3     7     8     9
## Frequency   3522  7115 14554     8   184    34
## Proportion 0.139 0.280 0.573 0.000 0.007 0.001
## ---------------------------------------------------------------------------
## ARX12MO
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.648    1.364   0.5321
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
```

```
## Value          1     2     7     8     9
## Frequency  17460  7738    18   190    11
## Proportion 0.687 0.304 0.001 0.007 0.000
## ---------------------------------------------------------------------------
## ARX12_1
##        n  missing distinct     Info     Mean      Gmd
##    17460     7957        4    0.163    1.944   0.1106
##
## Value          1     2     8     9
## Frequency   1003 16454     1     2
## Proportion 0.057 0.942 0.000 0.000
## ---------------------------------------------------------------------------
## ARX12_2
##        n  missing distinct     Info     Mean      Gmd
##    17460     7957        4    0.175    1.942   0.1229
##
## Value          1     2     8     9
## Frequency   1074 16376     5     5
## Proportion 0.062 0.938 0.000 0.000
## ---------------------------------------------------------------------------
## ARX12_3
##        n  missing distinct     Info     Mean      Gmd
##    17460     7957        4    0.214    1.927   0.1501
##
## Value          1     2     8     9
## Frequency   1341 16108     5     6
## Proportion 0.077 0.923 0.000 0.000
## ---------------------------------------------------------------------------
## ARX12_4
##        n  missing distinct     Info     Mean      Gmd
##    17460     7957        5    0.476    1.808    0.325
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   3436 14012     1     5     6
## Proportion 0.197 0.803 0.000 0.000 0.000
## ---------------------------------------------------------------------------
## ARX12_5
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.069    2.033   0.1268
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency    388 24822     7   196     4
## Proportion 0.015 0.977 0.000 0.008 0.000
## ---------------------------------------------------------------------------
## ARX12_6
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.167    1.999   0.1958
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
```

```
## Value          1     2     7     8     9
## Frequency   1294 23912     5   197     9
## Proportion 0.051 0.941 0.000 0.008 0.000
## ---------------------------------------------------------------------------
## ADNLONG2
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        9    0.877    2.248    1.627
##
## lowest : 0 1 2 3 4, highest: 4 5 7 8 9
##
## Value          0     1     2     3     4     5     7     8     9
## Frequency    175 12364  4015  3060  2515  2966    13   208   101
## Proportion 0.007 0.486 0.158 0.120 0.099 0.117 0.001 0.008 0.004
## ---------------------------------------------------------------------------
## AHCSYR1
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.301    1.955   0.3009
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   2626 22542    20   220     9
## Proportion 0.103 0.887 0.001 0.009 0.000
## ---------------------------------------------------------------------------
## AHCSYR2
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.752    1.608   0.6166
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency  11518 13643     9   222    25
## Proportion 0.453 0.537 0.000 0.009 0.001
## ---------------------------------------------------------------------------
## AHCSYR3
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.267    1.967   0.2744
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   2273 22906     7   222     9
## Proportion 0.089 0.901 0.000 0.009 0.000
## ---------------------------------------------------------------------------
## AHCSYR4
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.327    1.942   0.3151
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   2915 22262     9   225     6
## Proportion 0.115 0.876 0.000 0.009 0.000
## ---------------------------------------------------------------------------
```

```
## AHCSYR5
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.354     1.93   0.3349
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   3233 21943     7   225     9
## Proportion 0.127 0.863 0.000 0.009 0.000
## ------------------------------------------------------------------------------
## AHCSYR8
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.667    1.741   0.5565
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency   8145 17015     9   229    19
## Proportion 0.320 0.669 0.000 0.009 0.001
## ------------------------------------------------------------------------------
## AHCSYR9
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.615    1.347   0.5302
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency  18150  7008     8   233    18
## Proportion 0.714 0.276 0.000 0.009 0.001
## ------------------------------------------------------------------------------
## APSBPCHK
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.379    1.232    0.417
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency  21658  3406     8   329    16
## Proportion 0.852 0.134 0.000 0.013 0.001
## ------------------------------------------------------------------------------
## APSCHCHK
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.657    1.475   0.7417
##
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency  17347  7446    12   332   280
## Proportion 0.682 0.293 0.000 0.013 0.011
## ------------------------------------------------------------------------------
## APSBSCHK
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        5    0.766    1.644   0.8013
##
```

```
## lowest : 1 2 7 8 9, highest: 1 2 7 8 9
##
## Value          1     2     7     8     9
## Frequency  12970 11836    11   333   267
## Proportion 0.510 0.466 0.000 0.013 0.011
## ---------------------------------------------------------------------------
## ASISATHC
##        n  missing distinct     Info     Mean      Gmd
##    25417        0        8    0.761    1.841    1.265
##
## lowest : 1 2 3 4 5, highest: 4 5 7 8 9
##
## Value          1     2     3     4     5     7     8     9
## Frequency  15476  5831   845   428  2433    11   360    33
## Proportion 0.609 0.229 0.033 0.017 0.096 0.000 0.014 0.001
## ---------------------------------------------------------------------------
##
## Variables with all observations missing:
##
## [1] AGE_CHG  CSTATFLG
```

Create new variables

```
new$histop1 <- with(new, ifelse(new$HISTOP4 == 1, 1, 0))
new$histop2 <- factor(new$histop1)

new$need1 <- with(new, ifelse(new$PNMED12M == 1, 1, 0))
new$need2 <- factor(new$need1)

new$delay1 <- with(new, ifelse(new$PDMED12M == 1, 1, 0))
new$delay2 <- factor(new$delay1)

new$notcov1 <- with(new, ifelse(new$NOTCOV == 2, 1, 0))
new$notcov2 <- factor(new$notcov1)

new$pdsick1 <- with(new, ifelse(new$PDSICKA == 1, 1, 0))
new$pdsick2 <- factor(new$pdsick1)

new$sex2<- factor(new$SEX.x)
new$sex1 <- new$sex2.as.integer

head(new)
```

```
##                 ID FPX.x FMX.x HHX.x AGE_CHG INTV_QRT SEX.x ASTATFLG CSTATFLG
## 1     FPX1FMX1HHX1     1     1     1      NA        1     2        1       NA
## 2    FPX1FMX1HHX10     1     1    10      NA        1     1        1       NA
## 3   FPX1FMX1HHX100     1     1   100      NA        1     2        1       NA
## 4  FPX1FMX1HHX1000     1     1  1000      NA        1     2        1       NA
## 5 FPX1FMX1HHX10003     1     1 10003      NA        1     2        1       NA
## 6 FPX1FMX1HHX10005     1     1 10005      NA        1     1        1       NA
##   PDMED12M PNMED12M SSTYPEA SSTYPEB SSTYPEC SSTYPED SSTYPEE SSTYPEF SSTYPEG
## 1        2        2      NA      NA      NA      NA      NA      NA      NA
## 2        2        2       1       2       2       2       1       1       2
```

```
## 3        2        2       2       2       2       2       1       2       2
## 4        2        2      NA      NA      NA      NA      NA      NA      NA
## 5        2        2      NA      NA      NA      NA      NA      NA      NA
## 6        2        2      NA      NA      NA      NA      NA      NA      NA
##   SSTYPEH SSTYPEI SSTYPEJ SSTYPEK SSTYPEL HILAST2 HISTOP1 HISTOP2 HISTOP3
## 1      NA      NA      NA      NA      NA      NA      NA      NA      NA
## 2       2       2       2       1       2      NA      NA      NA      NA
## 3       2       2       2       1       2      NA      NA      NA      NA
## 4      NA      NA      NA      NA      NA       6       2       2       2
## 5      NA      NA      NA      NA      NA      NA      NA      NA      NA
## 6      NA      NA      NA      NA      NA      NA      NA      NA      NA
##   HISTOP4 HISTOP5 HISTOP6 HISTOP7 HISTOP8 HISTOP9 HISTOP10 HINOTYR HINOTMYR
## 1      NA      NA      NA      NA      NA      NA       NA       2       NA
## 2      NA      NA      NA      NA      NA      NA       NA       2       NA
## 3      NA      NA      NA      NA      NA      NA       NA       2       NA
## 4       2       1       2       2       2       2        2      NA       NA
## 5      NA      NA      NA      NA      NA      NA       NA       2       NA
## 6      NA      NA      NA      NA      NA      NA       NA       2       NA
##   FHICHNG MEDBILL MEDBPAY MEDBNOP FSA PRIVATE MEDICARE MEDICAID SCHIP MILITARN
## 1       1       2       2      NA   2       3        1        3     3        3
## 2       1       1       1       1   2       1        3        3     3        3
## 3       1       2       2      NA   1       1        3        3     3        3
## 4      NA       2       2      NA   2       3        3        3     3        3
## 5       1       2       2      NA   2       1        1        3     3        3
## 6       1       2       2      NA   2       3        1        3     3        1
##   MILSPC2I IHS OTHPUB OTHGOV SINGLE HISTOP11 HISTOP12 HISTOP13 HISTOP14
## 1       NA   2      3      3      3       NA       NA       NA       NA
## 2       NA   2      3      3      1       NA       NA       NA       NA
## 3       NA   2      3      3      1       NA       NA       NA       NA
## 4       NA   2      3      3      3        2        2        2        2
## 5       NA   2      3      3      3       NA       NA       NA       NA
## 6       NA   2      3      3      3       NA       NA       NA       NA
##   HISTOP15 NOTCOV PRPLPLUS PWRKBR1 COVER COVER65O COVER65 REGIONBR WHYNOWKP
## 1       NA      2       NA      NA    NA        3       4        1        3
## 2       NA      2        2      NA     1       NA      NA        1       NA
## 3       NA      2        2      NA     1       NA      NA        1       NA
## 4        2      1       NA      NA     4       NA      NA        2       NA
## 5       NA      2        2      NA    NA        1       1        1        3
## 6       NA      2       NA      NA    NA        4       5        1        3
##   WRKFTALL WRKMYR HIEMPOF FPX.y FMX.y HHX.y SEX.y AGE_P WHYNOWKA EVERWRK
## 1       NA     NA      NA     1     1     1     2    79        3       1
## 2       NA     12       1     1     1    10     1    39       NA      NA
## 3        2      5       1     1     1   100     2    44       NA      NA
## 4        2     12       2     1     1  1000     2    41       NA      NA
## 5       NA     12      NA     1     1 10003     2    79        3       1
## 6       NA     NA      NA     1     1 10005     1    74        3       1
##   PDSICKA ONEJOB WRKLYR4 INDSTRN1 INDSTRN2 OCCUPN1 OCCUPN2 YRSWRKPA DIFAGE2
## 1       2     NA       2       73       18      40      13       15       3
## 2       1      2       0       31        5       4       1       14      NA
## 3       2      2       0       63       14      22       8        0      NA
## 4       2      2       0       63       14      44      14        2      NA
## 5       2     NA       2       63       14       4       1       15      NA
## 6       1     NA       2       25        5      79      21       14      24
##   HYPEV HYPDIFV HYPMDEV2 HYPMED2 CHLEV CHLYR CHLMDEV2 CHLMDNW2 CHDEV ANGEV MIEV
```

```
## 1     1       1        1       1     1     1        1        1     2     2    2
## 2     2      NA       NA      NA     2    NA       NA       NA     2     2    2
## 3     2      NA       NA      NA     2    NA       NA       NA     2     2    2
## 4     2      NA       NA      NA     2    NA       NA       NA     2     2    2
## 5     1       1        1       1     2    NA       NA       NA     2     2    2
## 6     1       1        1       1     1     1        1        1     1     2    1
##   HRTEV STREV DIBEV1 DIBPRE2 DIBPILL1 INSLN1 JNTSYMP JNTHP ARTH1 ARTHLMT
## 1     2     2      1      NA        1      2       2    NA     1       2
## 2     2     2      2       2       NA     NA       2    NA     2      NA
## 3     2     2      2       1        2      2       2    NA     2      NA
## 4     2     2      2       2       NA     NA       2    NA     2      NA
## 5     2     2      2       2       NA     NA       2    NA     2      NA
## 6     1     2      1      NA        1      2       1     2     2       2
##   PAINECK PAINLB AMIGR ACOLD2W HRAIDNOW HRAIDEV AHEARST1 AVISION ABLIND LUPPRT
## 1       2      2     2       1        1      NA        5       2     NA      1
## 2       1      1     2       1        2       2        3       2     NA      2
## 3       1      1     1       2        2       2        1       2     NA      2
## 4       2      2     2       2        2       2        1       2     NA      2
## 5       1      1     2       2        2       2        2       2     NA      2
## 6       2      2     2       2        2       2        2       2     NA      2
##   HYPYR1 AFLHC20_ AFLHCA1 AFLHCA10 AFLHCA17 AFLHCA2 AFLHCA3 AFLHCA4 AFLHCA7
## 1      1        2       2        2        2       2       2       2       2
## 2     NA        2       2        2        2       2       2       1       2
## 3     NA       NA      NA       NA       NA      NA      NA      NA      NA
## 4     NA       NA      NA       NA       NA      NA      NA      NA      NA
## 5      1       NA      NA       NA       NA      NA      NA      NA      NA
## 6      1        2       2        2        2       2       2       2       2
##   AFLHCA8 AFLHCA9 AHCAFYR1 AHCAFYR2 AHCAFYR3 AHCAFYR4 AWORPAY ARX12MO ARX12_1
## 1       2       2        2        2        2        2       3       1       2
## 2       2       2        2        2        2        2       2       1       2
## 3      NA      NA        1        2        2        2       3       1       2
## 4      NA      NA        2        2        2        2       1       2      NA
## 5      NA      NA        2        2        2        2       3       1       2
## 6       2       2        2        2        2        2       3       1       2
##   ARX12_2 ARX12_3 ARX12_4 ARX12_5 ARX12_6 ADNLONG2 AHCSYR1 AHCSYR2 AHCSYR3
## 1       2       2       2       2       2        5       2       1       2
## 2       2       2       1       2       2        5       2       2       2
## 3       2       2       2       2       2        1       2       1       2
## 4      NA      NA      NA       2       2        4       2       2       2
## 5       2       2       1       2       2        1       2       1       2
## 6       2       2       1       2       2        4       2       1       2
##   AHCSYR4 AHCSYR5 AHCSYR8 AHCSYR9 APSBPCHK APSCHCHK APSBSCHK ASISATHC histop1
## 1       2       2       2       1        1        1        1        2      NA
## 2       2       1       1       1        1        1        1        1      NA
## 3       2       1       1       1        1        1        1        1      NA
## 4       2       2       2       2        2        2        2        5       0
## 5       1       1       1       1        1        1        1        1      NA
## 6       2       2       2       1        1        1        1        1      NA
##   histop2 need1 need2 delay1 delay2 notcov1 notcov2 pdsick1 pdsick2 sex2
## 1    <NA>     0     0      0      0       1       1       0       0    2
## 2    <NA>     0     0      0      0       1       1       1       1    1
## 3    <NA>     0     0      0      0       1       1       0       0    2
## 4       0     0     0      0      0       0       0       0       0    2
## 5    <NA>     0     0      0      0       1       1       0       0    2
```

```
## 6    <NA>     0     0      0      0       1       1       1       1    1
```

Model for have sick pay but delayed care

```
sickmodel <- glm(delay2 ~ pdsick2 + sex2 + AGE_P, data = new, family = "binomial")
```

Output model results

```
summary(sickmodel)
```

```
##
## Call:
## glm(formula = delay2 ~ pdsick2 + sex2 + AGE_P, family = "binomial",
##     data = new)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -0.6815  -0.5130  -0.4555  -0.3883   2.4111
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept) -1.228327   0.064502 -19.043  < 2e-16 ***
## pdsick21    -0.515890   0.041280 -12.497  < 2e-16 ***
## sex22        0.120934   0.041450   2.918  0.00353 **
## AGE_P       -0.013015   0.001144 -11.376  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 16923  on 24346  degrees of freedom
## Residual deviance: 16611  on 24343  degrees of freedom
##   (1070 observations deleted due to missingness)
## AIC: 16619
##
## Number of Fisher Scoring iterations: 5
```

Model for have sick pay but didn't get needed care

```
sickmodel2 <- glm(need2 ~ pdsick2 + sex2 + AGE_P, data = new, family = "binomial")
```

Output model results

```
summary(sickmodel2)
```

```
##
## Call:
## glm(formula = need2 ~ pdsick2 + sex2 + AGE_P, family = "binomial",
##     data = new)
##
## Deviance Residuals:
```

```
##     Min       1Q   Median       3Q      Max
## -0.5537  -0.4307  -0.3602  -0.3172   2.5825
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept) -1.850057   0.077524 -23.864  < 2e-16 ***
## pdsick21    -0.623532   0.049697 -12.547  < 2e-16 ***
## sex22        0.227049   0.049985   4.542 5.56e-06 ***
## AGE_P       -0.009702   0.001360  -7.132 9.88e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 12815  on 24346  degrees of freedom
## Residual deviance: 12576  on 24343  degrees of freedom
##   (1070 observations deleted due to missingness)
## AIC: 12584
##
## Number of Fisher Scoring iterations: 5
```

Create Training and Testing Datasets

```
#create a list of random number ranging from 1 to number of rows from actual data and 70% of the data i

data1 = sort(sample(nrow(new), nrow(new)*.7))

#creating training data set by selecting the output row values
trainnew<-new[data1,]

#creating test data set by not selecting the output row values
testnew<-new[-data1,]
```

Model for have sick pay but delayed care using training data

```
sickmodeltrain <- glm(delay2 ~ pdsick2 + sex2 + AGE_P, data = trainnew, family = "binomial")
```

Output model results

```
summary(sickmodeltrain)
```

```
##
## Call:
## glm(formula = delay2 ~ pdsick2 + sex2 + AGE_P, family = "binomial",
##     data = trainnew)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -0.6668  -0.5054  -0.4503  -0.3862   2.3945
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
```

```
## (Intercept) -1.25494    0.07780 -16.131   <2e-16 ***
## pdsick21    -0.50032    0.04979 -10.048   <2e-16 ***
## sex22        0.09556    0.04995   1.913   0.0558 .
## AGE_P       -0.01284    0.00138  -9.304   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 11670  on 17024  degrees of freedom
## Residual deviance: 11466  on 17021  degrees of freedom
##   (766 observations deleted due to missingness)
## AIC: 11474
##
## Number of Fisher Scoring iterations: 5
```

Make predictions

```
#Make predictions
sickpredict <-  predict(sickmodeltrain, testnew, type = "terms")

head(sickpredict)
```

```
##       pdsick2        sex2       AGE_P
## 2  -0.2097958 -0.05140958  0.16277442
## 3   0.2905227  0.04415196  0.09856423
## 5   0.2905227  0.04415196 -0.35090705
## 9   0.2905227 -0.05140958 -0.14543446
## 10  0.2905227  0.04415196  0.07288016
## 14 -0.2097958 -0.05140958  0.14993238
```

```
summary(sickpredict)
```

```
##     pdsick2              sex2                AGE_P
##  Min.   :-0.20980   Min.   :-0.0514096   Min.   :-0.427959
##  1st Qu.:-0.20980   1st Qu.:-0.0514096   1st Qu.:-0.196803
##  Median :-0.20980   Median : 0.0441520   Median :-0.017014
##  Mean   : 0.00121   Mean   : 0.0006317   Mean   :-0.002757
##  3rd Qu.: 0.29052   3rd Qu.: 0.0441520   3rd Qu.: 0.201300
##  Max.   : 0.29052   Max.   : 0.0441520   Max.   : 0.432457
##  NA's   :304
```

Model for have sick pay but didn't get needed care using training data

```
sickmodel2train <- glm(need2 ~ pdsick2 + sex2 + AGE_P, data = trainnew, family = "binomial")
```

Output model results

```
summary(sickmodel2train)
```

```
##
## Call:
## glm(formula = need2 ~ pdsick2 + sex2 + AGE_P, family = "binomial",
##     data = trainnew)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -0.5586  -0.4312  -0.3569  -0.3120   2.5961
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept) -1.781515   0.092476 -19.265  < 2e-16 ***
## pdsick21    -0.659143   0.059729 -11.035  < 2e-16 ***
## sex22        0.192311   0.059828   3.214  0.00131 **
## AGE_P       -0.010521   0.001633  -6.442 1.18e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 8924.6  on 17024  degrees of freedom
## Residual deviance: 8741.1  on 17021  degrees of freedom
##   (766 observations deleted due to missingness)
## AIC: 8749.1
##
## Number of Fisher Scoring iterations: 5
```

Make predictions

```
#Make predictions
sick2predict <- predict(sickmodel2train, testnew, type = "terms")

head(sick2predict)
```

```
##       pdsick2        sex2       AGE_P
## 2  -0.2763949 -0.10345817  0.13334952
## 3   0.3827482  0.08885271  0.08074668
## 5   0.3827482  0.08885271 -0.28747323
## 9   0.3827482 -0.10345817 -0.11914413
## 10  0.3827482  0.08885271  0.05970554
## 14 -0.2763949 -0.10345817  0.12282895
```

```
summary(sick2predict)
```

```
##     pdsick2              sex2              AGE_P
##  Min.   :-0.27639   Min.   :-0.103458   Min.   :-0.350597
##  1st Qu.:-0.27639   1st Qu.:-0.103458   1st Qu.:-0.161226
##  Median :-0.27639   Median : 0.088853   Median :-0.013938
##  Mean   : 0.00159   Mean   : 0.001271   Mean   :-0.002259
##  3rd Qu.: 0.38275   3rd Qu.: 0.088853   3rd Qu.: 0.164911
##  Max.   : 0.38275   Max.   : 0.088853   Max.   : 0.354282
##  NA's   :304
```