2014 National Hospital Ambulatory Medical Care Survey (NHAMCS) Data for Dementia Research

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Overview of the data files

This data dictionary is for the three NHAMCS_cog_2014_XXX files, which include STATA, SAS, and CSV file formats.

The NHAMCS_cog_2014 dataset includes data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) Emergency Department (ED) file. Each row of data in the NHAMCS ED file represents a single patient-visit to an ED. ICD-9 codes from the DIAG1-DIAG5 variables were used to identify patient-visits where the patient was diagnosed with Alzheimer's disease and related dementias (ADRD). This dataset also includes demographic variables (e.g., age, sex, race), visit- and ED-level weights, strata, and PSU, as well as Reason for Visit codes. Some of these variables were recoded in the following ways:

1. Where applicable, variables from the original dataset were recoded, such that answers of "Not applicable" and "Blank" were set to be missing in this dataset
2. Binary variables were re-coded such that no=0 and yes=1 (e.g., `sex` [1=female, 2=male] was re-coded into the variable `female` [0=no/male, 1=yes/female])
3. Variables that were re-coded include the name of the original NHAMCS variable in the description to allow users to easily look up the original question text and categories in the NHAMCS documentation
4. For STATA users, all variable names have been converted to lowercase

For identifying cognitive impairment/ADRD, the variable `cog_dx` was created to flag patient-visits with an ADRD diagnosis where the diagnosis was NOT flagged as probable, questionable, or ruleout. The variables `cog_dx_code1` through `cog_dx_code5` were created to show users which ICD-9 code was identified as diagnosing ADRD. The variable `any_cog` was created to flag instances where either `alzhd` = 1 or `cog_dx` = 1. `alzhd` is a variable created by NHAMCS and indicates if a patient has Alzheimer's disease regardless of diagnosis for the visit.

Brief and detailed summaries of the variable names, types, descriptions, and mean, minimum, and maximum values are included below. Descriptions of each recoded variable in this dataset include the original NHAMCS variable name. Original variable names, question text, and categories can be found on the NHAMCS Website (https://www.cdc.gov/nchs/ahcd/datasets_documentation_related.htm).

Users of this resource should be familiar with complex survey design and appropriately apply the sample weights, strata, and primary sampling units for any analyses. `patwt` should be used for patient-visit-level analyses; `edwt` should be used for ED-level analyses.

Brief summary of all variables (unweighted)

Variable	Obs	Unique	Mean	Min	Max	Label
year	23844	1	2014	2014	2014	Calendar year
id	23844	406	190.2701	2	407	Visit ID - concatenation of hospcode and patcode
hospcode	23844	266	137.9907	1	266	Hospital number
patcode	23844	266	52.2794	1	266	Patient code
region	23844	4	2.585304	1	4	Geographic region
age	23844	94	37.2331	0	93	Patient age in years
ager	23844	6	3.075994	1	6	Age recode
age65	23844	2	.1576917	0	1	Patient is age 65 or older. 1/0
female	23844	2	.5479366	0	1	Recode of sex: Patient is female. 1/0
racereth	23844	4	1.646158	1	4	RACER and ETHNIC combination
paytyper	21867	7	2.525724	1	7	Recoded primary expected source of payment for this visit (based on hierarchy)
payer	21867	4	1.873645	1	4	recode of paytyper: source of payment
totchron	23661	13	.9748531	0	12	Total number of chronic conditions
rfv1	23817	571	22694.4	10050	89980	Patient's complaint, symptom, or other reason for visit #1 - detailed category
rfv2	14163	575	21216.33	10050	89980	Patient's complaint, symptom, or other reason for visit #2 - detailed category
rfv3	7796	507	20814.11	10050	89980	Patient's complaint, symptom, or other reason for visit #3 - detailed category
rfv4	3948	434	20952.07	10050	89980	Patient's complaint, symptom, or other reason for visit #4 - detailed category
rfv5	1929	358	21726.35	10050	89980	Patient's complaint, symptom, or other reason for visit #5 - detailed category
diag1	23844	1894	.	.	.	Diagnosis #1 - detailed category
diag2	23844	1619	.	.	.	Diagnosis #2 - detailed category
diag3	23844	1190	.	.	.	Diagnosis #3 - detailed category
diag4	23844	859	.	.	.	Diagnosis #4 - detailed category
diag5	23844	605	.	.	.	Diagnosis #5 - detailed category
prdiag1	23702	2	.0035862	0	1	For diagnosis 1, is this probable, questionable, or ruleout?
prdiag2	12273	2	.016133	0	1	For diagnosis 2, is this probable, questionable, or ruleout?
prdiag3	6118	2	.0143838	0	1	For diagnosis 3, is this probable, questionable, or ruleout?
prdiag4	3175	2	.0125984	0	1	For diagnosis 4, is this probable, questionable, or ruleout?
prdiag5	1766	2	.0147225	0	1	For diagnosis 5, is this probable, questionable, or ruleout?
alzhd	23844	2	.0130851	0	1	Does patient have: Alzheimer's disease/Dementia
cog_dx	23844	2	.0038584	0	1	indicator: any cognition-related diagnosis. 1/0

Variable	Obs	Unique	Mean	Min	Max	Label
any_cog	23844	2	.0130851	0	1	any cognition-related diagnosis (cog_dx=1) or patient indicated to have dementia regardless of diagnosis (alzhd=1). 1/0
cog_dx_code1	19	3	.	.	.	identified cognition-related ICD-9 / ICD-10 diagnosis code from diag1
cog_dx_code2	31	7	.	.	.	identified cognition-related ICD-9 / ICD-10 diagnosis code from diag2
cog_dx_code3	15	3	.	.	.	identified cognition-related ICD-9 / ICD-10 diagnosis code from diag3
cog_dx_code4	24	7	.	.	.	identified cognition-related ICD-9 / ICD-10 diagnosis code from diag4
cog_dx_code5	11	4	.	.	.	identified cognition-related ICD-9 / ICD-10 diagnosis code from diag5
settype	23844	1	3	3	3	Setting type
cstratm	23844	8	3.10e+07	2.01e+07	4.04e+07	Clustered CSTRATM -- masked
cpsum	23844	156	46348.33	1	100261	Clustered CPSUM -- masked
patwt	23844	356	5931.071	22	72062	Patient visit weight
edwt	0	0	.	.	.	ED weight

Detailed summary of all variables (unweighted)

----

year   Calendar year

----

            type: numeric (int)

           range: [2014,2014]   units: 1
   unique values: 1   missing .: 0/23,844

      tabulation: Freq. Value
                   23,844 2014

----

id   Visit ID - concatenation of hospcode and patcode

----

            type: numeric (int)

           range: [2,407]   units: 1
   unique values: 406   missing .: 0/23,844

            mean: 190.27
        std. dev: 84.6922

     percentiles: 10%   25%   50%   75%   90%
                         75   123   192   257   302

----

hospcode   Hospital number

----

            type: numeric (int)

           range: [1,266]   units: 1
   unique values: 266   missing .: 0/23,844

            mean: 137.991
        std. dev: 76.7822

```
                percentiles:        10%       25%       50%       75%       90%
                                     28        75       139       206       242


-----------------------------------------------------------------------------------------------------
patcode                                                                               Patient code
-----------------------------------------------------------------------------------------------------

                   type:  numeric (int)


                  range:  [1,266]                        units:  1
          unique values:  266                        missing .:  0/23,844

                   mean:  52.2794
              std. dev:  35.2998


                percentiles:        10%       25%       50%       75%       90%
                                     10        24        48        76        98


-----------------------------------------------------------------------------------------------------
region                                                                            Geographic region
-----------------------------------------------------------------------------------------------------

                   type:  numeric (byte)
                  label:  REGIONF


                  range:  [1,4]                          units:  1
          unique values:  4                          missing .:  0/23,844


              tabulation:  Freq.    Numeric  Label
                           4,562          1  Northeast
                           5,846          2  Midwest
                           8,354          3  South
                           5,082          4  West


-----------------------------------------------------------------------------------------------------
age                                                                              Patient age in years
-----------------------------------------------------------------------------------------------------

                   type:  numeric (byte)
```

```
            label:  AGEF, but 92 nonmissing values are not labeled


            range:  [0,93]                      units:  1
    unique values:  94                      missing .:  0/23,844


         examples:  14
                    28
                    43
                    60


--------------------------------------------------------------------------------------------------
ager                                                                                    Age recode
--------------------------------------------------------------------------------------------------


             type:  numeric (byte)
            label:  AGERF


            range:  [1,6]                        units:  1
    unique values:  6                        missing .:  0/23,844


       tabulation:  Freq.   Numeric  Label
                    4,818         1  Under 15 years
                    3,383         2  15-24 years
                    6,622         3  25-44 years
                    5,261         4  45-64 years
                    1,710         5  65-74 years
                    2,050         6  75 years and over


--------------------------------------------------------------------------------------------------
age65                                                            Patient is age 65 or older. 1/0
--------------------------------------------------------------------------------------------------


             type:  numeric (byte)
            label:  NOYESF


            range:  [0,1]                        units:  1
    unique values:  2                        missing .:  0/23,844


       tabulation:  Freq.   Numeric  Label
                   20,084         0  No
```

```
                      3,760         1  Yes



--------------------------------------------------------------------------------------------------------
female                                              Recode of sex: Patient is female. 1/0
--------------------------------------------------------------------------------------------------------


                  type:  numeric (byte)

                 label:  NOYESF


                 range:  [0,1]                          units:  1
         unique values:  2                          missing .:  0/23,844


            tabulation:  Freq.   Numeric  Label
                        10,779         0  No
                        13,065         1  Yes



--------------------------------------------------------------------------------------------------------
racereth                                                    RACER and ETHNIC combination
--------------------------------------------------------------------------------------------------------


                  type:  numeric (byte)

                 label:  RACERETHF


                 range:  [1,4]                          units:  1
         unique values:  4                          missing .:  0/23,844


            tabulation:  Freq.   Numeric  Label
                        13,795         1  Non-Hispanic White
                         5,453         2  Non-Hispanic Black
                         3,834         3  Hispanic
                           762         4  Non-Hispanic Other



--------------------------------------------------------------------------------------------------------
paytyper                               Recoded primary expected source of payment for visit (based on hierarchy)
--------------------------------------------------------------------------------------------------------


                  type:  numeric (byte)

                 label:  PAYTYPERF


                 range:  [1,7]                          units:  1
```

```
     unique values:  7                          missing .:  1,977/23,844


        tabulation:  Freq.   Numeric  Label
                     6,762        1   Private insurance
                     4,312        2   Medicare
                     7,574        3   Medicaid or CHIP
                       160        4   Worker's compensation
                     2,439        5   Self-pay
                        53        6   No charge/Charity
                       567        7   Other
                     1,977        .

-------------------------------------------------------------------------------------------------------
payer                                                  recode of paytyper: source of payment
-------------------------------------------------------------------------------------------------------


              type:  numeric (byte)
             label:  payerlbl


             range:  [1,4]                        units:  1
     unique values:  4                          missing .:  1,977/23,844


        tabulation:  Freq.   Numeric  Label
                     6,762        1   Private insurance
                    11,886        2   Medicare/Medicaid/CHIP
                     2,439        3   Self-pay
                       780        4   Other
                     1,977        .

-------------------------------------------------------------------------------------------------------
totchron                                               Total number of chronic conditions
-------------------------------------------------------------------------------------------------------


              type:  numeric (byte)
             label:  TOTPROCF, but 13 nonmissing values are not labeled


             range:  [0,12]                       units:  1
     unique values:  13                         missing .:  183/23,844


          examples:  0
```

```
                     0

                     1

                     2


-----------------------------------------------------------------------------------------------------
rfv1                             Patient's complaint, symptom, or other reason for visit #1 - detailed category
-----------------------------------------------------------------------------------------------------


             type:  numeric (long)

            label:  RFVF


            range:  [10050,89980]                 units:  1
    unique values:  571                       missing .:  27/23,844


         examples:  12100  Headache, pain in head

                    15001  Toothache

                    18600  Skin rash

                    28000  Carbuncle, furuncle, boil, cellulitis...


-----------------------------------------------------------------------------------------------------
rfv2                             Patient's complaint, symptom, or other reason for visit #2 - detailed category
-----------------------------------------------------------------------------------------------------


             type:  numeric (long)

            label:  RFVF


            range:  [10050,89980]                 units:  1
    unique values:  575                       missing .:  9,681/23,844


         examples:  14200  Labored or difficult breathing (dyspnea)

                    19001  Neck pain, ache, soreness, discomfort

                    .

                    .


-----------------------------------------------------------------------------------------------------
rfv3                             Patient's complaint, symptom, or other reason for visit #3 - detailed category
-----------------------------------------------------------------------------------------------------


             type:  numeric (long)

            label:  RFVF
```

```
            range:  [10050,89980]                units:  1
    unique values:  507                     missing .:  16,048/23,844


         examples:  16401 Blood in urine (hematuria)
                    .
                    .
                    .


-------------------------------------------------------------------------------------------------------
rfv4                             Patient's complaint, symptom, or other reason for visit #4 - detailed category
-------------------------------------------------------------------------------------------------------


             type:  numeric (long)
            label:  RFVF


            range:  [10050,89980]                units:  1
    unique values:  434                     missing .:  19,896/23,844


         examples:  .
                    .
                    .
                    .


-------------------------------------------------------------------------------------------------------
rfv5                             Patient's complaint, symptom, or other reason for visit #5 - detailed category
-------------------------------------------------------------------------------------------------------


             type:  numeric (long)
            label:  RFVF


            range:  [10050,89980]                units:  1
    unique values:  358                     missing .:  21,915/23,844


         examples:  .
                    .
                    .
                    .


-------------------------------------------------------------------------------------------------------
```

```
diag1                                                            Diagnosis #1 - detailed category
-----------------------------------------------------------------------------------------------------

            type:  string (str5)

    unique values:  1,894                    missing "":  0/23,844

        examples:  "4644-"
                   "64683"
                   "7842-"
                   "84500"


-----------------------------------------------------------------------------------------------------
diag2                                                            Diagnosis #2 - detailed category
-----------------------------------------------------------------------------------------------------

            type:  string (str5)

    unique values:  1,619                    missing "":  0/23,844

        examples:  "-9"
                   "-9"
                   "36130"
                   "78039"


-----------------------------------------------------------------------------------------------------
diag3                                                            Diagnosis #3 - detailed category
-----------------------------------------------------------------------------------------------------

            type:  string (str5)

    unique values:  1,190                    missing "":  0/23,844

        examples:  "-9"
                   "-9"
                   "-9"
                   "3090-"


-----------------------------------------------------------------------------------------------------
diag4                                                            Diagnosis #4 - detailed category
```

```
------------------------------------------------------------------------------------------------------

                  type:  string (str5)


         unique values:  859                           missing "":  0/23,844


              examples:  "-9"

                         "-9"

                         "-9"

                         "-9"


------------------------------------------------------------------------------------------------------
diag5                                                           Diagnosis #5 - detailed category
------------------------------------------------------------------------------------------------------


                  type:  string (str5)


         unique values:  605                           missing "":  0/23,844


              examples:  "-9"

                         "-9"

                         "-9"

                         "-9"


------------------------------------------------------------------------------------------------------
prdiag1                                     For diagnosis 1, is this probable, questionable, or ruleout?
------------------------------------------------------------------------------------------------------


                  type:  numeric (byte)
                 label:  PRDIAGF


                 range:  [0,1]                             units:  1
         unique values:  2                            missing .:  142/23,844


            tabulation:  Freq.   Numeric  Label
                         23,617        0  No
                             85        1  Yes
                            142        .


------------------------------------------------------------------------------------------------------
```

```
prdiag2                                           For diagnosis 2, is this probable, questionable, or ruleout?
-------------------------------------------------------------------------------------------------------

                  type:   numeric (byte)
                 label:   PRDIAGF


                 range:   [0,1]                              units:  1
         unique values:   2                            missing .:  11,571/23,844


            tabulation:   Freq.   Numeric  Label
                          12,075        0  No
                             198        1  Yes
                          11,571        .


-------------------------------------------------------------------------------------------------------
prdiag3                                           For diagnosis 3, is this probable, questionable, or ruleout?
-------------------------------------------------------------------------------------------------------

                  type:   numeric (byte)
                 label:   PRDIAGF


                 range:   [0,1]                              units:  1
         unique values:   2                            missing .:  17,726/23,844


            tabulation:   Freq.   Numeric  Label
                           6,030        0  No
                              88        1  Yes
                          17,726        .


-------------------------------------------------------------------------------------------------------
prdiag4                                           For diagnosis 4, is this probable, questionable, or ruleout?
-------------------------------------------------------------------------------------------------------

                  type:   numeric (byte)
                 label:   PRDIAGF


                 range:   [0,1]                              units:  1
         unique values:   2                            missing .:  20,669/23,844


            tabulation:   Freq.   Numeric  Label
```

```
                      3,135          0  No
                         40          1  Yes
                     20,669          .
```

----

prdiag5   For diagnosis 5, is this probable, questionable, or ruleout?

```
             type:  numeric (byte)
            label:  PRDIAGF


            range:  [0,1]                            units:  1
    unique values:  2                         missing .:  22,078/23,844


       tabulation:  Freq.   Numeric  Label
                    1,740          0  No
                       26          1  Yes
                   22,078          .
```

----

alzhd   Does patient have: Alzheimer's disease/Dementia

```
             type:  numeric (byte)
            label:  NOYESF


            range:  [0,1]                            units:  1
    unique values:  2                         missing .:  0/23,844


       tabulation:  Freq.   Numeric  Label
                   23,532          0  No
                      312          1  Yes
```

----

cog_dx   indicator: any cognition-related diagnosis. 1/0

```
             type:  numeric (byte)
            label:  NOYESF
```

```
              range:  [0,1]                            units:  1
      unique values:  2                          missing .:  0/23,844


        tabulation:  Freq.   Numeric  Label
                    23,752         0  No
                        92         1  Yes


-------------------------------------------------------------------------------------------------------
any_cog                          any cognition-related diagnosis (cog_dx=1) or patient indicated to have dementia
                                 regardless of diagnosis (alzhd=1). 1/0
-------------------------------------------------------------------------------------------------------


               type:  numeric (byte)
              label:  NOYESF


              range:  [0,1]                            units:  1
      unique values:  2                          missing .:  0/23,844


        tabulation:  Freq.   Numeric  Label
                    23,532         0  No
                       312         1  Yes


-------------------------------------------------------------------------------------------------------
cog_dx_code1                          identified cognition-related ICD-9 / ICD-10 diagnosis code from diag1
-------------------------------------------------------------------------------------------------------


               type:  string (str5)


      unique values:  3                          missing "":  23,825/23,844


        tabulation:  Freq.  Value
                    23,825  ""
                        11  "29420"
                         1  "29421"
                         7  "3310-"


-------------------------------------------------------------------------------------------------------
cog_dx_code2                          identified cognition-related ICD-9 / ICD-10 diagnosis code from diag2
-------------------------------------------------------------------------------------------------------
```

```
             type:  string (str5)


    unique values:  7                           missing "":  23,813/23,844


       tabulation:  Freq.   Value
                    23,813  ""
                         1  "2903-"
                         1  "29410"
                         2  "29411"
                        21  "29420"
                         1  "29421"
                         3  "3310-"
                         2  "33182"


-------------------------------------------------------------------------------------------------------
cog_dx_code3                            identified cognition-related ICD-9 / ICD-10 diagnosis code from diag3
-------------------------------------------------------------------------------------------------------


             type:  string (str5)


    unique values:  3                           missing "":  23,829/23,844


       tabulation:  Freq.   Value
                    23,829  ""
                        11  "29420"
                         1  "29421"
                         3  "3310-"


-------------------------------------------------------------------------------------------------------
cog_dx_code4                            identified cognition-related ICD-9 / ICD-10 diagnosis code from diag4
-------------------------------------------------------------------------------------------------------


             type:  string (str5)


    unique values:  7                           missing "":  23,820/23,844


       tabulation:  Freq.   Value
                    23,820  ""
                         1  "2900-"
                         1  "29040"
```

```
                                   1  "29410"
                                  14  "29420"
                                   1  "29421"
                                   5  "3310-"
                                   1  "33182"


-------------------------------------------------------------------------------------------------------
cog_dx_code5                                    identified cognition-related ICD-9 / ICD-10 diagnosis code from diag5
-------------------------------------------------------------------------------------------------------


              type:  string (str5)


      unique values:  4                        missing "":  23,833/23,844


         tabulation:  Freq.   Value
                     23,833   ""
                          1   "29040"
                          1   "29410"
                          8   "29420"
                          1   "3310-"


-------------------------------------------------------------------------------------------------------
settype                                                                                    Setting type
-------------------------------------------------------------------------------------------------------


              type:  numeric (byte)
             label:  SETTYPF


             range:  [3,3]                          units:  1
      unique values:  1                        missing .:  0/23,844


         tabulation:  Freq.   Numeric  Label
                     23,844         3  NHAMCS - ED


-------------------------------------------------------------------------------------------------------
cstratm                                                                        Clustered CSTRATM -- masked
-------------------------------------------------------------------------------------------------------


              type:  numeric (long)
```

```
                       range:  [20114200,40400000]           units:  100
               unique values:  8                          missing .:  0/23,844


                  tabulation:  Freq.   Value
                               2,988   20114201
                               2,750   20214201
                               2,113   20314201
                               3,183   20414201
                               1,574   40100000
                               3,096   40200000
                               6,241   40300000
                               1,899   40400000


-------------------------------------------------------------------------------------------------------------
cpsum                                                                               Clustered CPSUM -- masked
-------------------------------------------------------------------------------------------------------------


                        type:  numeric (long)


                       range:  [1,100261]                    units:  1
               unique values:  156                        missing .:  0/23,844


                        mean:  46348.3
                    std. dev:  49917.2


                 percentiles:        10%        25%        50%        75%        90%
                                       9         21         39     100109     100230


-------------------------------------------------------------------------------------------------------------
patwt                                                                                    Patient visit weight
-------------------------------------------------------------------------------------------------------------


                        type:  numeric (long)


                       range:  [22,72062]                    units:  1
               unique values:  356                        missing .:  0/23,844


                        mean:  5931.07
                    std. dev:  8242.15
```

```
      percentiles:        10%        25%        50%        75%        90%

                         1167       2275       3739       6502      11236


-------------------------------------------------------------------------------------------------
edwt                                                                                    ED weight
-------------------------------------------------------------------------------------------------


              type:  numeric (byte)


             range:  [.,.]                          units:  .
     unique values:  0                            missing .:  23,844/23,844


        tabulation:  Freq.   Value
                    23,844   .
```