2019 National Hospital Ambulatory Medical Care Survey (NHAMCS) Data for Dementia Research

Support

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Overview of the data files
This data dictionary is for the three NHAMCS_cog_2019_XXX files, which include STATA, SAS, and CSV file formats.

The NHAMCS_cog_2019 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. Truncated ICD-10 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 or other cognitive impairment 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-10 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	19481	1	2019	2019	2019	Calendar year
id	19481	338	156.3229	2	339	Visit ID - concatenation of hospcode and patcode
hospcode	19481	210	104.8783	1	210	Hospital number
patcode	19481	168	51.44454	1	168	Patient code
region	19481	4	2.544479	1	4	Geographic region
age	19481	95	38.37601	0	94	Patient age in years
ager	19481	6	3.134131	1	6	Age recode
age65	19481	2	.1783789	0	1	Patient is age 65 or older. 1/0
female	19481	2	.5374981	0	1	Recode of sex: Patient is female. 1/0
racereth	19481	4	1.706843	1	4	RACER and ETHNIC combination
paytyper	17345	7	2.545114	1	7	Recoded primary expected source of payment for...
payer	17345	4	1.896685	1	4	recode of paytyper: source of payment
totchron	19216	12	1.209721	0	11	Total number of chronic conditions
rfv1	19450	546	22776.12	10050	89990	Patient's complaint, symptom, or other reason ...
rfv2	12753	586	21647.9	10050	89990	Patient's complaint, symptom, or other reason ...
rfv3	7900	540	21680.68	10050	89990	Patient's complaint, symptom, or other reason ...
rfv4	4551	462	22193.78	10050	89990	Patient's complaint, symptom, or other reason ...
rfv5	2466	361	23792.22	10050	89980	Patient's complaint, symptom, or other reason ...
diag1	19481	1517	.	.	.	Diagnosis #1
diag2	19481	1410	.	.	.	Diagnosis #2
diag3	19481	1090	.	.	.	Diagnosis #3
diag4	19481	806	.	.	.	Diagnosis #4
diag5	19481	632	.	.	.	Diagnosis #5
prdiag1	19380	2	.0021156	0	1	For diagnosis 1, is this probable, questionabl...
prdiag2	10770	2	.007428	0	1	For diagnosis 2, is this probable, questionabl...
prdiag3	5991	2	.0081789	0	1	For diagnosis 3, is this probable, questionabl...
prdiag4	3578	2	.0047513	0	1	For diagnosis 4, is this probable, questionabl...
prdiag5	2262	2	.0026525	0	1	For diagnosis 5, is this probable, questionabl...
alzhd	19481	2	.013295	0	1	Does patient have: Alzheimer's disease/Dementia
cog_dx	19481	2	.0105231	0	1	indicator: any cognition-related diagnosis. 1/0
any_cog	19481	2	.0193522	0	1	any cognition-related diagnosis (cog_dx=1) or ...
cog_dx_code1	91	2	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code2	47	3	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code3	37	3	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code4	31	3	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code5	10	3	.	.	.	identified cognition-related ICD-9 / ICD-10 di...

settype	19481	1	3	3	3	Setting type
cstratm	19481	8	3.11e+07	2.01e+07	4.04e+07	Clustered CSTRATM -- masked
cpsum	19481	132	45864.2	2	100206	Clustered CPSUM -- masked
patwt	19481	270	7733.165	56.07383	37194.21	Patient visit weight
edwt	19481	179	21.75717	1.64964	115.6537	ED weight

Detailed summary of all variables (unweighted)

---

year — Calendar year

---

type: numeric (int)

range: [2019,2019] units: 1

unique values: 1 missing .: 0/19,481

tabulation: Freq. Value

19,481 2019

---

id — Visit ID - concatenation of hospcode and patcode

---

type: numeric (int)

range: [2,339] units: 1

unique values: 338 missing .: 0/19,481

mean: 156.323

std. dev: 68.3634

percentiles:	10%	25%	50%	75%	90%
	65	104	155	209	248

---

hospcode — Hospital number

---

type: numeric (int)

range: [1,210] units: 1

unique values: 210 missing .: 0/19,481

mean: 104.878

std. dev: 60.5936

```
          percentiles:        10%       25%       50%       75%       90%
                               23        53       103       158       190
```

---

patcode — Patient code

```
                  type:  numeric (int)

                 range:  [1,168]                      units:  1
         unique values:  168                      missing .:  0/19,481

                  mean:   51.4445
             std. dev:   32.7005

          percentiles:        10%       25%       50%       75%       90%
                               10        24        48        76        97
```

---

region — Geographic region

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

                 range:  [1,4]                        units:  1
         unique values:  4                        missing .:  0/19,481

            tabulation:  Freq.   Numeric  Label
                         4,093         1  Northeast
                         4,448         2  Midwest
                         7,180         3  South
                         3,760         4  West
```

---

age — Patient age in years

```
                  type:  numeric (byte)
```

label: AGEF, but 93 nonmissing values are not labeled

range: [0,94] units: 1
unique values: 95 missing .: 0/19,481

examples: 15
29
44
62

---

ager Age recode

---

type: numeric (byte)
label: AGERF

range: [1,6] units: 1
unique values: 6 missing .: 0/19,481

tabulation:

Freq.	Numeric	Label
3,892	1	Under 15 years
2,673	2	15-24 years
5,158	3	25-44 years
4,283	4	45-64 years
1,638	5	65-74 years
1,837	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 .: 0/19,481

tabulation:

Freq.	Numeric	Label
16,006	0	No

```
                      3,475         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 .:  0/19,481

           tabulation:  Freq.   Numeric  Label
                        9,010         0  No
                       10,471         1  Yes

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

                 type:  numeric (byte)
                label:  RACERETHF

                range:  [1,4]                        units:  1
        unique values:  4                         missing .:  0/19,481

           tabulation:  Freq.   Numeric  Label
                       10,606         1  Non-Hispanic White
                        4,785         2  Non-Hispanic Black
                        3,285         3  Hispanic
                          805         4  Non-Hispanic Other

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

                 type:  numeric (byte)
                label:  PAYTYPERF

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

```
        unique values:  7                       missing .:  2,136/19,481

           tabulation:  Freq.   Numeric  Label
                        4,655         1  Private insurance
                        3,864         2  Medicare
                        6,631         3  Medicaid or CHIP or other
                                         state-based program
                          125         4  Worker's compensation
                        1,527         5  Self-pay
                           67         6  No charge/Charity
                          476         7  Other
                        2,136         .

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

                 type:  numeric (byte)
                label:  payerlbl

                range:  [1,4]                       units:  1
        unique values:  4                       missing .:  2,136/19,481

           tabulation:  Freq.   Numeric  Label
                        4,655         1  Private insurance
                       10,495         2  Medicare/Medicaid/CHIP
                        1,527         3  Self-pay
                          668         4  Other
                        2,136         .

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

                 type:  numeric (byte)
                label:  TOTPROCF, but 12 nonmissing values are not labeled

                range:  [0,11]                      units:  1
        unique values:  12                      missing .:  265/19,481
```

```
              examples:  0
                         0
                         1
                         2

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

                  type:  numeric (long)
                 label:  RFVF

                 range:  [10050,89990]                units:  1
          unique values:  546                      missing .:  31/19,481

              examples:  12050 Convulsions
                         14552 Throat pain
                         18350 Discoloration or abnormal pigmentation
                         31300 General psychiatric or psychological ...

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

                  type:  numeric (long)
                 label:  RFVF

                 range:  [10050,89990]                units:  1
          unique values:  586                      missing .:  6,728/19,481

              examples:  14102 Sinus inflammation, infection
                         17752 Pelvic pressure or dropping sensation
                         55600 Injury, other and unspecified, of elbow
                         .

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

                  type:  numeric (long)
```

```
                label:  RFVF

                range:  [10050,89990]               units:  1
        unique values:  540                     missing .:  11,581/19,481

             examples:  15300 Vomiting
                        61050 For results of cholesterol and trigly...
                        .
                        .
```

---

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

---

```
                 type:  numeric (long)
                label:  RFVF

                range:  [10050,89990]               units:  1
        unique values:  462                     missing .:  14,930/19,481

             examples:  32400 Other special examination
                        .
                        .
                        .
```

---

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:  361                     missing .:  17,015/19,481

             examples:  .
                        .
                        .
                        .
```

---

diag1 Diagnosis #1

---

type: string (str4)

unique values: 1,517 missing "": 0/19,481

examples: "J020"
"M255"
"R101"
"S022"

---

diag2 Diagnosis #2

---

type: string (str4)

unique values: 1,410 missing "": 0/19,481

examples: "-9"
"-9"
"I824"
"R101"

---

diag3 Diagnosis #3

---

type: string (str4)

unique values: 1,090 missing "": 0/19,481

examples: "-9"
"-9"
"-9"
"I502"

---

diag4 Diagnosis #4

---

type: string (str4)

unique values: 806 missing "": 0/19,481

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

---

diag5 Diagnosis #5

---

type: string (str4)

unique values: 632 missing "": 0/19,481

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 .: 101/19,481

tabulation: Freq. Numeric Label
19,339 0 No
41 1 Yes
101 .

---

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

---

type: numeric (byte)
label: PRDIAGF

range: [0,1] units: 1
unique values: 2 missing .: 8,711/19,481

tabulation: Freq. Numeric Label
10,690 0 No
80 1 Yes
8,711 .

---

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

---

type: numeric (byte)
label: PRDIAGF

range: [0,1] units: 1
unique values: 2 missing .: 13,490/19,481

tabulation: Freq. Numeric Label
5,942 0 No
49 1 Yes
13,490 .

---

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

---

type: numeric (byte)
label: PRDIAGF

range: [0,1] units: 1
unique values: 2 missing .: 15,903/19,481

tabulation:	Freq.	Numeric	Label
	3,561	0	No
	17	1	Yes
	15,903	.	

---

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

---

type: numeric (byte)

label: PRDIAGF

range: [0,1] — units: 1

unique values: 2 — missing .: 17,219/19,481

tabulation:	Freq.	Numeric	Label
	2,256	0	No
	6	1	Yes
	17,219	.	

---

alzhd — Does patient have: Alzheimer's disease/Dementia

---

type: numeric (byte)

label: NOYESF

range: [0,1] — units: 1

unique values: 2 — missing .: 0/19,481

tabulation:	Freq.	Numeric	Label
	19,222	0	No
	259	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 .:  0/19,481

            tabulation:  Freq.   Numeric  Label
                        19,276         0  No
                           205         1  Yes
```

---

any_cog any cognition-related diagnosis (cog_dx=1) or patient indicated to have dementia

---

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

                range:  [0,1]                       units:  1
         unique values:  2                      missing .:  0/19,481

            tabulation:  Freq.   Numeric  Label
                        19,104         0  No
                           377         1  Yes
```

---

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

```
                 type:  string (str4)

         unique values:  2                      missing "":  19,390/19,481

            tabulation:  Freq.  Value
                        19,390  ""
                            14  "F039"
                            77  "R418"
```

---

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

```
                 type:  string (str4)
```

```
         unique values:  3                       missing "":  19,434/19,481

            tabulation:  Freq.  Value
                        19,434  ""
                             4  "F028"
                            12  "F039"
                            31  "R418"

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

                  type:  string (str4)

         unique values:  3                       missing "":  19,444/19,481

            tabulation:  Freq.  Value
                        19,444  ""
                             2  "F028"
                            17  "F039"
                            18  "R418"

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

                  type:  string (str4)

         unique values:  3                       missing "":  19,450/19,481

            tabulation:  Freq.  Value
                        19,450  ""
                             6  "F028"
                            14  "F039"
                            11  "R418"

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

```
                type:  string (str4)

        unique values:  3                       missing "":  19,471/19,481

           tabulation:  Freq.  Value
                       19,471  ""
                            2  "F028"
                            6  "F039"
                            2  "R418"
```

---

settype — Setting type

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

               range:  [3,3]                        units:  1
        unique values:  1                       missing .:  0/19,481

           tabulation:  Freq.   Numeric  Label
                       19,481         3  NHAMCS - ED
```

---

cstratm — Clustered CSTRATM -- masked

```
                type:  numeric (long)

               range:  [20119200,40400000]          units:  100
        unique values:  8                       missing .:  0/19,481

           tabulation:  Freq.  Value
                        2,737  20119201
                        2,014  20219201
                        1,857  20319201
                        2,316  20419201
                        1,356  40100000
                        2,434  40200000
```

```
                        5,323  40300000
                        1,444  40400000
```

---

cpsum — Clustered CPSUM -- masked

```
                  type:  numeric (long)

                 range:  [2,100206]                   units:  1
         unique values:  132                      missing .:  0/19,481

                  mean:   45864.2
             std. dev:   49862.7

           percentiles:        10%       25%       50%       75%       90%
                                 8        21        37    100071    100171
```

---

patwt — Patient visit weight

```
                  type:  numeric (float)

                 range:  [56.07383,37194.215]         units:  .00001
         unique values:  270                      missing .:  0/19,481

                  mean:   7733.17
             std. dev:   6546.42

           percentiles:        10%       25%       50%       75%       90%
                            1882.31   3201.62   5853.64   9858.59   16062.3
```

---

edwt — ED weight

```
                  type:  numeric (float)

                 range:  [1.64964,115.65368]          units:  .00001
```

unique values: 179 missing .: 0/19,481

mean: 21.7572

std. dev: 20.8907

percentiles:	10%	25%	50%	75%	90%
	4.26229	7.81055	13.9932	27.6159	48.8886