

# **2015 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\_2015\_XXX files, which include STATA, SAS, and CSV file formats.

The NHAMCS\_cog\_2015 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](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	21061	1	2015	2015	2015	Calendar year
id	21061	385	174.161	2	386	Visit ID - concatenation of hospcode and patcode
hospcode	21061	248	124.4128	1	248	Hospital number
patcode	21061	163	49.74811	1	163	Patient code
region	21061	4	2.518067	1	4	Geographic region
age	21061	94	37.55657	0	93	Patient age in years
ager	21061	6	3.096909	1	6	Age recode
age65	21061	2	.1582546	0	1	Patient is age 65 or older. 1/0
female	21061	2	.5512559	0	1	Recode of sex: Patient is female. 1/0
racereth	21061	4	1.620246	1	4	RACER and ETHNIC combination
paytyper	19223	7	2.485928	1	7	Recoded primary expected source of payment for...
payer	19223	4	1.857202	1	4	recode of paytyper: source of payment
totchron	20722	12	1.070505	0	12	Total number of chronic conditions
rfv1	21006	531	22526	10050	89980	Patient's complaint, symptom, or other reason ...
rfv2	12454	572	21991.48	10050	89980	Patient's complaint, symptom, or other reason ...
rfv3	7030	509	21621.01	10050	89980	Patient's complaint, symptom, or other reason ...
rfv4	3589	427	21792.87	10050	89980	Patient's complaint, symptom, or other reason ...
rfv5	1757	335	22661.84	10050	89980	Patient's complaint, symptom, or other reason ...
diag1	21061	1833	.	.	.	Diagnosis #1 - detailed category
diag2	21061	1507	.	.	.	Diagnosis #2 - detailed category
diag3	21061	1104	.	.	.	Diagnosis #3 - detailed category
diag4	21061	767	.	.	.	Diagnosis #4 - detailed category
diag5	21061	518	.	.	.	Diagnosis #5 - detailed category
prdiag1	20921	2	.0029635	0	1	For diagnosis 1, is this probable, questionabl...
prdiag2	10633	2	.0105332	0	1	For diagnosis 2, is this probable, questionabl...
prdiag3	5322	2	.0110861	0	1	For diagnosis 3, is this probable, questionabl...
prdiag4	2760	2	.0072464	0	1	For diagnosis 4, is this probable, questionabl...
prdiag5	1565	2	.0076677	0	1	For diagnosis 5, is this probable, questionabl...
alzhd	21061	2	.0127724	0	1	Does patient have: Alzheimer's disease/Dementia
cog_dx	21061	2	.0047481	0	1	indicator: any cognition-related diagnosis. 1/0
any_cog	21061	2	.0127724	0	1	any cognition-related diagnosis (cog_dx=1) or ...
cog_dx_code1	29	5	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code2	26	6	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code3	24	5	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code4	21	4	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code5	5	1	.	.	.	identified cognition-related ICD-9 / ICD-10 di...

settype	21061	1	3	3	3	Setting type
cstratm	21061	8	3.13e+07	2.01e+07	4.04e+07	Clustered CSTRATM -- masked
cpsum	21061	142	44924.73	1	100243	Clustered CPSUM -- masked
patwt	21061	326	6502.216	117	42002	Patient visit weight
edwt	21061	59	.228859	0	86	ED weight

---

## Detailed summary of all variables (unweighted)

---

year	Calendar year
------	---------------

---

type: numeric (int)

range: [2015,2015]                      units: 1

unique values: 1                      missing .: 0/21,061

tabulation: Freq. Value

21,061	2015
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---

id	Visit ID - concatenation of hospcode and patcode
----	--

---

type: numeric (int)

range: [2,386]                      units: 1

unique values: 385                      missing .: 0/21,061

mean: 174.161

std. dev: 77.9499

percentiles:	10%	25%	50%	75%	90%
	70	113	172	236	279

---

hospcode	Hospital number
----------	-----------------

---

type: numeric (int)

range: [1,248]                      units: 1

unique values: 248                      missing .: 0/21,061

mean: 124.413

std. dev: 71.3172

percentiles:	10%	25%	50%	75%	90%
	26	66	121	188	223

-----  
patcode

Patient code  
-----

type: numeric (int)

range:	[1,163]	units:	1
unique values:	163	missing .:	0/21,061

mean: 49.7481  
std. dev: 31.7868

percentiles:	10%	25%	50%	75%	90%
	9	23	47	74	95

-----  
region

Geographic region  
-----

type: numeric (byte)

label: REGIONF

range:	[1,4]	units:	1
unique values:	4	missing .:	0/21,061

tabulation:	Freq.	Numeric	Label
	4,294	1	Northeast
	5,653	2	Midwest
	7,023	3	South
	4,091	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 .: 0/21,061

examples: 16  
28  
42  
60

---

ager Age recode

---

type: numeric (byte)  
label: AGERF

range: [1,6] units: 1  
unique values: 6 missing .: 0/21,061

tabulation:	Freq.	Numeric	Label
	3,927	1	Under 15 years
	3,173	2	15-24 years
	6,068	3	25-44 years
	4,560	4	45-64 years
	1,491	5	65-74 years
	1,842	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 .: 0/21,061

tabulation:	Freq.	Numeric	Label
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17,728            0   No  
3,333            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 .: 0/21,061

tabulation:	Freq.	Numeric	Label
	9,451	0	No
	11,610	1	Yes

-----  
racereth

RACER and ETHNIC combination  
-----

type: numeric (byte)

label: RACERETHF

range: [1,4]

units: 1

unique values: 4

missing .: 0/21,061

tabulation:	Freq.	Numeric	Label
	12,530	1	Non-Hispanic White
	4,593	2	Non-Hispanic Black
	3,344	3	Hispanic
	594	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 .: 1,838/21,061

tabulation:	Freq.	Numeric	Label
	6,039	1	Private insurance
	3,811	2	Medicare
	6,781	3	Medicaid or CHIP
	154	4	Worker's compensation
	1,890	5	Self-pay
	119	6	No charge/Charity
	429	7	Other
	1,838	.	

---

payer recode of paytyper: source of payment

---

type: numeric (byte)  
label: payerlbl

range: [1,4] units: 1  
unique values: 4 missing .: 1,838/21,061

tabulation:	Freq.	Numeric	Label
	6,039	1	Private insurance
	10,592	2	Medicare/Medicaid/CHIP
	1,890	3	Self-pay
	702	4	Other
	1,838	.	

---

totchron Total number of chronic conditions

---

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

range: [0,12] units: 1  
unique values: 12 missing .: 339/21,061

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: 531 missing .: 55/21,061

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: 572 missing .: 8,607/21,061

examples: 14300 Breathing problems, NEC  
19051 Back 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: 509 missing .: 14,031/21,061

examples: 16500 Painful urination

.  
. .  
.

---

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: 427 missing .: 17,472/21,061

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: 335 missing .: 19,304/21,061

examples: .

.  
. .  
.

---

diag1Diagnosis #1 - detailed category

---

type: string (str5)

unique values: 1,833missing "": 0/21,061

examples: "462--"  
"6268--"  
"7840--"  
"8469--"

---

diag2Diagnosis #2 - detailed category

---

type: string (str5)

unique values: 1,507missing "": 0/21,061

examples: "-9"  
"-9"  
"33829"  
"7295--"

---

diag3Diagnosis #3 - detailed category

---

type: string (str5)

unique values: 1,104missing "": 0/21,061

examples: "-9"  
"-9"  
"-9"  
"30590"

---

diag4

Diagnosis #4 - detailed category

type: string (str5)

unique values: 767

missing "": 0/21,061

examples: "-9"

"-9"

"-9"

"-9"

diag5

Diagnosis #5 - detailed category

type: string (str5)

unique values: 518

missing "": 0/21,061

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 .: 140/21,061

tabulation:	Freq.	Numeric	Label
	20,859	0	No
	62	1	Yes
	140	.	

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

type: numeric (byte)  
label: PRDIAGF  
  
range: [0,1] units: 1  
unique values: 2 missing .: 10,428/21,061

tabulation:	Freq.	Numeric	Label
	10,521	0	No
	112	1	Yes
	10,428	.	

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

type: numeric (byte)  
label: PRDIAGF  
  
range: [0,1] units: 1  
unique values: 2 missing .: 15,739/21,061

tabulation:	Freq.	Numeric	Label
	5,263	0	No
	59	1	Yes
	15,739	.	

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

type: numeric (byte)  
label: PRDIAGF  
  
range: [0,1] units: 1  
unique values: 2 missing .: 18,301/21,061

tabulation:	Freq.	Numeric	Label
	2,740	0	No
	20	1	Yes
	18,301	.	

prdiag5

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

type: numeric (byte)  
label: PRDIAGF

range: [0,1] units: 1  
unique values: 2 missing .: 19,496/21,061

tabulation:	Freq.	Numeric	Label
	1,553	0	No
	12	1	Yes
	19,496	.	

alzhd

Does patient have: Alzheimer's disease/Dementia

type: numeric (byte)  
label: NOYESF

range: [0,1] units: 1  
unique values: 2 missing .: 0/21,061

tabulation:	Freq.	Numeric	Label
	20,792	0	No
	269	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 .: 0/21,061

```

```

tabulation: Freq. Numeric Label
            20,961      0 No
            100        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 .: 0/21,061

```

```

tabulation: Freq. Numeric Label
            20,792      0 No
            269        1 Yes

```

---

```

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

```

---

```

type: string (str5)

```

```

unique values: 5 missing "": 21,032/21,061

```

```

tabulation: Freq. Value
            21,032 ""
              1 "29012"
              1 "29040"
             21 "29420"
              2 "29421"
              4 "3310-"

```

---

```

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

```

---

type: string (str5)

unique values: 6

missing "": 21,035/21,061

tabulation:	Freq.	Value
	21,035	" "
	1	"2900-"
	1	"2903-"
	1	"29410"
	20	"29420"
	1	"29421"
	2	"3310-"

---

cog\_dx\_code3

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

---

type: string (str5)

unique values: 5

missing "": 21,037/21,061

tabulation:	Freq.	Value
	21,037	" "
	1	"29021"
	13	"29420"
	2	"29421"
	7	"3310-"
	1	"33182"

---

cog\_dx\_code4

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

---

type: string (str5)

unique values: 4

missing "": 21,040/21,061

tabulation:	Freq.	Value
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```

21,040 ""
      3 "29410"
      1 "29411"
     16 "29420"
      1 "3310-"

```

---

```

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

```

---

```

type: string (str5)

```

```

unique values: 1                                missing "": 21,056/21,061

```

```

tabulation: Freq. Value
            21,056 ""
            5  "29420"

```

---

```

settype                                         Setting type

```

---

```

type: numeric (byte)
label: SETTYPEF

```

```

range: [3,3]                                units: 1
unique values: 1                            missing .: 0/21,061

```

```

tabulation: Freq.  Numeric  Label
            21,061      3  NHAMCS - ED

```

---

```

cstratm                                         Clustered CSTRATM -- masked

```

---

```

type: numeric (long)

```

```

range: [20115200,40400000]                units: 100
unique values: 8                            missing .: 0/21,061

```

```

tabulation:  Freq.  Value
              2,693  20115201
              2,457  20215201
              1,478  20315201
              2,820  20415201
              1,601  40100000
              3,196  40200000
              5,545  40300000
              1,271  40400000

```

```

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

```

```

      type:  numeric (long)

      range:  [1,100243]          units:  1
unique values: 142                missing .:  0/21,061

      mean:    44924.7
      std. dev: 49785.7

percentiles:      10%      25%      50%      75%      90%
                  8        19        36    100086    100210

```

```

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

```

```

      type:  numeric (long)

      range:  [117,42002]        units:  1
unique values: 326                missing .:  0/21,061

      mean:    6502.22
      std. dev: 5453.68

percentiles:      10%      25%      50%      75%      90%
                  1448     2797     5232     8226     14037

```

---

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

---

type: numeric (byte)

range: [0,86]

units: 1

unique values: 59

missing .: 0/21,061

mean: .228859

std. dev: 2.95031

percentiles:	10%	25%	50%	75%	90%
	0	0	0	0	0