

# **2018 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\_2018\_XXX files, which include STATA, SAS, and CSV file formats.

The NHAMCS\_cog\_2018 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](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	20291	1	2018	2018	2018	Calendar year
id	20291	359	167.0007	2	360	Visit ID - concatenation of hospcode and patcode
hospcode	20291	229	116.3231	1	229	Hospital number
patcode	20291	197	50.67759	1	197	Patient code
region	20291	4	2.530974	1	4	Geographic region
age	20291	95	38.74398	0	94	Patient age in years
ager	20291	6	3.160909	1	6	Age recode
age65	20291	2	.1709132	0	1	Patient is age 65 or older. 1/0
female	20291	2	.5472377	0	1	Recode of sex: Patient is female. 1/0
racereth	20291	4	1.714553	1	4	RACER and ETHNIC combination
paytyper	17756	7	2.516896	1	7	Recoded primary expected source of payment for...
payer	17756	4	1.880604	1	4	recode of paytyper: source of payment
totchron	19851	13	1.229762	0	12	Total number of chronic conditions
rfv1	20224	550	22233.32	10050	89990	Patient's complaint, symptom, or other reason ...
rfv2	13316	586	21078.57	10050	89980	Patient's complaint, symptom, or other reason ...
rfv3	8354	533	20839.41	10050	89980	Patient's complaint, symptom, or other reason ...
rfv4	4903	476	21234.1	10050	89990	Patient's complaint, symptom, or other reason ...
rfv5	2671	384	22440.74	10050	89980	Patient's complaint, symptom, or other reason ...
diag1	20291	1643	.	.	.	Diagnosis #1
diag2	20291	1464	.	.	.	Diagnosis #2
diag3	20291	1128	.	.	.	Diagnosis #3
diag4	20291	822	.	.	.	Diagnosis #4
diag5	20291	586	.	.	.	Diagnosis #5
prdiag1	20180	2	.0029732	0	1	For diagnosis 1, is this probable, questionabl...
prdiag2	10866	2	.0083747	0	1	For diagnosis 2, is this probable, questionabl...
prdiag3	5789	2	.0077734	0	1	For diagnosis 3, is this probable, questionabl...
prdiag4	3366	2	.0065359	0	1	For diagnosis 4, is this probable, questionabl...
prdiag5	2012	2	.0064612	0	1	For diagnosis 5, is this probable, questionabl...
alzhd	20291	2	.0133064	0	1	Does patient have: Alzheimer's disease/Dementia
cog_dx	20291	2	.0099552	0	1	indicator: any cognition-related diagnosis. 1/0
any_cog	20291	2	.0186782	0	1	any cognition-related diagnosis (cog_dx=1) or ...
cog_dx_code1	96	2	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code2	55	5	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code3	37	4	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code4	17	3	.	.	.	identified cognition-related ICD-9 / ICD-10 di...
cog_dx_code5	9	3	.	.	.	identified cognition-related ICD-9 / ICD-10 di...

settype	20291	1	3	3	3	Setting type
cstratm	20291	8	3.06e+07	2.01e+07	4.04e+07	Clustered CSTRATM -- masked
cpsum	20291	145	48261.26	1	100223	Clustered CPSUM -- masked
patwt	20291	295	6405.497	73.30394	28509.96	Patient visit weight
edwt	229	210	22.52625	1.5478	105.9177	ED weight

---

## Detailed summary of all variables (unweighted)

---

year	Calendar year
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---

type: numeric (int)

range: [2018,2018]                      units: 1

unique values: 1                      missing .: 0/20,291

tabulation: Freq. Value

20,291	2018
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---

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

---

type: numeric (int)

range: [2,360]                      units: 1

unique values: 359                      missing .: 0/20,291

mean: 167.001

std. dev: 73.3354

percentiles:	10%	25%	50%	75%	90%
	68	111	167	224	264

---

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

---

type: numeric (int)

range: [1,229]                      units: 1

unique values: 229                      missing .: 0/20,291

mean: 116.323

std. dev: 66.073

percentiles:	10%	25%	50%	75%	90%
	25	59	116	174	207

-----  
patcode

Patient code  
-----

type: numeric (int)

range:	[1,197]	units:	1
unique values:	197	missing .:	0/20,291

mean: 50.6776  
std. dev: 33.5405

percentiles:	10%	25%	50%	75%	90%
	9	23	47	74	96

-----  
region

Geographic region  
-----

type: numeric (byte)

label: REGIONF

range:	[1,4]	units:	1
unique values:	4	missing .:	0/20,291

tabulation:	Freq.	Numeric	Label
	4,533	1	Northeast
	4,505	2	Midwest
	7,199	3	South
	4,054	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 .: 0/20,291

examples: 16  
30  
45  
62

---

ager Age recode

---

type: numeric (byte)  
label: AGERF

range: [1,6] units: 1  
unique values: 6 missing .: 0/20,291

tabulation:	Freq.	Numeric	Label
	3,834	1	Under 15 years
	2,662	2	15-24 years
	5,557	3	25-44 years
	4,770	4	45-64 years
	1,579	5	65-74 years
	1,889	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 .: 0/20,291

tabulation:	Freq.	Numeric	Label
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16,823      0   No  
3,468      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 .: 0/20,291

tabulation:	Freq.	Numeric	Label
	9,187	0	No
	11,104	1	Yes

-----  
racereth

RACER and ETHNIC combination  
-----

type: numeric (byte)

label: RACERETHF

range: [1,4]

units: 1

unique values: 4

missing .: 0/20,291

tabulation:	Freq.	Numeric	Label
	10,838	1	Non-Hispanic White
	5,245	2	Non-Hispanic Black
	3,370	3	Hispanic
	838	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 .: 2,535/20,291

tabulation:	Freq.	Numeric	Label
	4,876	1	Private insurance
	3,857	2	Medicare
	6,834	3	Medicaid or CHIP or other state-based program
	140	4	Worker's compensation
	1,622	5	Self-pay
	61	6	No charge/Charity
	366	7	Other
	2,535	.	

-----  
payer

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

type: numeric (byte)  
label: payerlbl

range: [1,4] units: 1  
unique values: 4 missing .: 2,535/20,291

tabulation:	Freq.	Numeric	Label
	4,876	1	Private insurance
	10,691	2	Medicare/Medicaid/CHIP
	1,622	3	Self-pay
	567	4	Other
	2,535	.	

-----  
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 .: 440/20,291

examples: 0

0

1

3

---

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: 550                      missing .: 67/20,291

examples: 12050 Convulsions

14551 Throat soreness

17902 Spotting, bleeding during pregnancy

27350 Diagnosed complications of pregnancy ...

---

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: 586                      missing .: 6,975/20,291

examples: 14150 Shortness of breath

16604 Small volume of urine

55050 Injury, other and unspecified of head...

.

---

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

---

type: numeric (long)  
label: RFVF, but 1 nonmissing value is not labeled

range: [10050,89980] units: 1  
unique values: 533 missing .: 11,937/20,291

examples: 15300 Vomiting  
58100 Accident, NOS  
.  
.

---

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

---

type: numeric (long)  
label: RFVF, but 1 nonmissing value is not labeled

range: [10050,89990] units: 1  
unique values: 476 missing .: 15,388/20,291

examples: 26400 Other respiratory diseases  
.  
.  
.

---

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: 384 missing .: 17,620/20,291

examples: .  
.  
.  
.

---

diag1 Diagnosis #1

---

type: string (str4)

unique values: 1,643 missing "": 0/20,291

examples: "J020"  
"M199"  
"R079"  
"S018"

---

diag2 Diagnosis #2

---

type: string (str4)

unique values: 1,464 missing "": 0/20,291

examples: "-9"  
"-9"  
"I10-"  
"R078"

---

diag3 Diagnosis #3

---

type: string (str4)

unique values: 1,128 missing "": 0/20,291

examples: "-9"  
"-9"  
"-9"  
"I10-"

-----  
diag4Diagnosis #4  
-----

type: string (str4)

unique values: 822missing "": 0/20,291

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

-----  
diag5Diagnosis #5  
-----

type: string (str4)

unique values: 586missing "": 0/20,291

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

-----  
prdiag1For diagnosis 1, is this probable, questionable, or ruleout?  
-----

type: numeric (byte)

label: PRDIAGF

range: [0,1]units: 1

unique values: 2missing .: 111/20,291

tabulation:	Freq.	Numeric	Label
	20,120	0	No
	60	1	Yes
	111	.	

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

type: numeric (byte)  
label: PRDIAGF  
  
range: [0,1] units: 1  
unique values: 2 missing .: 9,425/20,291

tabulation:	Freq.	Numeric	Label
	10,775	0	No
	91	1	Yes
	9,425	.	

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

type: numeric (byte)  
label: PRDIAGF  
  
range: [0,1] units: 1  
unique values: 2 missing .: 14,502/20,291

tabulation:	Freq.	Numeric	Label
	5,744	0	No
	45	1	Yes
	14,502	.	

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

type: numeric (byte)  
label: PRDIAGF  
  
range: [0,1] units: 1  
unique values: 2 missing .: 16,925/20,291

tabulation:	Freq.	Numeric	Label
	3,344	0	No
	22	1	Yes
	16,925	.	

---

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

---

type: numeric (byte)  
label: PRDIAGF

range: [0,1] units: 1  
unique values: 2 missing .: 18,279/20,291

tabulation:	Freq.	Numeric	Label
	1,999	0	No
	13	1	Yes
	18,279	.	

---

alzhd Does patient have: Alzheimer's disease/Dementia

---

type: numeric (byte)  
label: NOYESF

range: [0,1] units: 1  
unique values: 2 missing .: 0/20,291

tabulation:	Freq.	Numeric	Label
	20,021	0	No
	270	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 .: 0/20,291

tabulation:	Freq.	Numeric	Label
	20,089	0	No
	202	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 .: 0/20,291

tabulation:	Freq.	Numeric	Label
	19,912	0	No
	379	1	Yes

---

cog\_dx\_code1                      identified cognition-related ICD-9 / ICD-10 diagnosis code from diag1

---

type: string (str4)

unique values: 2

missing "": 20,195/20,291

tabulation:	Freq.	Value
	20,195	" "
	17	"F039"
	79	"R418"

---

cog\_dx\_code2                      identified cognition-related ICD-9 / ICD-10 diagnosis code from diag2

---

type: string (str4)

unique values: 5

missing "": 20,236/20,291

tabulation: Freq. Value

20,236	"
1	"F028"
19	"F039"
2	"G301"
2	"G318"
31	"R418"

---

cog\_dx\_code3 identified cognition-related ICD-9 / ICD-10 diagnosis code from diag3

---

type: string (str4)

unique values: 4

missing "": 20,254/20,291

tabulation: Freq. Value

20,254	"
6	"F028"
11	"F039"
1	"G318"
19	"R418"

---

cog\_dx\_code4 identified cognition-related ICD-9 / ICD-10 diagnosis code from diag4

---

type: string (str4)

unique values: 3

missing "": 20,274/20,291

tabulation: Freq. Value

20,274	"
12	"F039"
1	"G301"
4	"R418"

cog_dx_code5	identified cognition-related ICD-9 / ICD-10 diagnosis code from diag5
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

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

```
unique values: 3          missing "": 20,282/20,291
```

```
tabulation:  Freq.  Value
```

20,282     " "

1 "F028"

6 "F039"

2 "R418"

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

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

```
label:  SETTYPEF
```

```
range:  [3, 3]
```

```
units: 1
```

```
unique values: 1          missing .: 0/20,291
```

```
tabulation:  Freq.    Numeric  Label
```

20,291                    3    NHAMCS - ED

cstratm Clustered CSTRATM -- masked

```
type: numeric (long)
```

```
range: [20118200, 40400000]
```

```
units: 100
```

```
unique values: 8          missing .: 0/20,291
```

```
tabulation:  Freq.  Value
```

3,354 20118201

1,800 20218201

2,028 20318201  
2,598 20418201  
1,179 40100000  
2,705 40200000  
5,171 40300000  
1,456 40400000

-----  
cpsum

Clustered CPSUM -- masked  
-----

type: numeric (long)

range: [1,100223] units: 1  
unique values: 145 missing .: 0/20,291

mean: 48261.3  
std. dev: 50011.5

percentiles:	10%	25%	50%	75%	90%
	9	21	40	100097	100188

-----  
patwt

Patient visit weight  
-----

type: numeric (float)

range: [73.30394,28509.957] units: .00001  
unique values: 295 missing .: 0/20,291

mean: 6405.5  
std. dev: 5409.9

percentiles:	10%	25%	50%	75%	90%
	1565.22	2305.34	4988.31	8228.9	13881.4

-----  
edwt

ED weight  
-----

```

type: numeric (float)

range: [1.5478,105.91768]      units: .00001
unique values: 210             missing .: 20,062/20,291

mean: 22.5262
std. dev: 22.3632

percentiles:      10%      25%      50%      75%      90%
                 3.34954  7.32487  14.6339  28.2869  56.6523

```