

## CMS 2008 Basic Stand Alone (BSA)

### Home Health Agency (HHA) Beneficiary Public Use File (PUF)

#### General Documentation

##### **1. Overview of the PUF**

This release contains the Basic Stand Alone (BSA) Home Health Agency (HHA) Beneficiary Public Use File (PUF) named “*CMS 2008 BSA HHA Beneficiary PUF*” with information from 2008 Medicare HHA claims.<sup>1</sup> The *CMS 2008 BSA HHA Beneficiary PUF* is a beneficiary-level file in which each record is a beneficiary who had at least one HHA claim from a random 5% sample of Medicare beneficiaries. Certain demographic and claim-related variables are provided in this PUF as detailed below.

Most variables could not be included in the *CMS 2008 BSA HHA Beneficiary PUF* because the inclusion of more information would increase the risk of identification of beneficiaries. In selecting the variables for inclusion in this PUF, priority was given to the measures most commonly reported/studied in health services research.

##### **2. Source Data for the PUF**

The *CMS 2008 BSA HHA Beneficiary PUF* originates from a 5% simple random sample of beneficiaries drawn (without replacement) from the 100% Beneficiary Summary File for reference year 2008. The sample used for the *CMS 2008 BSA HHA Beneficiary PUF* is disjoint from the existing 5% CMS research sample<sup>2</sup> in the sense that there is no overlap in beneficiaries between the *CMS 2008 BSA HHA Beneficiary PUF* and the 5% CMS research sample. It is also disjoint from other *CMS 2008 BSA PUFs* released so far (i.e., CMS 2008 Inpatient Claims PUF, CMS 2008 DME Line Items PUF, CMS 2008 PDE PUF, CMS 2008 Hospice Beneficiary PUF, CMS 2008 Outpatient Procedures PUF, CMS 2008 SNF Beneficiary PUF, and CMS 2008 Carrier Line Items PUF). This property prevents users from linking data across multiple files for identification purposes.

The 100% Beneficiary Summary File is created annually and contains demographic, entitlement and enrollment data for beneficiaries:

- a. who were documented as being alive for some part of the reference year of the Beneficiary Summary File, and

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<sup>1</sup> Claims with HHA services ending in 2008, defined by the “claim through date.”

<sup>2</sup> [http://www.resdac.org/tools/TBs/TN-011\\_How5percentMedicarefilescreated\\_508.pdf](http://www.resdac.org/tools/TBs/TN-011_How5percentMedicarefilescreated_508.pdf)

- b. who were entitled to Medicare benefits during the reference year, and
- c. who were enrolled in the Medicare Part A and/or Part B for at least one month in the reference year.

The 5% sample of HHA claims is created by collecting claims for the beneficiaries in the 5% random sample of beneficiaries, which contains approximately 2.4 million beneficiaries. As part of the PUF preparation steps, some beneficiaries are excluded/suppressed from the *CMS 2008 BSA HHA Beneficiary PUF*. The initial 5% sample of beneficiaries contains 2,392,893 beneficiaries. Out of those, 159,701 beneficiaries have at least one HHA claim; and the remaining 2,233,192 beneficiaries do not have any HHA claims in 2008. 519 beneficiaries are excluded because the services provided were denied by Medicare. Also, 277 beneficiaries are excluded because of data anomalies (i.e., number of HHA visits equal zero). Similarly, to increase the utility of the file, 31,700 beneficiaries who were enrolled in Fee-for-Service (FFS) Medicare Part A and B for less than twelve (12) months in 2008 are excluded. After these exclusions, 127,205 beneficiaries are included in the initial 5% sample. In addition, to protect the privacy of Medicare beneficiaries, 2,376 beneficiaries are suppressed from the PUF. Table 1 below provides the total Medicare payments and the number of beneficiaries in the initial 5% sample, the suppressed file, and the *CMS 2008 BSA HHA Beneficiary PUF*.

Table 1: Suppression in CMS 2008 BSA HHA Beneficiary PUF

Category	Formula	Medicare Payments <sup>(2)</sup>	Number of Beneficiaries
Initial 5% Sample <sup>(1)</sup>	(a)	\$716,929,241	127,205
Suppressed	(b)	\$40,708,583	2,376
<i>CMS 2008 BSA HHA Beneficiary PUF</i>	(c) =(a)-(b)	\$676,220,658	124,829

- (1) 519 beneficiaries are suppressed initially because of denied claims along with 277 beneficiaries excluded because of data anomalies, and 31,700 beneficiaries because of enrollment in FFS Medicare Part A and Part B for less than 12 months.
- (2) The Medicare payments provided in this table are computed using actual payment amounts from the HHA claims file.

### 3. Content of the PUF

The most important aspects of the *CMS 2008 BSA HHA Beneficiary PUF* are as follows:

- i. It contains HHA claim information for a simple random sample of 5% of the 2008 beneficiary population. Out of approximately 2.4 million beneficiaries in the 5% sample, 159,701 had HHA claims.

- ii. It contains seven (7) analytic variables (in addition to a unique record key): Gender, age, total number of admissions, count of therapy visits, count of skilled nursing care visits, count of home health aide visits, and total Medicare payments for all HHA admissions. Some of the variables have been aggregated or coarsened in order to protect individuals from identification while retaining the analytic value of the data.
- iii. A beneficiary is only included in the PUF if the combination of all seven (7) variables is shared by at least eleven (11) beneficiaries in the population. For some combinations of values of the seven (7) variables there are fewer than eleven (11) beneficiaries in the PUF.
- iv. Beneficiaries cannot be linked to any external data source by means of the beneficiary ID. The beneficiary ID is a cryptographic key specific to this PUF and not available elsewhere. The *CMS 2008 BSA HHA Beneficiary PUF* is sorted by this beneficiary ID to ensure that the relative positions of each beneficiary in the PUF and in the original source data are totally uncorrelated.

#### **4. Analytic Variables of the PUF**

*The CMS 2008 HHA Beneficiary PUF* contains eight (8) variables: A primary record (i.e., beneficiary) key indexing the beneficiaries and seven (7) analytic variables, listed below.

- i. Gender (BENE\_SEX\_IDENT\_CD): The beneficiary's gender, (1) male or (2) female.
- ii. Age (BENE\_AGE\_CAT\_CD): The beneficiary's age, reported in six (6) categories: (1) under 65, (2) 65 - 69, (3) 70 - 74, (4) 75-79, (5) 80-84, (6) 85 and older.
- iii. Total number of admissions (HHA\_ADM\_CD): This variable has two (2) values: (1) for beneficiaries who had one HHA admission in 2008, (2) for beneficiaries who had two or more HHA admissions in 2008.
- iv. Count of therapy visits (HHA\_THER\_VST\_CD): This variable has four (4) values: (0) for beneficiaries who had no therapy visits, (1) for beneficiaries who had 1 to 13 therapy visits, (2) for beneficiaries who had 14 to 19 therapy visits, and (3) for beneficiaries who had 20 or more therapy visits. This variable consists of physical, occupational, and speech therapy visits combined together. Refer to Table 2 for revenue center codes included in this variable.
- v. Count of skilled nursing care visits (HHA\_SNC\_VST\_CD): This variable has four values: (0) for beneficiaries who had no skilled nursing care visits, (1) for beneficiaries who had 1 to

13 visits, (2) for beneficiaries who had 14 to 19 visits, and (3) for beneficiaries who had 20 or more visits.

- vi. Count of home health aide visits (HHA\_HHA\_VST\_CD): This variable has four values: (0) for beneficiaries who had no home health aide visits, (1) for beneficiaries who had 1 to 13 visits, (2) for beneficiaries who had between 14 to 19 visits, and (3) for beneficiaries who had 20 or more visits.

Note that the HHA claims file includes other types of services covered by Medicare that are not included in the *CMS 2008 BSA HHA Beneficiary PUF*. Table 2 provides the categories and the revenue center codes that are included in each category.

- vii. Total Medicare payment (HHA\_PMT\_AMT): This value is the total payments made by Medicare for the HHA claims of the beneficiary for all home health admissions including the types of services that are not included in the *CMS 2008 BSA HHA Beneficiary PUF*. For example, medical social services visits are not included in the *CMS 2008 BSA HHA Beneficiary PUF*, but the payments for such visits are included in the HHA\_PMT\_AMT. The values are rounded according to the rules in Table 3. Note that a payment amount between \$0 and \$49.99 is rounded to \$0 according to the rounding rules.

The detailed definitions and frequency distributions of these variables are provided in the Data Dictionary & Codebook together with this document.

## 5. Analytic Utility of the PUF

The *CMS 2008 BSA HHA Beneficiary PUF* has been designed to give researchers an initial look at the CMS HHA claims. In order to preserve confidentiality, several variables have been suppressed or coarsened. The tables presented in this section are intended to increase the analytic utility by providing additional information that is not available in the PUF.

Medicare pays for beneficiaries to get certain health care services in their homes if they meet certain eligibility criteria and if the services are considered reasonable and necessary for the treatment of an illness or injury.

Table 4 through Table 9 provide comparisons of the distribution for each variable included in the PUF. For each table three different distributions are provided. The column "Population" refers to the population analogous to the column "Initial 5% sample" of Medicare beneficiaries receiving HHA care in 2008. The initial 5% sample consists of 127,205 beneficiaries after preliminary cleaning steps (see Table 1 above). The last column "PUF" refers to the 124,829 beneficiaries that remain in the PUF.

Table 10 through Table 13 provide total number of beneficiaries served, total number of visits, and Medicare payments by gender, age categories, number of admissions, and number of visits. Utilization rates such as visits per person served and Medicare payment per person served are also included.

Table 14 through Table 16 provide mean and median number of visits by gender, age categories, and categories of number of admissions. Each table gives mean and median visits for three types of care: therapy, skilled nursing and home health aide services.

Table 17 gives the distribution of beneficiaries by age and gender regardless of having an HHA claim or not. This table is provided for users interested in calculating utilization rates by age and gender. Note that, the initial 5% simple random sample of Medicare beneficiaries comprises 2,392,893 individuals. However, 921,619 beneficiaries were excluded due to enrollment in FFS Medicare Part A and Part B for less than 12 months in 2008. This subtraction is intended to eliminate the bias in utilization rates due to over- or under- representation of beneficiaries in the denominator.

Table 2: Types of Service in Home Health Agency Claims

Type of Service	Included in the PUF	Revenue Center Codes <sup>(1)</sup>
Physical Therapy Visits	Yes	0420, 0421, 0422, 0423, 0424, 0429
Occupational Therapy Visits	Yes	0430, 0431, 0432, 0433, 0434, 0439
Speech Language Therapy Visits	Yes	0440, 0441, 0442, 0443, 0444, 0449
Skilled Nursing Visits	Yes	0550,0551,0552,0559
Medical Social Services Visits	No	0560, 0561, 0562, 0569
Home Health Aide Visits	Yes	0570, 0571, 0572, 0579
Other Visits	No	0580, 0581, 0582, 0589

(1) Refer to the ResDAC website for more information:

[http://www.resdac.org/ddvh/NewFilesCodeRefLimitations/REV\\_CNTR\\_TB.htm](http://www.resdac.org/ddvh/NewFilesCodeRefLimitations/REV_CNTR_TB.htm)

Table 3: Rounding Rule for Total Medicare Payments

Value of Total Medicare Payment Amount (\$)	Rounding Rule
0 - 1,000	Round to the nearest multiple of 100
1,000 - 5,000	Round to the nearest multiple of 500
5,000 - 20,000	Round to the nearest multiple of 1,000
Greater than 20,000	Round to the nearest multiple of 5,000

Table 4: Distribution of Beneficiaries by Gender

Gender	Population (%)	Initial 5% Sample (%)	PUF (%)
Male	34.570	34.925	34.623
Female	65.430	65.075	65.377

Note: Percentages may not add up to 100% due to rounding.

Table 5: Distribution of Beneficiaries by Age Categories

Age	Population (%)	Initial 5% Sample (%)	PUF (%)
Under 65	11.553	11.715	11.576
65-69	9.886	10.160	10.031
70-74	13.652	13.827	13.775
75-79	16.841	16.763	16.761
80-84	19.815	19.612	19.669
85 and older	28.253	27.923	28.190

Note: Percentages may not add up to 100% due to rounding.

Table 6: Distribution of Beneficiaries by Total Admissions

Total Admissions	Population (%)	Initial 5% Sample (%)	PUF (%)
1 admission	79.433	78.591	79.099
2 or more admissions	20.567	21.409	20.901

Note: Percentages may not add up to 100% due to rounding.

Table 7: Distribution of Beneficiaries by Count of Therapy Visits

Therapy Visits	Population (%)	Initial 5% Sample (%)	PUF (%)
0 visit	28.968	28.801	28.914
1 - 13 visits	44.224	43.652	44.003
14 - 19 visits	11.107	11.275	11.067
20 or more visits	15.701	16.273	16.016

Note: Percentages may not add up to 100% due to rounding.

Table 8: Distribution of Beneficiaries by Count of Skilled Nursing Care Visits

Skilled Nursing Care Visits	Population (%)	Initial 5% Sample (%)	PUF (%)
0 visit	9.977	9.948	9.890
1 - 13 visits	56.538	55.706	56.337
14 - 19 visits	8.907	9.372	9.099
20 or more visits	24.577	24.974	24.674

Note: Percentages may not add up to 100% due to rounding.

Table 9: Distribution of Beneficiaries by Count of Home Health Aide Visits

Home Health Agency Visits	Population (%)	Initial 5% Sample (%)	PUF (%)
0 visit	79.105	77.273	78.331
1 - 13 visits	11.623	12.036	11.828
14 - 19 visits	1.875	2.468	2.052
20 or more visits	7.397	8.222	7.788

Note: Percentages may not add up to 100% due to rounding.

Table 10: Person Served, Visits, and Medicare Payments by Gender

Gender	Person Served	Total Number of Visits	Visits per Person Served	Medicare Payments (\$)	Medicare Payment per Person Served (\$)
Male	43,219	1,457,423	34	217,959,501	5,043
Female	81,610	3,172,549	39	458,261,157	5,615
Total	124,829	4,629,972	37	676,220,658	5,417



Table 11: Person Served, Visits, and Medicare Payments by Age

Age	Person Served	Total Number of Visits	Visits per Person Served	Medicare Payments (\$)	Medicare Payment per Person Served (\$)
Under 65	14,450	583,916	40	82,209,111	5,689
65-69	12,521	426,977	34	62,789,237	5,015
70-74	17,195	625,220	36	88,594,767	5,152
75-79	20,922	779,844	37	112,051,967	5,356
80-84	24,552	883,802	36	131,323,765	5,349
85 and older	35,189	1,330,213	38	199,251,811	5,662
Total	124,829	4,629,972	37	676,220,658	5,417

Table 12: Person Served, Visits, and Medicare Payments by Number of Admissions

Number of Admissions	Person Served	Total Number of Visits	Visits per Person Served	Medicare Payments (\$)	Medicare Payment per Person Served (\$)
1	98,739	2,962,830	30	432,032,766	4,376
2	20,766	1,229,014	59	179,653,100	8,651
3	4,416	349,337	79	51,756,886	11,720
4	771	76,337	99	10,837,748	14,057
5	112	9,946	89	1,530,771	13,668
6	25	2,508	100	409,386	16,375
Total	124,829	4,629,972	37	676,220,658	5,417

Table 13: Person Served, Visits, and Medicare Payments by Number of Visits

Number of Visits	Person Served	Total Number of Visits	Visits per Person Served	Medicare Payments (\$)	Medicare Payment per Person Served (\$)
1-9	30,904	178,081	6	48,529,517	1,570
10-19	34,243	481,028	14	102,496,774	2,993
20-29	18,641	447,795	24	84,075,781	4,510
30-39	10,996	375,039	34	67,731,239	6,160
40-49	7,198	318,438	44	56,582,514	7,861
50-99	14,492	979,702	68	154,979,944	10,694
100 or more	8,355	1,849,889	221	161,824,889	19,369
Total	124,829	4,629,972	37	676,220,658	5,417

Table 14: Mean and Median Visits by Gender

Gender	Mean of Visits	Median of Visits	Mean of Therapy Visits	Median of Therapy Visits	Mean of Skilled Nursing Visits	Median of Skilled Nursing Visits	Mean of Home Health Aide Visits	Median of Home Health Aide Visits
Male	33.722	17	9.199	5	19.284	8	5.239	0
Female	38.875	20	10.956	7	20.521	9	7.398	0
Total	37.091	18	10.347	7	20.092	8	6.651	0

Table 15: Mean and Median Visits by Age

Age	Mean of Visits	Median of Visits	Mean of Therapy Visits	Median of Therapy Visits	Mean of Skilled Nursing Visits	Median of Skilled Nursing Visits	Mean of Home Health Aide Visits	Median of Home Health Aide Visits
Under 65	40.409	18	8.201	2	26.103	10	6.105	0
65-69	34.101	16	8.884	5	20.370	8	4.848	0
70-74	36.361	16	9.165	6	21.211	8	5.984	0
75-79	37.274	18	10.381	7	20.179	8	6.714	0
80-84	35.997	19	11.017	8	18.287	8	6.692	0
85 and older	37.802	21	11.840	8	18.187	9	7.775	0
Total	37.091	18	10.347	7	20.092	8	6.650	0

Table 16: Mean and Median Visits by Total Admission

Total Admissions	Mean of Visits	Median of Visits	Mean of Therapy Visits	Median of Therapy Visits	Mean of Skilled Nursing Visits	Median of Skilled Nursing Visits	Mean of Home Health Aide Visits	Median of Home Health Aide Visits
1 admission	30.007	15	8.163	6	16.356	7	5.488	0
2 or more admissions	63.900	43	18.613	14	34.235	21	11.052	0
Total	37.091	18	10.347	7	20.092	8	6.651	0

Table 17: Distribution of Medicare Beneficiaries in the 5% Beneficiary Summary File<sup>(1)</sup>  
by age and gender

	Under 65	65-69	70-74	75-79	80-84	85 and older	Total
Male	130,814	136,200	134,342	105,270	78,246	60,449	645,321
Female	116,871	154,938	160,973	138,787	121,838	132,546	825,953
Total	247,685	291,138	295,315	244,057	200,084	192,995	1,471,274

(1) 921,619 beneficiaries are excluded from the 5% sample of beneficiaries (2,392,893 beneficiaries) because of enrollment in FFS Medicare Part A and B for less than 12 months in 2008.