Research Brief
September 1, 2011
Issue 1

Gender Differences in Home Health Care Utilization in Medicare

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Medicare spent close to $16.9 billion for beneficiaries receiving home health care in 2008, accounting for approximately 5.7% of Medicare's total program payments in that year [1]. Total program payments, payments per person served, and payments per enrollee have increased significantly every year between 2000 and 2009. The cumulative increases between 2000 and 2009 for total program payments and payments per enrollee reached 160% and 175%, respectively, as presented in Table 1.

Concern about these Medicare home health care payment trends in general, and Medicare's Home Health Prospective Payment System (HHPPS) in particular, has led to two reports, the 2009 GAO report [2] and 2011 MedPAC report [3]. These provide careful reviews of the characteristics of Medicare home health care and highlight the vulnerabilities of, and propose refinements to, the HHPPS.

Table 1: Percentage Change in Medicare Payments Between 2000-2009

Year of Service	Program Payments	Payments per Person Served	Payments per Enrollee
2001	18.0%	20.7%	30.1%
2002	12.2%	6.2%	8.8%
2003	5.4%	0.1%	2.9%
2004	13.2%	7.1%	11.7%
2005	12.1%	6.8%	10.8%
2006	8.9%	7.1%	11.5%
2007	11.9%	9.2%	13.1%
2008	8.4%	6.2%	8.9%
2009	11.0%	7.2%	10.9%
Cumulative 2000-2009	159.6%	95.7%	174.6%

Source: Medicare & Medicaid Statistical Supplement, 2010.

In this brief, I provide a detailed analysis of Medicare home health claims using micro data recently made available by CMS. Unlike the GAO and MedPAC reports, this brief focuses on differences by gender and age categories using actual claims data rather than providing aggregate summaries of expenditure or utilization.

The data source I use here is the 2008 Basic Stand Alone (BSA) Home Health Agency (HHA) Beneficiary Public Use File (PUF) recently released by CMS. This file has information from HHA claims for a 5% sample of Medicare beneficiaries in 2008. Documentation provided with the PUF includes details on sampling, variables, disclosure limitation techniques, and preparation of the file [4].

Findings

Analysis of the 2008 BSA HHA Beneficiary PUF reveals very interesting findings. First, females were more likely to use the home health benefit than males in 2008. The percentages of beneficiaries with at least one home health care claim in 2008 by gender and age categories are presented in Table 2. In terms of these rates, the difference between males and females is significant: 9.9% of the female beneficiaries used home health services in 2008 compared to 6.7% for male beneficiaries. This implies that females are approximately 47.5% more likely, on average, to use the home health benefit than males. The differences are consistent for every age category, as presented in Table 2.

Table 2: User Rates by Gender and Age Categories

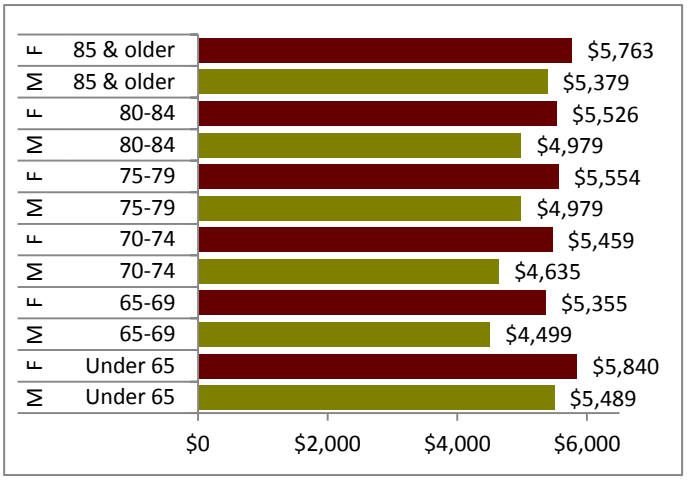
Age	Males	Females	Percentage Difference
	(a)	(b)	(c)=(b-a)/a
Under 65	5.0%	6.8%	37.5%*
65-69	3.7%	4.8%	31.4%*
70-74	4.8%	6.7%	38.3%*
75-79	7.0%	9.7%	38.5%*
80-84	10.3%	13.5%	30.8%*
85 & older	16.1%	19.2%	18.9%*
Total	6.7%	9.9%	47.5%*

Source: *2008 BSA HHA Beneficiary PUF.*
* The difference is statistically significant at the 1% level.

Second, Medicare paid $5,611 per female user compared to $5,039 per male user in 2008, a difference of 11.4%.

This difference was as high as 19% ($5,355 for females vs. $4,499 for males) for the 65-69 age category as shown in Figure 1. Third, although the average Medicare payment was highest for the under 65 age category, the 85 & older age category ranked second. However, the 85 & older age category ranked highest for number of users, user rates, and total Medicare payments. (Note that the 2008 BSA HHA Beneficiary PUF contains beneficiaries with End Stage Renal Disease as well as disabled beneficiaries, which may explain why the under 65 age category is the costliest per user for both males and females. Note also that the Medicare payments used in the PUF are the actual payments adjusted for geographic differences, and are not standardized in any way.)

Figure 1: Average Medicare Payment per User
by Gender and Age Categories

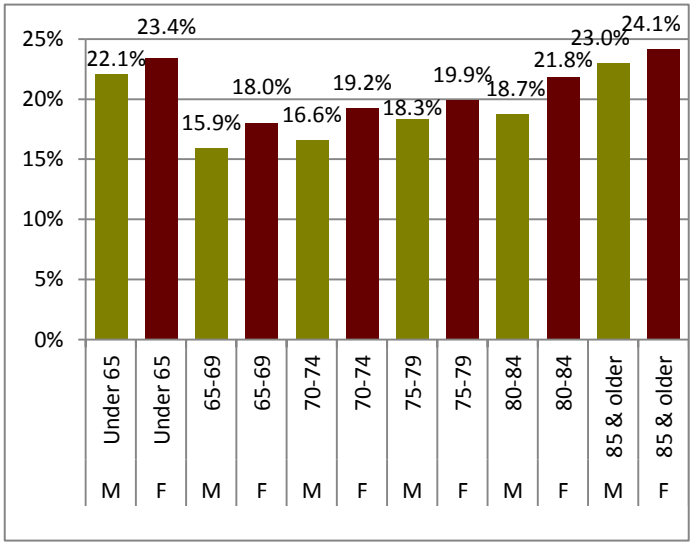


Source: *2008 BSA HHA Beneficiary PUF.*
Note: The differences are statistically significant at the 1% level.

One explanation for why the per user Medicare payment for females was higher than males, which we are not able to pursue in this brief, may be case mix. Medicare pays for home health services in units of 60-day episodes; and the Medicare payment varies by the expected resource used for the patient, as defined by Home Health Resource Groups (HHRGs). A beneficiary is placed into one of 153 HHRGs based on clinical and functional status and service use [5], which define the case mix in HHA claims. As this information is not available in the 2008 BSA HHA Beneficiary PUF, analyzing case-mix by gender is not possible.

The PUF does contain the number of admissions (or episodes), however, categorized as either one admission or two or more. As Figure 2 shows, the percentage of beneficiaries with two or more admissions is higher for females than males for every age category.

Figure 2: Percentage of Beneficiaries with Two or More Admissions
by Gender and Age Categories



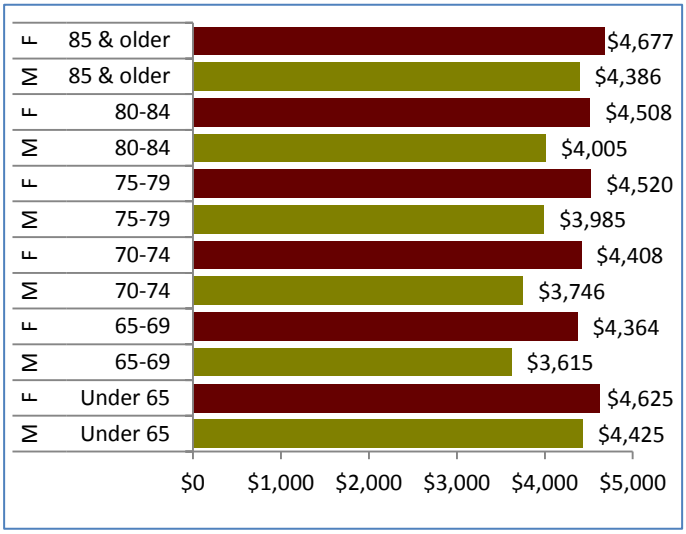
Source: *2008 BSA HHA Beneficiary PUF.*
Note: The differences are statistically significant at the 5% level except for the under 65 age category, which is significant at the 10% level.

For example, the percentage of female beneficiaries with two or more admissions is 18% for the 65-69 age category, compared to 15.9% for male beneficiaries: a difference of approximately 2.1 percentage points (or 13%).

As Medicare payments depend on episodes, one way to isolate the effect of number of episodes in calculations of average Medicare payment per user (Figure 2) is to focus on beneficiaries with a single episode. When the average Medicare payment per user is recalculated for beneficiaries with only one home health episode in 2008, the finding does not change. In fact, Medicare paid $4,545 per female user with one episode, compared to $4,057 per male user with one episode: a difference of 12%. As shown in Figure 3, the differences across age categories are consistent with the previous findings (Figure 1) on average Medicare payment (regardless of number of episodes). For example, the average payment for female users was 20% higher than for males in the 65-69 age category. Hence, the differences in number of episodes between males and

females cannot explain the differences in average Medicare payment per user.

Figure 3: Average Medicare Payment per User
by Gender and Age Categories for Users with One Admission



Source: *2008 BSA HHA Beneficiary PUF.*
Note: The differences are statistically significant at the 1% level except for the under 65 age category, which is significant at the 10% level.

Another important piece of information from the PUF is number of visits for the three different types of care covered by the home health benefit. The 2008 BSA HHA Beneficiary PUF provides number of visits for therapy, skilled nursing care, and home health aide, categorized into four values: 1) no visit, 2) 1-13 visits, 3) 14-19 visits, and 4) 20 or more visits.

The documentation for the PUF also provides useful summary information on total number of visits by gender and age categories. As shown in Table 3, the average user was visited 37 times in 2008. Female users had, on average, 5 more visits than males (39 vs. 34). According to the 2008 BSA HHA Beneficiary PUF, the total number of visits for female users was 118% more than for male users (3,172,972 vs. 1,457,423). Each visit costs about $144.4 and $149.6 for female and male users, respectively. Even though HHA reimbursement depends on the HHRGs for the episode, Medicare reimbursements increase with number of therapy visits, which we analyze next.

The HHPPS provides higher payments for later episodes, in a sequence of consecutive episodes (third and subsequent episodes), and additional payments as the number of therapy visits increase in a given episode. In 2008, HHPPS used nine (9) thresholds for the therapy visits, with payments increasing gradually by threshold [3].

Table 3: Visits and Medicare Payments by Gender

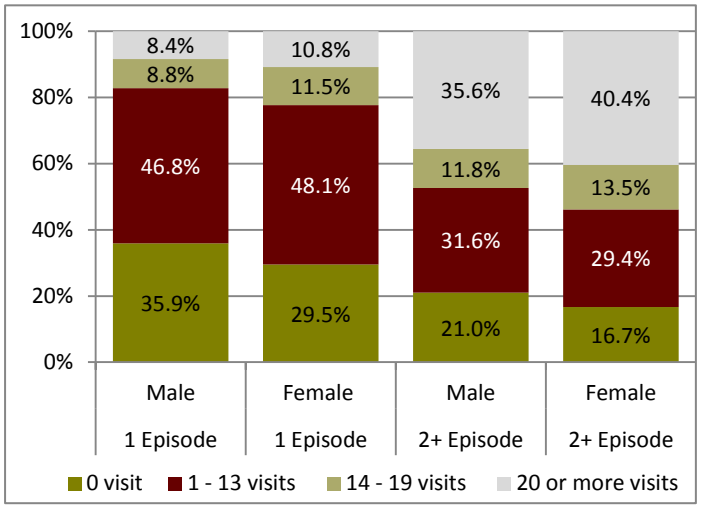
Gender	Persons Served	Total Number of Visits	Visits per Person	Total Medicare Payments ($)	Total Medicare Payments per Visit ($)
	(a)	(b)	(c)= (b-a)/a	(d)	(e)= (d)/(b)
Male	43,219	1,457,423	34	217,959,501	149.6
Female	81,610	3,172,549	39	458,261,157	144.4
Total	124,829	4,629,972	37	676,220,658	146.1

Source: Table 10, General Documentation for the *2008 BSA HHA Beneficiary PUF.*

To investigate whether number of therapy visits could explain the differences in Medicare payments between male and female beneficiaries, Figure 4 compares the distribution of number of visits by gender and number of episodes. For users with only one home health episode, the percentage of users with no therapy visits is higher for males than females (35.8 vs. 29.5). For all other number of visits categories, the percentages are higher for females than males. For example, the percentage of male users with 20 or more visits is 8.4% compared to 10.8% for female users.

This provides evidence that the number of therapy visits for female users is higher, on average, than for male users. The finding is also consistent with the fact that both mean and median for the number of therapy visits for female users are higher than for male users, as provided in the general documentation for the 2008 BSA HHA Beneficiary PUF (Table 4). As shown in Table 4, the difference between mean number of therapy visits for females and males is approximately 1.8 visits, compared to a 2 visit difference in the median values. Available data do not enable us to quantify the effect of number of therapy visits on average Medicare payments. It is possible that the differences between number of therapy visits between females and males can explain part of the gap in average Medicare payments per user because of adjustment payments.

Figure 4: Composition of Number of Therapy Visits by Gender and Number of Episodes



Source: *2008 BSA HHA Beneficiary PUF.*

Differences in the utilization of home health care between male and female beneficiaries (measured by number of admissions, number of visits, or average Medicare payment per user) might be attributable to differences in case mix by gender. Such information is not available in the 2008 BSA HHA Beneficiary PUF and requires further investigation.

Table 4: Average and Median Number of Therapy Visits by Gender

Gender	Average Number of Therapy Visits	Median of Number of Therapy Visits
Male	9.199	5
Female	10.956	7
Total	10.347	7

Source: Table 14, General Documentation for the *2008 BSA HHA Beneficiary PUF.*

Conclusions

Analysis of the 2008 BSA HHA Beneficiary PUF leads to interesting findings about gender differences in home health care. First, it is clear that females are more likely to utilize the home health care benefit. For every age category, the percentage of beneficiaries with at least one home health episode, as well as user rates, are significantly higher for females (Table 2).

Second, among home health care users, females are more likely to have two or more admissions than males for every age category (Figure 2), leading to higher Medicare payments per user (Figure 1).

Third, the number of visits (for all three types of care: therapy, skilled nursing care, and home health aide) are higher for females than for males. The number of visits per user is 5 visits higher for females than for males (Table 3). Also, females incur a higher number of therapy visits per episode than males (Figure 4), because females' episodes are more likely to have a larger number of visits (14-19 visits and 20 or more visits) than males, regardless of number of episodes.

These findings raise the following questions:

- Why do females have a much higher user rate than males in home health care?
- Why is the average Medicare payment per user much higher for females than males?
- Why do females utilize home health care more than males in terms of number of admissions and number of visits?

Gender differences in home health care have been documented previously by Dartmouth Atlas [6], which found that the average Medicare payment for home health services per enrollee is higher for females than males for every State in 2007. The difference is smallest in Vermont, where it is 21% ($504 vs. $416) higher for females, and largest in Oklahoma, where it is 70% ($1,091 vs. $641). However, that analysis does not control for case mix by gender, as I do not. Another study, Song et al. (2007) also found evidence that females are more likely to use home health care than males using data from the 1998-2000 Health and Retirement Study [7].

The answers to the questions listed above are not available in the 2008 BSA HHA Beneficiary PUF, because of the lack of information on case mix by gender. Hence, the analyses in this brief cannot control for all covariates that might possibly help explain the gender differences. It could be that females' clinical and functional characteristics are significantly different from those of males and that females needed significantly more home health services than males in 2008. This would be a very interesting finding in itself.

Cultural and/or socio-economic explanations are also possible. It could be, for example, that males force

themselves to seek health care outside of the home more than females, in an effort to show strength. Or it could be that females are more comfortable staying at home. It could also be that, since HHA visits are predominantly provided by female practitioners (e.g., nurses, therapists), male patients are hesitant to receive home services from the opposite gender.

References

[1] Medicare & Medicaid Statistical Supplement, 2010 Edition.
[2] Report to the Ranking Member, Committee on Finance, U.S. Senate, Improvements Needed to Address Improper Payments in Home Health, United States Government Accountability Office (GAO), February 2009.
[3] Report to the Congress: Medicare Payment Policy, MedPAC, March 2011.
[4] Available at www.cms.gov/BSAPUFS
[5] Home Health Care Services Payment System, MedPAC, October 2010.
[6] http://www.dartmouthatlas.org/
[7] Jing Song, Rowland W. Chang, Larry M. Manheim and Dorothy D. Dunlop. Journal of Women's Health. December 2006, 15(10): 1205-1213.

Suggested Citation

Erdem, Erkan. Gender Differences in Home Health Care Utilization in Medicare. Research Brief #1. IMPAQ International LLC, September 2011.

Appendix

About 2008 BSA HHA PUF

The 2008 Basic Stand Alone (BSA) Home Health Agency (HHA) Beneficiary Public Use File (PUF) is one of eight (8) BSA PUFs available at www.cms.gov/BSAPUFS. Each BSA PUF is:

- based on a simple random 5% sample of Medicare beneficiaries in 2008;
- disjoint from all the other BSA PUFs and the existing 5% CMS research sample (i.e., no overlap in terms of the beneficiaries); and
- de-identified to protect the privacy and confidentiality of the Medicare beneficiaries (and providers in some BSA PUFs).

Data Source

The estimates in this brief are based upon data from the 2008 BSA HHA Beneficiary PUF. The 2008 BSA HHA Beneficiary PUF summarizes administrative (claims) data at the beneficiary level. Refer to the general documentation for the 2008 BSA HHA Beneficiary PUF for more information [4].

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Joint Acknowledgment/Disclosure Statement

We thank Cindy Riegler, Christine Cox, and Chris Haffer from the CMS Center for Strategic Planning for their thorough review of and comments on this research brief.

Disclosures: The research in this article was supported by the Centers for Medicare & Medicaid Services under Contract Number 500-2006-00007I/#T0004 with IMPAQ International.
Disclaimers: The views expressed in this article are those of the author and do not necessarily reflect the views of the U.S. Department of Health and Human Services, the Centers for Medicare & Medicaid Services, or IMPAQ International.