Cumulative Out-of-Pocket Health Care Expenses After the Age of 70
By Sudipto Banerjee, Employee Benefit Research Institute

At a Glance

This study estimates how much retirees spend on out-of-pocket health care expenses after age 70 until their death. Unlike many other studies, it includes only expenses for health care services actually used (i.e., Medicare and insurance premiums are not included), and it is based on self-reported expenses of actual retirees and not on projections for hypothetical individuals. The numbers are adjusted for medical inflation and reported in 2015 dollars. The self-reported expenses are from panel data from the Asset and Health Dynamics Among the Oldest Old (AHEAD) cohort of the Health and Retirement Study (HRS).

Here are the key findings:

- For the majority of surveyed people, out-of-pocket health care expenses are not as high as commonly believed. For those who die at age 95 or later, the median cumulative out-of-pocket expense after age 70 until death is slightly above $27,000.

- But these expenses are catastrophic for some. Again, for those who die at age 95 or later, the 90th and 95th percentiles are nearly $172,000 and just over $269,000, respectively. In other words, the distribution of cumulative out-of-pocket medical expenses is skewed toward those with higher expenses.

- Nursing home expenses are one of the biggest contributors driving the skewness of the distribution. Without out-of-pocket nursing home expenses, the 90th and 95th percentiles for those who die at age 95 or later drops to nearly $96,000 and $154,000, respectively.

- For all surveyed people, the median out-of-pocket nursing home expense is zero. But just like the distribution of total out-of-pocket health care expenses, the distribution of nursing home expenses is also skewed toward those with higher expenses, which means a small percentage of retirees face very high expenses.
  - For those who die at age 95 or later, the 90th and 95th percentiles of nursing home expenses are slightly over $87,000 and $175,000, respectively.
  - When the sample is restricted to include only those who enter a nursing home, the 90th and 95th percentiles go up to nearly $182,000 and $266,000, respectively.

- There are significant differences between men and women.
  - Women are significantly more likely to enter a nursing home after the age of 70 (38 percent of men vs. 51 percent of women).
Also, women who live long enough spend significantly more than men with similar lifespans. For example, the 90th percentiles of out-of-pocket nursing home expenses for men and women who die at age 95 or later is about $77,000 and $99,000 respectively.

- Longevity has a strong positive correlation with nursing home entry, total out-of-pocket health care expenses, and out-of-pocket nursing home expenses.

- One-in-three of the surveyed retirees are covered by Medicaid after age 70.

- The cumulative expense numbers for the age-70-to-death period should be interpreted more as a lower bound than a true estimate. A slightly better measure (as described in section 6), though not perfect, might be the average annual out-of-pocket health care expenses. But the distribution of average annual expenses is also rightly skewed and retains all the characteristics of the cumulative distribution. The median, 90th percentile, and 95th percentile of average annual out-of-pocket expenses for the entire sample is about $2,000, $11,000 and $19,000 respectively.
Sudipto Banerjee served as a research associate at the Employee Benefit Research Institute (EBRI). This Issue Brief was written with assistance from the Institute’s research and editorial staffs. Any views expressed in this report are those of the author, and should not be ascribed to the officers, trustees, or other sponsors of EBRI, Employee Benefit Research Institute-Education and Research Fund (EBRI-ERF), or their staffs. Neither EBRI nor EBRI-ERF lobbies or takes positions on specific policy proposals. EBRI invites comment on this research.

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Cumulative Out-of-Pocket Health Care Expenses After the Age of 70
By Sudipto Banerjee, Employee Benefit Research Institute

Introduction
One of the biggest risks American retirees face is the cost of their health care. Health care expenses generally increase with age, but how much any individual will spend on health care during his or her retirement years depends on a number of uncertain factors, such as life span, health status, and medical inflation. Understandably, a question that has everyone worried, from an individual retiree to financial firms engaged in retirement planning to policy makers, is how large are health care expenses likely to be in retirement?

There are a number of studies and estimates currently available. For example, according to Fidelity’s Retiree Health Care Cost Estimate, a 65-year-old couple retiring in 2016 will need an estimated $260,000 to cover health care costs in retirement. This does not include the costs of covering long-term care, which Fidelity estimates will require an additional $130,000 for the same 65-year-old couple. A similar projection done by the Employee Benefit Research Institute (EBRI) (Fronstin and VanDerhei, 2017) predicts that a 65-year-old man and woman would need $127,000 and $143,000, respectively, if they want to have a 90 percent chance of covering all their health care costs (excluding long-term care costs) in retirement.

These projections are based on assumptions about types of Medicare coverage people will have during retirement and, to a large extent, reflect the premiums for such coverage. For example, the EBRI projections include premiums for Medigap Plan F, which provides the most extensive coverage among all Medigap plans. In 2016, the average annual premium for Medigap Plan F was $1,846. In fact, however, many people might choose not to get Medigap coverage or choose different levels of Medigap coverage. Also, Medicare Part B premiums, which averaged $134 per month in 2018, are deducted from Social Security checks, not from personal savings of retirees. So, if these premiums are included when calculating how much savings people will need for retirement health care costs, ideally such savings estimates should include the present value of Social Security benefits as well.

This study estimates the out-of-pocket (OOP) expenses people incur for using different types of health care services after the age of 70. However, there are two crucial differences between this study and the other studies mentioned above. First, this study reflects only the cost of medical care received, i.e., different types of Medicare and retiree insurance premiums are not included in this study. Second, the numbers reported in this study are not projected health care expenses for any hypothetical individual; rather these are actual OOP health care expenses reported by individuals in a household survey. So, this study does not make any assumptions regarding the types of health insurance coverage people will choose in retirement, but rather it is based on the reported OOP expenses that people actually incur, based in part on the types of insurance these people have actually chosen.

The study uses panel data from 1993 through 2014 for the Assets and Health Dynamics Among the Oldest Old (AHEAD) birth cohort from the Health and Retirement Study (HRS). The results show that while OOP health care expenses can be extremely high for some, such expenses are moderate for most retirees. This means that the distribution of cumulative OOP health care expenses in retirement is skewed toward those with the highest levels of OOP health care expenses.

Nursing home expenses are one of the biggest factors responsible for the right skewness of the distribution. While the majority of people do not incur any OOP nursing home expenses, for some older people these expenses can be very high. Finally, the results show that women are more likely than men to enter a nursing home and spend more than men on nursing home care.
Data

This study uses data from the Health and Retirement Study (HRS). In particular, data from the Asset and Health Dynamics Among the Oldest Old (AHEAD) cohort of HRS are used for the study. AHEAD members were born before 1924 and were at least 70 years of age when they were first interviewed in 1993. After the first interview, they were interviewed in 1995, 1998 and every two years since then. The initial sample size for the cohort was 8,335. The sample excludes spouses of AHEAD members who were below 70 years of age in 1993. By 2014, 6,619 members of the AHEAD cohort were dead. This is the final sample size as this study focuses on the dead members of the cohort and accumulates their OOP health care expenses. Because some of the members included were above age 70 when first included in the survey in 1993, the cumulative out-of-pocket expenses might be missing for some of the years between when they were age 70 and when they were first included in the survey. So, the cumulative estimates should be treated as a lower bound, and a better measure might be the average annual out-of-pocket expenses as discussed in section 6.

Apart from the information obtained from the core HRS surveys, data are also used from exit interviews, in which generally either the surviving spouse or children provide crucial information about health care services used at the end-of-life for the survey participant.

All the OOP health care expenses reported in this study are measured in real dollars (2015) and are adjusted for medical inflation4.

Components of Out-of-Pocket Health Care Expenses

The study only includes OOP expenses incurred for health care services used. So, any kind of health insurance premium is not included. Also, the study does not include expenses for over-the-counter medicine. The health care services for which expenses are included are:

- Hospital Stays
- Nursing Home Stays (including non-medical expenses paid to the nursing home)
- Outpatient Surgery
- Doctor Visits
- Prescription Drugs
- Dental Services
- Home Health Care
- Hospice Care
- Other Health Care and Related Services (e.g., special facility or services such as an adult care center, a social worker, an outpatient rehabilitation program, physical therapy, or transportation for the elderly or disabled)

Separating Nursing Home Expenses from Inpatient Hospital Expenses

Nursing home expenses could be responsible for the right skewness of the cumulative medical expense distribution. To assess this, it is important to separately measure nursing home expenses. Nursing home expenses are reported separately for the survey years 1993, 2002, and thereafter. But for the survey years of 1995, 1998, and 2000, nursing home expenses and inpatient hospital expenses are reported jointly. Using information on utilization of these services, insurance coverage of these services and some imputation, as described in Appendix A, this study separates nursing home expenses from inpatient hospital expenses for these survey years.
Cumulative Total Out-of-Pocket Health Care Expenses

Distribution of Total Out-of-Pocket Health Care Expenses

Figure 1 shows the distribution of cumulative OOP health care expenses by the age of death. There are a number of important observations that can be made from Figure 1.

First, for the majority of people, OOP health care expenses are moderate. Median OOP health care expenses for those who had the longest life spans, 95 years or longer, are $27,382. So, half of those who live to age 95 or longer, spend less than $27,382 on OOP health care expenses. Mean OOP health care expenses for this group are $66,806. The large difference between the mean and median also clearly shows that the distribution of cumulative OOP health care expenses is highly skewed to the right.

Second, although OOP health care expenses are moderate for majority of people, they can be extremely high for some. To understand the extent of this risk, Figure 1 reports the 90th and 95th percentiles as well. Again, for the group living to age 95 or longer, the 90th and 95th percentiles are $171,979 and $269,293, respectively. So, 5 percent of those who die after age 95 spend more than $269,293 on OOP health care expenses. De Nardi et. al. (2016) show that in any given year the top 10 percent of all spenders are responsible for nearly 52 percent of all medical spending.

Third, longevity is strongly, positively correlated with OOP health care expenses. The longer a person lives, the higher their OOP health care expenses are. But what might not be obvious is the extent of the difference longevity makes in terms of these expenses. Figure 1 also gives us an idea about how much difference a long life can make in terms of OOP health care expenses. For example, the median OOP health care expenses for those who die between the ages of 80 and 84 is $11,608 compared to $27,382 for those who die at the age of 95 or higher. The 90th percentiles for the same two age groups are $73,374 and $171,979, respectively.
Distribution of Total Out-of-Pocket Health Care Expenses without Nursing Home Expenses

Nursing home expenses can be very high. According to the Genworth 2016 Cost of Care survey, the national average annual cost of a semi-private, nursing-home room is $82,125. For private rooms the cost goes up to $92,378. So, nursing home expenses can have a disproportionate effect on overall OOP health care expenses. To figure out the extent nursing home expenses affect the distribution of total OOP health care expenses, Figure 2 shows the distribution of cumulative total OOP health care expenses without nursing home expenses. All three observations made in figure 1, i.e., moderate median expenses, very high expenses toward the top of the distribution, and positive correlation between longevity and OOP health care expenses are still prominent in figure 2. But the expenses, especially toward the top end of the distribution are much lower. For example, for those who die at the age of 95 or later, the median drops from $27,382 in figure 1 to $18,896 in figure 2. But the 90th percentile drops from nearly $172,000 to nearly $96,000 and the 95th percentile drops from just over $269,000 to nearly $154,000. Clearly, nursing home expenses have a disproportionate effect on the right tail of the distribution of cumulative OOP health care expenses.

![Figure 2](image)

Chances of Entering a Nursing Home and Incurring Out-of-Pocket Nursing Home Expenses

Chances of Entering a Nursing Home

Because nursing home entries can have a potentially catastrophic effect on anyone’s finances, it is important to calculate the odds of that happening. The first step is to figure out how many people enter a nursing home. Figure 3 shows the percentage of the sample reporting at least one overnight nursing home stay after the age of 70. As shown, nearly 46 percent report an overnight nursing home stay. It is important to note that figure 3 does not distinguish between people who enter nursing homes multiple times or have very different stay durations.
Chances of Entering a Nursing Home Increase with Age

Figure 4 shows how the chance of nursing home entry changes with age. Clearly, the odds of entering a nursing home go up as people age. For example, while 15.3 percent of those who die between the ages of 70 and 74 report spending at least one night in a nursing home, 61 percent among those who die at the age of 95 or later report having done so.
Chances of Entering a Nursing Home are Significantly Higher for Women

Figure 5 shows how the chance of entering a nursing home differs between men and women. As expected, women have significantly higher chances of entering a nursing home after age 70 than men, 51 percent for women compared to 38 percent for men. Typically, women live longer than men and that might explain the difference. But it is also important to note that because women live longer than men, they are also more likely to be single in their final years. This means that while they are more likely to act as a caregiver for their spouse or partner, their chances of receiving similar care from their spouse or partner is lower. This might also lead to higher incidence of nursing home entry and consequently higher nursing home expenses. Banerjee (2016) shows that non-recurring OOP health care expenses, which include services like hospital care, nursing home care, home health care etc. are significantly higher for singles than for couples and the difference increases with age.

Change in Chance of Nursing Home Entry between Men and Women as They Age

Figure 6 shows how the chances of entering a nursing home change for men and women separately as they age. Clearly, for both genders the chance of entering a nursing home increases with age. For example, 14.9 percent of men who die between the ages of 70 and 74 enter a nursing home compared to 50.9 percent of men who die after the age of 95. For women in the respective age groups the odds of entering a nursing home increase from 15.6 percent to 64.4 percent. But it should be noted that the difference in the odds of entering a nursing home increase with age for men and women. As noted above, for those dying between ages 70 and 74, there is a less than 1 percentage point difference between men and women in their chances of entering a nursing home. But for those dying at or after the age of 95, women are 13.5 percentage points more likely to enter a nursing home than men. So, the longer women live, they more likely they are to enter a nursing home compared to men.

Chances of Paying for Out-of-Pocket Nursing Home Expenses after Age 70

A nursing home entry doesn't necessarily mean a large OOP expense. There are several factors that determine the OOP expenses for nursing home visits including whether the visit qualifies for coverage under Medicare, whether the person meets the Medicaid eligibility criteria, or if he or she has long-term care insurance to cover such visits. So, the next step in finding out the extent of the risk of nursing home expenses is to figure out what percentage of nursing home entrants incur OOP expenses for the visits. Figure 7 shows that only 23.1 percent of the sample reported an OOP
nursing home expense after the age of 70. So, nearly half (as nearly 46 percent reported overnight nursing home stays after the age of 70 in figure 3) of those who entered a nursing home incurred an OOP expense for the same. This study does not look into the coverage details for the nursing home entrants who do not incur OOP expenses. But as discussed above, the coverage is attributed to Medicare, Medicaid and private long-term care insurance.

**Figure 6**
Percentage of Retirees With an Overnight Nursing Home Stay After Age 70 Until Death, By Gender and Age of Death

<table>
<thead>
<tr>
<th>Gender</th>
<th>70-74</th>
<th>75-79</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14.9%</td>
<td>21.7%</td>
<td>32.5%</td>
<td>42.1%</td>
<td>47.4%</td>
<td>50.9%</td>
</tr>
<tr>
<td>Female</td>
<td>25.6%</td>
<td>33.0%</td>
<td>40.2%</td>
<td>50.7%</td>
<td>63.5%</td>
<td>64.4%</td>
</tr>
</tbody>
</table>

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).

**Figure 7**
Percentage of Retirees With or Without a Non-Zero Out-of-Pocket Nursing Home Expense After Age 70 Until Death

<table>
<thead>
<tr>
<th>Expense After Age 70</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;0</td>
<td>23.1%</td>
</tr>
<tr>
<td>=0</td>
<td>76.9%</td>
</tr>
</tbody>
</table>

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).
**Chance of Paying Out-of-Pocket Nursing Home Expenses Increases with Age**

Just like the probability of entering a nursing home increases with age, the chance of incurring an OOP expense for the same also increases with age. Figure 8 shows how the proportion of people who incur OOP nursing home expenses changes with age. The numbers clearly increase with age. For example, among those who die between the ages of 70 and 74, only 9 percent incur an OOP nursing home expense. Note that figure 4 shows that 15.3 percent in this group report an overnight nursing home stay. But among those who die at the age of 95 or later, 32.2 percent incur an OOP nursing home expense, while 61 percent in that group reports an overnight nursing home stay (as shown in figure 4).

![Figure 8: Percentage of Retirees With a Non-Zero Out-of-Pocket Nursing Home Expense After Age 70 Until Death, By Age of Death](image)

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).

**Chances of Paying Out-of-Pocket Nursing Home Expenses for Men and Women**

Figure 9 shows the percentage of men and women who incur OOP nursing home expenses after age 70. While just over one-in-five men (20.4 percent) incur OOP nursing home expenses, nearly one-in-four (24.8 percent) women incur OOP nursing home expenses after the age of 70. As shown in figure 5, women are much more likely than men to enter a nursing home after the age of 70 (51 percent to 38 percent), but the differences in the share of men and women who incurred OOP expenses for the nursing home stays are not that large.

Figure 10 shows how the chance of paying OOP nursing home expenses changes with age for men and women. Generally, for both men and women the chances go up with age. But unlike the chance of entering a nursing home, the difference in the proportion of men and women making OOP nursing home payments does not necessarily increase with age. In fact, at the youngest ages, those who die between ages 70 and 74, men are slightly more likely than women (9.2 percent vs. 8.9 percent) to incur OOP nursing home expenses. For all other age groups, women are more likely than men to incur such expenses. For the oldest group, those who die at or after the age of 95, 33.3 percent of women and 29.2 percent of men incur OOP nursing home expenses.
Figure 9
Percentage of Retirees With a Non-Zero Out-of-Pocket Nursing Home Expense After Age 70 Until Death, By Gender

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).

Figure 10
Percentage of Retirees With a Non-Zero Out-of-Pocket Nursing Home Expense After Age 70 Until Death, By Gender and Age of Death

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).
Distribution of Out-of-Pocket Nursing Home Expenses

So far, the chances of entering a nursing home and the chances of incurring an OOP expense during a nursing-home stay have been analyzed. But the most important concern for retirees remains the extent of these expenses. Figure 11 shows the distribution of cumulative OOP nursing home expenses after age 70, by age of death. The sample for figure 11 is not restricted to only those who had a nursing home entry after age 70, but includes everyone. There are a number of takeaways.

First, the majority of retirees do not incur any OOP nursing home expenses. As shown in figure 11, irrespective of the age of death, median OOP nursing home expenses are zero. This means at least half of all retirees do not incur OOP nursing home expenses.

Second, longevity has a definitive effect on these expenses – the longer people live, the higher nursing home expenses they incur. For example, the mean OOP nursing home expenses for those dying between the ages of 70 and 74 are $1,605 but increase to $27,839 for those dying at the oldest ages, 95 or higher.

Finally, for some, nursing home expenses can be substantial. Especially, those who live long enough. This is apparent from the 90th and 95th percentiles reported in figure 11. For example, for those who have the longest lifespans, 95 years or longer, the 90th and 95th percentiles of OOP nursing home spending are $87,287 and $175,216 respectively. In other words, 10 percent of those who live 95 years or longer spend more than $87,287 on nursing home care and 5 percent in that group spend more than $175,216.

Figure 12 shows the conditional (on entering a nursing home) distribution of cumulative OOP nursing home expenses. The major findings pointed out in figure 11 are all present in figure 12 as well. Of course, the median OOP nursing home expenses are not zero anymore because the sample includes only those with nursing home stays. But still it should be pointed out that the median OOP nursing home expenses are moderate at all ages. For example, for those who die between the ages of 70 and 74, the conditional median is $3,244 and increases to $21,841 for those who die at ages 95 or higher. Also, the effect of longevity is similar in figure 12 as seen in figure 11. Clearly, conditional OOP
nursing home expenses go up with age. This is expected as the probability of entering nursing home also goes up with age. Finally, the catastrophic effects of nursing home stays are more pronounced in figure 12 than in figure 11. For example, again among those with the longest life spans, 95 years or longer, the 90th and 95th percentiles of OOP nursing home expenses are $181,542 and $265,756 respectively. So, even if the majority of those who enter nursing homes incur moderate OOP expenses, for some, these expenses can be truly catastrophic.

**Figure 12**

Distribution of Cumulative Total Out-of-Pocket Nursing Home Expenses (in 2015 Dollars, Adjusted for Medical Inflation) After Age 70, by Age of Death, Conditional on Nursing Home Entry

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Median</th>
<th>Mean</th>
<th>90th Percentile</th>
<th>95th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-74</td>
<td>$3,244</td>
<td>$16,133</td>
<td>$42,340</td>
<td>$84,002</td>
</tr>
<tr>
<td>75-79</td>
<td>$5,310</td>
<td>$20,648</td>
<td>$47,600</td>
<td>$92,250</td>
</tr>
<tr>
<td>80-84</td>
<td>$8,069</td>
<td>$26,790</td>
<td>$72,048</td>
<td>$104,204</td>
</tr>
<tr>
<td>85-89</td>
<td>$13,893</td>
<td>$39,870</td>
<td>$113,887</td>
<td>$175,341</td>
</tr>
<tr>
<td>90-94</td>
<td>$18,028</td>
<td>$54,627</td>
<td>$141,118</td>
<td>$205,362</td>
</tr>
<tr>
<td>95+</td>
<td>$21,841</td>
<td>$70,054</td>
<td>$181,542</td>
<td>$265,756</td>
</tr>
</tbody>
</table>

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).

**Difference in Out-of-Pocket Nursing Home Expenses between Men and Women**

Figure 13 shows how cumulative OOP nursing home expenses differ between men and women. These numbers are not conditional on nursing home entry. The overall trends are similar to those shown in figure 11. But the differences in OOP nursing home expenses between men and women, especially at higher ages are significant. For those who die at the age of 95 or higher, the 90th percentiles of OOP nursing home expenses for men and women are $76,949 and $99,360 respectively. For the same age groups, the 95th percentiles for men and women are $119,844 and $181,267 respectively. In other words, for this age group the 90th and 95th percentiles for women are approximately 30 percent and 50 percent higher than that for men.

Figure 14 shows the conditional (on nursing home entry) cumulative OOP nursing home expenses for men and women. The trends in figure 14 are similar to that of figure 13. Women face much higher OOP nursing home expenses than men, especially if they live long enough. It should be noted that these expenses are higher for women not only because they live longer than men. Within each age group, women face higher nursing home expenses than men. A likely explanation for this, as mentioned earlier, is that women live longer as singles and hence don't have their spouse/partner caregivers. This most likely hastens their entry into nursing homes as well as increases their length of stay in nursing homes.
Figure 13
Distribution of Cumulative Total Out-of-Pocket Nursing Home Expenses (in 2015 Dollars, Adjusted for Medical Inflation) After Age 70, by Gender and Age of Death, NOT Conditional on Nursing Home Entry

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).

Figure 14
Distribution of Cumulative Total Out-of-Pocket Nursing Home Expenses (in 2015 Dollars, Adjusted for Medical Inflation) After Age 70, by Gender and Age of Death, Conditional on Nursing Home Entry

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).
Average Annual Out-of-Pocket Medical Expenses

The aim of the study is to capture all the OOP medical expenses survey participants incur after the age of 70. But because of the nature of the underlying survey, this cannot be done for some respondents. When individuals were first interviewed in 1993, some of them were already more than 70 years old. This means that, for some of these individuals, OOP medical expenses for the years between 70 and when they were first included in the sample are missing and, thus, the cumulative expenses are likely to be underreported.

For example, if someone was first interviewed when she was 75 years old and died at the age of 79 then the survey captures her OOP medical expenses for five years. But if these expenses are interpreted as the sum of her OOP medical expenses for the 10 years (70 to 79), then this individual’s reported expenses are likely to be less than her actual expenses.

As a result, the cumulative OOP medical expenses reported in this study should be interpreted as the lower bound of such expenses, rather than the true estimates of the means or medians. This is most likely not an issue for nursing home expenses, because most nursing home expenses are likely to occur toward the end of life, at which point all the respondents were already part of the survey.

To show the significance of this issue, the following figures report average annual OOP medical expenses. The annual averages are calculated over the years for which the respondents were part of the survey. To take the examples discussed above, for the person present in the survey from age 75 to 79, the average is calculated as the total OOP medical expenses incurred over the five years and divided by five. For the person present in the survey from ages 70 to 79, the total OOP medical expenses are divided by 10.

Figure 15 shows the distribution of average annual OOP medical expenses by age of death and for the entire sample as well. Note that these expenses include nursing home expenses. A number of observations that can be made from figure 15 are still in line with the observations made earlier from the cumulative OOP expense figures.

Figure 15
Distribution of Average Annual Out-of-Pocket Medical Expenses (in 2015 Dollars, Adjusted for Medical Inflation) After Age 70 until Death, by Age of Death

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).
First, while the medians imply higher OOP expenses than shown by the cumulative expense distribution in figure 1, even these expenses can be interpreted as moderate rather than catastrophic. For example, for those with the longest life spans, 95 years or longer, the median of average annual OOP medical expenses is $2,353. The median for the entire sample is slightly less at $2,012.

Second, as shown by the cumulative expenses, OOP medical expenses could be catastrophic for some. The 90th and 95th percentiles of average annual OOP medical expenses is $11,047 and $19,103, respectively, for the entire sample. When restricted to those who die at ages 95 or after, these numbers go up even further.

Third, the annual average OOP medical expenses also go up as people live longer. For those who die between the ages of 70 and 74, the median is $1,536 which drops slightly for the next age group (those dying between the ages of 75 and 79), and then slowly goes up to $2,353 for the oldest age group (those who die at ages 95 or higher). It should be noted that all the measures of OOP medical expenses for the youngest group under consideration (ages 70 to 74) were higher than the next age group (ages 75 to 79). This is because those who die at those earlier ages most likely suffer from serious illnesses and the expenses reflect that.

This means although the cumulative expenses present a lower bound for the actual expenses, the essential qualitative findings do not change as we move from the cumulative expenses to the annual average expenses.

![Figure 16](image)

Figure 16 breaks down the annual average OOP medical expenses shown in figure 15 between men and women. Again, as shown earlier, the expenses are higher for women than men. For the entire sample, the medians for men and women are $1,807 and $2,187, respectively. But the differences are larger at the 90th and 95th percentiles.
Figure 17
Distribution of Average Annual Out-of-Pocket Medical Expenses (in 2015 Dollars, Adjusted for Medical Inflation) Without Nursing Home Expenses After Age 70 until Death, by Age of Death

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Median</th>
<th>Mean</th>
<th>90th Percentile</th>
<th>95th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-74</td>
<td>$1,366</td>
<td>$3,811</td>
<td>$9,423</td>
<td>$17,269</td>
</tr>
<tr>
<td>75-79</td>
<td>$1,380</td>
<td>$3,837</td>
<td>$7,593</td>
<td>$14,039</td>
</tr>
<tr>
<td>80-84</td>
<td>$1,587</td>
<td>$3,368</td>
<td>$7,276</td>
<td>$11,738</td>
</tr>
<tr>
<td>85-89</td>
<td>$1,661</td>
<td>$3,864</td>
<td>$7,040</td>
<td>$11,958</td>
</tr>
<tr>
<td>90-94</td>
<td>$1,698</td>
<td>$3,215</td>
<td>$7,082</td>
<td>$11,166</td>
</tr>
<tr>
<td>95+</td>
<td>$1,571</td>
<td>$3,666</td>
<td>$8,287</td>
<td>$15,404</td>
</tr>
<tr>
<td>All</td>
<td>$1,607</td>
<td>$3,319</td>
<td>$7,357</td>
<td>$12,185</td>
</tr>
</tbody>
</table>

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).

Figure 18
Distribution of Average Annual Out-of-Pocket Medical Expenses (in 2015 Dollars, Adjusted for Medical Inflation) Without Nursing Home Expenses After Age 70 until Death, by Gender and Age of Death

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-74</td>
<td>$1,052</td>
<td>$1,658</td>
<td>$1,236</td>
<td>$1,544</td>
<td>$1,447</td>
<td>$1,660</td>
<td>$1,515</td>
<td>$1,765</td>
<td>$1,683</td>
<td>$1,707</td>
<td>$1,582</td>
<td>$1,661</td>
<td>$1,496</td>
</tr>
<tr>
<td>80-84</td>
<td>$7,551</td>
<td>$7,966</td>
<td>$7,245</td>
<td>$6,323</td>
<td>$6,432</td>
<td>$5,561</td>
<td>$6,176</td>
<td>$7,248</td>
<td>$7,321</td>
<td>$8,038</td>
<td>$6,936</td>
<td>$7,200</td>
<td></td>
</tr>
<tr>
<td>85-89</td>
<td>$11,928</td>
<td>$21,936</td>
<td>$16,519</td>
<td>$32,425</td>
<td>$13,520</td>
<td>$32,220</td>
<td>$9,940</td>
<td>$32,902</td>
<td>$9,506</td>
<td>$32,018</td>
<td>$12,859</td>
<td>$16,036</td>
<td>$10,995</td>
</tr>
</tbody>
</table>

Source: Employee Benefit Research Institute estimates from the Health and Retirement Study (HRS).
Like figure 15, Figure 17 also shows the distribution of average annual OOP medical expenses by age of death and for the entire sample, but without nursing home expenses. Again, the difference made by nursing home expenses is clear. For the entire sample, the median goes down from $2,012 (in figure 15) to $1,607. The 90th percentile goes down from $11,047 to $7,357.

Finally, Figure 18 breaks down the numbers presented in figure 17 between men and women. It should be noted that without nursing home expenses, the difference in OOP medical expenses between men and women goes down quite a bit. For example, the 90th percentiles for the entire sample are $6,936 and $7,700 for men and women, respectively. So, nursing home expenses are also a significant factor behind the difference in OOP medical expenses between men and women.

**Incidence of Medicaid**

Figure 19 shows the percentage of retirees in the sample covered by Medicaid. In the baseline year (1993), when the respondents were first included in the sample, 10.7 percent of them were already covered by Medicaid. By the end of their lives, one-in-three (33.3 percent) retirees were covered by Medicaid. So, after the age of 70, a bit more than one-in-five retirees gained Medicaid coverage. As might be expected, there is a strong negative correlation between the level of baseline (1993) non-housing assets and the likelihood of moving into Medicaid. Figure 20 shows that of those who had less than $10,000 in non-housing assets in 1993, 44.6 percent gained Medicaid coverage before death. In contrast, only 6.6 percent of those who had more than $250,000 in non-housing assets in 1993 went into Medicaid before death.
Conclusion

Health care expenses are a major risk facing retirees. This study takes a look at how much people actually spend on their health care after the age of 70 by following a group of retirees until their death. The results provide some important insights. First, for a majority of retirees, these expenses are moderate and not as high as many perceive them to be. Second, for some retirees, these expenses could be catastrophic. Because it is not easy to predict in advance who will actually have high medical expenses, the risk remains a significant one.

The study also shows that nursing home expenses are a major force driving catastrophic expenses. Although the majority of retirees didn’t have any out-of-pocket nursing home expenses, for those who do, the expenses can be very high.

Finally, women are more likely to need more financial resources than men to meet their health care expenses during retirement, especially women who outlive their caregiving spouse or partner.

The high risks of out-of-pocket health care expenses faced by a few retirees could prompt many retirees to preserve their assets as long as possible so that they can self-insure themselves in case they face those catastrophic expenses. This raises a question about whether, if such risks could be insured more efficiently, retirees would be able to spend their retirement assets more freely and whether this might improve their personal welfare and/or have positive macror-economic effects as well.
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Appendix A
The first wave of AHEAD interviews in 1993 asked separately about overnight nursing home stays and inpatient hospital stays and the expenses associated with those stays. But both the core and exit interviews in 1995, 1998, and 2000 asked about the combined expenses for these two types of health care services. For the purpose of the study, it is crucial to measure nursing home expenses separately from all other health care expenses. So, for these survey years, nursing home expenses are separated from inpatient hospital expenses using a number of steps.

Although the expenses for nursing home stays and inpatient hospital stays are reported together for these years, the survey asks respondents separately if they used these services, if they had any insurance coverage for the service used and whether insurance paid all or part of the costs. This information helps to separate out the nursing home expenses from inpatient hospital expenses to a large extent. The following flow chart shows how it was done.

Even after using all these information, for some individuals (the path shown by the red boxes in the flow chart in Figure 19) the nursing home expenses cannot be separated out from inpatient hospital expenses. For these individuals, nursing home expenses are separated following a two-step imputation process.
Step 1: Data from 2002 to 2014 was used to calculate the age and gender-specific shares of nursing home expenses in combined hospital and nursing home expenses.

Step 2: These shares are used to impute the nursing home expenses for the years 1995 to 2000.

Endnotes


2 EBRI generated Medigap Plan F premiums for new Medicare enrollees aged 65 in 2017 by Metropolitan Statistical Area.

3 https://www.medicare.gov/your-medicare-costs/part-b-costs/part-b-costs.html

4 Medical inflation adjustment done using Consumer Price Index for All Urban Consumers (1982-1984=100), Medical Care, Table: CPIMEDSL, Federal Reserve Bank of St. Louis