

## Are Medicare Beneficiaries Getting Sicker?

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Previous research showed that Medicare beneficiaries with chronic conditions are responsible for a disproportionate share of the expenditures [1]. The amount of research on rising health care costs and deteriorating health of the U.S. is considerable. For example, using the National Health Interview Survey, a recent study found that the percentage of adults aged 45-64 and 65 and over with two or more chronic conditions increased for both men and women, all racial and ethnic groups examined, and most income groups between 1999-2000 and 2009-2010 [2].

In this brief, we provide a detailed analysis of the *change* in the health of the U.S. Medicare population using the 2008 and 2010 Chronic Conditions Public Use Files (PUFs) that are made available by the Centers for Medicare & Medicaid Services (CMS) [3]. These PUFs contain claims information from 100% of Medicare beneficiaries in 2008 and 2010.<sup>1</sup> We focus only on one of the “segments” in the PUFs: claims that belong to beneficiaries with **full year enrollment in Medicare Part A (hospital insurance)**.<sup>2</sup> The PUFs contain seven other “segments” such as claims for Parts B (medical insurance), Part C (Medicare Advantage), and Part D (prescriptions drugs) as shown in Table 1.

Table 1: Segments in the 2008 & 2010 Chronic Conditions PUFs

Part A < 12	Part B < 12	Part C < 12	Part D < 12
Part A = 12*	Part B = 12	Part C = 12	Part D = 12

“< 12” implies less than 12 months of enrollment and “=12” implies 12 months of enrollment.

\* Segment included in the brief.

<sup>1</sup> See Appendix for more information.

<sup>2</sup> Enrollees in Part A and enrollees in Part B are calculated independently in the data even though many beneficiaries enroll in both Part A and B.

## Findings

First, we calculate the change in the prevalence of chronic conditions in 2008 and 2010 (Table 2). We find that the average number of chronic conditions increased by 2.0 percent between 2008 and 2010 (1.2 percent for non-dual eligibles and 2.8 percent for dual eligibles).<sup>3</sup> Second, we find that the increase in average number of chronic conditions for non-dual females was larger than non-dual males. However, the opposite is true for dual eligible beneficiaries. The increase in average number of chronic conditions for dual females was smaller than dual males. Finally, the increase in average number of chronic conditions for dual eligible beneficiaries was larger than non-dual eligible beneficiaries for both males and females.

Table 2: Change in the Average Number of Chronic Conditions

Gender		2008	2010	% Change
All	All	1.435	1.464	2.0%
	Non-dual	1.318	1.335	1.2%
	Dual	1.948	2.002	2.8%
Male	All	1.296	1.319	1.8%
	Non-dual	1.243	1.256	1.0%
	Dual	1.574	1.633	3.8%
Female	All	1.549	1.583	2.2%
	Non-dual	1.383	1.404	1.5%
	Dual	2.186	2.242	2.6%

We then analyze the change over time in the distribution of enrollees among categories defined by number of chronic conditions (Table 3). We find that the percentage of enrollees with two or more chronic conditions increased by about 1.5 percent between 2008 and 2010 (1.1 percent for non-dual eligibles and 1.9 percent for dual eligibles).<sup>4</sup> The share of enrollees with no chronic conditions decreased for dual eligibles (-3.4 percent) but increased by

<sup>3</sup> Dual-eligible enrollees are beneficiaries who are simultaneously covered by Medicare and Medicaid.

<sup>4</sup> The analyses in this brief are based on the eleven chronic condition indicators available in the two PUFs. Our estimates cannot account for other chronic conditions the enrollees might have.

a small amount for non-dual eligibles (0.1 percent). Overall, we see a shift from categories with no or one chronic condition to the category with multiple chronic conditions between 2008 and 2010.

Table 3: Change in the Prevalence of Beneficiaries with Multiple Chronic Conditions

	CCs*	2008	2010	% Change
All	0 CC	35.8%	35.6%	-0.62%
	1 CC	24.7%	24.4%	-1.55%
	2+ CCs	39.4%	40.0%	1.54%
Non-dual	0 CC	38.3%	38.3%	0.12%
	1 CC	25.1%	24.7%	-1.72%
	2+ CCs	36.6%	37.0%	1.05%
Dual	0 CC	25.4%	24.5%	-3.42%
	1 CC	23.0%	22.9%	-0.45%
	2+ CCs	51.6%	52.6%	1.88%

\* CC indicates "Chronic Condition."

Next, we perform the analysis by gender and age categories to investigate the change (between 2008 and 2010) at a more disaggregated level (Table 4). First, we find that the changes for dual and non-dual eligible enrollees had different signs for some age-gender categories. Most of these differences indicate that dual eligible enrollees were becoming *less healthy* compared to non-dual eligible enrollees. For example, the percentage of enrollees with no chronic condition decreased for dual eligible enrollees for males in the 70 – 74 and 75 – 79 age categories and females in the 65 – 69 and 70 – 74 age categories, but increased for non-dual eligible enrollees.

Second, we consistently find that the percentage of enrollees in the category with two or more chronic conditions increased between 2008 and 2010 for all gender-age categories. The only exception to this finding is the male enrollees in the 65 – 69 age category. In fact, the non-dual eligible enrollees in this category in 2010 appear to be *healthier* in comparison to their counterparts in 2008 as the percentage of enrollees in the category with no chronic condition increased between 2008 and 2010 for both males and females.

Third, we find that the changes are consistent (i.e., same sign) between male and female enrollees for most age categories. When they differ, the findings generally indicate that females are becoming *less healthy* between 2008 and 2010 compared to males. For example, in the 65

– 69 age category, the percentage of non-dual eligible males with multiple chronic conditions decreased compared to the increase for non-dual eligible females. Similarly, in the 75 – 79 age category, the percentage of non-dual eligible males with no chronic condition increased compared to the decrease for non-dual eligible females.

Table 4: Change in the Composition of Enrollees by Gender and Age

Gender	Age	CCs	All	Non-dual	Dual
Male	Under 65	0 CC	-3.6%	-2.1%	-4.4%
		1 CC	1.9%	1.1%	1.3%
		2+ CCs	5.6%	4.6%	5.5%
	65 - 69	0 CC	1.5%	1.6%	0.2%
		1 CC	-3.2%	-3.3%	-1.5%
		2+ CCs	-0.1%	-0.4%	0.6%
	70 - 74	0 CC	0.0%	0.3%	-2.5%
		1 CC	-2.1%	-2.1%	-1.3%
		2+ CCs	1.5%	1.4%	1.7%
	75 - 79	0 CC	-0.3%	0.1%	-2.8%
		1 CC	-1.6%	-1.4%	-1.6%
		2+ CCs	1.1%	0.8%	1.4%
	80 - 84	0 CC	-1.3%	-0.9%	-2.1%
		1 CC	-1.8%	-1.6%	-1.4%
		2+ CCs	1.4%	1.2%	0.8%
	85 & over	0 CC	-2.1%	-1.9%	-3.0%
		1 CC	-2.8%	-2.6%	-3.4%
		2+ CCs	1.8%	1.8%	1.0%
Female	Under 65	0 CC	-6.5%	-4.9%	-6.4%
		1 CC	1.2%	2.0%	-0.2%
		2+ CCs	6.7%	7.0%	5.0%
	65 - 69	0 CC	0.7%	1.0%	-1.8%
		1 CC	-2.2%	-2.2%	-2.0%
		2+ CCs	0.9%	0.5%	1.5%
	70 - 74	0 CC	-0.3%	0.0%	-3.4%
		1 CC	-1.5%	-1.3%	-2.8%
		2+ CCs	1.4%	1.1%	1.9%
	75 - 79	0 CC	-1.5%	-0.8%	-4.3%
		1 CC	-1.5%	-1.0%	-3.5%
		2+ CCs	1.7%	1.2%	1.9%
	80 - 84	0 CC	-2.5%	-1.9%	-5.1%
		1 CC	-1.9%	-1.5%	-3.2%
		2+ CCs	1.9%	1.7%	1.5%
	85 & over	0 CC	-3.5%	-3.2%	-5.1%
		1 CC	-2.8%	-2.4%	-4.8%
		2+ CCs	2.1%	2.3%	1.3%

\* CC indicates "Chronic Condition."

Finally, we find (Table 4) that the largest changes between 2008 and 2010 occur for the enrollees in the under 65 age category. The percentage of enrollees with no chronic condition decreased by about 2 - 6.5 percent and the percentage of enrollees with multiple chronic conditions increased by about 5 - 7 percent between 2008 and 2010.

Next, using the individual chronic condition indicators, we calculate the change in the percentage of enrollees with a particular condition between 2008 and 2010 (Table 5).

Table 5: Change in the Prevalence of Chronic Conditions by Gender\*

Gender	CC*	All	Non-dual	Dual
Male	Alz	-0.11	0.04	-0.30
	Can	-0.62	-0.72	-0.36
	CHF	-1.84	-1.78	-1.93
	Chr	3.52	3.54	3.50
	COPD	-0.17	-0.18	-0.14
	Dep	1.25	1.06	1.52
	Dia	1.16	1.17	1.15
	Isc	-0.57	-0.54	-0.63
	Ost	0.28	0.21	0.44
	RARO	0.88	0.55	1.41
Str	-0.68	-0.55	-0.91	
Female	Alz	0.07	0.02	0.13
	Can	0.05	0.06	0.05
	CHF	-2.08	-2.00	-2.18
	Chr	3.88	3.88	3.87
	COPD	0.38	0.24	0.54
	Dep	1.76	1.58	1.98
	Dia	0.93	0.67	1.22
	Isc	-0.98	-1.02	-0.94
	Ost	0.14	0.02	0.32
	RARO	1.11	0.89	1.36
Str	-0.70	-0.54	-0.90	
Alz	Alzheimer's Disease & Related Disorders or Senile Dementia			
Can	Cancer			
CHF	Congestive Heart Failure			
Chr	Chronic Kidney Disease			
COPD	Chronic Obstructive Pulmonary Disease			
Dep	Depression			
Dia	Diabetes			
Isc	Ischemic Heart Disease			
Ost	Osteoporosis			
RARO	Rheumatoid Arthritis/Osteoarthritis Arthritis			
Str	Stroke / Transient Ischemic Attack			

\*: Difference in percentage points between 2010 and 2008.  
CC indicates "Chronic Condition."

We find that the prevalence of the following conditions *increased* for both males and females between 2008 and 2010: chronic kidney disease, depression, diabetes, osteoporosis, rheumatoid arthritis and osteoarthritis (RA/RO). On the other hand, we find that the prevalence of the following conditions *decreased* for both males and females between 2008 and 2010: congestive heart failure, ischemic heart disease, and stroke / transient ischemic attack. We find that the prevalence of cancer *decreased* for males but *increased* slightly for females between 2008 and 2010.<sup>5</sup> Similarly, the prevalence of chronic obstructive pulmonary disease *increased* for males but *decreased* for females between 2008 and 2010. The changes in the prevalence of Alzheimer's disease were mixed. It *increased* for all females and non-dual eligible males, but decreased for dual eligible males. Finally, we find that the increase in the prevalence of chronic kidney disease in only two years was the highest: about 3.5 percentage points for males (11-12 percent) and 3.9 percentage points for females (14-16 percent).

## Conclusions

The 2008 and 2010 Chronic Conditions PUFs allow one to analyze changes in the health of Medicare beneficiaries over time. This brief compares the health of the Medicare beneficiaries enrolled in Medicare Part A for the full year in 2008 and 2010.

We find that both non-dual and dual eligible enrollees were less healthy (in terms of average number of chronic conditions) in 2010 compared to 2008. The increase in the average number of chronic conditions was larger for dual-eligible enrollees compared to non-dual eligible enrollees (Table 2). We also find that the composition of the Medicare enrollees in terms of their chronic conditions changed between 2008 and 2010. Overall, the percentage of enrollees with multiple chronic conditions increased by about 1-2 percent and the percentage of enrollees with no or one chronic condition decreased (Table 3). Also, with few exceptions, these findings hold after disaggregating by gender and age categories (Table 4). Finally, we show that there are different trends among chronic conditions (Table 5). Even though the Medicare enrollees in 2010 were

<sup>5</sup> Given that the indicator for cancer combines four types of cancer (breast, colorectal, prostate, and lung), we cannot investigate this finding any further.

generally less healthy than their counterparts in 2008, we find that the prevalence of some of the chronic conditions, such as congestive heart failure, chronic obstructive pulmonary disease, ischemic heart disease, and stroke / transient ischemic attack actually *decreased*. Hence, the deterioration of health of the Medicare enrollees appears to be due to other chronic conditions: chronic kidney disease, depression, diabetes, osteoporosis, rheumatoid arthritis and osteoarthritis arthritis (RA/RO). However, we should note that these findings depend on a small subset of conditions that affect the beneficiaries' health. To be able to make more precise conclusions about the overall health of the Medicare population, access to data with other conditions (e.g., hypertension, high cholesterol) would be needed.

## References

- [1] Erdem, Erkan. Chronic Conditions in Medicare. Research Brief #3. IMPAQ International LLC, November 2011.
- [2] Freid VM, Bernstein AB, Bush MA. Multiple chronic conditions among adults aged 45 and over: Trends over the past 10 years. NCHS data brief, No 100. Hyattsville, MD: National Center for Health Statistics. 2012.
- [3] Available at [www.cms.gov/BSAPUFS](http://www.cms.gov/BSAPUFS)

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## Appendix

### About the 2008 & 2010 Chronic Conditions PUFs

The 2008 and 2010 Chronic Conditions PUFs summarize administrative (claims) data for the 100% of claims for Fee-for-Service (FFS) Medicare Beneficiaries. These are *profile* level files where each record is defined by the characteristics of Medicare beneficiaries: age, gender, dual-eligibility status, and eleven chronic condition indicators (e.g., cancer, diabetes). Information is provided in a total of eight segments: Part A-D each divided into two by length of enrollment (i.e., full year vs. less than full year). In the segments for FFS Medicare Part A, Part B, and Part D, many expenditure and utilization variables are provided in the form of averages. For Part D, the available information is the total drug cost rather than Medicare

payment. For beneficiaries enrolled in Part C plans, or Medicare Advantage (MA), the only available information is the number of beneficiaries enrolled as their claims are not observed.

Using the 2008 and 2010 Chronic Conditions PUFs, researchers can investigate the average and total expenditures and utilization measures in Medicare programs for various types of care (e.g., inpatient, outpatient) by profile variables. Users can also compare the utilization of beneficiaries enrolled for the full year and those enrolled for partial year in 2008 and 2010.

Refer to the general documentation for the 2008 and 2010 Chronic Conditions PUFs for details on sampling, variables, disclosure limitation techniques, and preparation of the file [3].

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