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## The Economic Impact of Medicare Part D on Congestive Heart Failure

*Timothy M. Dall, MS; Tericke D. Blanchard, MBA;  
Paul D. Gallo, BS; and April P. Semilla, MS*

### Abstract

Medicare Part D has had important implications for patient outcomes and treatment costs among beneficiaries with congestive heart failure (CHF). This study finds that improved medication adherence associated with expansion of drug coverage under Part D led to nearly \$2.6 billion in reductions in medical expenditures annually among beneficiaries diagnosed with CHF and without prior comprehensive drug coverage, of which over \$2.3 billion was savings to Medicare. Further improvements in adherence could potentially save Medicare another \$1.9 billion annually, generating upwards of \$22.4 billion in federal savings over 10 years.

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## BACKGROUND

Congestive heart failure (CHF) is the most common reason for hospitalization among the elderly, accounting for one-fifth of all admissions.<sup>1</sup> Consequently, beneficiaries with CHF are among the most costly to Medicare; they represent 14% of the population, but account for 43% of Medicare Part A and B spending.<sup>2</sup> More than 3.5 million Part D enrollees were diagnosed with CHF in 2010.<sup>3</sup>

Extensive evidence demonstrates that medications can be used to effectively treat and manage CHF by slowing disease progression, allaying symptoms, and reducing use of medical services such as hospitalizations.<sup>4-7</sup> However, adherence to CHF medications remains suboptimal, suggesting the potential for improvements in outcomes and medical cost savings. For example, Roebuck and colleagues found that patients with CHF who were adherent to medications experienced 5.7 fewer hospital days and \$8881 in reduced medical expenditure annually compared with patients who were not adherent.<sup>6</sup> Another study found that each 10% increase in the use of CHF medications was associated with reductions in 3-year Medicare Part A and B expenditures of \$510 to \$923 (2006 dollars).<sup>8</sup>

**Table 1.** Impact of Medicare Part D on Annual Savings in Medical Expenditures Among Beneficiaries With CHF and Limited or No Prior Drug Coverage

Key Finding	Savings per Beneficiary With CHF	Total Savings
<b>Impact of Part D on total expenditures</b>		
Total reduction in total expenditures	\$1827	\$2,962,000,000
Net change in total expenditures	\$1628	\$2,640,000,000
<b>Impact of Part D on Medicare expenditures</b>		
Total reduction in Medicare expenditures	\$1613	\$2,615,000,000
Net change in Medicare expenditures	\$1438	\$2,331,000,000

CHF indicates congestive heart failure.

The Congressional Budget Office (CBO) more broadly recognizes this link between medication use and spending on other medical services. Last fall, the CBO announced a change to the methodology used to estimate the impact of legislation affecting the volume of drug use in Medicare. Specifically, the CBO now assumes that each 1% increase in the number of prescription drugs filled is associated with a 0.2% decline in spending for other healthcare services.<sup>9</sup> However, this estimate may be conservative, particularly in the case of CHF, as the CBO also acknowledges that the offsetting effects are generally larger for specific conditions that are more sensitive to drug use compared with the broader population. Despite the known benefits of medications to manage CHF, research shows that treatment for this life-threatening and costly disease remains suboptimal, with large percentages of patients not receiving or adhering to essential medications.<sup>10,11</sup> A significant driver of poor medication use is lack of insurance coverage, which leads patients to not fill prescriptions or to skip medication due to cost. Prior to implementation of Part D in 2006, approximately 30% of Medicare beneficiaries lacked creditable drug coverage, representing a critical gap in care for the elderly population. While we cannot fully discern the extent to which undertreat-

ment occurred, nearly 1 in 5 Medicare beneficiaries with CHF were not treated with medications commonly recommended for this condition.<sup>8</sup> Part D expanded the Medicare benefit with the goal of addressing financial barriers to medication access and adherence. By the end of Part D's inaugural year, more than half of previously uninsured beneficiaries had obtained coverage through Part D and the overall coverage rate reached 90%.<sup>12</sup>

Research across a wide variety of conditions has linked Part D to reductions in out-of-pocket spending and improvements in adherence for beneficiaries with no or limited prior drug coverage.<sup>13</sup> One study found that Part D was associated with approximately \$1200 in reduced medical spending among those who previously had limited drug coverage, resulting in overall savings of \$13 billion in the first full year of the program.<sup>14</sup> The objective of our study was to estimate the impact of Part D and improved use of CHF medications on savings in medical expenditures.

#### STUDY DATA AND METHODOLOGY: PART D PARTICIPATION, ADHERENCE, AND MEDICAL EXPENDITURES

We developed a simulation model that quantifies the impact of Part D on

adherence and medical expenditures for Medicare beneficiaries with CHF by combining information from the literature with our own analytic methodology.

The analysis focused on Part D enrollees with CHF who had limited or no drug coverage prior to Part D. Based on CHF age-sex prevalence rates and US Census Bureau population projections, we estimated that 3.7 million Part D enrollees were diagnosed with CHF in 2012, including 1.6 million with prior limited or no drug coverage.<sup>3,15</sup> Estimates of healthcare utilization, average medical costs, and age distribution of patients with CHF were generated from the 2006 to 2010 files of the Medical Expenditure Panel Survey (MEPS). Medicare beneficiaries diagnosed with CHF were identified in MEPS using *The International Classification of Diseases, 9th Revision* codes 428.xx (n = 962 patients). Per capita hospitalizations, emergency department visits, ambulatory visits, and home health days were estimated by sex and 5-year age intervals. The average length of stay per hospitalization and medical expenditures, by care delivery setting and age, were estimated using data from the 2010 Nationwide Inpatient Sample (n = 71,147 CHF hospitalizations). Hospitalization charges were converted to costs using published

**Table 2.** Impact of Improved Medication Adherence on Annual Savings in Medical Expenditures

Key Finding	Savings per Beneficiary With CHF	Total Savings
Total savings from improving adherence to PDC $\geq$ 80%	\$600	\$2,205,000,000
Medicare expenditures	\$528	\$1,947,000,000
Third party and out-of-pocket expenditures	\$71	\$258,000,000

CHF indicates congestive heart failure; PDC, proportion of days covered.

hospital-specific cost-to-charge ratios in 2012 dollars based on the medical component of the Consumer Price Index.

We quantified the impact of Part D on prescription medications used to treat CHF based on the peer-reviewed literature. According to 1 study, beneficiaries without prescription insurance prior to Part D filled an average of 6 more CHF prescriptions annually post Part D.<sup>16</sup> Other studies showed that Part D increased cardiovascular-related medication use for individuals without prior coverage as well as those whose prior coverage was subject to a quarterly benefit cap, typically \$150 or \$350.<sup>16-18</sup> From analysis of the 2005 to 2006 Medicare Current Beneficiary Survey and published sources, we estimated that 37.1% of enrollees were uninsured prior to Part D coverage, 3.6% had limited coverage (substantially less generous than Part D), 3.3% had moderate coverage (somewhat less generous than Part D), and the remaining 56% had prior comprehensive coverage.<sup>12,19</sup> Combining information from the published literature, the average weighted increase in medication use attributed to Part D for those without prior comprehensive coverage was 19.6%. We used the CBO offset estimate which assumes that nonprescription medical expenditures will decline by 0.2% for each 1% increase in prescription use. To calculate net savings, we subtracted the increased medication expenditures associated with improved adherence.

Despite improvements in medication use, many Part D enrollees with CHF remain nonadherent to medica-

tions used to treat CHF based on the proportion of days covered at 80% or greater.<sup>6,20</sup> To explore Part D's potential to generate better outcomes and increase savings, we also simulated the economic implications of improving adherence to 80%.

## RESULTS

Our findings indicated that the mean annual medical expenditure was \$33,247 per CHF beneficiary. Using the CBO offset estimate, this suggests a \$66.52 annual decrease in medical expenditures per 1% increase in prescription drug use (or 0.2% of total annual cost). Our analysis of spending using the MEPS suggests that 88.3% of savings would be recognized by Medicare.

Extrapolating our findings to the Part D population with CHF who had no prior or limited medication coverage, our analysis demonstrated that the expansion of coverage under Part D reduced mean annual non-drug medical expenditure by \$1827 per beneficiary in 2012 (Table 1). The magnitude of the estimated impact was greater among the previously uninsured population (\$2050 savings), and somewhat smaller for patients with previous limited and moderate coverage (\$773 and \$465, respectively). Overall, these savings translated to over \$2.9 billion in reduced medical expenditures. Accounting for the increase in medication spending, we estimated that the net effect of overall savings exceeded \$2.6 billion, of which over \$2.3 billion was savings to Medicare.

While Part D reduced rates of undertreatment among beneficiaries with CHF, adherence to therapy remains suboptimal. Improving adherence to a target 80% of days covered would produce additional savings of approximately \$2.2 billion (\$600/patient) via reductions in healthcare utilization, of which \$1.9 billion would be savings to Medicare (Table 2).<sup>20</sup>

## CONCLUSION

The increasing prevalence of CHF among the Medicare population highlights the importance of initiatives to manage the high medical costs associated with this disease. Evidence consistently demonstrates a strong connection between better medication use and reductions in other medical expenditures. One challenge with studies reviewing the relationship between prescription drugs and outcomes is that they typically consider only short-term implications. For example, much of the published literature surrounding the impact of Part D relies on data from 2006 to 2008, when the Part D program was still in its infancy. While these studies generally demonstrate short-term savings, we anticipate evidence of the value of improved coverage and the potential for savings to grow over time. In addition, most patients with CHF have multiple comorbidities, including coronary artery disease, hypertension, and diabetes, which can also be managed by many of the same therapies used for CHF.<sup>7,11</sup>

Over the next decade, millions of new beneficiaries will become eligible for Medicare, making efforts to appropriately manage disease and optimize medication use important policy tools for improving beneficiary health and controlling costs. Based on current age-sex CHF prevalence rates, US Census Bureau population projections, and Part D participation rates, the number of beneficiaries in Part D with CHF is projected to increase by about 26% between 2013 and 2022—suggesting that the number of Part D beneficiaries with CHF could grow to about 4.77 million by 2022.<sup>15</sup>

Our analysis suggests that over this 10-year period, Medicare will realize over \$26.9 billion in savings, driven by reductions in Part A and B expenditures associated with improved CHF medication adherence following the implementation of Part D. Going forward, reaching recommended levels of adherence (proportion of days covered of 80% or higher) among Part D enrollees with CHF could potentially double estimated savings, yielding roughly an additional \$22.4 billion in federal savings from 2013 through 2022.

**Author affiliations:** IHS Healthcare & Pharma, Washington, DC (TDB, TMD, PDG, APS).

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**Address correspondence to:** Timothy M. Dall, MS, 1150 Connecticut Ave NW, Ste 401, Washington, DC 20036. E-mail: tim.dall@ihs.com.

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