Supplementary Online Content

Venker B, Stephenson KB, Gellad WF. Assessment of spending in Medicare Part D if medication prices from the Department of Veterans Affairs were used. *JAMA Intern Med.* Published online January 14, 2019. doi:10.1001/jamainternmed.2018.5874

eAppendix. Methods

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Methods

Medicare Part D data are available to the general public online from the Centers for Medicare and Medicaid Services (CMS).[1] It contains information about annual medication spending and utilization, but does not include cost information for individual dosages. Instead, it provides total spending for each medication aggregated to the active ingredient unit, broken down by year. Brand and generic versions are listed separately. Below is an example using atorvastatin data from 2016:

Brand Name	Generic Name	Total Spending	Total Dosage Units	Total Claims
Atorvastatin Calcium	Atorvastatin Calcium	$755,763,518.63	2,488,075,884	44,402,142
Lipitor	Atorvastatin Calcium	$66,701,250.27	7,661,092	122,362
Total		$822,464,768.90	2,495,736,976	44,524,504

Total Part D spending on atorvastatin calcium was $822 million, primarily for the generic product. Because these Part D prescription data do not account for rebates or third-party contributions and include beneficiary contributions, we used annual reports to Congress of net Medicare drug spending (the amount spent by the government, rather than total spending) to calculate the ratio of net-to-gross Medicare spending for all of Part D.[2] We then applied this ratio of net-to-gross spending (ranging from 79% in 2011 to 70% in 2016) to each medication in an effort to more accurately reflect true government spending and to make Part D spending more comparable to VA data. Medicare spending also includes both a dispensing fee and sales tax for the State of Illinois, neither of which are incorporated in VA spending. Thus, both were subtracted. A Brookings Institute report estimated $2.50 per claim for the dispensing fee, and a small percent was subtracted to account for the State of Illinois sales tax.[3,4] After these adjustments, total medication spending for a given generic name (e.g. Atorvastatin Calcium) was divided by the number of units dispensed to establish a unit cost for Medicare. An example calculation is presented below using the atorvastatin data:

$$\frac{[\$822{,}464{,}768.90 * (1 - 0.2963)^{a}] - [44{,}524{,}504 * \$2.5^{b}] - [\$822{,}464{,}768.90 * (1 - 0.3)^{a} * 0.07^{c} * 0.01^{d}]}{2{,}495{,}736{,}976}$$

Medicare Unit cost = $0.187

a. 2016 estimated discount (accounting for rebates, patient copays) = 29.63%
b. Dispensing Fee = $2.5 for each of 44,524,504 claims
c. We allotted 7% of the spending to be IL's based on population in relation to the total US population
d. IL has a 1% tax on prescriptions drug sales

After calculating unit price in Medicare, net of rebates and dispensing fees, we calculated unit price in the Department of Veterans Affairs (VA) for the same drug product. All drug pricing data from the VA came from the Corporate Data Warehouse and reflects the most accurate unit prices at the time the medication was dispensed based on purchasing data from each site's respective wholesaler. To be consistent with Medicare data, we aggregated VA medication data regardless of dose, by generic product name, in the same fashion as the Medicare data. We then calculated VA unit cost, without any

necessary adjustment for rebates, taxes, or dispensing fees, by simply dividing total spending by the total number of units for each medication.

For our calculations of Medicare spending with VA prices, we applied the VA unit price for each medication to the total number of units dispensed of that medication by Medicare. We then took the difference of Medicare's actual spending for each medication from that number, which equaled potential savings for Medicare.

We excluded beneficiary cost/spending from our analysis for two reasons. First, VA data do not contain beneficiary cost sharing. Second, in Medicare, only average beneficiary cost data per medication is available. Without spending data for each individual beneficiary for all medications, and without knowledge of where they are in their coverage benefit (deductible, coverage gap, catastrophic spending level), we would likely inaccurately estimate beneficiary savings. Therefore, we included an adjustment (described above) to remove beneficiary spending from our calculation of prices.

Data Limitations

There are important limitations to the data. Specifically, the VA data do not have pricing information for brand and generic medications separately, and Medicare data did not have pricing information for specific dosages. As such, we could not compare generic and brand price differences among data sets, or dose-specific pricing differences. However, because we focus on medications with the highest Medicare spending, the majority of medications included were brand products where no generic was available; typically, among brand products there is little price difference across doses. Also, for the 2016 data as an example, there were only seven medications with long acting or additional brand formulations of the generic product. We believe it is unlikely that there is a large discrepancy between dosages and formulations for the two populations that would accrue substantial cost differences. As a result, the impact of these limitations is likely small.

Still, we believe our analysis was conservative. We only examined the top 50 capsule and tablet-only medication formulations, excluding many high cost items like insulin and injectable outpatient biologic medications. When adjusting Medicare spending (including an adjustment for rebates), we averaged the total discount percentage for all medications, and applied this to each drug. The adjustment that we calculated and applied was between 21-35%, while the average brand rebate percent from CMS' website for 2014 was only 17.5%.[5]

eReferences

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