
Prescription Drug Use and Expenditures Among Dually Eligible Beneficiaries

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Using Medicaid Analytic eXtract (MAX) claims files for 1999 and 2001, the authors describe patterns of prescription drug use and expenditures among dually eligible Medicare and Medicaid beneficiaries for all Medicaid full dually eligible beneficiaries and three important subgroups: (1) aged, (2) disabled, and (3) full-year nursing home residents. The analyses indicate great variation in use and expenditures across States that cannot be explained through differences in use of cost containment strategies. Further, the findings suggest that Medicare Part D plans may achieve significant savings by providing incentives for greater use of generic drugs.

INTRODUCTION

Medicare coverage is available to most persons age 65 or over and to non-elderly disabled individuals who have received Social Security disability insurance (SSDI) payments for at least 2 years. Medicare beneficiaries who meet income and asset thresholds defined by the States can also qualify to receive Medicaid benefits. In 2001, 7 million individuals were enrolled in Medicaid as dually eligible beneficiaries. Representing a poorer and less healthy segment of the Medicare population, health care costs for dually eligible beneficiaries are significantly higher than

for other Medicare beneficiaries, with total annual costs per person averaging \$20,844 for dually eligible beneficiaries and \$10,054 for non-dually eligible beneficiaries in 2001 (Medicare Payment Advisory Commission, 2004). Dually eligible beneficiaries also incur a disproportionate share of costs for State Medicaid Programs. In 2003, dually eligible beneficiaries represented 14 percent of the Medicaid population, but accounted for 40 percent of all Medicaid expenditures (Holahan and Ghosh, 2005).

Dually eligible beneficiaries also account for a disproportionate share of Medicaid spending on prescription medications (Kaiser Commission on Medicaid and the Uninsured, 2006). In 1999, dually eligible beneficiaries represented 19 percent of Medicaid fee-for-service (FFS) beneficiaries, but 55 percent of total FFS Medicaid pharmacy reimbursement (Verdier and Kim, 2005). In 2002, the average cost of drug coverage for a dually eligible beneficiary was estimated to be nearly twice that for all Medicaid beneficiaries (Dale and Verdier, 2003). Among all drug classes, spending on psychotropic drugs (such as antidepressants and antipsychotics) has far outpaced spending for other medications since the mid-1990s due to the greater availability of higher cost atypical antipsychotics, expansions in insurance coverage for these medications, the shift to higher use of prescription drugs to treat mental disorders, and expansion of direct-to-consumer advertising (Frank, Conti, and Goldman, 2005). The government has been the predominant purchaser of antipsychotic medications, with State Medicaid Programs

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accounting for about 80 percent of all prescriptions for antipsychotics in 2001 (Berndt, 2003).

Medicare Modernization Act

The 2003 Medicare Prescription Drug, Improvement, and Modernization Act introduced a drug benefit (Part D) for Medicare beneficiaries and shifted payment for prescription drugs for dually eligible beneficiaries from Medicaid to Medicare. Dually eligible beneficiaries were randomly assigned to prescription drug plans (PDPs) with average or below-average monthly premiums, but were given the option of enrolling in another plan of their choice between November 15, 2005, and December 31, 2005. Those who did not select a plan were automatically enrolled in their randomly assigned PDP, but maintain the option of changing plans at any time during the year if they find that their assigned plan's formulary does not include their needed medications, or if they are otherwise dissatisfied.

Changes in drug coverage for dually eligible beneficiaries brought about by the move to Part D are likely to affect prescribing patterns and drug expenditures for these beneficiaries. Despite being an optional service, all States and the District of Columbia offer prescription drug benefits to their Medicaid recipients. Federal regulations prohibit the use of restrictive formularies, but States have traditionally used a variety of other mechanisms to control spending on prescription drugs, resulting in a diverse array of programs (Morden and Sullivan, 2005; Dale and Verdier, 2003). Some of the mechanisms States have used include: (1) preferred drug lists; (2) prior authorization; (3) generic substitution; (4) beneficiary copayments; (5) fail first policies, whereby a patient must fail on a specific drug before trying a more expensive

alternative; and (6) caps on the number or duration of prescriptions (Morden and Sullivan, 2005; Koyanagi, Forquer, and Alfano, 2005; Dale and Verdier, 2003). Many of the same approaches are being used in the privately administered Medicare plans participating in the Part D benefit, thus shifting variation in drug coverage for dually eligible beneficiaries from the State level to the plan level after January 1, 2006.

Psychotropic medications may be at particular risk for cost-cutting efforts because they represent such a large and growing segment of prescription drug expenditures for dually eligible beneficiaries (Frank, Conti, and Goldman, 2005; Morden and Garrison, 2006; Elam, Bruen, and Tilly, 2002). A recent study suggests that while all States use cost containment strategies for many psychotropic medications, many exempt antipsychotics and antidepressants (Koyanagi, Forquer, and Alfano, 2005). Under the Part D benefit, plans are required to include all antidepressant and antipsychotic medications in their formularies, but the plans may still employ cost control mechanisms such as fail first and prior authorization to restrict access to more costly medications (Morden and Garrison, 2006).

Research Objectives

The primary objective of this study was to examine patterns of prescription drug use by Medicaid dually eligible beneficiaries prior to the shift to the Part D benefit and discuss the implications of these findings for the Part D program. This study builds on an earlier analysis of Medicaid drug use among dually eligible beneficiaries (Verdier and Kim, 2005), but incorporates more extensive analyses including: (1) use of generic versus prescription drugs, (2) use of prescription drugs within specific drug classes, (3) analysis of use

and spending for high-cost psychotropic medications, and (4) comparisons of drug use and spending between 1999 and 2001. The analyses: (1) present volume and expenditure levels for dually eligible beneficiaries, (2) examine patterns of drug use across dually eligible beneficiaries who are aged, disabled, and full-year nursing home residents, (3) compare rates of utilization of antipsychotics and antidepressants among dually eligible beneficiaries, and (4) examine variation in drug use and cost across States.

The analyses also illustrate how a newly available source of detailed and uniform State-by-State data can be used to conduct comparative analyses that have important policy implications for both Medicaid and Medicare. The MAX files are administrative claims files covering all Medicaid-reimbursed services. Because dually eligible beneficiaries historically received payments for prescription drugs through their State Medicaid Program, the MAX prescription drug files are the only comprehensive source of data on payments for prescription medications for dually eligible beneficiaries prior to 2006.

METHODS

Data

The primary data for this study were the 2001 MAX files (formerly known as the State Medicaid Research Files, or SMRFs) prepared by CMS for all 50 States and the District of Columbia. The MAX files are person-level data files containing information on Medicaid eligibility category, beneficiary age and sex, service utilization, and payments in the calendar year. Data for the MAX files are extracted from the Medicaid Statistical Information System (MSIS), the electronic records system by which States submit quarterly Medicaid eligibility

and paid claims data to CMS (CMS, 2006). Because the 1997 Balanced Budget Act requires all States to participate in MSIS reporting, the data contained in the MAX files are standardized across all 50 States and the District of Columbia.

Five types of MAX files are available. The person summary file contains information on annual and monthly Medicaid eligibility, patient demographics, and managed care enrollment. The remaining files represent the final action claims for four types of services: (1) inpatient hospital stays, (2) care provided in long-term care facilities, (3) prescription drugs, and (4) all other types of services. This study used the person summary, long-term care, and prescription drug files.

Because the MAX data contain individual identifiers, they are protected under the Privacy Act of 1974 (5 U.S.C. § 552a), but are available for approved research activities through a data use agreement with CMS. MAX files are currently available for 1999-2002. The analyses for this article are based primarily on the 2001 data, but include some comparisons with the 1999 files.

Design

The dually eligible population includes Medicare beneficiaries with full Medicaid coverage and those with more limited Medicaid benefits (e.g., those who receive assistance only with Medicare premiums and cost sharing). The present analyses excluded the approximately 1 million dually eligible beneficiaries without Medicaid prescription drug coverage. Medicaid eligibility is assessed on a monthly basis so some beneficiaries may move on and off Medicaid coverage within a year or may join the program mid-year. The descriptive statistics include both full- and part-year enrollees. The analyses are further

restricted to beneficiaries enrolled in FFS because data on service use from managed care plans are generally not available; however, analyses of the 2001 MAX files indicates that, nationwide, only 10.5 percent of dually eligible beneficiaries are enrolled in managed care (Table 1). The managed care penetration rate exceeds 10 percent in only 10 States; and in only 2 of these States (Arizona at 82 percent and Tennessee at 100 percent) does this figure exceed 41 percent (data not presented but available on request from the authors). The analytic files, therefore include all full-coverage, dually eligible beneficiaries enrolled in FFS who have at least partial year enrollment. Statistical findings are presented first for all dually eligible beneficiaries and then for three categories of dually eligible beneficiaries: (1) the aged (persons age 65 or over), (2) the disabled, and (3) full-year nursing home residents. The first two groups are the two main categories for Medicare eligibility; nursing home residents are examined separately because they represent the sickest subset of dually eligible beneficiaries and account for a large share of spending (Kasper, Elias, and Lyons, 2004). Because the focus of this study is on aggregate findings for those in nursing homes, analyses do not distinguish aged from

disabled nursing home residents. Data on prescription drug use and expenditures were drawn from the MAX pharmacy files. The expenditures reported do not reflect the fact that States subsequently receive federally required rebates from drug manufacturers; the data, therefore, overstate the actual final costs to the Medicaid Program. The descriptive statistics include information for use of patented (i.e., innovator, single source) and off-patent (i.e., innovator, multiple source) brand name drugs as well as generic (i.e., non-innovator, multiple source) drugs based on a proprietary indicator of First Data Bank (and available to MAX users through a licensing agreement). The drug classes reported are based on the First Data Bank Medi-Span® Therapeutic classification system from the Master Drug Data Base.

RESULTS

Characteristics

Table 2 describes the characteristics of the dually eligible population identified through the MAX files. Due to the exclusions previously discussed, the files contain claims for approximately 5.7 million beneficiaries. Overall, aged beneficiaries

Table 1

Medicaid Managed Care and Fee-for-Service Enrollment Among Dually Eligible Beneficiaries: 1999

Enrollment	All	Aged	Disabled
Total Number of Beneficiaries	6,363,555	3,509,726	2,777,388
Medicaid Insurance Status			
Fee-for-Service			
Number	5,693,213	3,189,966	2,451,003
Percent	89.5	90.9	88.3
Managed Care			
Number	669,953	319,573	326,183
Percent	10.5	9.1	11.7
Unknown			
Number	389	187	202
Percent	0	0	0

NOTE: Data for Medicaid insurance status for nursing home residents were unavailable in the Medicaid Analytic eXtract files.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

Table 2
Characteristics of Dually Eligible Medicaid Beneficiaries in Fee-for-Service: 2001

Characteristic	All		Aged		Disabled		Nursing Home Residents ¹	
	Number	%	Number	%	Number	%	Number	%
All	5,693,212	100.0	3,189,966	56.0	2,451,003	43.1	855,393	15.0
Age								
Under 65 Years	1,969,789	34.6	2,244 ²	0.1	1,918,804	78.3	62,062	7.3
65 Years or Over	3,723,404	65.4	3,187,705	99.9	532,198	21.7	793,327	92.7
Sex								
Female	3,666,352	64.4	2,309,158	72.4	1,328,209	54.2	630,341	73.7
Male	2,026,843	35.6	880,807	27.6	1,122,778	45.8	225,052	26.3
Race								
White	3,367,318	59.2	1,880,106	58.9	1,457,517	59.5	674,601	78.8
Black	1,024,552	18.0	494,723	15.5	517,618	21.1	100,214	11.7
Other/Unknown	1,301,342	22.8	815,057	25.6	475,868	19.4	80,578	9.5
Use of Nursing Facilities								
All Year	855,393	15.0	753,405	23.6	101,899	4.2	—	—
Part Year	434,073	7.6	361,371	11.3	72,449	3.0	—	—
None	4,403,746	77.4	2,075,190	65.1	2,276,655	92.9	—	—
Managed Care Status								
Fee-for-Service, All Year	5,540,770	97.3	3,121,310	97.9	2,375,967	96.9	—	—
Fee-for-Service, Part Year	152,442	2.7	68,656	2.2	75,036	3.1	—	—

¹ Nursing home residents for all months of 2001.

² The small percentage of members under age 65 but classified as aged are due to State coding anomalies.

NOTE: Some breakdowns of beneficiary characteristics do not sum to totals due to missing data or sum to more than 100 percent due to rounding.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

represent 56 percent of all dually eligible beneficiaries and 43 percent are disabled; however, nearly 22 percent of dually eligible beneficiaries are both aged and disabled. The reason that such a large percentage of dually eligible beneficiaries are classified as both aged and disabled is that in many States beneficiaries who originally qualified for Medicaid on the basis of disability are retained in that eligibility category even after they turn 65; other States automatically shift them to the aged category. Fifteen percent of dually eligible beneficiaries are full-year nursing home residents, while another 7.6 percent resided in nursing facilities for some part of 2001.

Females are a majority of dually eligible beneficiaries (64 percent), particularly among the aged and nursing home residents where females comprise more than 70 percent of the population. White persons are the predominant racial group at around 60 percent of the dually eligible population and nearly 79 percent of dually eligible

nursing home residents. Black persons and other or unknown racial and ethnic groups represented nearly an equal percentage of the remaining dually eligible beneficiaries (18 and 23 percent, respectively). Although the MAX data from 1999 and forward include additional codes for race and ethnicity (i.e., Asian, Hispanic or Latino with no race information available, and Hispanic or Latino with one or more races), many States failed to report this information.

Patterns of Drug Use

Table 3 describes the patterns of drug use among dually eligible beneficiaries in 2001 and highlights the heavy use of prescription drugs within this population. Across all categories of dually eligible beneficiaries more than 85 percent had at least one prescription claim in 2001. Nursing home residents filled more prescriptions, on average, than other dually eligible beneficiaries; they averaged 5.7 prescriptions

per month (versus 3.8 among all dually eligible beneficiaries) and over 45 percent had 5 or more prescription claims per month (as compared with 26 percent for aged and 24 percent for disabled beneficiaries).¹ Overall, dually eligible beneficiaries filled 4.4 more prescriptions per year, on average, in 2001 than in 1999. The greatest increase in prescription claims was among nursing home residents, who filled 6.5 more prescriptions per year over the study period.

Although the average number of prescriptions for patented, brand-name drugs did not differ significantly from the number for generic drugs across any of the beneficiary groups, the average monthly cost of patented drugs was 3.5 to 5 times higher than for generic drugs (i.e., \$159 versus \$35 across all categories of beneficiaries). Disabled dually eligible beneficiaries had the highest average monthly drug costs at \$250 and expenditures among nursing home residents were also high at \$249 per month. Aged beneficiaries had considerably lower average monthly expenditures (\$179). After adjusting 1999 expenditures to account for inflation in Medicaid prescription drug prices using MAX data from 1999 to 2001, the average monthly prescription cost per beneficiary increased from \$187 in 1999 to \$211 in 2001 (a nearly 13 percent increase of \$24).

Utilization of Antipsychotics and Antidepressants

One factor contributing to the discrepancy in drug costs between aged beneficiaries and other dually eligible beneficiaries is that a lower percentage of aged beneficiaries had any prescription claims for antipsychotic medications in

2001 (Table 4). As noted, antipsychotics are among the most costly drug classes but also have had the highest medication cost increases for any therapeutic category in recent years (Binder et al., 2006). Between 1999 and 2001 (after adjusting for inflation), antipsychotic medications alone accounted for one-quarter of the increase in average monthly pharmacy costs per beneficiary (\$6 out of the \$24 reported in Table 3). A larger number of claims for antidepressants from 1999 to 2001 also accounted for one-quarter of the rise in expenditures. Twenty percent of aged dually eligible beneficiaries had a prescription for antipsychotics in 2001 and 37 percent had a prescription for an antidepressant; these percentages were 39 and 52 percent for nursing home residents. Among disabled dually eligible beneficiaries, 31 percent used an antipsychotic in 2001 and 47 percent used an antidepressant; individuals under age 65 made up 89 percent of disabled beneficiaries who used an antipsychotic medication and 85 percent of those who used an antidepressant despite the fact that they account for only 78 percent of all disabled dually eligible beneficiaries (data not presented but available from the authors on request).

Prescription Drug Use and Cost Variation

Tables 5-8 present data on the patterns of drug use and cost variation among dually eligible beneficiaries across States. The percentage of dually eligible beneficiaries with at least one prescription varied from a low of 66 percent in Washington, DC, to a high of 92 percent in Maine (Table 5). However, these were not necessarily the highest or lowest in terms of average number of monthly prescriptions or average cost per beneficiary.

Across States, the median number of prescriptions filled per beneficiary per

¹ All monthly measures are based on benefit months, that is, months in which a person has Medicaid prescription drug coverage whether or not any drugs are used in that month.

Table 3
Patterns of Drug Use Among Dually Eligible Beneficiaries in 2001 and Selected Differences:
1999-2001

Drug Usage	All	Aged	Disabled	Nursing Home Residents ¹
Total Beneficiaries	5,693,212	3,189,966	2,451,003	855,393
Percent of Beneficiaries with at Least 1 Prescription	85.6	85.4	86.2	88.8
Average Annual Number of Prescriptions per Beneficiary	39.6	39.3	40.3	56.5
Average Monthly Number of Prescriptions per Beneficiary	3.8	3.8	3.7	5.7
Patented Brand-Name Drugs	1.7	1.7	1.8	2.4
Off-Patent, Brand-Name Drugs	0.3	0.3	0.3	0.5
Generic Drugs	1.7	1.8	1.7	2.8
Percent of Beneficiaries Prescription Usage				
No Prescriptions	14.4	14.6	13.8	11.1
More than 0 but 2 or Fewer per Month	31.4	30.1	32.9	15.9
More than 2 but 5 or Fewer per Month	29.2	29.5	29.1	27.5
More than 5 but 10 or Fewer per Month	19.7	20.4	19	32.9
More than 10 per Month	5.3	5.4	5.3	12.6
Average Annual Prescription Drug Cost per Beneficiary	\$2,203	\$1,834	\$2,698	\$2,507
Average Monthly Prescription Drug Cost per Beneficiary	\$211	\$179	\$250	\$249
Patented Brand-Name Drugs	\$159	\$133	\$193	\$179
Off-Patent, Brand-Name Drugs	\$16	\$13	\$19	\$20
Generic Drugs	\$35	\$33	\$38	\$49
Percent of Beneficiaries with a Prescription for (Any Time During the Year)²				
Antipsychotics	23.2	20.0	31.0	39.2
Ulcer Drugs	39.3	48.2	38.9	40.8
Antidepressants	38.6	37.7	46.7	52.2
Antihypertensive	39.9	54.3	33.6	33.8
Anticonvulsant	20.0	14.8	29.9	24.0
Calcium Blockers	21.1	29.6	16.7	NA
Antidiabetic	30.8	39.5	29.5	28.4
Antihyperlipidemic	19.1	23.9	19.5	NA
Analgesics-Narcotic	46.1	47.9	53.8	39.2
Analgesics-Anti-inflammatory	36.1	42.0	39.1	22.0
Differences in Drug Utilization Between 1999 and 2001				
Average Annual Number of Prescriptions per Beneficiary				
1999 Value	35.2	34.6	35.4	50.0
2001 Value	39.6	39.3	40.3	56.5
Difference Between 1999 and 2001	4.4	4.7	4.9	6.5
Percent of Beneficiaries with Two or More Prescriptions per Month				
1999 Value	49.9	50.8	48.7	68.5
2001 Value	54.2	55.3	53.3	73.0
Difference Between 1999 and 2001	4.3	4.5	4.6	4.5
Average Monthly Prescription Drug Cost per Beneficiary				
1999 Value	\$157	\$132	\$189	\$181
1999 Value Adjusted for 1999-2001 Inflation ³	187	159	221	218
2001 Value	211	179	250	249
Difference Between 1999 (Adjusted) and 2001	24	20	29	31

¹ Nursing home residents for all months of 2001.

² These drug classes represent the top 10 drug classes by total Medicaid reimbursement in 2001 and were identified using Medi-Span® Master Drug Data Base Version 2.0.

³ Adjusted for inflation in Medicaid prescription prices from 1999 to 2001.

NOTES: In 1999, there were a total of 5,309,969 dually eligible beneficiaries with Medicaid pharmacy coverage (3,084,036 were classified as aged, 2,187,662 were classified as disabled, and 842,256 were full-year residents of a nursing home). Monthly prescription drug utilization and expenditure measures are based on benefit months (months in which a person has Medicaid prescription drug coverage). NA is not available.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

month was 4.3, but ranged from a low of 2.2 in South Carolina to a high of 5.5 in Ohio and Utah (Table 6). Notably, in 2001,

South Carolina had a dispensing limit set at 4 prescriptions per month, but other States where beneficiaries filled less than

Table 4
Utilization of Antipsychotics and Antidepressants Among Dually Eligible Beneficiaries:
1999 and 2001

Drug Usage	All	Aged	Disabled	Nursing Home Residents ¹
Total Beneficiaries in 1999	5,309,969	3,084,036	2,187,662	911,907
Total Beneficiaries in 2001	5,693,212	3,189,966	2,451,003	855,393
Use of Antipsychotics				
Percent of Beneficiaries with at Least 1 Prescription				
1999	20.7	17.8	28.3	34.8
2001	23.2	20.0	31.0	39.2
Difference	2.5	2.2	2.7	4.4
Average Monthly Number of Prescriptions per Beneficiary				
1999	0.7	0.6	0.8	0.7
2001	0.7	0.6	0.8	0.8
Difference	0	0	0	0.1
Average Monthly Prescription Drug Cost per Beneficiary				
1999	\$79	\$48	\$102	\$67
1999 Adjusted for 1999-2001 Inflation ²	\$100	\$66	\$121	\$86
2001	\$106	\$72	\$129	\$97
Difference Between 1999 (Adjusted) and 2001	\$6	\$6	\$8	\$11
Use of Antidepressants				
Percent of Beneficiaries with at least 1 Prescription				
1999	33.1	32.0	40.7	43.4
2001	38.4	37.4	46.7	51.5
Difference	5.3	5.4	6.0	8.1
Average Monthly Number of Prescriptions per Beneficiary				
1999	0.5	0.6	0.5	0.8
2001	0.6	0.6	0.6	0.8
Difference	0.1	0	0.1	0
Average Monthly Prescription Drug Cost per Beneficiary				
1999	\$32	\$30	\$34	\$41
1999 Adjusted for 1999-2001 Inflation ²	\$33	\$34	\$37	\$46
2001	\$39	\$35	\$41	\$48
Difference Between 1999 (Adjusted) and 2001	\$6	\$2	\$4	\$2

¹ All nursing home residents for all months of 2001, including non-dually eligible beneficiaries who make up less than 8 percent of the sample.

² Adjusted for inflation in Medicaid prescription prices from 1999 to 2001. Unrounded figures for average monthly number of prescriptions per beneficiary were used to calculate inflation-adjusted costs for 1999.

NOTES: Antipsychotic and antidepressant drug classes were identified using Medi-Span® Master Drug Data Base Version 2.0. Monthly prescription drug utilization and expenditure measures are based on benefit months (months in which a person has Medicaid prescription drug coverage).

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

4 prescriptions per month (for example, Massachusetts and Minnesota which fell in the 25th percentile with 3.8 prescriptions filled per dually eligible beneficiary) had no such restrictions (National Pharmaceutical Council, 2002). Thus, factors other than dispensing limits likely played a role in determining the number of prescription claims per month.

The median monthly drug expenditure for dually eligible beneficiaries was \$218 per beneficiary across States (Table 7). This varied from a low of \$153 (South Carolina, New Mexico, and Washington, DC) to a high of \$286 (Utah). As noted, Washington, DC, had the lowest percentage of

beneficiaries with at least one prescription claim, which likely contributed to its lower spending; and in 2001, had relatively few cost containment strategies in place (for example, some limits on refills and the amount of medication that could be dispensed per prescription and the use of prior authorization) (National Pharmaceutical Council, 2002), which suggests that some other factors were at work. South Carolina had the dispensing limit previously mentioned, as well as the use of mandatory generic substitution and prior authorization. New Mexico did not have dispensing limits on the number of prescriptions in 2001, but did use mandatory generic substitution

and prior authorization (National Pharmaceutical Council 2002). However, it is not possible to determine with this information whether or not the cost containment measures directly influenced the monthly expenditures reported.

Finally, the use of generic drugs among dually eligible beneficiaries also varied considerably across States (Table 8). Generic drugs represented the lowest percentage of all prescriptions in New York at 37 percent (conversely, patented, brand-name drugs were 54 percent of all prescriptions, and another 9 percent of prescriptions were for off-patent, brand-name drugs). At the other end of the spectrum, generics were 53 percent of the drugs prescribed to dually eligible beneficiaries in Oregon (41 percent were patented, brand-name drugs, and 6 percent were off-patent, brand-name drugs).

DISCUSSION

Implications for Medicare Part D

This study's findings have a number of implications for coverage of dually eligible beneficiaries under Medicare Part D. First, there may be opportunities in many States to achieve significant savings by providing incentives for greater use of generics. The average cost per Medicaid prescription filled by dually eligible beneficiaries in 2001 was substantially less for generic drugs than for patented or off-patent brand-name drugs (\$20 versus \$92 and \$53, respectively; data not presented, but available on request from the authors). Given that generic drugs made up 46 percent of all prescriptions to Medicaid dually eligible beneficiaries in 2001, moving a larger percentage of beneficiaries to equally efficacious generic drug products could generate substantial savings. Suppose, for example, a State at the 25th percentile

Table 5

Percent of Dually Eligible Beneficiaries with at Least One Prescription, by State: 2001

State	Percent
Washington, DC	66.2
New York	75.1
North Dakota	78.9
New Mexico	79.8
California	82.3
Colorado	82.3
Nevada	82.3
Utah	82.7
Illinois	83.3
Maryland	83.3
Florida	83.9
Pennsylvania	85.0
Indiana	85.4
South Carolina	85.5
Delaware	85.9
Alaska	86.0
Minnesota	86.1
South Dakota	86.3
Wisconsin	87.2
Hawaii	87.3
Oregon	87.7
Virginia	87.8
Wyoming	88.0
Oklahoma	88.2
Alabama	88.3
Michigan	88.3
Montana	88.4
Washington	88.6
Massachusetts	88.7
Texas	88.8
Arkansas	88.9
Idaho	89.3
Kentucky	89.5
Rhode Island	89.5
Louisiana	89.7
New Jersey	90.2
Connecticut	90.4
Kansas	90.4
Ohio	90.4
Georgia	90.6
Iowa	90.6
Missouri	90.7
West Virginia	90.7
New Hampshire	90.9
Nebraska	91.2
Vermont	91.2
Mississippi	91.6
North Carolina	91.7
Maine	92.4
Median	88.3

NOTE: Arizona and Tennessee are excluded due to a very high share of beneficiary enrollment in prepaid managed care plans.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

in Table 8 (Connecticut), where generic drugs accounted for 44.9 percent of all prescription fills in 2001, increased the rate of generic drug fills to match States at the 75th percentile (New Mexico and Illinois), where generic drugs accounted for 47.4

percent of all prescription fills. In 2001, dually eligible beneficiaries in Connecticut filled nearly 3.7 million prescriptions at a total cost of \$213 million. Increasing its generic dispense rate to 47.4 percent would have reduced total prescription drug costs among dually eligible beneficiaries by \$6.8 million.

Second, the high use of costly antipsychotic drugs among the under age 65 disabled dually eligible population underscores the importance for Part D plans of focusing on the mental health needs of this population, over one-half of whom have significant mental or cognitive impairments (Medicare Payment Advisory Commission, 2004), and whose current drug use may not fully correspond to their needs. Third, the high use of antipsychotics in nursing facilities also warrants attention in light of longstanding concerns regarding the over-use and misuse of this class of psychotropic drugs among nursing home residents (Ray, Federspiel, and Schaffner, 1980; Buck, 1988; Gurvich and Cunningham, 2000; Briesacher et al., 2005). Stand-alone PDPs are required by CMS to have medication therapy management programs that focus on drug use by high-need and high-use populations, and Medicare Advantage-Prescription Drug managed care plans are at risk for increased inpatient hospital and other costs that may result from inappropriate drug use, so both types of Part D plans have incentives to focus on drug use by the under age 65 disabled population and those in nursing facilities.

Although based on 2001 data, a number of considerations suggest that the findings from these analyses can provide useful information for understanding likely patterns of drug use and expenditures among dually eligible beneficiaries in 2006. First, the MAX data are the only comprehensive source of information on prescription drug utilization among dually

Table 6
Average Number of Monthly Prescriptions per Dually Eligible Beneficiary, by State: 2001

State	Percent
South Carolina	2.2
California	2.5
Washington, DC	2.7
Hawaii	2.9
Texas	2.9
New York	3.0
New Mexico	3.2
Arkansas	3.3
Oklahoma	3.3
Nevada	3.4
Mississippi	3.6
Massachusetts	3.8
Minnesota	3.8
Florida	3.9
North Carolina	3.9
Rhode Island	3.9
Alabama	4.0
Georgia	4.1
Maryland	4.1
North Dakota	4.1
Maine	4.2
Michigan	4.2
Virginia	4.2
Colorado	4.3
Delaware	4.3
Illinois	4.3
South Dakota	4.3
Vermont	4.3
Wyoming	4.4
Connecticut	4.5
Louisiana	4.5
New Jersey	4.5
Washington	4.5
West Virginia	4.5
Wisconsin	4.5
Iowa	4.6
Montana	4.6
Alaska	4.9
New Hampshire	5.0
Idaho	5.1
Indiana	5.1
Missouri	5.1
Nebraska	5.1
Oregon	5.2
Pennsylvania	5.2
Kentucky	5.3
Kansas	5.4
Ohio	5.5
Utah	5.5
Median	4.3

NOTES: Monthly prescription drug utilization is based on benefit months, that is, months in which a person has Medicaid prescription drug coverage whether or not any drugs are used in that month. Arizona and Tennessee are excluded due to a very high share of beneficiary enrollment in prepaid managed care plans.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

eligible beneficiaries. The files include all prescription claims generated by patients enrolled in the FFS Medicaid drug program. Estimates derived from sources

Table 7
Average Monthly Prescription Drug
Expenditure per Dually Eligible Beneficiary,
by State: 2001

State	Expenditure
South Carolina	\$153
New Mexico	153
Washington, DC	153
Hawaii	159
Arkansas	165
Alabama	165
Oklahoma	170
Texas	171
California	182
Nevada	184
Georgia	195
North Dakota	195
New York	199
West Virginia	203
Michigan	204
Mississippi	207
Massachusetts	209
Wisconsin	213
South Dakota	214
Rhode Island	214
Maryland	214
Maine	216
North Carolina	217
Illinois	217
Louisiana	218
Iowa	219
Florida	222
Virginia	223
Colorado	227
Washington	230
Vermont	231
Montana	236
Minnesota	237
Wyoming	241
Delaware	249
Oregon	252
Pennsylvania	255
Nebraska	256
Kentucky	256
New Jersey	258
Connecticut	262
Idaho	264
Missouri	267
Ohio	271
New Hampshire	272
Alaska	277
Kansas	278
Indiana	282
Utah	286
Median	218

NOTES: Monthly prescription drug utilization is based on benefit months, that is, months in which a person has Medicaid prescription drug coverage whether or not any drugs are used in that month. Arizona and Tennessee are excluded due to a very high share of beneficiary enrollment in prepaid managed care plans.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

such as the Medicare Current Beneficiary Survey (MCBS) and the Medical Expenditure Panel Survey (MEPS) are subject to

recall bias and potential errors arising from sample selection.

Second, previous analyses suggest that the dually eligible population is relatively stable over time (Stuart, Shea, and Briesacher, 2001; Medicare Payment Advisory Commission, 2004; Stuart and Singhal, 2006). Stuart and Singhal's (2006) analyses suggested that program turnover results primarily from new enrollments and death. Using the MCBS for 1997 to 2000, they found that 83 percent of dually eligible beneficiaries either maintained continuous coverage over the entire study period or obtained coverage after 1997 but retained it through the study period; the remaining 17 percent experienced a loss of entitlement. Similarly, MedPAC's analysis, based on the Medicare 5-percent denominator files from 1993 to 2002, found that 41 percent of Medicare beneficiaries who became dually eligible between 1994 and 1996 were still alive and remained dually eligible 6 to 9 years later; another 24 percent died during the study period and only 8.5 percent remained dually eligible for 1 year or less (Medicare Payment Advisory Commission, 2004). This persistence in Medicaid eligibility suggests that drug use patterns in Medicaid dually eligible beneficiaries are likely to be fairly stable, and not subject to the fluctuations that may result when members lose or regain eligibility, change doctors, or stop using drugs needed to treat chronic conditions. Furthermore, there are significant Federal limits on the ability of State Medicaid agencies to use the kinds of cost containment tools that have become common in the private sector in recent years, such as increased beneficiary cost sharing and restrictive formularies, so major changes in utilization related to cost containment efforts are less likely in Medicaid than in other contexts.

Table 8
Percent of Prescriptions Dispensed as
Generic to Dually Eligible Beneficiaries, by
State: 2001

State	Percent
New York	37.1
Alaska	38.6
Delaware	42.9
Texas	43.0
New Jersey	43.2
Mississippi	43.4
Maryland	43.5
North Carolina	43.8
South Carolina	43.9
Kansas	44.2
Vermont	44.5
Wyoming	44.9
Connecticut	44.9
North Dakota	45.1
Nebraska	45.3
Pennsylvania	45.5
Minnesota	45.7
Idaho	45.8
Louisiana	46.0
Georgia	46.0
Nevada	46.0
Washington, DC	46.2
Rhode Island	46.3
Florida	46.3
Kentucky	46.3
South Dakota	46.4
Ohio	46.4
Utah	46.6
Hawaii	46.7
Virginia	46.9
Indiana	47.0
Colorado	47.1
Arkansas	47.1
California	47.1
Maine	47.2
New Mexico	47.4
Illinois	47.4
Missouri	47.5
Massachusetts	47.6
New Hampshire	47.8
Wisconsin	48.5
Montana	48.9
Oklahoma	49.1
Michigan	49.2
Washington	49.5
Iowa	51.0
West Virginia	51.5
Alabama	52.5
Oregon	53.2
Median	46.3

NOTE: Arizona and Tennessee are excluded due to a very high share of beneficiary enrollment in prepaid managed care plans.

SOURCE: Centers for Medicare & Medicaid Services: Data from the 2001 Medicaid Analytic eXtract.

Finally, several studies suggest that the MAX prescription claims data can provide accurate estimates of future drug expenditures for dually eligible beneficiaries (Wrobel et al., 2003-2004; Zhao et al., 2005). Zhao

et al. (2005) showed that models using drug claims alone (versus those that used both drug claims and diagnoses) were sufficient to predict future pharmacy costs. These authors also showed that more recent data provided an improvement over estimates based on models using more clinically specific classifications. Similarly, Wrobel et al. (2003-2004) showed that adding lagged drug expenditures to prospective models more than doubled the predictive power for models of future drug spending. As more recent years of MAX files become available, these data will become even more essential for forecasting, risk adjustment, and overall health plan management (Huskamp and Keating, 2005).

Future Research

The findings also suggest several avenues for further research using the MAX data. For example, while it is possible to disaggregate drug use and expenditures by specific therapeutic classes, with MAX data one could also study individual utilization patterns for a wide variety of different drugs to determine whether or not Medicaid beneficiaries are adhering to drug regimens. This would be particularly helpful information for those drug classes where not adhering regularly to medications could lead to long-term adverse effects, such as many cardiovascular medications and psychotropic drugs.

Limitations

Although the data present important information on health care utilization among dually eligible Medicare and Medicaid beneficiaries that has not been available using other data sources (such as, the MCBS and the MEPS), using the MAX files alone omits data on services for which Medicare is the primary payer (i.e.,

physician and hospital care). However, the data are designed to facilitate linkage between Medicare and Medicaid claims.

Many Part D plans had little prior experience dealing with Medicaid beneficiaries and, therefore, may not have had a good sense of the volume and sources of drug expenses for dually eligible beneficiaries when designing their programs (Moran, 2005). The present analyses provide invaluable insights into the need for comprehensive drug coverage, particularly for psychotropic medications. It is unclear at this point whether the Part D drug data will be made available for research purposes; until they are, the MAX data will offer the best information for estimating outcomes and costs for dually eligible beneficiaries.

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