Trends and Current Drug Utilization Patterns of Medicaid Beneficiaries

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This study used national Medicaid data from 1994-2003 to investigate trends in noninstitutional drug utilization and expenditures in the Medicaid Program. We found that there was a substantial increase in both drug utilization and expenditures during this timeframe. Increased utilization resulted from increases in Medicaid enrollment, the mean number of prescriptions per enrollee, mean nominal and inflation-adjusted reimbursement per prescription, and the tendency for increased use of more expensive drugs. The top 40 drugs accounted for nearly $14.4 billion, roughly 43 percent of the total drug reimbursements for calendar year (CY) 2003.

INTRODUCTION

In recent years, the contribution of drugs to the treatment of medical conditions has increased more rapidly than most nonpharmaceutical approaches to disease. This increase is reflected in rapid escalation of expenditures for drugs—expenditures that have increased at a greater rate than most other medical services. Medicaid is now the number one payer of medical care in the United States, having surpassed Medicare recently.[1] Therefore, it is especially important that Medicaid drug utilization and expenditures be carefully tracked to address concerns about drug access, affordability, safety, and effectiveness. The recent passage and implementation of the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 has contributed to public attention to these issues.

The MMA provides Medicare beneficiaries with a prescription drug benefit, arguably the most significant change in health care for the elderly in nearly 40 years. Dually eligible individuals, persons with both Medicare and Medicaid eligibility, if they receive full benefits under Medicaid and if they elect to participate in the program, will receive their drug benefits under Medicare beginning in 2006. This legislation is expected to decrease Medicaid expenditures for drugs, because most of the expenditures for full-Medicaid benefit dually eligible individuals will be shifted to Medicare.[2] Even so, States remain concerned about Medicaid drug costs. States will continue to pay their matching portion in full for nondually eligible enrollees and will be required to make a phased down contribution to Medicare for a portion of the drug costs for the dually eligible enrollees starting at 90 percent of estimated costs in 2006 and scaling down to 75 percent of estimated costs by 2015 and beyond.

There are a few recent studies in the literature investigating Medicaid drug utilization, expenditures, and/or cost containment

[1] Medicare spending under the MMA, when fully implemented, could cause Medicare to once again exceed Medicaid in yearly spending.

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[2] Based on 2002 data from the Medicaid Statistical Information System, approximately $14 billion (50 percent) of the $28 billion in Medicaid payments for drugs was attributable to expenditures for full-Medicaid benefit dually eligible individuals.

efforts. Baugh et al. (2004) reported an average annual increase of 16.3 percent in Medicaid spending for the dually eligible individuals between 1990 and 2000. They also found that disabled persons experienced a 20-percent average annual increase in drug spending during this time period. Tepper and Lied (2004) reported that Medicaid spending on drugs increased from $2.3 to $24.7 billion between 1985 and 2001 and that Medicaid drug spending nearly doubled from 1997 to 2001. Abramson et al. (2004) analyzed maximum allowable cost (MAC) programs in five States and concluded that expansion of existing MAC programs and creation of new ones could help States in cost containment efforts.

The current study builds on these research efforts by presenting more recent data on Medicaid drug use and expenditures and by systematically examining the trends in utilization over a substantial time period (CYs 1994-2003) in which growth was particularly dramatic. We begin by presenting utilization and expenditure data over this time period, reporting both nominal and inflation-adjusted expenditure data. Then, we examine changes from year to year in mean prescription reimbursements and how these changes compare with changes in the medical consumer price index (MCPI). We compare utilization and expenditures of the top 40 drugs versus all other drugs between CYs 1994-2003. Lastly, we report utilization and payments by drug groups and compare utilization and reimbursements of the top 40 drugs in terms of reimbursements for CYs 1998-2003.

METHODOLOGY

The results presented in this article were obtained using two sources: (1) State Drug Utilization Data Files for 1994-2003 (Medicaid Drug Rebate Program) and (2) the Master Drug Database of Medi-Span[3]. The State Drug Utilization Data Files were merged with data abstracted from the master drug database. Using State drug utilization data files from 1994-2003, the percent change in mean reimbursement rates was compared directly to the percent change in the MCPI, (U.S. Department of Labor, Bureau of Labor Statistics, 2005). Trends in mean prescription reimbursement were adjusted to constant 2003 dollar using the MCPI. Constant mean reimbursement was compared side by side to the nominal mean reimbursement. Constant dollar amounts were found using the following formula:

$R = (N/MPI) * 100$
Where: R = real value (constant dollar)
N = nominal value (current dollar) and
$MCPI$ = medical consumer price index.

Patterns in reimbursement were compared to patterns in utilization for 2003. Using the State Drug Utilization Data Files, total prescriptions, total reimbursements, and mean reimbursement rates were examined by major drug groups. We also investigated the top 40 drugs in terms of reimbursements from CYs 1994-2003, and compared their utilization, reimbursements, and mean prescription reimbursements with the remaining (all other) drugs. For 1998 and 2003, we investigated changes in the top 40 drugs on a specific brand name basis.

RESULTS

Table 1 displays the number of Medicaid drug prescriptions, the total amount reimbursed, and the mean reimbursement per prescription between CYs 1994-2003. Reimbursed amounts in this study are not

[3] More information on the State Drug Utilization Data Files can be found at http://www.cms.hhs.gov/medicaid/drugs/drug5.asp. Information on Medi-Span can be found at http://www.wkhealth.com.

Table 1

Medicaid Drug Reimbursements and Utilization: Calendar Years 1994-2003

Year	Number of Prescriptions (In Millions)	Amount Reimbursed (In Billions)	Mean Reimbursement (Dollars)	Number of Enrollees (In Millions)	Mean Prescriptions (Per Enrollee)
1994	332.9	$8.435	$25.34	40.5	8.2
1995	330.1	8.994	27.25	41.4	8.0
1996	340.1	10.606	31.18	41.2	8.3
1997	340.5	11.575	33.99	41.6	8.2
1998	350.2	13.587	38.80	41.4	8.5
1999	368.1	16.177	43.95	44.3	8.3
2000	404.8	19.989	49.38	44.3	9.1
2001	476.7	25.351	53.18	47.2	10.1
2002	520.7	29.639	56.92	51.0	10.2
2003	573.1	34.298	59.85	53.6	10.7

NOTE: Reimbursements are not net of rebates and average about 20 percent.

SOURCES: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Files, 1994-2003 and projected figures for 2002-2003 from the Office of the Actuary.

Table 2

Mean Prescription Reimbursements, Medical Consumer Price Index (MCPI), and Constant 2003 Dollars: Calendar Years 1994-2003

Year	MCPI	Percent Change		Mean Prescription Reimbursement (In Constant 2003 Dollars)
		MCPI	Mean Prescription Reimbursement	
1994	211.0	4.55	6.51	$35.68
1995	220.5	4.31	7.01	36.72
1996	228.2	3.37	12.63	40.61
1997	234.6	2.73	8.26	43.06
1998	242.1	3.10	12.37	47.61
1999	250.6	3.39	11.72	52.11
2000	260.8	3.91	10.98	56.24
2001	272.8	4.40	7.16	57.92
2002	285.6	4.48	6.55	59.20
2003	297.1	3.87	4.91	59.85

NOTE: Reimbursements are not net of rebates which average approximately 20 percent.

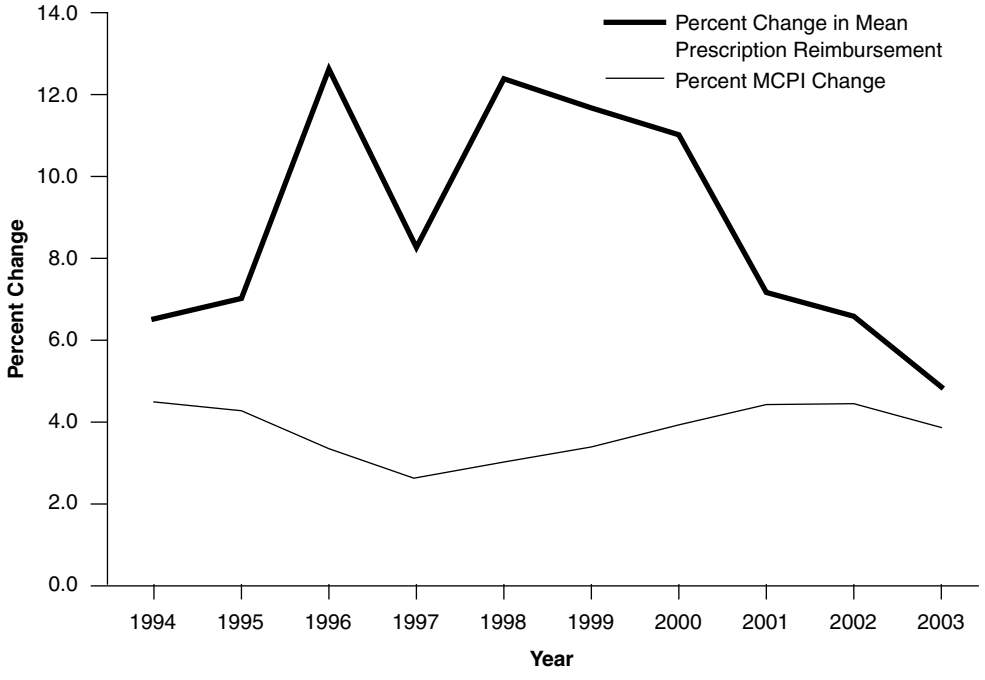
SOURCES: Centers for Medicare & Medicaid Services: Data from the Medicaid Medicaid Drug Rebate Program, State Drug Utilization Files, 1994-2003; U.S. Department of Labor Statistics, Bureau of Labor Statistics, Consumer Price Index, various releases. Data from the MCPI base year 1982-1984.

net of rebates which, overall, reduce total drug reimbursements by about 20 percent. In 1994, the total number of prescriptions was 333 million, the amount reimbursed was $8.4 billion, and the mean reimbursement per prescription was $25.34. By 2003, the number of prescriptions increased to 573 million, the amount reimbursed approximately quadrupled to $34.3 billion, and the mean price per prescription more than doubled to $59.85. The increase in the reimbursed amount for Medicaid prescriptions during this 10-year period was a function of the increase in the number of Medicaid enrollees, the number of prescriptions per enrollee, and the mean price per prescription.

Table 2 compares the percent change in the base years' 1982-1984 MCPI with the percent change in the mean prescription reimbursement between CYs 1994-2003 and adjusts the mean prescription reimbursement based on 2003 dollars. Between CYs 1994-2003, the percent change in the mean prescription reimbursement outstripped the percent change in MCPI, often by impressive margins. However, by 2003 the difference between the percent change

Figure 1

Change in Medical Consumer Price Index (MCPI) Versus Mean Medicaid Prescription Reimbursement: Calendar Years 1994-2003



SOURCES: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Data Files, 1994-2003; U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index, various releases. (Base Year: 1982-1984, MCPI data.) Available at http://www.bls.gov/cpi (Accessed January 2005.)

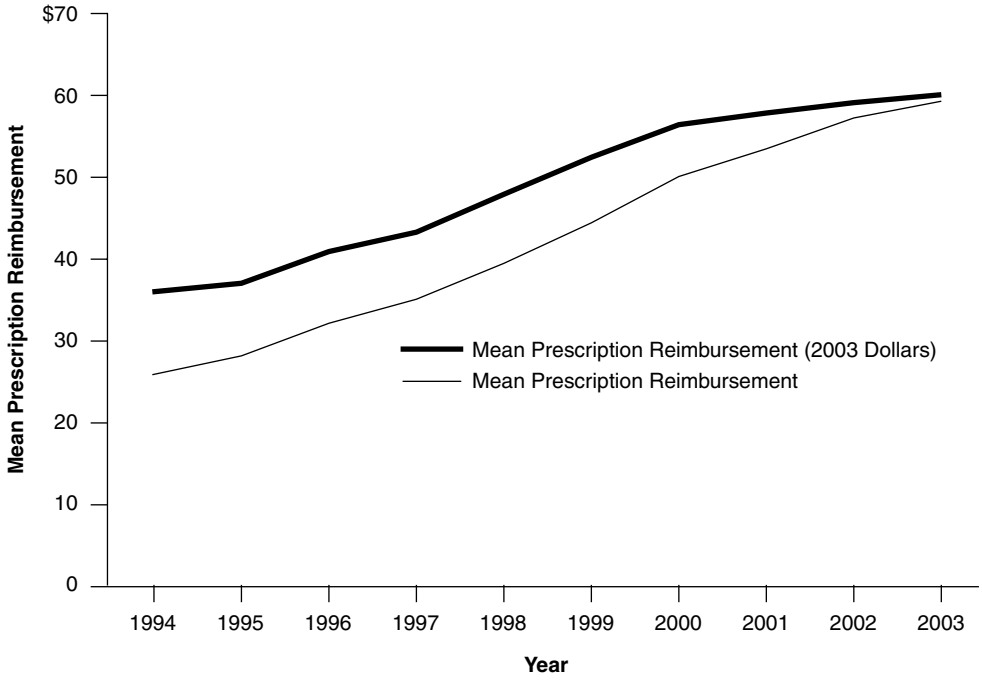
in the MCPI and the percent change in the mean Medicaid prescription reimbursement was only about 1 percent (3.87 versus 4.91). In 1994, the mean reimbursement in 2003 dollars was $35.68. By 2003, the mean reimbursement was $59.85 (in 2003 dollars). Therefore, over this time period the mean reimbursement had increased by $24.17 in constant 2003 dollars, an increase of 68 percent. Figure 1 presents the relationship between percent changes in the MCPI and mean prescription reimbursements between CYs 1994 and 2003. Figure 2 illustrates the trend in mean Medicaid prescription reimbursements between CYs 1994 and 2003 in both nominal and constant 2003 dollars.

Table 3 lists the number of prescriptions, percent of total prescriptions, total reimbursements, percent of total reimbursements, and the mean reimbursement per prescription for the top 40 drugs, in terms of total reimbursements, and for all other drugs for CYs 1994-2003[4]. The mean reimbursement amount per prescription was greater for the top 40 drugs compared to other drugs during this 10-year period. In 1994, the mean reimbursement amount per prescription was $45 for the top 40 drugs compared to $21 for all other drugs. By 2003, the mean reimbursement amount per prescription was $131 for the top 40 drugs compared to $42 for all other drugs. The top 40 drugs accounted for 34 percent of total drug reimbursements in 1994 and 43 percent of total drug reimbursements in 2003. With many more drugs available in 2003 compared to 1994, this result suggests that the top drugs had a significantly

[4] The top 40 drugs were based on yearly reimbursement amounts and, therefore, changed from year to year.

Figure 2

Medicaid Mean Reimbursements in Nominal and Constant (2003) Dollars: Calendar Years 1994-2003



SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Data Files, 1994-2003.

Table 3

Top 40 Drugs (In Payments) Versus All Other Drugs: Calendar Years 1994-2003

	Top 40 Drugs					All Other Drugs		
	Prescriptions		Reimbursement				Reimbursement	
Year	Number In Millions	Percent Total	Total In Billions	Percent Total	Mean	Prescriptions In Millions	Total In Billions	Mean
1994	65.1	20	$2.90	34	$45	267.8	$5.54	$21
1995	63.2	19	3.26	36	52	266.9	5.73	21
1996	57.1	17	3.72	35	65	283.0	6.89	24
1997	59.9	18	4.30	37	72	280.6	7.28	26
1998	61.2	17	5.13	38	84	289.0	8.46	29
1999	67.6	18	6.57	41	97	300.5	9.61	32
2000	81.6	20	8.80	44	108	323.2	11.19	35
2001	99.2	21	11.21	44	113	377.5	14.14	37
2002	107.9	21	13.04	44	121	412.8	16.60	40
2003	113.3	20	14.86	43	131	459.8	19.44	42

NOTES: The top 40 drugs were different for each year and were based on the top reimbursement amounts for each year. Reimbursement not net of rebates which average approximately 20 percent.

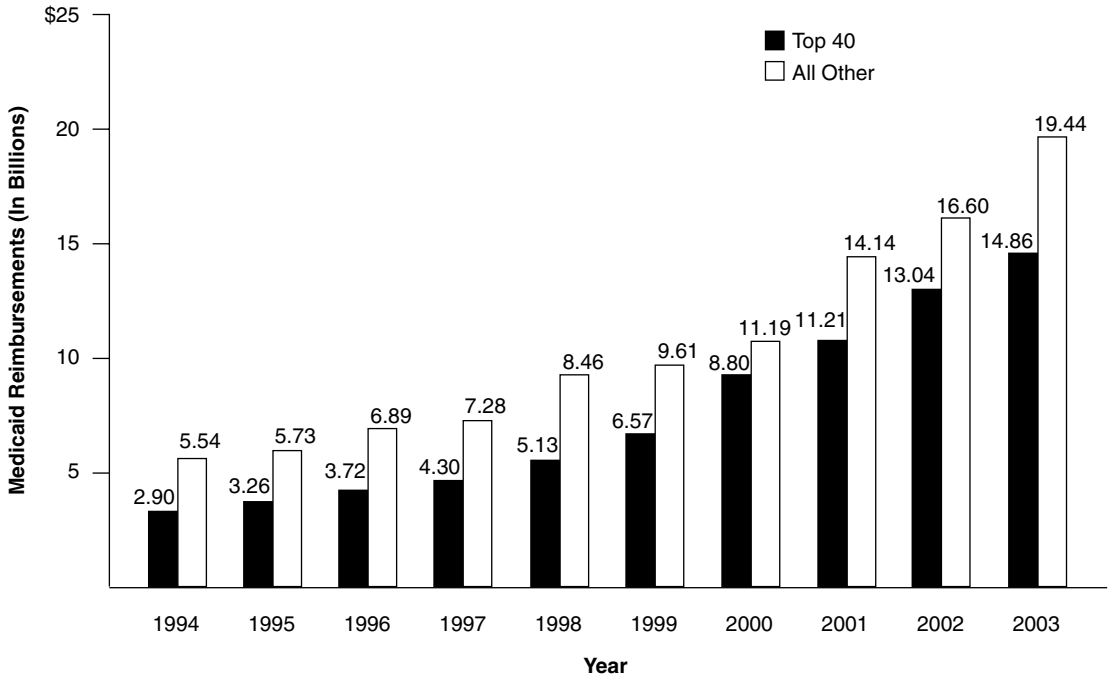
SOURCES: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Data Files, 1994-2003.

greater share of the market in 2003 than they did in 1994. Figure 3 displays total reimbursements for the top drugs and for all other drugs for CYs 1994-2003. Reimbursements for the top 40 drugs as a percent of total drug reimbursements gradually and steadily increased between 1994 and 2001, but showed a very slight decline between 2001-2002, and 2002-2003.

Table 4 presents the total number of prescriptions and reimbursements by drug group for 2003. Mean reimbursement is

Figure 3

Medicaid Reimbursements Top 40 Drugs Versus All Other Drugs: Calendar Years 1994-2003



NOTES: The top 40 drugs were different for each year, and were based on the top reimbursement amounts. Reimbursements are not net of rebates which average approximately 20 percent.

SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Data Files, 1994-2003.

also presented. Central nervous system (CNS) drugs (primarily used to treat psychiatric conditions) had the highest total reimbursements of all groups at approximately $7.3 billion. These drugs accounted for more than 21 percent of the total drug reimbursements in 2003. Cardiovascular agents were first in terms of total prescriptions and second in terms of total reimbursements at approximately $4.1 billion or 12 percent of total reimbursements. Anti-infective agents were third in terms of reimbursement at $3.4 billion followed by analgesics and anesthetics at nearly $2.9 billion, respiratory agents at $2.8 billion, and endocrine and metabolic drugs at just short of $2.8 billion. Gastrointestinal agents followed closely at $2.7 billion and neuromuscular drugs were not too far behind at a little more than $2.4 billion.

Table 5 displays the number of prescriptions, total reimbursement amounts, and mean reimbursement for the drug brands that comprised the top 40 drugs in 1998 and 2003[5]. Only 14 of the top 40 drugs in 2003, in terms of total reimbursements, were also on the top 40 list in 1998. However, Zyprexa and Risperdal, drugs primarily used to treat psychoses, were the number one and number two Medicaid drugs in terms of reimbursements in both 1998 and 2003. Between 1998 and 2003, the number of prescriptions for Zyprexa increased by 145 percent from 2.3 to 5.6 million. The number of prescriptions for Risperdal increased by 110 percent from 2.9 to 6.1 million.

[5] We chose 1998 to compare with 2003, because this time span was believed sufficient to examine meaningful change in utilization patterns and earlier data (1994-1997) proved more difficult in matching national drug codes to brand names in the State utilization files.

Table 4

Medicaid Prescriptions, Reimbursements, and Mean Reimbursements, by Drug Group: Calendar Year 2003

Group	Prescriptions		Reimbursements		
	Number	Percent Total Number	Amount	Mean	Percent Total Reimbursement
Central Nervous System Drugs	81,693,758	14.3	$7,302,883,398	$89.39	21.3
Cardiovascular Agents	102,503,877	17.9	4,128,003,330	40.27	12.0
Anti-Infective Agents	46,509,187	8.1	3,403,663,558	73.18	9.9
Analgesics and Anesthetics	62,775,245	11.0	2,853,284,118	45.45	8.3
Respiratory Agents	60,786,865	10.6	2,837,901,907	46.69	8.3
Endocrine and Metabolic Drugs	54,556,435	9.5	2,778,079,944	50.92	8.1
Gastrointestinal Agents	38,926,954	6.8	2,712,783,203	69.69	7.9
Neuromuscular Drugs	33,125,583	5.8	2,427,417,306	73.28	7.1
Hematological Agents	15,938,287	2.8	1,706,717,130	107.08	5.0
Topical Products	31,933,433	5.6	1,237,125,236	38.74	3.6
Miscellanous Psychotherapeutic and Neurological Agents	3,305,209	0.6	561,514,396	169.89	1.6
Stimulants /Anti-Obesity /Anorexiants	6,709,833	1.2	520,613,909	77.59	1.5
Genitourinary Products	8,045,177	1.4	466,983,390	58.05	1.4
Antineoplastic Agents	1,982,937	0.3	428,876,536	216.28	1.3
Biologicals	243,546	0.0	320,850,341	1,317.41	0.9
Nutritional Products	18,096,550	3.2	245,085,656	13.54	0.7
Miscellaneous Products	1,374,319	0.2	239,355,331	174.16	0.7
Other / Unknown	4,563,315	0.8	127,164,366	27.87	0.4
Total	573,070,510	100.0	34,298,303,061	59.85	100.0

NOTE: Reimbursements are not net of rebates which average approximately 20 percent.

SOURCES: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Files, 1994-2003.

Table 5

1998 Versus 2003 Top 40 Drugs Reimbursed Medicaid Drugs

1998				2003			
Brand Name	Number Drugs	Total Reimbursement	Mean Reimbursement	Brand Name	Number Drugs	Total Reimbursement	Mean Reimbursement
Zyprexa	2,276,790	$562,255,761	$247	Zyprexa	5,575,396	$1,698,198,937	$305
Risperdal	2,914,311	407,339,230	140	Risperdal	6,132,470	1,130,277,222	184
Prozac	3,088,185	299,155,014	97	Prevacid	6,133,410	806,836,095	132
Depakote	2,808,609	227,442,176	81	Seroquel	3,951,706	742,006,685	188
Zoloft	3,160,016	226,911,158	72	Lipitor	7,240,817	646,116,815	89
Paxil	3,057,445	208,509,344	68	Neurontin	4,856,503	589,110,235	121
Clozaril	1,867,551	187,891,909	101	Zoloft	5,753,583	482,160,123	84
Prevacid	1,575,421	177,163,267	112	Celebrex	4,481,097	472,957,967	106
Pepcid	2,354,149	176,984,931	75	Zocor	3,793,548	468,237,418	123
Vasotec	2,842,655	137,999,358	49	Plavix	3,468,018	399,779,462	115
Procardia XL	2,049,366	135,389,319	66	Oxycontin	1,428,041	380,161,247	266
Buspar	1,607,224	135,210,908	84	Depakote	3,364,296	370,191,388	110
Norvasc	2,254,978	122,891,451	55	Protonix	3,604,819	369,064,123	102
Zocor	1,189,240	111,966,133	94	Advair Diskus	2,411,127	334,408,830	139
Augmentin	1,957,215	106,825,432	55	Norvasc	5,641,549	325,959,523	58
Neurontin	927,655	101,846,541	110	Singulair	3,741,466	320,500,997	86
Lipitor	1,417,372	101,199,268	71	Duragesic	1,380,473	297,297,793	215
Cardizem CD	1,754,772	100,450,323	57	Paxil	3,379,653	293,857,055	87
Glucophage	2,069,422	96,828,503	47	Actos	1,956,198	293,309,712	150
Cipro	1,523,052	94,478,131	62	Effexor XR	2,533,564	290,443,444	115
Claritin	1,495,141	87,944,615	59	Nexium	2,101,010	278,196,514	132
Combivir	175,026	84,314,625	482	Topamax	1,460,040	277,094,679	190
Zerit	352,360	81,128,161	230	Procrit	320,230	251,044,645	784
Biaxin	1,400,690	80,185,791	57	Synagis	214,574	248,050,452	1,156
Pravachol	972,898	79,556,848	82	Wellbutrin SR	2,404,534	236,637,149	98
Epivir	375,364	79,464,974	212	Celexa	3,037,985	229,223,574	75
Ultram	1,762,731	77,380,982	44	Avandia	1,873,077	228,074,346	122
Dilantin	2,696,242	75,136,196	28	Vioxx	2,501,180	222,351,537	89
Rocephin	247,980	71,704,599	289	Ambien	3,274,251	222,176,648	68
Crixivan	183,526	70,677,577	385	Aricept	1,662,705	214,685,493	129
Clonazepam	1,805,129	70,394,581	39	Abilify	646,640	194,910,804	301
Albuterol Sulfate	2,697,067	66,305,260	25	Pravachol	1,609,773	191,149,058	119
Procrit	105,829	64,993,980	614	Zyrtec	3,675,637	184,105,280	50
Depo-Provera	245,399	64,540,905	263	Recombinate	12,125	174,539,186	14,395
Mevacor	679,206	63,586,053	94	Levaquin	2,272,755	173,671,975	76
Diflucan	726,750	61,627,007	85	Fosamax	2,342,540	171,316,197	73
Serostim	12,981	60,082,536	4,629	Combivir	287,707	169,004,965	587
Relafen	898,158	59,056,101	66	Lamictal	763,264	167,394,730	219
Duragesic	404,654	56,431,658	139	Omeprazole	1,327,012	161,198,649	121
Imdur	1,255,057	55,340,151	44	Geodon	705,226	153,797,029	218
Total	61,187,616	5,128,590,757	84	Total	113,319,999	14,859,497,981	131

NOTE: Reimbursements are not net of rebates which average approximately 20 percent.

SOURCES: Centers for Medicare & Medicaid Services: Data from the Medicaid Drug Rebate Program, State Drug Utilization Data, 1998 and 2003.

SUMMARY AND DISCUSSION

This study used national Medicaid data from 1994-2003 to investigate trends in noninstitutional drug utilization and expenditures in the Medicaid Program. We found that there was a substantial increase in both drug utilization and expenditures during this timeframe. In itself, this is not too surprising given the growth of the pharmaceutical industry and the development of many new and safer drugs that are being used effectively to both prevent and treat illness. Increased utilization, however, has been the result of several other factors including increases in (1) Medicaid enrollment, (2) the mean number of prescriptions per enrollee, (3) mean nominal and inflation-adjusted reimbursement per prescription, and (4) the tendency for increased use of new and more expensive drugs.

In 2003, the top three drug groups in terms of reimbursements were CNS drugs, cardiovascular agents, and anti-infective

agents. CNS drugs accounted for more than 1 in 5 drug dollars spent on Medicaid beneficiaries in that year. The top drugs in the CNS group in terms of expenditures were Zyprexa, Risperdal, and Seroquel, which were also the top three drugs overall. All three of these drugs are used to treat psychoses. Among the top 40 drugs in terms of Medicaid reimbursements in 2003, not one was a generic.

It is clear that efforts to control Medicaid spending cannot overlook the considerable growth in drug expenditures that has occurred over the past 10 years or more. In the entire mix of Medicaid services, drugs are now a much more prominent factor than they were a decade ago, and there is no sign that this dominance will abate in the foreseeable future. If anything the predominance and costs of drugs in the treatment of disease are likely to increase over the next few years. It also seems likely that a relatively select group of drugs, many of them among the newest, will dominate the market for each year in the foreseeable future, even though many of the specific drugs dominating the market may change from year to year. The question for policymakers will be how to ensure that beneficiaries have access to the most safe and effective drugs while simultaneously ensuring that the spending on drugs is affordable.

Under the 2003 MMA, dually eligible beneficiaries who are eligible for both Medicare and full-benefit Medicaid services will be receiving their drug benefits under Medicare in 2006, and beyond. These individuals currently account for nearly 50 percent of all Medicaid drug expenditures. They are both older and more likely to be disabled than non-dually eligible Medicaid beneficiaries, thus accounting for much of their tendency toward higher utilization of drugs and other medical services. It is important that their drug utilization continue to be studied as they transition from Medicaid to Medicare coverage for their drug coverage.

One of the limitations of our study is that we were not able to provide utilization and reimbursement data for different population groups within Medicaid. The State Drug Utilization Data Files available from the Medicaid Drug Rebate Program did not contain data on beneficiary characteristics. We were thus limited in our ability to assess trends in use in different populations, although the drug groups and specific drugs with highest utilization certainly gave us some clues about prescription drug usage in vulnerable population groups. For example, our data suggest that the newer psychotropic drugs have replaced older drugs in the first-line treatment of serious mental illness. Another limitation of our study is that we were unable to net out the drug rebate amounts so the expenditure figures are inflated. Overall, rebates reduce total drug expenditures by about 20 percent, but from the data available in this study we do not know these amounts for specific drugs.

One suggestion for future research would be to investigate trends in brand name versus generic drugs in terms of Medicaid utilization and expenditures. Comparing these trends with corresponding trends in Medicare and commercial plans would add to the utility of this research, especially if it were possible to control for differences in population characteristics. It seems likely that the increased use of generics, as a substitute for brand name drugs, when appropriate, might reduce overall drug spending in Medicaid.

Budget pressures are forcing States to take a hard and often painful look at main cost drivers. Medicaid has recently overtaken education as the number one State budget item on a national basis. Since growth in drug expenditures is one of the

key drivers to overall expenditure increases in the Medicaid Program in recent years, it is likely that States will be particularly determined to explore strategies for containing drug costs in Medicaid for the foreseeable future.

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