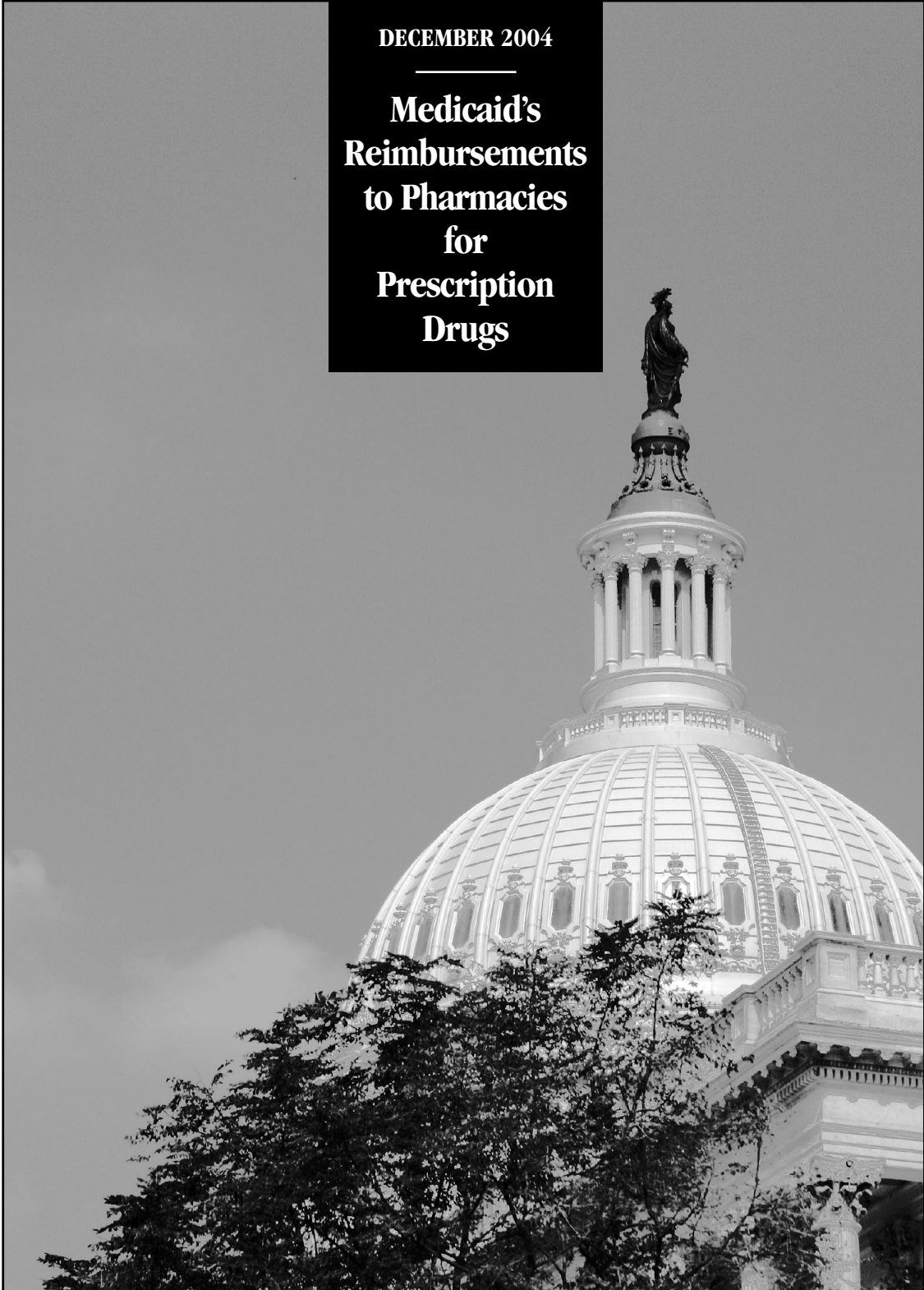


CONGRESS OF THE UNITED STATES  
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**CBO**  
PAPER

DECEMBER 2004

**Medicaid's  
Reimbursements  
to Pharmacies  
for  
Prescription  
Drugs**







# **Medicaid's Reimbursements to Pharmacies for Prescription Drugs**

December 2004

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## **Note**

Numbers in the text and tables may not add up to totals because of rounding.

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## Preface

**B**etween fiscal years 1997 and 2002, Medicaid's expenditures on prescription drugs in the fee-for-service part of the program increased from \$10.2 billion to \$23.4 billion. About one-quarter of those amounts went to wholesalers and pharmacies to compensate them for distributing and dispensing the drugs.

Prepared at the request of the House Committee on Energy and Commerce, this paper examines recent trends in that "markup"—or the difference between the total amount that state Medicaid agencies paid to pharmacies and the amount that pharmacies and wholesalers paid to purchase the drugs from manufacturers. In keeping with the Congressional Budget Office's (CBO's) mandate to provide objective, impartial analysis, the paper makes no recommendations.

Todd Anderson, Anna Cook, and Judy Wagner of CBO's Health and Human Resources Division wrote the paper under the supervision of Steve Lieberman, Bruce Vavrichek, and James Baumgardner. (Steve Lieberman and Judy Wagner have since left CBO.) Perry Beider made helpful suggestions on early drafts, and Samuel Kina provided research assistance. Richard Frank of Harvard University provided a valuable review. (The assistance of an external reviewer implies no responsibility for the final product, which rests solely with CBO.)

John Skeen edited the paper, and Leah Mazade proofread it. Judith Cromwell produced drafts of the manuscript. Maureen Costantino formatted the document for publication, Lenny Skutnik produced the printed copies, and Annette Kalicki formatted the electronic versions for CBO's Web site ([www.cbo.gov](http://www.cbo.gov)).

Douglas Holtz-Eakin  
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**CONTENTS**

**Summary and Introduction** *1*

**Measuring Markups** *3*

**Factors Contributing to Rising Markups** *3*

Markups on Generic and Brand-Name Drugs *4*

Markups by Type of Brand-Name or Generic Drug *5*

The Relative Contribution of Generic and Brand  
Name Drugs to Rising Markups *8*

**Medicaid's Reimbursement Policies That May Have  
Contributed to  
Increasing Markups** *8*

**Recent Changes in States' Policies for Reimbursing  
Pharmacies** *11*

**Data and Methods** *13*

**Tables**

1.	Summary of Medicaid's Average Reimbursements, Wholesalers' and Pharmacies' Acquisition Costs, and Markups for Prescription Drugs, 1997 and 2002	2
2.	Medicaid's Reimbursements, Wholesalers' and Pharmacies' Acquisition Costs, and Markups for Brand-Name and Generic Drugs, 1997 to 2002	4
3.	Distribution of Medicaid Prescriptions, by Drug Type, 1997, 2000, and 2002	6
4.	Medicaid's Reimbursements, Wholesalers' and Pharmacies' Acquisition Costs, and Markups, by Type of Brand-Name or Generic Drug, 1997, 2000, and 2002	7
5.	Distribution of Increasing Markups Among Types of Brand-Name and Generic Drugs, 1997 to 2002	9
6.	Average Markups in States With and Without a Maximum Allowable Cost List, 1997 to 2002	12
7.	Distribution of Average Markup Levels Among States, 1997, 2000, and 2002	12

**Figures**

1.	Markups per Prescription and Margins Under Medicaid, 1995 to 2002	3
2.	Average Annual Change in Reimbursements, Acquisition Costs, and Markups for Brand-Name Drugs Under Medicaid	5





# Medicaid's Reimbursements to Pharmacies for Prescription Drugs

## Summary and Introduction

In recent years, the Medicaid program has experienced a rapid increase in spending for prescription drugs. Between fiscal years 1997 and 2002, Medicaid's expenditures on them in the fee-for-service part of the program increased at an average annual rate of 18 percent, growing from \$10.2 billion to \$23.4 billion.<sup>1</sup> Consequently, policymakers at both the federal and state levels are considering ways to moderate that growth. Some states have already taken action by adopting lists of preferred drugs (to encourage beneficiaries to use less expensive drugs) or increasing the rebates that drug manufacturers pay to Medicaid.

One important component of Medicaid's spending on prescription drugs is the amount that the program pays for wholesalers and retail pharmacies to distribute and dispense the drugs to beneficiaries. On the basis of data from the Centers for Medicare and Medicaid Services (CMS), the Congressional Budget Office (CBO) estimates that the amount paid for distributing and dispensing those drugs accounts for approximately 23 percent of Medicaid's reimbursement to pharmacies. That percentage is roughly in line with the industry average for the entire outpatient pharmaceutical sector.<sup>2</sup> However, Medicaid's payments for those services have increased markedly

in recent years, adding significantly to the overall cost of the program.

For each prescription that a pharmacy fills under the program, Medicaid pays the pharmacy an amount meant to cover both the cost of acquiring the drug from the manufacturer and the cost of distributing and dispensing it. That "markup" that Medicaid pays is defined in this paper as the dollar difference between the total amount that Medicaid pays the pharmacy for each prescription and the amount that the pharmacy or wholesaler pays the manufacturer for the drug.<sup>3</sup> Between 1997 and 2002, by CBO's estimates, the average markup increased by nearly 60 percent—rising from \$8.70 to \$13.80 per prescription, or by about 9.7 percent per year (see Table 1).<sup>4</sup> Those are national estimates; the experiences of individual states and individual pharmacies can differ greatly from them.

Much of the increase in the average markup was attributable to the use of relatively new generic drugs. For generic drugs that came on the market between 1997 and 2002, Medicaid reimbursed pharmacies an average of about \$46 per prescription in 2002, of which only about \$14 went for the purchase of the drug itself. Pharmacies and wholesalers retained the remainder, or markup, of about \$32 per prescription.

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1. Those expenditures are net of rebates that prescription drug manufacturers pay to Medicaid on drugs purchased by the program. In 2002, for example (the most recent year for which data were available when CBO began its review), Medicaid received \$5.9 billion in rebates from manufacturers, reducing Medicaid's drug expenditures from \$29.3 billion to \$23.4 billion. Both the federal government and the states pay for the drug benefit, with the federal share averaging 57 percent nationwide.
  2. The National Association of Chain Drug Stores estimates that of the average retail prescription cost of \$53.10 in 2002, the wholesaler received 3 percent, and the pharmacy, 21 percent. See [www.nacds.org/wmspage.cfm?parm1=507](http://www.nacds.org/wmspage.cfm?parm1=507) (figures obtained on May 9, 2003).

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3. Pharmacies can sometimes collect a small copayment from the Medicaid beneficiary (usually \$1 to \$3). Those copayments are not included in this analysis.
  4. Those estimates represent averages based on data for 40 states and the District of Columbia (see the appendix).

**Table 1.**

### Summary of Medicaid's Average Reimbursements, Wholesalers' and Pharmacies' Acquisition Costs, and Markups for Prescription Drugs, 1997 and 2002

(Dollars per prescription)

	Medicaid's Reimbursements to Pharmacies		Acquisition Costs <sup>a</sup>		Markups	
	1997	2002	1997	2002	1997	2002
All Drugs	37.00	60.90	28.30	47.10	8.70	13.80
Generic Drugs						
Newer	*	45.70	*	13.60	*	32.10
Older	11.90	14.20	4.30	4.40	7.60	9.90
Brand-Name Drugs	61.90	97.30	52.20	83.40	9.80	13.80

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services (CMS).

Note: \* = not estimated, because most such drugs were not available in 1997.

- a. To estimate acquisition costs, CBO used the average price that manufacturers earned on sales of outpatient drugs to wholesalers and pharmacies, as reported to CMS under Medicaid's rebate program (see the appendix).

That markup significantly exceeded the average markup that Medicaid paid for older generic drugs in 2002 (\$10 per prescription) as well as for brand-name drugs (\$14 per prescription). Although the Medicaid program saved money overall from the substitution of newer generic drugs for brand-name drugs, spending was not reduced to nearly the extent it might have been if the markups on newer generic drugs had more closely approximated those on the other classes of drugs.

One of the main factors behind high markups for some types of drugs was Medicaid's reimbursement system. That system relies on the published list prices of drugs (which are largely set by manufacturers) to determine pharmacies' reimbursements, instead of using the actual cost of the drugs to the pharmacies. States reimburse pharmacies using formulas that are typically based on the average wholesale price (AWP) of a drug, which (like the sticker price on a car) is a published list price that few purchasers actually pay. For example, a state might reimburse a pharmacy 85 percent to 90 percent of the average wholesale price of a drug plus a fixed dollar amount of \$3 to \$5 (as a dispensing fee) to cover the pharmacy's other costs. By relying on list prices, Medicaid's reimbursement formulas lead to large markups on drugs that have large differences between their list price and the price that the pharmacy actually pays. Within that system, then, the use of new generic and new brand-name drugs, for which

that price spread tends to be larger, contributed to the recent increase in average markups.

Especially in the case of a newer generic drug, manufacturers have an incentive to set a high list price but to make the drug available to pharmacies at a significantly lower price. A relatively high markup on a generic drug gives a pharmacist an incentive to substitute that drug for another generic or brand-name drug. When a new generic drug becomes available, manufacturers can compete for the pharmacy's business partly by setting a high list price and a low actual price for the pharmacy. Over time, manufacturers continue to compete on the prices they charge pharmacies, but eventually their incentive to maintain high list prices diminishes for most generic drugs, in part because Medicaid's reimbursement rates to pharmacies for those drugs usually become subject to federal upper limits (FULs) that are based on the lowest-priced versions available.

State Medicaid programs have not shifted to using actual rather than list prices of drugs in part because those actual prices are not readily available to them. (For this analysis, CBO estimated actual prices on the basis of data reported by manufacturers directly to the Centers for Medicare and Medicaid Services as part of Medicaid's rebate program.) Nonetheless, many states have recently taken actions to reduce Medicaid's reimbursement rates to phar-

macies. Those actions have included setting state-specific upper limits on the reimbursement for drugs available in both generic and brand-name versions (limits that are frequently lower than the federal upper limits) and lowering the estimated acquisition costs used as a basis for the reimbursement for brand-name drugs. Perhaps partly as a result of those state actions, the average annual growth rate in markups slowed from 11 percent over the 1997-2000 period to 8 percent over the 2000-2002 period.

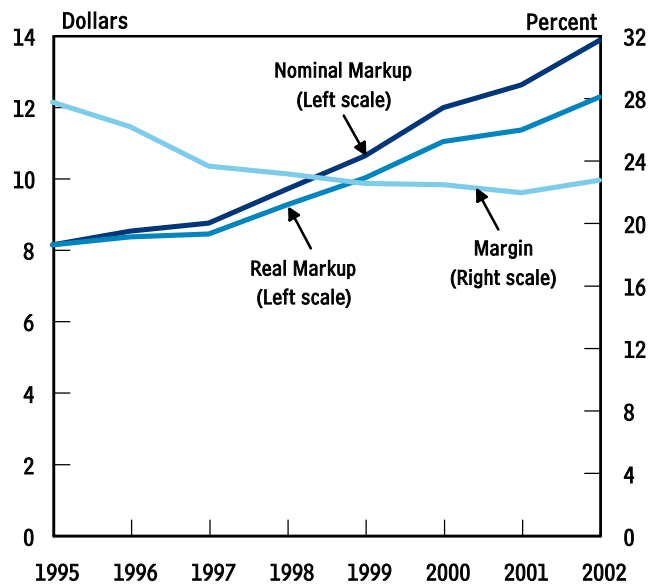
### Measuring Markups

In addition to dollar terms, the difference between the amount that Medicaid pays pharmacies for prescription drugs and the amount that manufacturers charge pharmacies for the drugs can be expressed in percentage terms as a margin (or gross margin)—that is, the difference between what Medicaid pays a pharmacy and the cost of acquiring the drug from the manufacturer, divided by Medicaid's payment.

The two measures—the markup and the margin—yield very different pictures. For example, the percentage margin retained by pharmacies and wholesalers has been about the same in recent years for both newer and older generic drugs, but because Medicaid's reimbursements for newer generic drugs have been higher, the dollar markup on them has been more than three times that on older generic drugs.

Because pharmacies' cost of filling a prescription is largely unrelated to the cost of acquiring its ingredients or the size of the prescription, the dollar markup is a better indicator of the size or adequacy of Medicaid's reimbursements to pharmacies than is the percentage margin. The time a pharmacist spends filling a prescription is generally unrelated to the drug's cost and is only marginally greater for larger prescriptions than for smaller ones. Moreover, the shelf space required to store a \$5 pill is no different from that required for a \$1 pill. If ingredient costs increase, pharmacies' cost of invested capital tied up in inventories will increase, as drugs are held on the shelves and pharmacies are waiting for payment from Medicaid. By CBO's estimates, however, on a per-prescription basis, those costs account for only a small share of the increase in markups over the period.<sup>5</sup>

**Figure 1.**  
**Markups per Prescription and Margins Under Medicaid, 1995 to 2002**



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Note: The real (inflation-adjusted) markup is calculated using the chain-weighted gross national product price index.

### Factors Contributing to Rising Markups

After rising slowly between 1995 and 1997, the average dollar markup for all Medicaid prescriptions increased between 1997 and 2002, as described, by 59 percent, rising from \$8.70 to \$13.80, or about 9.7 percent annually (see Figure 1). In comparison, pharmacists' wages—a key component of dispensing costs—increased by 5.3 percent

5. Over the 1997-2002 period, the average acquisition cost per prescription increased by 66 percent, from \$28.30 to \$47.10. Assuming a cost of capital for pharmacies of 8 percent per year and an average shelf life of two months would put the associated rise in capital costs at about 25 cents per prescription. Adding in the cost of waiting for a final payment from Medicaid would probably no more than double that amount. Sales taxes (another type of cost that could increase with the price of a prescription) currently are imposed by only one state (Illinois, at 1 percent). See an analysis by the Federation of Tax Administrators at [www.taxadmin.org/fta/rate/sales.html](http://www.taxadmin.org/fta/rate/sales.html).

**Table 2.****Medicaid's Reimbursements, Wholesalers' and Pharmacies' Acquisition Costs, and Markups for Brand-Name and Generic Drugs, 1997 to 2002**

(Dollars per prescription)

	Medicaid's Reimbursements to Pharmacies			Acquisition Costs			Markups		
	All	Brand-Name	Generic	All	Brand-Name	Generic	All	Brand-Name	Generic
		Drugs	Drugs		Drugs	Drugs		Drugs	
1997	37.00	61.90	12.00	28.30	52.20	4.30	8.70	9.80	7.70
1998	41.80	69.30	13.20	32.20	58.80	4.50	9.70	10.50	8.80
1999	47.20	76.80	14.10	36.60	65.50	4.20	10.60	11.30	9.90
2000	53.30	83.30	16.10	41.30	71.30	4.20	12.00	11.90	12.00
2001	57.40	89.60	18.30	44.80	77.00	5.70	12.60	12.60	12.60
2002	60.90	97.30	19.90	47.10	83.40	6.00	13.80	13.80	13.80

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

per year during that same period, and the overall inflation rate was less than 2 percent per year.<sup>6</sup> If the rate of increase of markups had matched the rate of increase of pharmacists' wages for that period, the markups under Medicaid would have cost about \$1 billion less in 2002 than they actually did.<sup>7</sup>

Overall, the largest single factor contributing to the rapid increase in markups was the use of newer generic drugs, with their high markups. Another factor was the use of newer single-source brand-name drugs, which had somewhat higher average markups than did older brand-name drugs.

**Markups on Generic and Brand-Name Drugs**

Even as they produce savings for the Medicaid program as a whole, generic drugs are an important source of pharmacies' revenue from markups. Although generic drugs account for close to half of all prescriptions dispensed in the fee-for-service portion of Medicaid, because of their lower cost they account for only 14 percent to 16 percent of the program's reimbursements to pharmacies. Yet since the average markup on generic drugs is close to that

on brand-name drugs, reimbursements for generic drugs provided an estimated 47 percent of total revenue from markups on Medicaid drugs in 2002.

In recent years, the average dollar markup on generic drugs has grown closer to that on brand-name drugs. In 1997, the average markup on generic drugs was about \$2 less than that on a brand-name drugs—at \$7.70 compared with \$9.80 (see Table 2). But by 2002, the average markup on brand-name drugs had increased by 41 percent, while that on generic drugs had increased by 79 percent. Thus, by 2002 the average markup on generic drugs was about the same as that on brand-name drugs—at \$13.80.

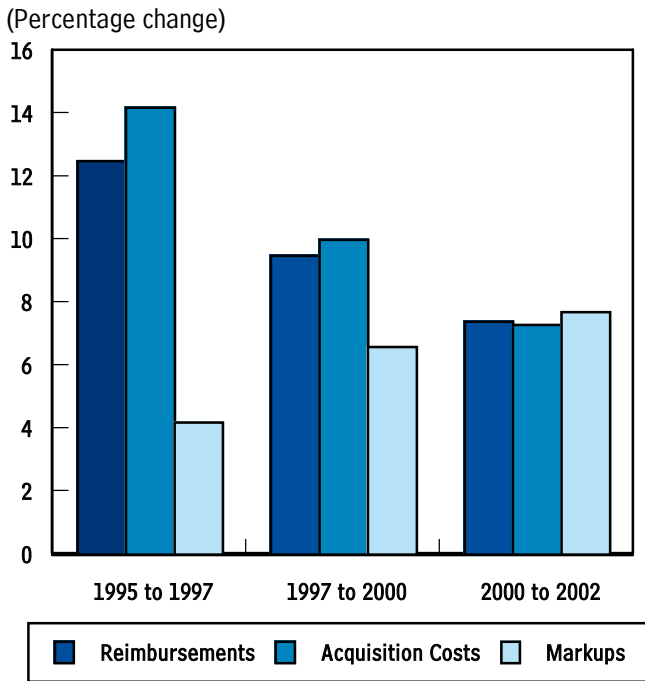
The growth in both acquisition costs and Medicaid's reimbursements for brand-name drugs has slowed in recent years, falling from over 12 percent annually during the 1995-1997 period to less than 8 percent between 2000 and 2002 (see Figure 2). At the same time, the growth rate of markups on brand-name drugs has increased. During the 2000-2002 period, all three measures grew at roughly the same rate—and the growth rate in markups was at its highest level.

While the relationship between acquisition costs and Medicaid's reimbursements has been stable for brand-name drugs, it has been more variable for generic drugs. Throughout the 1997-2002 period, the acquisition costs for brand-name drugs averaged about 85 percent of Medicaid's reimbursements. For generic drugs, the acquisition

6. Inflation is calculated using the chain-weighted gross national product price index.

7. The estimated changes in markups presented here do not measure changes in pharmacies' profits from Medicaid-related sales. While CBO has data on the cost of the ingredients used in filling Medicaid prescriptions, it has few comparable data on the level of, or changes in, the cost of distributing drugs and operating the pharmacies that serve Medicaid patients.

**Figure 2.**  
**Average Annual Change in Reimbursements, Acquisition Costs, and Markups for Brand-Name Drugs Under Medicaid**



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

costs averaged 36 percent of reimbursements in 1997, fell to 26 percent in 2000, and then climbed back up to 30 percent in 2002. In fact, for generic drugs, the average reimbursement continued to rise even as the average acquisition cost changed little: between 1997 and 2000, the average acquisition cost per prescription fell slightly (from \$4.30 to \$4.20), while the average reimbursement increased by about \$4, from \$12.00 to \$16.10.

**Markups by Type of Brand-Name or Generic Drug**

A more detailed analysis of markups shows that new generic drugs and new brand-name drugs had predominant roles in the increase in markups from 1997 to 2002. For this analysis, CBO placed drugs into three groups—single-source brand-name drugs (brand-name drugs that had no generic substitutes, in the same dosage form and strength, on the market), multiple-source brand-name drugs (brand-name drugs that had generic competitors), and generic drugs—and then accounted for the “newness” of the drugs and any change in their status (for ex-

ample, from being a single-source brand-name drug to becoming a multiple-source brand-name drug).

Single-source brand-name drugs were designated as follows:

- Continuing single-source drugs—single-source brand-name drugs that were introduced by the first quarter of 1997 and remained single-source throughout the 1997-2002 period;
- New single-source drugs introduced by 2000—single-source brand-name drugs that were introduced between the second quarter of 1997 and the end of 2000; and
- New single-source drugs introduced by 2002—single-source brand-name drugs that were introduced between the beginning of 2001 and the end of 2002.

Multiple-source brand-name drugs, as follows:

- Continuing multiple-source drugs—brand-name drugs that already faced competition from generic drugs by the first quarter of 1997;
- New multiple-source drugs introduced by 2000—brand-name drugs that were single-source drugs in the first quarter of 1997 but that faced competition from generic drugs by the end of 2000; and
- New multiple-source drugs introduced by 2002—brand-name drugs that were single-source drugs from 1997 through the end of 2000 but that faced competition from generic drugs by 2002.

And generic drugs, as follows:

- Continuing generic drugs—generic drugs that were introduced by the first quarter of 1997;
- New generic drugs introduced by 2000—generic drugs that were introduced between the second quarter of 1997 and the end of 2000; and
- New generic drugs introduced by 2002—generic drugs that were introduced between the beginning of 2001 and the end of 2002.

**Table 3.****Distribution of Medicaid Prescriptions, by Drug Type, 1997, 2000, and 2002**

Drug Type	Status of Drug by Year			Percentage of Medicaid Prescriptions Dispensed		
	1997	2000	2002	1997	2000	2002
<b>All Brand-Name Drugs</b>				<b>50.0</b>	<b>55.4</b>	<b>53.0</b>
Continuing single-source	Single-source	Single-source	Single-source	21.5	26.8	25.8
New single-source introduced by 2000	n.a.	Single-source	Single-source	0.1	8.7	14.1
New single-source introduced by 2002	n.a.	n.a.	Single-source	0	0	3.7
Continuing multiple-source	Multiple-source	Multiple-source	Multiple-source	5.5	3.0	2.4
New multiple-source by 2000	Single-source	Multiple-source	Multiple-source	9.6	3.8	1.1
New multiple-source by 2002	Single-source	Single-source	Multiple-source	8.2	10.0	3.9
Unclassified because of lack of data <sup>a</sup>				2.1	0.7	0.5
Unclassified because of conflicting classification <sup>b</sup>				3.1	2.4	1.5
<b>All Generic Drugs</b>				<b>50.0</b>	<b>44.6</b>	<b>47.0</b>
Continuing generic drugs	Multiple-source	Multiple-source	Multiple-source	49.8	42.0	38.5
New generic drugs introduced by 2000	n.a.	Multiple-source	Multiple-source	0.2	2.7	4.7
New generic drugs introduced by 2002	n.a.	n.a.	Multiple-source	0	0	3.7
Total, All Drugs				100.0	100.0	100.0
Alternative Breakouts						
Multiple-source brand-name	Multiple-source	Multiple-source	Multiple-source	5.5	6.8	7.4
Single-source brand-name	Single-source	Single-source	Single-source	39.2	45.5	43.7
Unclassified (for either reason)	n.a.	n.a.	n.a.	5.2	3.1	1.9

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services (CMS).

Note: n.a. = not applicable.

- a. Brand-name drugs for which CBO lacked sufficient data to determine whether they were single-source or multiple-source drugs.  
b. Drugs that were classified in CMS's data as brand-name in one year and generic in a different year.

**Medicaid's Reimbursements by Drug Type.** Single-source brand-name drugs accounted for 75 percent to 77 percent of Medicaid's reimbursements in 1997, 2000, and 2002. Generic drugs accounted for 14 percent to 16 percent, and multiple-source brand-name drugs constituted the remainder.

In terms of the number of Medicaid prescriptions dispensed, in 2002, generic drugs introduced in 2001 or later constituted 3.7 percent of the total, and those introduced over the four-year period from 1997 through 2000 accounted for only slightly more, at 4.7 percent of the total (see Table 3). The market share of affected brand-name drugs fell quickly after generic drugs entered the market. Brand-name drugs that were single-source drugs at the beginning of 1997 but that faced competition from

generic drugs by the end of 2000 constituted almost 10 percent of the market in 1997 but only about 1 percent by 2002. Similarly, brand-name drugs that became available as generic drugs as well in 2001 and 2002 saw their market share decline from 10 percent in 2000 to about 4 percent in 2002.

**Markups by Drug Type.** Among the markups for the groups of drugs considered here, those for new generic drugs stand out. Generic drugs first marketed between 1997 and 2000 had an average markup of \$35.20 in 2000 (see Table 4)—which was about two-and-one-half times their average acquisition cost of \$13.60. Between 2000 and 2002, that markup fell somewhat, to \$29.20. Thus, markups on those new generic drugs in 2002 re-

**Table 4.**

**Medicaid's Reimbursements, Wholesalers' and Pharmacies' Acquisition Costs, and Markups, by Type of Brand-Name or Generic Drug, 1997, 2000, and 2002**

(Dollars per prescription)

Drug Type	Medicaid's Reimbursement to Pharmacies			Acquisition Costs			Markups			Percentage Change in Markups, 1997-2002
	1997	2000	2002	1997	2000	2002	1997	2000	2002	
<b>All Brand-Name Drugs</b>	<b>61.90</b>	<b>83.30</b>	<b>97.30</b>	<b>52.20</b>	<b>71.30</b>	<b>83.40</b>	<b>9.80</b>	<b>11.90</b>	<b>13.80</b>	<b>40.8</b>
Continuing single-source	79.40	91.70	98.20	68.90	80.10	85.50	10.50	11.60	12.70	21.0
New single-source introduced by 2000	n.a.	102.40	113.20	n.a.	89.40	98.20	n.a.	12.90	15.00	n.a.
New single-source introduced by 2002	n.a.	n.a.	110.70	n.a.	n.a.	97.20	n.a.	n.a.	13.60	n.a.
Continuing multiple-source	28.40	30.30	29.40	20.60	18.80	17.80	7.80	11.40	11.60	48.7
New multiple-source by 2000	59.00	65.10	64.30	49.70	52.70	48.90	9.30	12.40	15.40	65.6
New multiple-source by 2002	63.20	77.00	83.30	53.30	65.90	67.40	9.90	11.10	15.90	60.6
Unclassified <sup>a</sup>	28.60	50.00	71.70	19.00	35.20	52.80	9.60	14.80	18.90	96.9
<b>All Generic Drugs</b>	<b>12.00</b>	<b>16.10</b>	<b>19.90</b>	<b>4.30</b>	<b>4.20</b>	<b>6.00</b>	<b>7.70</b>	<b>12.00</b>	<b>13.80</b>	<b>79.2</b>
Continuing generic drugs	11.90	14.00	14.20	4.30	3.50	4.40	7.60	10.50	9.90	30.3
New generic drugs introduced by 2000	n.a.	48.80	42.50	n.a.	13.60	13.30	n.a.	35.20	29.20	n.a.
New generic drugs introduced by 2002	n.a.	n.a.	49.80	n.a.	n.a.	13.90	n.a.	n.a.	35.80	n.a.
<b>Average</b>	<b>37.00</b>	<b>53.30</b>	<b>60.90</b>	<b>28.30</b>	<b>41.30</b>	<b>47.10</b>	<b>8.70</b>	<b>12.00</b>	<b>13.80</b>	<b>58.6</b>

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services (CMS).

Note: n.a. = not applicable.

a. Brand-name drugs for which CBO lacked sufficient data to determine whether they were single-source or multiple-source drugs and drugs that were classified in CMS's data as brand-name in one year and generic in a different year.

mained high even though most had been on the market for at least three years. Generic drugs first marketed in 2001 and 2002 also had a high markup, of \$35.80, in 2002.

The ratio of acquisition cost to reimbursement per prescription was roughly the same for new generic drugs and older generic drugs in 2002, at about 30 percent. Therefore, their percentage margins were similar, at roughly 70 percent. But because newer generic drugs were much more expensive (the average reimbursement on the newest ones was nearly \$50 in 2002), that constant percentage led to particularly high dollar markups for them.

Single-source brand-name drugs introduced between 1997 and 2000 had markups that exceeded those of continuing single-source drugs by \$1.30 in 2000 (\$12.90 versus \$11.60). Markups for those new single-source drugs continued to rise, reaching \$15.00 by 2002. Single-source drugs introduced between 2001 and 2002 also had markups that were almost \$1 more than those on continuing single-source drugs in 2002 (\$13.60 compared with \$12.70).

The ratio of acquisition cost to reimbursement was roughly the same for newer single-source drugs as it was for older single-source drugs (between 87 percent and 88 percent). But because the new single-source drugs were more expensive on average (at over \$110 per prescription

in 2002), their average dollar markups were higher than those for older single-source brand-name drugs.

Besides newer generic drugs, those with the highest markups in 2002 were new multiple-source drugs—that is, brand-name drugs that were newly available from multiple sources in that they first faced competition from generic drugs during the 1997-2002 period. Typically, such drugs were brand-name drugs that lost patent protection. Markups for new multiple-source drugs were over \$15.00 in 2002, and the percentage change in markups from 1997 to 2002 was relatively high, at over 60 percent.

The lowest markups in 2002 were on older generic drugs—that is, those introduced prior to 1997—at \$9.90, followed by those for older multiple-source brand-name drugs at \$11.60 and then older single-source drugs at \$12.70. While markups on older generic drugs grew faster than inflation between 1997 and 2000, those markups actually declined between 2000 and 2002 as the average acquisition cost for those drugs rose more quickly than Medicaid's average reimbursement for them did.

### **The Relative Contribution of Generic and Brand-Name Drugs to Rising Markups**

Of the total increase in average markups of \$5.10 between 1997 and 2002, just over one-half was attributable to generic drugs and one-third to brand-name drugs (see Table 5). (The remainder of the increase came largely from shifts in utilization between 1997 and 2002 that were not fully captured in CBO's analysis.)<sup>8</sup> Although new generic drugs constituted only 8.4 percent of the prescriptions dispensed in 2002, they accounted for 37 percent of the increase in average markups since 1997.<sup>9</sup> Conversely, while older generic drugs accounted for nearly 40 percent of the prescriptions dispensed in 2002, their relative contribution to increasing markups was less than half as large—at 17 percent.

8. In order to attribute the change in markups over time to different types of drugs, CBO assigned a weight to each type based on its share of total Medicaid prescriptions in a single year, 2002. Consequently, part of the effect on markups of shifts in utilization between 1997 and 2002 is not captured by the fractions presented here (but appears in "other factors" in Table 5).

9. The contribution of new generic drugs to the total increase in markups is calculated by multiplying their share of prescriptions in 2002 by the difference between their markups in 2002 and those of their brand-name counterparts (new multiple-source drugs) in 1997.

Single-source drugs introduced after the first quarter of 1997 accounted for 18 percent of the prescriptions dispensed in 2002 and 15 percent of the total increase in markups between 1997 and 2002.<sup>10</sup> Older single-source brand-name drugs constituted about one-fourth of the prescriptions dispensed in 2002, yet they accounted for only 11 percent of the total increase in markups between 1997 and 2002.

## **Medicaid's Reimbursement Policies That May Have Contributed to Increasing Markups**

Following federal guidelines, states typically reimburse pharmacies for a prescription on the basis of an estimate of the cost of acquiring the drug from the manufacturer plus a dispensing fee—both of which vary among the states.<sup>11</sup> Costs for brand-name drugs that have no generic substitutes (or single-source drugs) are typically reimbursed at a rate equal to the average wholesale price minus roughly 10 percent to 15 percent plus a dispensing fee of \$3 to \$5.<sup>12</sup> The AWP is a published list price that is based on information provided by the manufacturers. Like the sticker price on a car, it is a price that few purchasers actually pay.

For many multiple-source drugs, which include generic drugs and their brand-name counterparts, the reimbursement formula is more complicated. For such drugs that are sold by at least two or three different manufacturers, state Medicaid reimbursements are subject to a federal upper limit of 150 percent of the lowest-priced therapeutically and biologically equivalent drug (which is usually a generic drug). CMS sets that limit on the basis of its

10. The contribution of new brand-name drugs to the total increase in markups is calculated by multiplying their share of prescriptions in 2002 by the difference between their markups in 2002 and those of single-source brand-name drugs in 1997.

11. In addition, Medicaid's payments cannot exceed pharmacies' "usual and customary charges" (42 C.F.R. 447.331).

12. Some states use the published wholesale acquisition cost, which is another type of published price that more closely approximates pharmacies' acquisition costs but is less widely available. Typically, states using the wholesale cost add on (rather than subtract) a percentage to approximate pharmacies' acquisition costs. See National Pharmaceutical Council, *Pharmaceutical Benefits Under State Medical Assistance Programs* (Reston, Va.: National Pharmaceutical Council, Inc., 2003), p. 4-41.



**Table 5.**

**Distribution of Increasing Markups Among Types of Brand-Name and Generic Drugs, 1997 to 2002**

(Dollars per prescription)

Drug Type	Markups			Share of Medicaid Prescriptions Dispensed in 2002 (Percent)	Contribution to Increase in Markup, 1997 to 2002	Share of Total Increase in Markup (Percent)
	1997	2002	Increase			
Continuing Single-Source Brand-Name	10.50	12.70	2.20	25.8	0.57	11.1
New Single-Source Brand-Name	n.a.	14.70	4.20 <sup>a</sup>	17.9	0.75	14.7
Continuing Multiple-Source Brand-Name	7.80	11.60	3.80	2.4	0.09	1.8
New Multiple-Source Brand-Name	9.60	15.80	6.20	5.0	0.31	6.1
Continuing Generic Drugs	7.60	9.90	2.30	38.5	0.89	17.4
New Generic Drugs	n.a.	32.10	22.50 <sup>b</sup>	8.4	1.90	37.2
Unclassified <sup>c</sup>	9.60	18.90	9.30	1.9	0.18	3.5
Other Factors <sup>d</sup>					0.42	8.2
<b>All Drugs</b>	<b>8.70</b>	<b>13.80</b>	<b>5.10</b>	<b>100.0</b>	<b>5.10</b>	<b>100.0</b>

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services (CMS).

Note: n.a. = not applicable.

- a. Because new single-source drugs were not available in 1997, the change in markup is calculated relative to the average markup (of \$10.50) on continuing single-source drugs in 1997.
- b. Because new generic drugs were not available in 1997, the change in markup is calculated relative to the average markup (of \$9.60) for their brand-name counterparts in 1997.
- c. Brand-name drugs for which CBO lacked sufficient data to determine whether they were single-source or multiple-source drugs and drugs that were classified in CMS's data as brand-name in one year and generic in a different year.
- d. In order to attribute the change in markups over time to different types of drugs, CBO assigned a weight to each type based on its share of total Medicaid prescriptions in a single year, 2002. Consequently, part of the effect on markups of shifts in utilization between 1997 and 2002 is not captured for the particular types of drugs but is included as an overall figure here.

analysis of list prices.<sup>13</sup> If, in the aggregate, a state's Medicaid reimbursement for multiple-source drugs exceeds the federal upper limit, the state does not receive federal matching funds on the excess amount. One recent study found that generic drugs with a FUL accounted for 65 percent of the total sales of generic drugs nationwide in 2001.<sup>14</sup>

States also have the latitude to set an upper bound on a reimbursement, referred to as the maximum allowable cost (MAC), that is different from the FUL, as well as to set a MAC for a multiple-source drug that does not yet have a federal limit. Because of that flexibility and a desire to contain Medicaid costs, some states have MAC programs that include more drugs than are on the federal list, and some states are also more aggressive in setting price limits (by setting maximum allowable costs that are lower

13. See [www.cms.hhs.gov/medicaid/drugs/drug10.asp](http://www.cms.hhs.gov/medicaid/drugs/drug10.asp). If there is only one manufacturer of a generic drug and the Food and Drug Administration (FDA) has classified it as therapeutically equivalent (with an A rating) to the brand-name product, then CMS may establish a FUL for that drug. If there are multiple generic versions, then FDA must have classified at least two of the versions as equivalent in order for CMS to establish a FUL.

14. Richard G. Abramson and others, "Generic Drug Cost Containment in Medicaid: Lessons from Five State MAC [maximum allowable cost] Programs," *Health Care Financing Review*, vol. 25, no. 3 (Spring 2004), pp. 25-34.

than the federal upper limits).<sup>15</sup> By 2003, about 40 states had a MAC program in place.<sup>16</sup>

Under Medicaid's system for paying for drugs, reimbursement for new generic drugs may be based on their list price if an upper limit has not yet been set by CMS or the state. Only a handful of states have set a separate reimbursement formula for generic drugs that are not yet subject to a federal upper limit.<sup>17</sup> The remaining states provide reimbursement for such generic drugs by using the same reimbursement formula as for brand-name drugs (usually the AWP minus 10 percent to 15 percent plus a dispensing fee).

On the one hand, a relatively high markup on new generic drugs gives pharmacists an incentive to substitute them for brand-name drugs, even before an upper limit has been placed on Medicaid's reimbursement that could make the brand-name drug unprofitable to dispense.<sup>18</sup> Such substitution of new generic drugs for their brand-name counterparts helps to reduce Medicaid spending. On the other hand, whether markups that are over three times those of brand-name drugs are necessary to accomplish that outcome is unclear.

Manufacturers may have an incentive to increase the gap between their list prices and the prices that they charge pharmacies when they compete for pharmacies' business. That situation occurs for generic drugs because pharmacies frequently have the choice of acquiring what is essentially the same drug from several manufacturers.<sup>19</sup> Pharmacists have an incentive to stock the generic drug with the lowest acquisition cost relative to its list price. The incentive for a manufacturer of a generic drug to maintain a

high list price may be greatest before the FUL pricing formula takes effect because once it does, the list price becomes irrelevant to reimbursement under Medicaid unless that price is the lowest available.<sup>20</sup> However, the incentive to compete for pharmacies' business by selling the drug at a low price remains.

Manufacturers of multiple-source brand-name drugs may also have a similar incentive to increase the gap between the list prices and acquisition costs. Once the patent for a drug expires (and before the FUL is in effect), increasing that gap would help to make the brand-name drug more profitable for pharmacies to dispense relative to its generic competitors. Indeed, the data that CBO analyzed show that average markups tended to be higher for multiple-source brand-name drugs that had recently lost patent protection than for older single-source brand-name drugs.<sup>21</sup> Although markups were relatively high for brand-name drugs that had recently faced competition from generic drugs compared with those for other brand-name drugs, however, they were not nearly as high as those for new generic drugs.

Recent research has also shown that the percentage difference between list prices and acquisition costs generally is much larger for generic drugs than for brand-name drugs. And, perhaps more important, the relationship between list prices and acquisition costs is much more variable for generic drugs. The larger percentage gap for generic drugs enables the markups on them to be comparable with those on brand-name drugs on average and thus provides an incentive for pharmacies to dispense generic drugs. However, the more variable relationship between list prices and acquisition costs for generic drugs means that states may not be able to accurately estimate the size of the markups on those drugs. States do not have access to the average prices that manufacturers report to CMS (and that are used in this paper) and therefore may find assess-

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15. Ibid.

16. National Pharmaceutical Council, *Pharmaceutical Benefits* (2003).

17. For example, Illinois reimburses such generic drugs at the AWP minus 20 percent.

18. In most states, the substitution of generic drugs is encouraged through an upper limit on reimbursements that applies to both the brand-name and generic versions. When the upper limit is in effect, pharmacists will usually lose money by dispensing the brand-name drug. There is sometimes a delay before CMS establishes a federal upper limit. Of 200 top-selling multiple-source drugs in 2001, 90 did not have a federal upper limit, although they met the established criteria. See Department of Health and Human Services, Office of Inspector General, *Omission of Drugs from the Federal Upper Limit List in 2001*, OEI-03-02-00670 (February 2004).

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19. Provided all generic drugs have received an A rating from FDA on their therapeutic equivalence to the brand-name drug, patients and physicians are generally indifferent about the manufacturer of the generic drugs.

20. The incentive to set a high list price is also affected by how pharmacies are reimbursed by payers other than Medicaid.

21. For example, in 2002, the markup on new multiple-source brand-name drugs exceeded \$15 while that on continuing single-source drugs averaged about \$13 (see Table 4).

ing the appropriateness of reimbursement rates for generic drugs difficult.

According to a September 2002 report by the Office of Inspector General within the Department of Health and Human Services (HHS), the acquisition costs of brand-name drugs with no generic substitutes averaged 17 percent below the AWP, with relatively little variation around that level.<sup>22</sup> For multiple-source brand-name drugs not yet subject to a FUL, the difference was somewhat greater, with acquisition costs 24 percent below the AWP. For generic drugs not yet subject to a FUL, acquisition costs averaged 54 percent below the AWP. And for multiple-source drugs subject to a FUL (brand-name and generic drugs combined), acquisition costs averaged 72 percent below the AWP.<sup>23</sup> Consequently, HHS's Inspector General recommended that CMS work with states to reexamine their reimbursement formulas, particularly for multiple-source drugs.

### Recent Changes in States' Policies for Reimbursing Pharmacies

Although markups increased over the 1997-2000 period, states' Medicaid reimbursement formulas themselves remained relatively unchanged. More recently, however, many states have taken actions to reduce their reimbursement rates, which probably helped slow down the average annual growth rate in markups, from 11 percent between 1997 and 2000 to 8 percent between 2000 and 2002.

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- 22. For over 90 percent of brand-name drugs dispensed to Medicaid patients in 1999, pharmacies' acquisition prices were between 82 percent and 84 percent of the AWP. See Department of Health and Human Services, Office of Inspector General, *Medicaid Pharmacy: Additional Analyses of the Actual Acquisition Cost of Prescription Drug Products*, A-06-02-00041 (September 12, 2002), p. 5.
  - 23. About 600 of the 5,575 products examined had acquisition costs that ranged from 15 percent to 20 percent below the list price. Those were probably the brand-name multiple-source drugs within the group of drugs subject to a FUL.

According to a study by HHS's Office of Inspector General, 17 of 43 states responding to a 2003 survey had recently reduced their Medicaid reimbursement formulas for prescription drugs.<sup>24</sup> In addition, drawing on the National Pharmaceutical Council's semiannual surveys of states' Medicaid reimbursement policies, CBO found that more than 10 states had lowered the estimated acquisition cost that they used as a basis to reimburse pharmacies for brand-name drugs between 2000 and 2002.<sup>25</sup> By 2003, about 40 states had a MAC list in place. Also, five states had begun to set separate reimbursement formulas for generic drugs that were not subject to a FUL or on a state MAC list.<sup>26</sup> Changes to dispensing fees were generally more modest: nationally, only 10 states significantly changed their dispensing fees—five of those states slightly lowered their fees, and five states slightly raised them.<sup>27</sup>

By 2002, 31 of the 41 states examined in CBO's analysis had taken steps to hold down reimbursements for multiple-source drugs by adopting a MAC list. States that have adopted such a list tend to have lower average markups than states that have not. For states with a MAC list in effect by 2002, the average markup was \$13.30—roughly \$2 less than the average of \$15.50 among states without that list (see Table 6). The growth rate in markups over the 2000-2002 period was also much lower in states that had adopted a MAC list—at 6.2 percent, compared with 10.9 percent for the other states. Perhaps states that had a list in place were more active than other states in monitoring reimbursement rates overall, so the differences

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- 24. Department of Health and Human Services, Office of Inspector General, *State Strategies to Contain Medicaid Drug Costs*, OEI-05-02-00680 (October 2003).
  - 25. National Pharmaceutical Council, *Pharmaceutical Benefits* (2000 and 2002).
  - 26. The states were Arkansas, Colorado, Illinois, Indiana, and Kansas. The formulas varied for generic drugs, from the AWP minus 20 percent to the AWP minus 35 percent. See National Pharmaceutical Council, *Pharmaceutical Benefits* (2003).
  - 27. See National Pharmaceutical Council, *Pharmaceutical Benefits* (2000 and 2002).

**Table 6.****Average Markups in States With and Without a Maximum Allowable Cost List, 1997 to 2002**

(Dollars per prescription)

	Average Markups						Average Annual Growth Rate in Markups (Percent)	
	1997	1998	1999	2000	2001	2002	1997 to 2002	2000 to 2002
States With a MAC List in 2002	8.50	9.50	10.40	11.80	12.30	13.30	9.4	6.2
States Without a MAC List in 2002	9.30	10.30	11.20	12.60	13.50	15.50	10.8	10.9

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Notes: MAC = maximum allowable cost.

The designation of states with and without a MAC list comes from National Pharmaceutical Council, *Pharmaceutical Benefits Under State Medical Assistance Programs* (Reston, Va.: National Pharmaceutical Council, Inc., 2002).

**Table 7.****Distribution of Average Markup Levels Among States, 1997, 2000, and 2002**

Markup Intervals (Dollars)	1997		2000		2002	
	Number of States	Percentage of States	Number of States	Percentage of States	Number of States	Percentage of States
5.00 to 5.99	2	4.9			1	2.4
6.00 to 6.99	3	7.3			1	2.4
7.00 to 7.99	8	19.5	2	4.9		
8.00 to 8.99	14	34.1			1	2.4
9.00 to 9.99	10	24.4	5	12.2		
10.00 to 10.99	3	7.3	9	22.0	2	4.9
11.00 to 11.99			9	22.0	8	19.5
12.00 to 12.99	1	2.4	7	17.1	8	19.5
13.00 to 13.99			7	17.1	5	12.2
14.00 to 14.99					7	17.1
15.00 to 15.99			2	4.9	2	4.9
16.00 to 16.99					4	9.8
Over 17.00					2	4.9
<b>Total</b>	<b>41</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

cannot be attributed to MAC policies alone. Still, the differences suggest that state MAC lists have contributed to lower markups.

Given the variation that now exists in reimbursement formulas among states, the level of markups also varies con-

siderably. In 1997, the weighted average markup in 41 states was \$8.70, and markups ranged between \$7.00 and \$10.00 for 78 percent of those states (see Table 7). By 2002, the weighted average markup was \$13.80 and the range spanned from \$11.00 to \$17.00 for 83 percent of those states.



# Data and Methods

**T**o estimate pharmacies' revenues from dispensing drugs to Medicaid patients, the Congressional Budget Office's (CBO's) analysis relies on quarterly data published by the Centers for Medicare and Medicaid Services (CMS). The data cover prescriptions and units (for example, tablets) dispensed to Medicaid recipients and reimbursements to pharmacies by state Medicaid agencies from 1995 to 2002 for each drug covered by Medicaid. CMS receives those data from the states, and reporting lapses occur. Data were unavailable for some states in some quarters. CBO's analysis included data reported by 40 states and the District of Columbia when those data were available in at least three quarters of four benchmark years: 1995, 1997, 2000, and 2002.<sup>1</sup>

To estimate the cost of acquiring drugs, CBO used the per-unit average manufacturer price (AMP) reported to CMS by manufacturers as part of the Medicaid rebate program. The AMP is the average price at which the manufacturer sells a unit in the retail class of trade, including sales to wholesalers, who distribute to pharmacies; direct sales to pharmacies; and sales to mail-order pharmacies. Because rebates from manufacturers to Medicaid are calculated on the basis of the AMP, their value could be scrutinized by government auditors. Retail pharmacies that buy through wholesalers may pay more than the AMP, but the wholesale markup constitutes a very small proportion (estimated at about 3 percent by the

National Association of Chain Drug Stores) of the total retail price.

Medicaid's drug purchases in a fee-for-service setting, to which this analysis applies, accounted for about 14 percent of total nationwide outpatient drug expenditures, net of rebates, in 2002.<sup>2</sup> CBO's analysis excluded drugs that were sold over the counter and was limited to oral solid dosage forms (that is, tablets and capsules), which accounted for about 73 percent of prescriptions filled and 77 percent of reimbursements by Medicaid agencies in the fee-for-service sector of the program in 2002.<sup>3</sup> After CBO further limited the analysis to 41 states, the reimbursements covered in this paper accounted for 58 percent to 66 percent of total Medicaid reimbursements over the 1997-2002 period.

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1. Reimbursement data were drawn from CMS's Web site on June 27, 2002; see [www.hcfa.gov/medicaid/drugs/drug5.htm](http://www.hcfa.gov/medicaid/drugs/drug5.htm).

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2. CMS estimated that total outpatient drug spending, net of manufacturers' discounts and rebates, was \$162 billion in 2002; see [www.cms.hhs.gov/statistics/nhe/historical/t2.asp](http://www.cms.hhs.gov/statistics/nhe/historical/t2.asp). Medicaid's fee-for-service spending came to \$23.4 billion in 2002—constituting 14.4 percent of the outpatient market. Some states reimburse HMOs (health maintenance organizations) on a capitated basis to cover drug expenditures for Medicaid beneficiaries; others “carve out” the drug benefit so that it remains in the fee-for-service system (and states continue to collect the rebates from manufacturers). CBO's analysis does not apply to Medicaid's drug spending that falls outside Medicaid's fee-for-service reimbursement system.

3. CBO used the number of units of the drug dispensed per prescription in combination with the average manufacturer price per unit (reported under Medicaid's rebate program) to estimate the acquisition cost of the drugs dispensed. Because the unit variable (number of units) is more reliable for drugs that come in tablets and capsules, CBO limited its analysis to drugs in those forms.





