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TRENDS IN MANUFACTURER LIST PRICES FOR GENERIC PRESCRIPTION DRUGS USED BY OLDER AMERICANS, 2001 THROUGH 2003

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The AARP Public Policy Institute, formed in 1985, is part of the Policy and Strategy Group at AARP. One of the missions of the Institute is to foster research and analysis on public policy issues of importance to older Americans. This publication represents part of that effort. The views expressed herein are for information, debate, and discussion, and do not necessarily represent formal policies of AARP.

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FOREWORD

The issue of prescription drug prices continues to be controversial. Many Americans view prices and price increases for prescription drugs as excessive, particularly relative to prices charged in other industrialized countries. Drug prices also are a continuing concern of states, employers, and individuals who pay for prescription drugs. Some observers of the pharmaceutical marketplace believe that provisions contained in the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (MMA) will introduce competitive forces that will restrain drug prices. Others, however, contend that the legislation did not contain adequate provisions for reducing escalating drug costs.

In an effort to shed light on the prescription drug price debate, AARP's Public Policy Institute has been tracking changes in the prices set by drug manufacturers for products sold to wholesalers and other direct purchasers. AARP began this effort in the spring of 2004 with a report that documented trends in manufacturer price changes for widely used brand name prescription drugs from 2000 through 2003, and later with a report on the first quarter of 2004. These reports documented a broad pattern of increases in manufacturer prices for widely used brand name drugs as well as an acceleration over time in the average rate of price increase for those products.

This study is a continuation of AARP's price monitoring activities and represents the first report by the AARP Public Policy Institute on trends in list prices set by *generic* drug manufacturers. This analysis reports on trends in generic manufacturer list prices over a three-year period (calendar years 2001, 2002, and 2003). The broad sample of drugs examined for this study—75 of the generic drugs most widely used by Americans age 50 and over—also allows for an analysis of differences in price changes by drug manufacturer and by therapeutic category. Finally, this report, like its previously published companion report on brand name drug price trends, provides the baseline for assessing future changes in manufacturers' prices for prescription drugs.

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EXECUTIVE SUMMARY

Introduction

Generic drugs are a means of helping consumers and third-party payers reduce prescription drug costs. The availability of low-cost generic substitutes is particularly important in view of rapid health care cost increases of recent years, a substantial share of which is attributed to prescription drugs.

This report presents the results of a study of changes in manufacturers' list prices—that is, drug manufacturers' prices set for drugs sold to wholesalers and other direct purchasers—from calendar year 2001 through calendar year 2003 for the generic prescription drugs most widely used by Americans age 50 and over. Specifically, this report compares generic prescription drug price changes over time and to the rate of general inflation. The report also examines differences in average price changes by manufacturer and by major therapeutic category for each manufacturer and therapeutic category with at least three drugs in the study sample. This report is part of a series of reports published by the AARP Public Policy Institute that track manufacturer price changes for prescription drugs; previous reports have documented manufacturer price changes since 2000 of specific brand name drugs that are widely used by older Americans.

Generic drugs are examined separately from brand name drugs because the dynamics of manufacturer pricing in the generic drug market differ substantially from those in the brand name market. In particular, when there are two or more generic versions of the same drug product on the market, companies compete primarily on price; because generic firms are selling homogeneous goods, pharmacies and wholesalers are able to use their leverage as purchasers to encourage price competition between firms. By contrast, in the market for single-source brand name drugs without generic substitutes, manufacturers have monopolies for their products and compete very little, if at all, on price.

Methodology

The list of generic prescription drugs that are widely used by older Americans is based on the 200 most widely dispensed drugs (including both brand name and generic drugs) and the 200 drugs with the highest sales levels among retail and mail-order prescriptions adjudicated by the AARP Pharmacy Service for 2003. About two million people age 50 and over use the AARP Pharmacy Service annually to purchase their drugs. Each product represents a unique combination of active chemical ingredient, strength, dosage form, package size, and manufacturer (for example, furosemide 40 mg tablets, package of 1000, Mylan). Combining the two lists of the top 200 products resulted in 291 unique drug products because many of the products appeared on both lists. There were 197 brand name and 94 generic drug products among the most common medications sold and used.

Competition between therapeutically equivalent generic drugs affects the market in two ways. First, the entry of additional generic drugs usually leads to decreases in manufacturer prices (both *list prices* and *net transaction prices*) over time. Second, reimbursement practices by third-party payers create incentives for pharmacies to seek—and manufacturers to provide—reductions in net transaction prices through discounts and rebates below the published list price. The changes in *list prices* are examined in this study, but the changes in *net transaction prices* are not captured by publicly available pricing data. While the magnitude of these two effects is not known, the use of manufacturer list prices for generic drugs as a proxy measure of net transaction prices is more likely to *overstate increases* in net transaction prices than to show biases in other directions.

Changes in prices charged by drug manufacturers to wholesalers were measured using changes in the wholesale acquisition cost (WAC) as published in the Medi-Span Price-Chek PC database. The WAC offers several advantages over an alternative list price, average wholesale price (AWP), as a measure of price change, among which is that WACs are more likely than AWPs to reflect changes, especially decreases, in specific generic drug prices over time. However, not all generic drug manufacturers list a WAC price for their drug products. As a result, this study is based on the 75 widely used generic drug products for which WACs were reported in 2003.

The average annual change in prices was calculated for each individual drug product as a 12-month rolling average. Aggregate estimates of price or change in drug prices were calculated for this study by weighting each drug product's value by its share of AARP Pharmacy Service's 2003 annual retail and mail-order sales. The number of drug products included in the analysis for a given year varies because not all drugs products in the sample were on the market or had WACs reported in earlier years.

Findings

- **Average changes in manufacturer list prices.** Over one-half of the 75 widely used generic drugs examined in this analysis either had no change in manufacturer list price (34 drugs) or decreased in price (5 drugs) during the three-year period from 2001 to 2003. However, 36 generic drugs had manufacturer list price increases, typically far in excess of the annual rate of general inflation during the three-year period (2.2 percent). Of these 36 drugs, eight had average annual manufacturer list price increases of 31 to 50 percent, and three had average annual list price increases of between 50 and 120 percent.

  The average increase in manufacturer list prices for the most widely used generic prescription drugs was 7.8 percent in 2001, accelerating to 15.8 percent in 2002, and dropping slightly to 13.3 percent in 2003. Among all 75 drugs in the sample, the three-year average *annual* growth rate in generic drug manufacturers' list prices was 8.7 percent. The average *cumulative* growth rate for the three-year period of 2001 through 2003 was 28.4 percent; this compares to the cumulative general inflation rate of 6.8 percent during the same period. Including only the 39 generic drugs that were on the market for the entire three-year period results in a December 2000 to December 2003 average cumulative increase in list prices of 28.2 percent.

These average growth rates are heavily influenced by seven drugs with percentage changes in manufacturer list prices that far exceeded the percentage changes in manufacturer list prices for other drugs. The average annual percentage change in manufacturer list price for the remaining generic drugs are about half of the average for the entire sample of 75 drugs. However, the average increases in list prices for these drugs still exceeds the rate of general inflation.

- **Average changes in estimated dollar cost of therapy.** Of the 75 widely used generic drugs in the sample, 64 are used to treat chronic conditions and, therefore, are likely to be used throughout the year. The average estimated change in the annual cost of therapy due to changes in manufacturer list prices for these generic drugs, assuming that changes in list prices were passed on to consumers, ranged from decreases of nearly $5 per drug in 2001 and more than $10 per drug in 2003, to an increase of nearly $8 per drug in 2002. The decreases in 2001 and 2003 were heavily influenced by four generic drugs that had relatively substantial decreases in list price in those years. Among the remaining generic drugs, the average annual cost *increase*, again assuming that changes in list prices were passed on to consumers, was $3.12 in 2001 and $2.33 in 2003. Over the three years, the average cumulative increase in the cost of therapy for the 60 chronic-use generic drugs without manufacturer list price decreases was $13.45. For a typical older American (who takes three drugs), the average increase in annual consumer expenditure would have been fairly small—$9.36 in 2001, $24.00 in 2002, and $6.99 in 2003, if the manufacturer list price increases were passed on to consumers.

- **Distribution of percentage price changes.** For each of the three years, the manufacturer list price either declined or was unchanged for a substantial number of widely used generic drugs—nearly one-half of the drugs in 2001 and 2002, and nearly two-thirds of the drugs in 2003. Among those generic drug products for which list prices did increase, the increases were at least two times—and sometimes more than ten times—the rate of general inflation.

- **Distribution of changes in the annual cost of therapy.** Few of the widely used generic drugs had substantial dollar increases in the cost of therapy that would be associated with manufacturer list price changes. Among the chronic-use generic drugs with list prices increases, most had increases that, if passed on to the consumer, would raise the annual cost of therapy by $20 or less (and most of these increases were less than $10 per year). Only in 2002 was there a substantial number of generic drug products (18 percent, or 10 products) for which the annual cost of therapy as a result of manufacturer list price changes would have risen by more than $20.

- **Differences by manufacturer.** In 2003, manufacturers' average changes in list prices for the eight companies that manufactured at least three widely used generic drugs in the sample ranged from a high of 118.7 percent (Watson Labs) to a low of -0.4 percent (Upsher-Smith). Among these manufacturers, some raised list prices substantially on certain products but decreased list prices or kept list prices constant for others.

- **Differences by therapeutic category.** In 2003, manufacturer list prices for generic drugs in six therapeutic categories increased faster, on average, than the rate of general inflation. Four therapeutic categories had list price changes less than the rate of general inflation, with three of these—narcotics (combination), diuretics (thiazides), and diuretics (combination)—having no change in list prices in 2003.

Concluding Observations

The findings of this report show two distinct patterns in the changes in manufacturer list prices for generic prescription drugs for the three-year period between 2001 and 2003. First, more than one-half of the drugs had no increase in manufacturer list prices; a small number even had decreases in list prices during this period. Second, for those generic drug products that did have increases in list prices, the increases were typically several times the rate of general inflation and often more than ten times the inflation rate. However, because the absolute dollar price of generic drug products was low, the average dollar value of these increases was just a few dollars per drug on an annual basis.

As an analysis of manufacturer price changes, this particular study is limited because of the lack of publicly available data that captures all of the discounts that generic drug manufacturers sometimes provide to wholesalers and other direct purchasers. These discounts can be quite substantial, such that increases in manufacturer list prices may overstate increases in net transaction prices. As a result, the findings presented here represent an *upper bound* of net transaction price increases by generic drug manufacturers.

Furthermore, it is difficult to know the extent to which retail price changes for generic drugs are attributable to changes in list prices set by manufacturers of those drugs.

I. INTRODUCTION

Generic drugs have long been a means of helping consumers and third-party payers reduce prescription drug costs.[1] Generic drugs account for nearly half of retail drug prescriptions in the United States but, because they are priced substantially below their therapeutically equivalent brand name counterparts, account for a much smaller dollar share of U.S. retail prescription drug purchases.[2] The availability of lower-cost generic drugs is particularly important in view of rapid health care cost increases of recent years, a substantial share of which is attributed to prescription drugs.

The purpose of this study is to report on the extent to which *manufacturer prices for specific generic drugs* changed between 2001 and 2003. Previous reports by the AARP Public Policy Institute have documented manufacturer price changes of specific *brand name* drugs that are widely used by older Americans.[3] Generic drugs are analyzed and reported on separately from brand name drugs because the dynamics of manufacturer pricing in the generic drug market differ substantially from those in the brand name market. In particular, when there are two or more generic versions of the same product on the market, companies compete primarily on price; because generic firms are selling homogeneous goods, pharmacies and wholesalers are able to use their leverage as purchasers to encourage price competition between firms.[4] By contrast, in the market for single-source brand name drugs without generic substitutes, manufacturers have monopolies for their products and compete very little, if at all, on price.

This report presents the results of an analysis of changes in manufacturers' list prices set for drugs sold to wholesalers and other direct purchasers from calendar year 2001 through calendar year 2003 for the generic prescription drugs most widely used by Americans age 50 and over. Specifically, the report compares generic prescription drug price changes over

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[1] A generic drug is defined by the Food and Drug Administration (FDA) as a "chemical clone" that has the same active ingredients as its FDA-approved brand name counterpart and that can be expected to have the same therapeutic effect as its brand name counterpart (U.S. Food and Drug Administration (FDA), Center for Drug Evaluation and Research. *From Test Tube to Patient: Improving Health through Human Drugs*, September 1999). For the purposes of this analysis, a generic drug is any FDA-approved product that is therapeutically equivalent to a product marketed by the original new drug application (NDA) holder. For the most part, this includes products with an abbreviated NDA (ANDA). It also includes some products that have an NDA that was not the original NDA for the chemical entity, as well as "branded generics," i.e., generic drug products that are marketed using a brand name (e.g., Levoxyl 100 mcg tablets).

[2] 2002 figures based on IMS data. Generic Pharmaceutical Industry Association, *Generic Pharmaceutical Facts at a Glance*. http://www.gphaonline.com/aboutgenerics/factsabout.html, accessed October 14, 2004.

[3] See David J. Gross, Stephen W. Schondelmeyer, and Susan O. Raetzman. *Trends in Manufacturer Prices of Brand Name Prescription Drugs Used by Older Americans, 2000 Through 2003*, AARP Public Policy Institute Issue Paper #2004-06 (Washington, DC: AARP), May 2004 (revised June 2004); *Trends in Manufacturer Prices of Brand Name Prescription Drugs Used by Older Americans, First Quarter 2004 Update*, AARP Public Policy Institute Issue Brief #IB69 (Washington, DC: AARP), June 2004.

[4] When a pharmacy (or wholesaler) chooses the version of generic drug product to stock, it may take into account factors in addition to the price and price "spread" of a drug (i.e., difference between the price the pharmacy pays for the product and the price at which it sells the product) including, but not limited to, the reputation of the generic firm, breadth of product line, levels of service, in-stock rates, stability of supply over time, and availability through a wholesaler versus direct from the generic firm.

time and to the rate of general inflation.[5] Also, this report examines differences in average price changes by manufacturer and by major therapeutic category. The report's focus is on changes in the prices that generic drug manufacturers charge to wholesalers and other direct purchasers for sales to the retail class of trade. These price changes represent changes in manufacturers' *list prices* for generic drugs, which can affect the level of payment by third-party payers (which almost always link pharmacy reimbursement to list prices) but may not reflect discounts or rebates that generic drug manufacturers provide to wholesalers and other direct purchasers. As a result, the price changes reported in this study represent an upper bound of manufacturer price increases. The extent to which these price changes influenced changes in average retail prices of generic drugs during the study period is not known.

II. METHODOLOGY

The list of generic prescription drugs that are widely used by older Americans is based on the 200 most widely dispensed drugs (including both brand and generic drugs) and the 200 drugs with the highest sales levels among retail and mail-order prescriptions adjudicated by the AARP Pharmacy Service for 2003. About two million people age 50 and over use the AARP Pharmacy Service annually to purchase their drugs. Each product represents a unique combination of active chemical ingredient, strength, dosage form, package size, and manufacturer (for example, furosemide 40 mg tablets, package of 1000, Mylan).

Combining the two lists of the top 200 products resulted in 291 unique drug products because many of the products appeared on both lists. These 291 drug products represent 60 percent of total AARP Pharmacy Service prescription drug *sales* in 2003 and 50 percent of all AARP Pharmacy Service *prescriptions* that year. There were 197 brand name and 94 generic drug products among the most common medications sold and used.

Competition between therapeutically equivalent generic drugs affects the market in two ways. First, the entry of additional generic drugs usually leads to decreases in manufacturer prices (both *list prices* and *net transaction prices*) over time. Second, reimbursement practices by third-party payers create incentives for pharmacies to seek—and manufacturers to provide—further reductions in net transaction prices through discounts and rebates below the published list price. The changes in *list prices* are examined in this study but the changes in *net transaction prices* are not captured by publicly available pricing data. While the extent of these two effects is not known, the use of manufacturer list prices for generic drugs as a proxy measure of net transaction prices is

[5] Price changes were compared to the general inflation rate to better reflect the impact of price increases on consumers, particularly older consumers whose incomes may be pegged to general inflation. An alternative would be to compare drug price increases to the rate of medical care inflation, which tends to exceed the general rate of inflation. While medical care inflation rates were not used as the basis of comparison in this analysis, information about the rate of medical care inflation is provided in the findings section.

more likely to *overstate increases* in net transaction prices than to show biases in other directions.[6]

Changes in list prices charged by drug manufacturers to wholesalers were measured using changes in the wholesale acquisition cost (WAC) as published in the Medi-Span Price-Chek PC database. Medi-Span is a private organization that collects price data directly from drug manufacturers and wholesalers. WACs are the list prices typically reported on invoices between the manufacturer and the drug wholesaler. The WAC offers several advantages over an alternative list price, average wholesale price (AWP), as a measure of price change. First, AWP—which, for generic drugs, can be several times higher than the WAC—is a suggested wholesale list price, i.e., the suggested invoice price from wholesaler to pharmacy or provider.[7] Second, while the WAC changes sometimes parallel changes in AWP, it is not unusual for the WAC of a generic drug product to decrease without a corresponding change in the AWP. Consequently, WACs are more accurate than AWP as a measure of manufacturer price changes for generic drug products because WACs are more likely than AWPs to reflect changes, especially decreases, in individual generic drug prices over time.

One limitation of using WAC rather than AWP is that not all generic drug manufacturers list a WAC price for their drug products. Indeed, of the 94 widely used generic drugs in the sample, 19 did not have a WAC listed in 2003. As a result, this study is based on the 75 widely used generic drug products for which WACs were reported in 2003. These drugs represent 77 percent of sales and 82 percent of prescriptions among the entire set of 94 widely used generic drugs.

The average annual change in prices was calculated for each individual drug product as a 12-month rolling average. First, each month was compared with the same month in the previous year (that is, January 2003 vs. January 2002, February 2003 vs. February 2002, etc.). Next, the average of these point-to-point changes was calculated for the 12 months in each calendar year. Thus, for example, the average annual price change for 2003 refers to the average of the price changes for each of the 12 months in 2003 versus the same months in 2002. This 12-month rolling average tends to be a more conservative estimate of price change than the point-to-point method (that is, a simple percent change for a single month versus the same month in the previous year) and it accounts for seasonal variations in drug manufacturer pricing policies. When aggregate estimates of prices or changes in drug prices were calculated for this study, each drug product's value was weighted by the 2003 sales for that drug in the AARP Pharmacy Service. The AARP Pharmacy Service weights were used as a proxy for average drug use for all older Americans.

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[6] Manufacturers are not likely to set a list price and net transaction price that *understates* net price increases because doing so would reduce a manufacturer's advantage relative to its competitors. That is, these pricing actions would reduce the difference between a pharmacy's actual acquisition costs and the payment received from third-party payers, effectively reducing a pharmacy's incentive to stock that particular product.

[7] Among the widely used generic drugs in the sample, the median ratio of AWP to WAC exceeded 3.0 for each year from 2001 through 2003, i.e., at the median, the AWP was triple the WAC. By contrast, AWPs for brand name drugs in the sample were much closer to the WACs; typically, the AWP was 20 percent to 25 percent higher than the corresponding WAC.

The average annual price change for each drug product was calculated for each year from 2001 to 2003. The number of drugs from the 2003 sample that were included in the price change analysis for a given year varies because some drugs were not on the market or did not have WACs reported during the entire study period. Table 1 provides more detailed information on the number of drugs in the 2003 study sample that were on the market and for which WACs are reported by the beginning of each year from 2001 through 2004 (information about 2004 is included in Table 1 to reflect the one generic drug in the 2003 sample that was introduced during 2003). At the beginning of the earliest year analyzed, the products within the generic drug sample that were on the market represented nearly 45 percent of generic study drugs in 2003.[8] While weighting previous years' price changes by 2003 sales weights may create a potential source of bias relative to using each specific year's sales data as the basis for assigning weights for that year, there was no systematic bias in average percentage price changes of generic drugs for those years.[9]

Table 1: Number of Generic Prescription Drug Products in the 2003 Study Sample on the Market with Reported WACs Each Year (as of December 31 of the previous year)

Year	# of Drug Products	% of Sales in 2003 Study Sample	% of Drug Products in 2003 Study Sample
2004	75	100.0%	100.0%
2003	74	96.3%	98.7%
2002	63	73.9%	84.0%
2001	39	52.0%	44.7%

Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

To assess the impact of price changes on dollars spent, an annual cost of therapy was calculated for each drug product. This analysis excludes the 11 products in the generic drug sample that are used primarily for treatment of acute conditions and are typically taken for a limited period of time. The amount of a drug that an average adult person would take on a daily basis was determined using the "usual daily dose" reported in the Medi-Span Price-Chek PC database or, when not available from Medi-Span, using dosing information in the U.S. Food and Drug Administration (FDA)-approved labeling for the drug product.

Analyses of manufacturer price changes are presented by drug manufacturer and by therapeutic category as well. The analysis of drug manufacturers reported separately on

[8] The analysis starting year of 2001 contrasts with the 2000 start year used in the study of changes in manufacturer prices for brand name drugs (Gross, et al., May 2004 [revised June 2004]). A later start year was used in this study because of the low share of the sample for which WACs were available on December 31, 1999. On that date, only 29 of the products in the generic drug study sample (39 percent) had WACs; these products accounted for 33 percent of the 2003 sales of the widely used generic drugs in the study sample.
[9] The direction of the bias was tested by constructing a modified average price change consisting only of those drugs in the sample that were on the market in 2001. The average change in manufacturer price was higher than the average change for the entire sample in 2001 and lower in 2002 and 2003. The three-year changes for the two samples were nearly identical.

those eight manufacturers with at least three generic drug products; together, these manufacturers accounted for 63 of the 75 most widely used generic drug products within the sample. The analysis by therapeutic category reported separately on groupings of three or more drugs with a similar use or mechanism of action in treating patients. There were 10 therapeutic categories, accounting for 57 of the 75 generic drug products in the overall study sample.

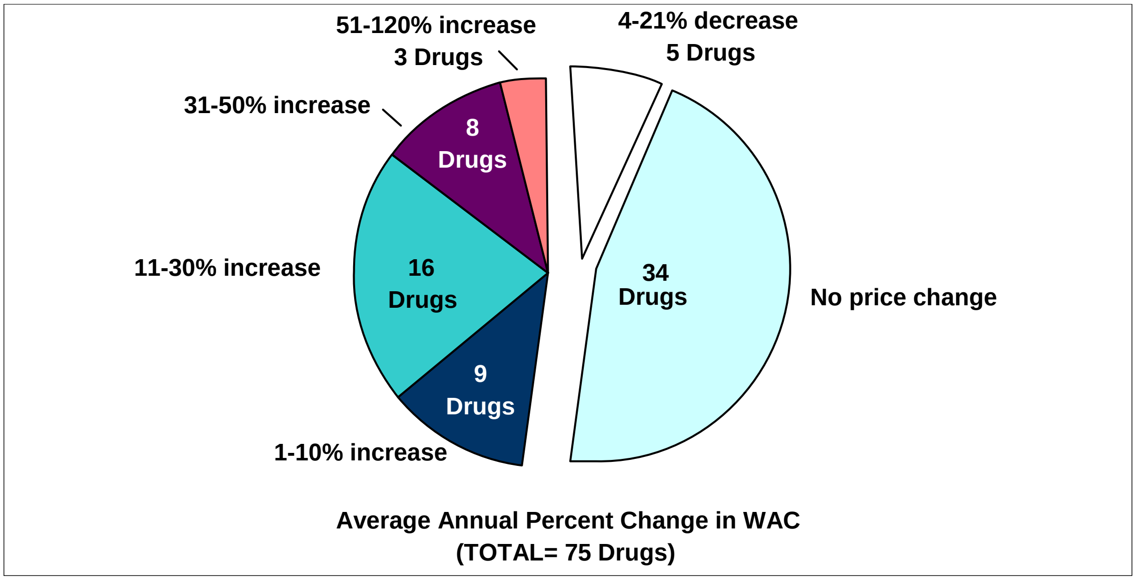
Appendix A provides a more detailed description of the study methodology.

III. FINDINGS

<u>Overview of Changes in Manufacturer List Prices and Cost of Therapy for Most Widely Used Generic Prescription Drugs, 2001-2003</u>

Average changes in manufacturer list prices. Over one-half of the 75 widely used generic drugs examined in this analysis either had no change in manufacturer list price (34 drugs) or decreased in price (5 drugs) during the three-year period from 2001 to 2003. However, 36 generic drugs had manufacturer list price increases, most of which substantially exceeded the annual rate of general inflation during the three-year period (2.2 percent). Of these 36 drugs, eight had average annual manufacturer list price increases of 31 to 50 percent, and three had average annual list price increases higher than 50 percent (see Figure 1).

Figure 1: Distribution of Average Annual Percentage Changes in Manufacturer List Prices for Most Widely Used Generic Prescription Drugs, 2001-2003*



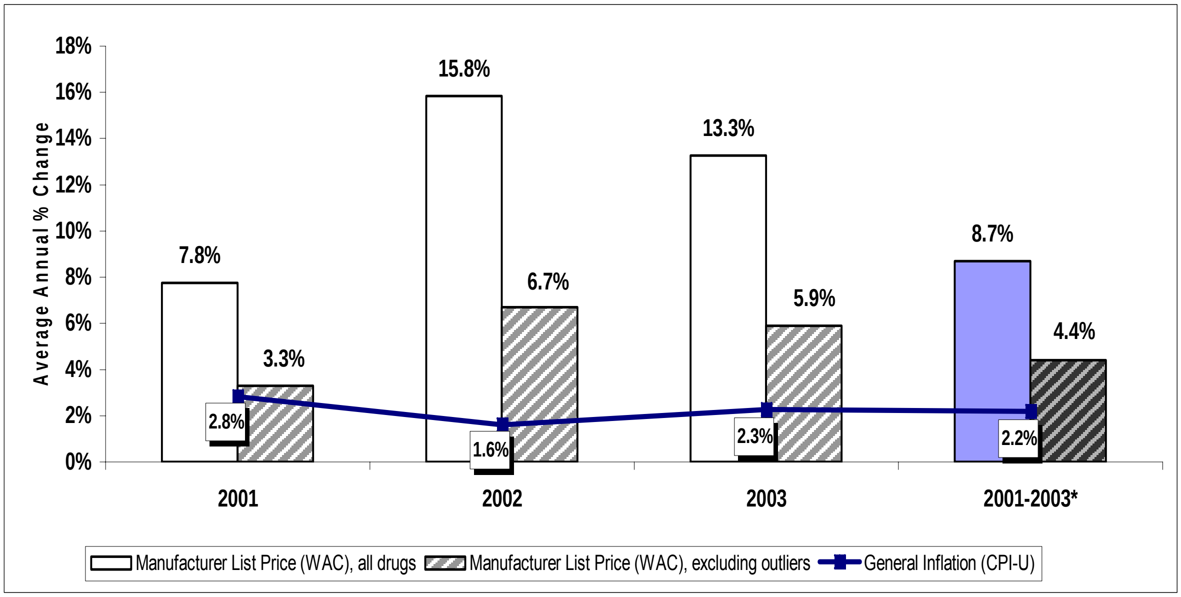
*Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first month within the time period for which a WAC was reported.
Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

The average annual increase in manufacturer list prices for widely used generic drugs far outpaced the rate of general inflation each year from 2001 to 2003 (see solid bars in Figure 2). The average list price increase for the most widely used generic prescription drugs was 7.8 percent in 2001, accelerating to 15.8 percent in 2002, and dropping slightly to 13.3 percent in 2003.[10] Among all 75 drugs in the sample, the three-year average *annual* growth

[10] The average rates of increase in manufacturer prices also exceeded the rate of *medical inflation* (4.6 percent in 2001, 4.7 percent in 2002, and 4.0 percent in 2003).

rate in generic drug manufacturers' list prices was 8.7 percent.[11] The average *cumulative* growth rate for the three-year period of 2001 through 2003 was 28.4 percent;[12] this compares to the cumulative general inflation rate of 6.8 percent during the same period. Including only the 39 generic drugs that were on the market for the entire three-year period results in a December 2000 to December 2003 average cumulative increase in list prices of 28.2 percent.

Figure 2: Average Annual Percentage Change in Manufacturer List Prices for Most Widely Used Generic Prescription Drugs, 2001-2003



Years refer to change from previous year.
*Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first month within the time period for which a WAC was reported.
Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

In 2002 and 2003, the average annual percentage increases in list price, shown by the solid bars in Figure 2, are heavily influenced by only a few drug products with percentage price changes that far exceeded percentage price changes for most other generic drug products. In 2002, four drugs—*folic acid* 1 mg tablets (Watson Labs), *cephalexin* 500 mg tablets (Ranbaxy Pharmaceuticals), and *hydrochlorothiazide* 25 mg and 50 mg tablets (Ivax Pharmaceuticals)—had annual list price increases ranging from 123.6 percent to 212.1 percent, compared to 52.5 percent for the generic drug with the next highest list price increase that year. Similarly, in 2003, the manufacturer list price of *folic acid* 1 mg tablets increased over 300 percent and three different presentations of the Sandoz drug *atenolol* (100 mg and 50 mg [both package size 100 and 1000 tablets]) had annual list price increases ranging from 93.3 percent to 157.4 percent. By contrast, the next highest list price increase that year for a generic drug in the sample was 64.6 percent.

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[11] Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first year during the time period for which a WAC was reported.
[12] This cumulative growth rate is calculated by compounding the average annual growth rate for each year from 2001 to 2003.

Excluding these seven "outlier" drugs from the sample, the average annual percentage list price changes for the three-year period from 2001 to 2003 for the widely used generic drugs was 4.4 percent, or about one-half of the average increase when these outliers are included. However, the average annual list price increases still exceeded the rate of general inflation. The average percentage price change for the remaining 68 drugs in 2001 (3.3 percent) was just slightly above the rate of general inflation, but rose to levels in 2002 and 2003 (6.7 percent and 5.9 percent, respectively) that were substantially above the rate of inflation (see striped bars on Figure 2).

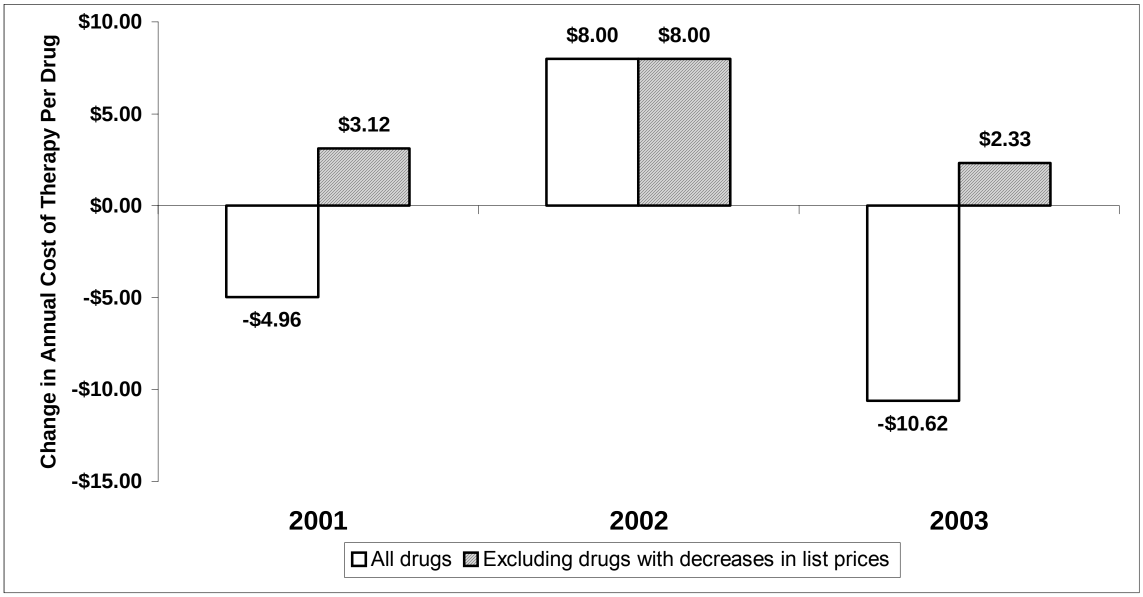
Changes in the estimated cost of therapy due to manufacturer list price changes. The vast majority of generic drug products in the study sample—64 of 75—are used primarily to treat chronic conditions. The average estimated annual change in spending due to changes in manufacturer list prices for generic drugs used to treat chronic conditions is heavily influenced by a few drugs that had very large decreases in list price in dollar terms relative to the smaller dollar increases in list prices of other generic drug products.[13] As a result, the average annual dollar change in cost—assuming that changes in list prices were passed on to consumers—was a *decrease* of nearly $5.00 for a year's supply of drug in 2001 and a decrease of more than $10 for a year's supply of drug in 2003 (as shown by the solid bars in Figure 3).

However, including the four drugs with relatively high dollar decreases in list prices[14] overstates the typical effect of generic drug price changes on consumers, particularly those who do not use these four products on a regular basis. When the four drug products with list price decreases were excluded (i.e., only those drugs with price increases or no price change were included), the average annual *increase* ranged from a low of $2.33 per year's supply of drug in 2003 to a high of $8.00 per year's supply of drug in 2002 (as shown by the striped bars in Figure 3), if the changes in manufacturer list prices were passed on to consumers.

Over the three years, the average cumulative increase in the cost of therapy for chronic-use generic drugs without manufacturer list price decreases was $13.45. As an example of how this average change in the cost of therapy might affect consumers, a typical older American (who takes three prescription drugs[15]) who does not take one of the four generic drugs that experienced a price decrease could have experienced an annual increase in the cost of

[13] The generic drugs used to treat chronic conditions and which had decreases in manufacturer list price in 2001 were verapamil 240 mg tab (Ivax Pharmaceuticals) and Levoxyl 50 mcg tab (Monarch Pharmaceuticals). The drugs with decreases in manufacturer price in 2003 were omeprazole 20 mg cap (Kremers Urban) and pacerone 200 mg tab (Upsher-Smith).
[14] As shown in Figure 1, five of the generic drugs in the study sample had price decreases over the three-year period 2001-2003. However, one of these drugs is used to treat acute conditions, and therefore was not included in this analysis.
[15]AARP, *Prescription Drug Use Among Persons Age 45+: A Chartbook* (Washington, DC: AARP), June 2002. Other published studies of prescription drug use typically report on the number of prescriptions filled each year, but do not distinguish between prescriptions filled for a one-month supply or for a three-month supply, thereby making it difficult to ascertain the average number of drugs taken.

Figure 3: Average Change in Annual Cost of Therapy Due to Manufacturer List Price Changes for Most Widely Used Generic Prescription Drugs Treating Chronic Conditions, 2001-2003



Years refer to change from previous year. Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers. Does not include eleven drugs used primarily for treatment of acute conditions.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

therapy, on average, of $9.36 in 2001, $24.00 in 2002, and $6.99 in 2003, if the price increases were passed along to the consumer

<u>Distribution of Changes in Manufacturer List Price and Cost of Therapy for Most Widely Used Generic Prescription Drugs, 2001-2003</u>

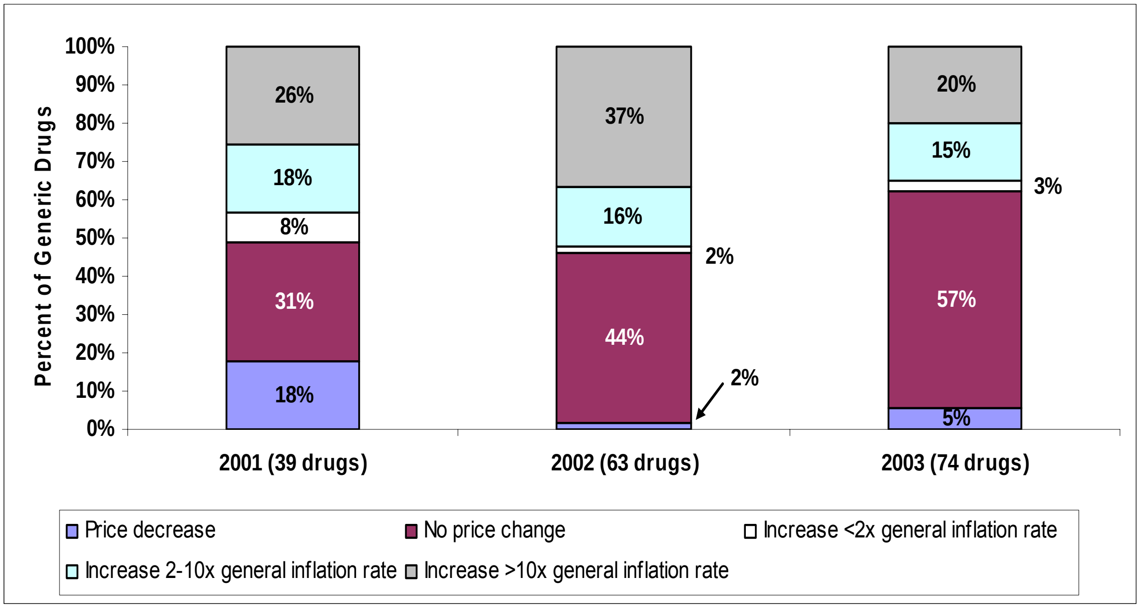
Figure 4 shows how the distribution of percentage changes in manufacturer list prices for widely used generic drugs varies from year to year. Each year's analysis focuses on drugs that were on the market for the entire year. The analysis reveals the following patterns:

- For each of the three years, the average manufacturer list price either declined or was unchanged for a substantial number of widely used generic drug products—nearly one-half of the generic products in 2001 and 2002, and nearly two-thirds of the generic products in 2003.

- Among those generic drug products for which list prices did increase, increases typically were at least two times—and often more than ten times—the rate of general inflation.

- Fewer generic drugs had decreases in list prices in 2002 and 2003 than in 2001, but in each successive year after 2001, there was a greater share of drugs with no change in list price.

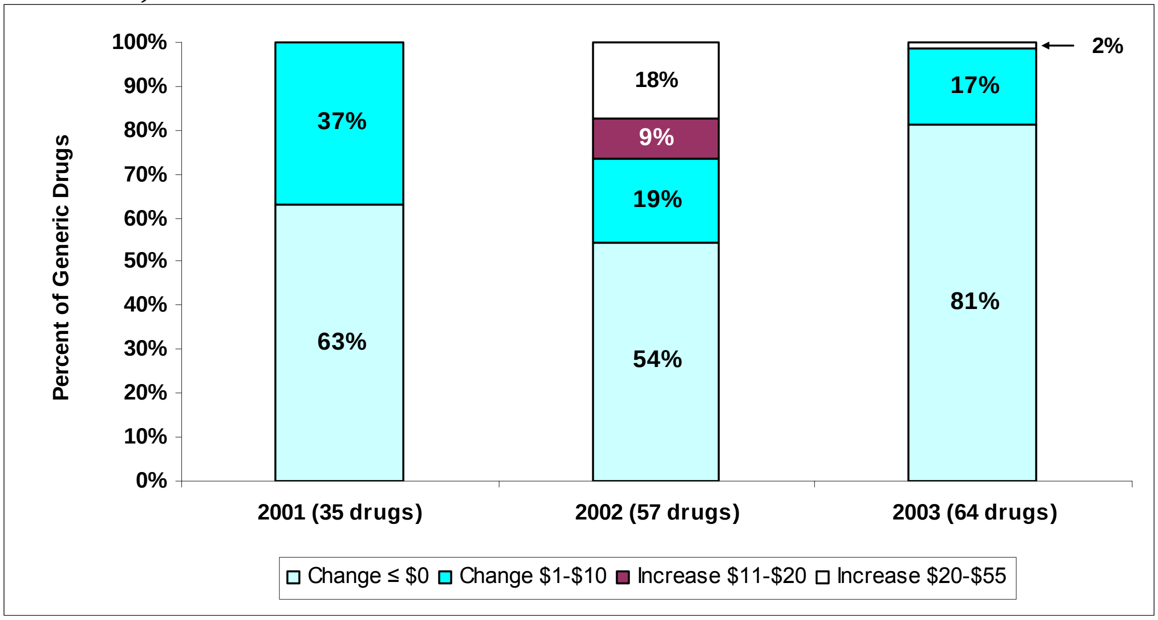
Figure 4: Distribution of Average Annual Percentage Change in Manufacturer List Prices Relative to General Inflation for Most Widely Used Generic Prescription Drugs, 2001-2003



Numbers may not sum to 100 percent due to rounding.
Years refer to change from previous year. Prices are based on WAC. Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers. General inflation is based on CPI-U, all areas.
Includes only drugs that were on the market for the entire year.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

Considering the large number of generic drugs with no change in manufacturer list price in Figure 4 and the relatively low average changes in annual cost of therapy reported in Figure 3, it is not surprising that few of the widely used generic drugs had substantial dollar increases in the cost of therapy associated with changes in manufacturer list prices (see Figure 5). Among the portion of chronic-use generic drugs with increases in list prices, most had increases that, if passed along to consumers, raised the annual cost of therapy by $20 or less (and most of these increases were less than $10 per year). Only in 2002 was there a substantial number (10) of generic drug products for which the annual cost of therapy as a result of manufacturer list price changes rose by more than $20.

Figure 5: Distribution of Changes in Annual Cost of Therapy Due to Manufacturer List Price Changes for Most Widely Used Generic Prescription Drugs Treating Chronic Conditions, 2001-2003



Numbers may not sum to 100 percent due to rounding.
Years refer to change from previous year. Prices are based on WAC. Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
Includes only drugs used for treatment of chronic conditions that were on the market for the entire year.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

Changes in Manufacturer List Prices for Individual Generic Drugs, 2001-2003

Manufacturer changes in list price varied substantially from product to product. For example, Table 2 shows that for 15 of the 25 generic drugs with the highest sales in 2003, list prices either decreased or remained unchanged during the three-year period from 2001 to 2003. However, ten of the top 25 drugs had average annual increases in list prices during this three-year period ranging from 4.0 percent (for timolol gel ophthalmic solution 0.5%) to 58.0 percent (for hydrochlorothiazide 25 mg tablets). Two of the 13 generic drugs that had WACs reported for the entire three-year period had cumulative increases in list price of between 100 and 200 percent; two others had cumulative increases in list price exceeding 200 percent for the same period.

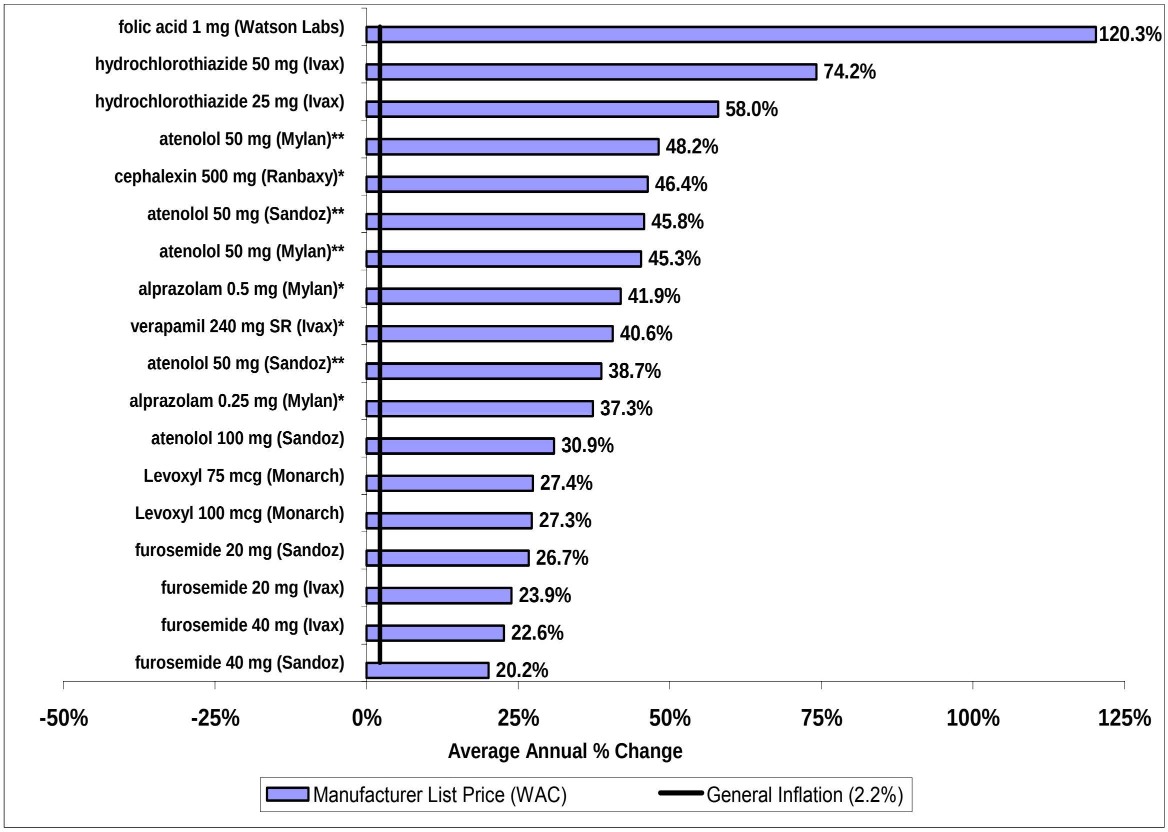
Table 2: Change in Manufacturer List Prices for Top 25 Generic Prescription Drug Products, 2001-2003

Rank by Sales Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2001-2003**	Cumulative % Change in WAC, Dec. 00-Dec. 03
1	omeprazole 20 mg cap	30	Kremers Urban	Ulcer Agents (PPIs)	-6.3%	N/A
2	ciprofloxacin 500 mg tab	100	Barr Labs	Anti-Infectives	0.0%	N/A
3	Klor-Con M20 20 meq tab	100	Upsher-Smith	Potassium Supplements	0.0%	N/A
4	carbodopa/levodopa 50-200 mg tab	100	Mylan	Anti-Parkinsonian Agents	0.0%	N/A
5	timolol gel solution 0.5%	5	Falcon	Ophthalmic Solutions	4.0%	12.5%
6	hydrochlorothiazide 25 mg tab	1000	Ivax	Diuretics (Thiazides)	58.0%	294.2%
7	furosemide 40 mg tab	1000	Mylan	Diuretics (Loop)	19.0%	68.6%
8	hydrocodone/APAP 5-500 mg tab	500	Mallinckrodt	Narcotic (Combination)	0.0%	0.0%
9	pacerone 200 mg tab	60	Upsher-Smith	Antiarrhythmics Agents	-4.3%	-12.3%
10	gemfibrozil 600 mg tab	500	Teva	Cholesterol Reducers (Others)	12.5%	N/A
11	carbidopa/levodopa 25-100 mg tab	100	Teva	Anti-Parkinsonian Agents	0.0%	N/A
12	torsemide 20 mg tab	100	Teva	Diuretics (Loop)	0.0%	N/A
13	atenolol 50 mg tab	1000	Sandoz	Beta Blockers	45.8%	209.8%
14	methotrexate 2.5 mg tab	100	Barr Labs	Cancer Chemotherapy	-16.5%	-41.8%
15	lisinopril 20 mg tab	100	Mylan	ACE Inhibitors	0.0%	N/A
16	metoprolol 50 mg tab	1000	Teva	Beta Blockers	0.0%	N/A
17	triamterene/HCTZ 37.5-25 cap	1000	Sandoz	Diuretics (Combination)	0.0%	0.0%
18	Levoxyl 100 mcg tab	100	Monarch	Thyroid Hormones	27.3%	106.1%
19	verapamil 240 mg tab	500	Ivax	Calcium Blockers	-21.0%	-50.6%
20	Levoxyl 50 mcg tab	100	Monarch	Thyroid Hormones	4.1%	13.0%
21	hydrochlorothiazide 12.5 mg cap	100	Mylan	Diuretics (Thiazides)	0.0%	N/A
22	Digitek 0.125 mg tab	100	Bertek	Cardiac Glycosides	6.2%	19.7%
23	verapamil 240 mg tab	100	Ivax	Calcium Blockers	40.6%	N/A
24	Levoxyl 75 mcg tab	100	Monarch	Thyroid Hormones	27.4%	106.9%
25	metformin 500 mg tab	100	Sandoz	Anti-Diabetics (Sulfas & Biquanides)	0.0%	N/A
General inflation rate (as measured by growth in CPI-U, all items)					**2.2%**	**6.8%**

*Ranking is based on dollar value of the top 75 generic drug prescriptions processed by the AARP Pharmacy Service during 2003 for which WACs are reported.
**Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first month within the time period for which a WAC was reported.
Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
N/A indicates not applicable because products were not on the market or did not have a WAC in December 2000.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

The 18 generic drugs with the highest average annual manufacturer price increases—20 percent or more per year—for the three-year period from 2001 through 2003 are shown in Figure 6. Many of the highest percentage increases in price are concentrated in a few drugs and the multiple strengths and package sizes in which these products are available.

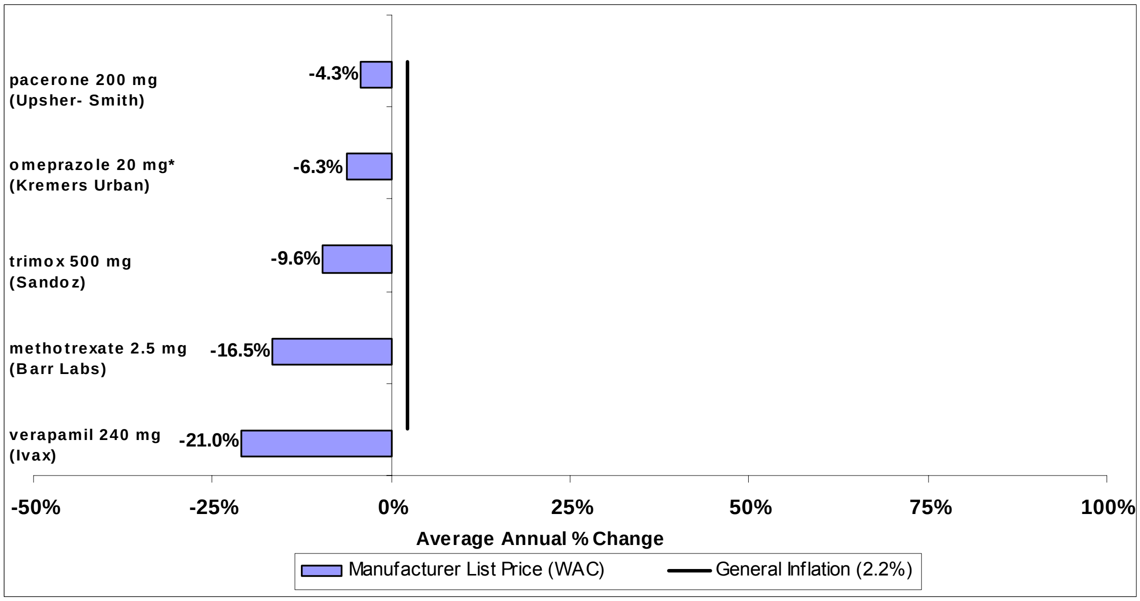
Figure 6: Generic Prescription Drug Products with Highest Average Annual Percentage Change in Manufacturer List Price, 2001-2003



*Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first month within the time period for which a WAC was reported. Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
**Multiple listing is due to different package sizes.
Years refer to change from previous year. General inflation is based on CPI-U, all items.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

The five generic drugs with average annual manufacturer list price decreases for the three-year period from 2001 through 2003 are shown in Figure 7.

Figure 7: Generic Prescription Drug Products with Average Annual Percentage Decreases in Manufacturer List Price, 2001-2003



*Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first month within the time period for which a WAC was reported.
Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
General inflation is based on CPI-U, all items.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

Manufacturer List Price Changes for Most Widely Used Generic Prescription Drugs, by Manufacturer, 2003

The generic drugs most widely used by older Americans in 2003 were grouped by manufacturer to assess the average rate of change in list prices for individual drug companies. While only companies with three or more generic drugs in 2003 are reported separately in this analysis, these eight companies accounted for 63 drug products, nearly 75 percent of sales, and 85 percent of prescriptions in the full generic drug study sample (12 generic drugs from ten firms with fewer than three drugs per firm were grouped together in an "Other Drug Firms" category). Table 3 shows the distribution of each manufacturer's drug products in the total sample by sales and by prescriptions dispensed.

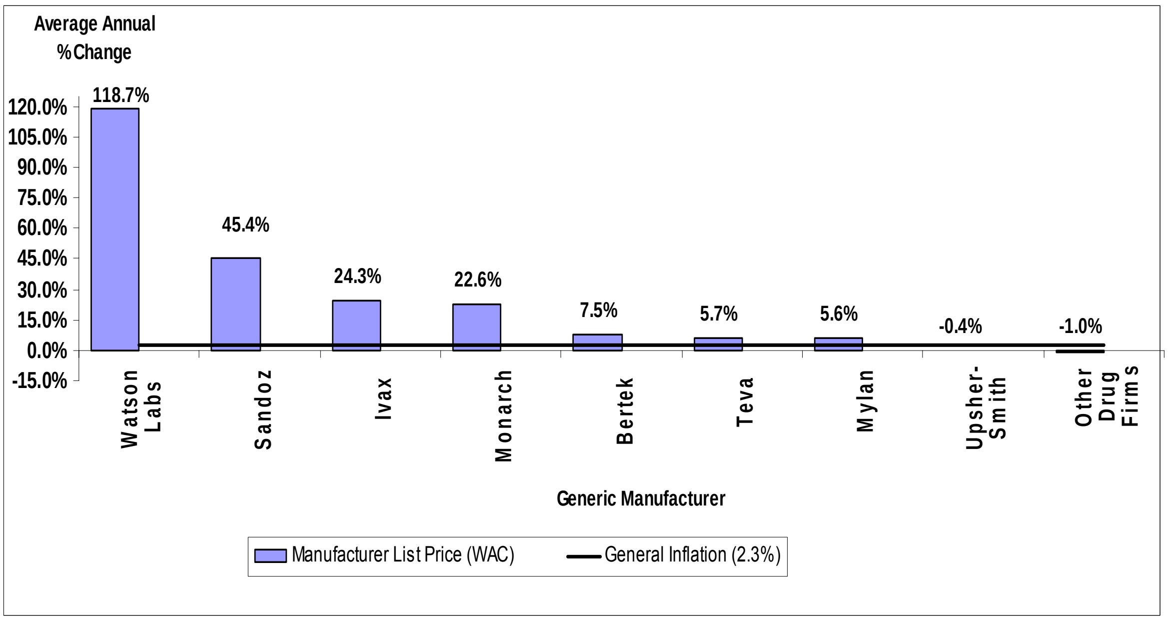
Table 3: Relative Prevalence of Manufacturer Among Most Widely Used Generic Prescription Drugs, 2003

Manufacturer	Number of Products	% of 2003 Sales* Among Widely Used Generic Drugs	% of 2003 Prescriptions* Among Widely Used Generic Drugs
Mylan	22	24.2%	29.5%
Sandoz	12	12.7%	17.0%
Teva Pharmaceuticals	8	10.8%	8.4%
Ivax Pharmaceuticals	7	7.2%	11.6%
Upsher-Smith	5	8.7%	6.0%
Monarch Pharmaceuticals	3	4.5%	3.4%
Bertek Pharmaceuticals	3	3.0%	4.8%
Watson Labs	3	2.4%	4.3%
Other Drug Firms	12	26.5%	15.0%
TOTAL	**75**	**100.0%**	**100.0%**

*Sales and prescriptions for 2003 are based on AARP Pharmacy Service.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., August 2004).

In 2003, list prices for the generic drugs in this study increased faster, on average, than general inflation for most manufacturers, but declined for one manufacturer and for the "Other Drug Firms" category. Manufacturer list price changes ranged from a high of 118.7 percent (Watson Labs) to a low of -0.4 percent (Upsher-Smith). Of the manufacturers with increases in list prices, the average change often masked the presence of several drugs with no change in list price (e.g., Watson Labs has two drugs at 0 percent and one drug with a 333 percent increase; Teva Pharmaceuticals has 7 drugs at 0 percent and one drug with a 29 percent price increase; Sandoz and Ivax Pharmaceuticals each have several drugs with price increases and several without a change in price) (see Figure 8).

Figure 8: Average Annual Percentage Change in Manufacturer List Price for Generic Prescription Drugs, by Manufacturer, 2003



Manufacturers with fewer than three drugs in the 2003 sample of most widely used generic prescription drugs are included in the "Other Drug Firms" category. Year refers to change from previous year. Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers. General inflation is based on CPI-U, all items.

Prepared by *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

Manufacturer List Price Changes for Most Widely Used Generic Prescription Drugs, by Therapeutic Category, 2003

Therapeutic categories with three or more generic drugs in the sample in 2003 are reported separately in this analysis; these 10 categories accounted for 57 drug products, nearly two-thirds of sales, and over 80 percent of prescriptions in the full generic drug sample (18 generic drugs with other uses were grouped in an "Other Therapeutic Agents" category). Table 4 shows the distribution of each therapeutic category by sales and by prescriptions dispensed.

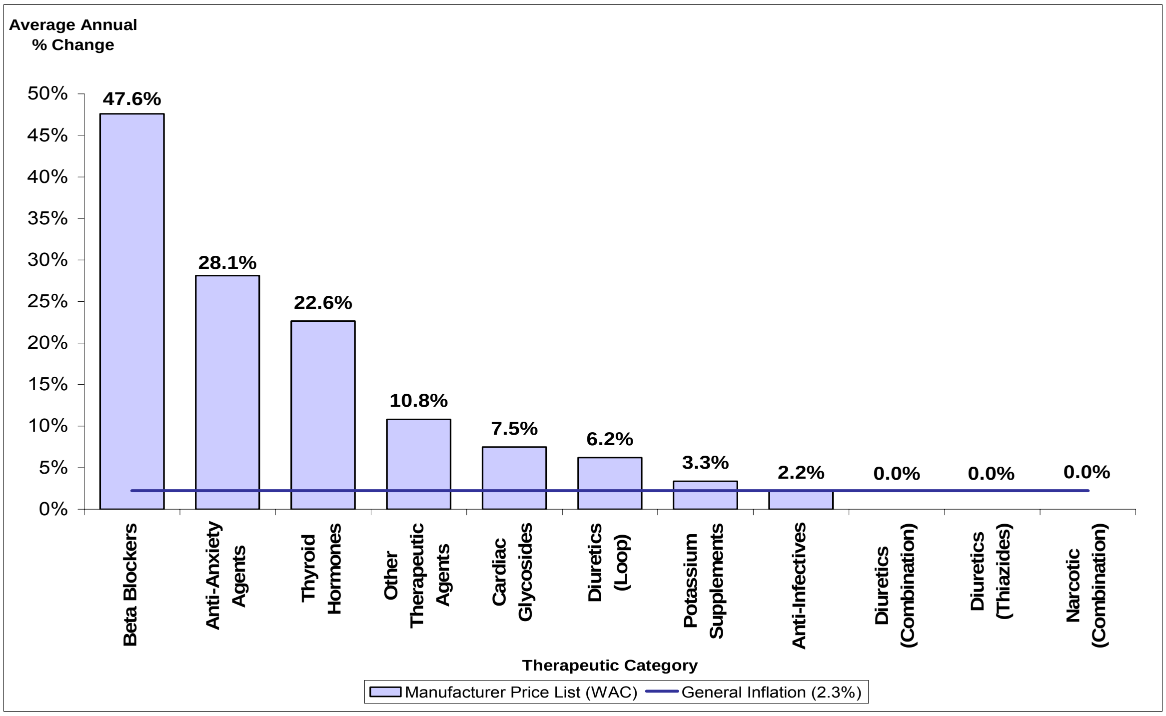
Table 4: Relative Prevalence of Therapeutic Category Among Most Widely Used Generic Prescription Drugs, 2003

Therapeutic Category	Number of Products	% of 2003 Sales* Among Widely Used Generic Drugs	% of 2003 Prescriptions* Among Widely Used Generic Drugs
Anti-Anxiety Agents	3	2.0%	2.6%
Anti-Infectives	5	6.9%	4.5%
Beta Blockers	13	13.6%	19.8%
Cardiac Glycosides	3	3.0%	4.8%
Diuretics (Combination)	5	4.4%	5.4%
Diuretics (Loop)	10	9.4%	16.8%
Diuretics (Thiazides)	6	6.2%	12.4%
Narcotic (Combination)	5	6.0%	7.7%
Potassium Supplements	4	6.4%	5.4%
Thyroid Hormones	3	4.4%	3.4%
Other Therapeutic Agents	18	37.6%	17.2%
TOTAL	**75**	**100.0%**	**100.0%**

*Sales and prescriptions for 2003 are based on AARP Pharmacy Service.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

Manufacturer list prices for generic drugs in six therapeutic categories increased faster, on average, than the rate of general inflation in 2003. Of the four therapeutic categories with average changes in list price equal to or less than the rate of general inflation, three of these categories had no change in list price in 2003. The most rapid increases in list prices were for beta blockers, anti-anxiety agents, and thyroid hormones, which had average list price increases of more than 20 times, 12 times, and nearly 10 times the rate of general inflation, respectively. The three therapeutic categories with no increases in list prices in 2003 were narcotics (combination), diuretics (thiazides), and diuretics (combination) (see Figure 9).

Figure 9: Average Annual Percentage Change in Manufacturer List Price for Generic Prescription Drugs, by Therapeutic Category, 2003



Therapeutic categories with fewer than three drugs in the 2003 sample of most widely used generic prescription drugs are included in the “Other Therapeutic Agents” category. Year refers to change from previous year.
Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
General inflation is based on CPI-U, all items.
Prepared by *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).

IV. CONCLUDING OBSERVATIONS

The findings of this report show two distinct patterns in manufacturer list price changes for widely used generic prescription drugs during the three-year period between 2001 and 2003. First, more than one-half of the drugs had no increase in manufacturer list prices; a small number even had decreases in list prices during this period. Second, for those generic drug products that did have increases in list prices, the increases were typically several times the rate of general inflation and often more than ten times the inflation rate. However, because the absolute dollar price of generic drug products was low, the average dollar value of these increases was just a few dollars per drug on an annual basis.

As an analysis of manufacturer price changes, this particular study is limited because of the lack of publicly available data that captures all of the discounts and rebates that generic drug manufacturers sometimes provide to wholesalers and other direct purchasers. These discounts can be quite substantial, such that increases in manufacturer list prices may overstate increases in net transaction prices. As a result, the findings presented here represent an *upper bound* of net transaction price increases by generic drug manufacturers. Unfortunately, the lack of publicly available data means that the magnitude of the differences between changes in list prices and changes in net transaction prices cannot be measured.

Furthermore, the extent to which retail price changes for generic drugs are attributable to changes in list prices set by manufacturers of those drugs is not known. The manufacturer price for generic drugs often represents a smaller component of the retail price than does the manufacturer price for brand name drugs. Therefore, consumers may have experienced changes in retail prices that do not reflect the patterns and trends reported here.

APPENDIX A:
DETAILED DESCRIPTION OF METHODOLOGY

The overall goal of this project was to track price changes at the manufacturer-to-wholesaler level for the prescription drug products most widely used by older Americans in 2003. This particular report focuses on changes in prices of generic drugs; previous AARP studies have focused on changes in manufacturer prices of brand name drugs.[i] For the purposes of this study, a brand name drug is defined as the product marketed by the original new drug application (NDA) holder (or its licensee) for a given drug entity. A generic drug is defined as any drug product other than the one marketed by the original NDA holder. Most generic drugs are products with an abbreviated NDA (ANDA). The definition of generics used in this study includes some drug products that have an NDA that was not the original NDA for the chemical entity. Among the generic drugs in this study are certain products that are marketed using a brand name, known as "branded generics," such as Levoxyl 100 mcg tablets marketed by Monarch Pharmaceuticals.

Separate analyses of the price changes for generic drugs and brand name drugs are important because generic and brand name drugs are subject to different pricing dynamics. For example, brand name drugs have patents and other forms of exclusivity for a number of years after market entry and, during these periods, do not experience price competition from therapeutically equivalent drug products that can be substituted at the pharmacy level. On the other hand, generic drug products have at least one FDA-approved, bioequivalent product (the original brand product) from the time they enter the market. (Certain generic drugs—that is, those for which the manufacturer files a paragraph IV certification of patent non-infringement—may receive 180 days of exclusivity after approval of the first generic product.) In some cases, the original NDA holder may introduce its own generic version of a drug product (referred to as a pseudo-generic) or it may license another firm to introduce a generic version (referred to as an authorized or licensed generic) a month or two before, or sometimes shortly after, entry of the first ANDA-approved generic product into the market.

This appendix describes in detail how the generic drug market differs from its brand name counterpart, how this study identified the sample of drugs, how it measured prices, and how it calculated weighted average price changes. In addition, the appendix describes methods and assumptions used to determine prices and price changes at the drug manufacturer and therapeutic category levels.

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[i] David J. Gross, Stephen W. Schondelmeyer, and Susan O. Raetzman, *Trends in Manufacturer Prices of Brand Name Prescription Drugs Used by Older Americans, 2000 Through 2003*, AARP Public Policy Institute Issue Paper #2004-06 (Washington, DC: AARP), May 2004 (Revised June 2004); and *Trends in Manufacturer Prices of Brand Name Prescription Drugs Used by Older Americans, First Quarter 2004 Update*, AARP Public Policy Institute Issue Brief #IB69 (Washington, DC: AARP), June 2004.

Identifying the Sample of Generic Drugs for this Analysis

The list of generic prescription drugs that are widely used by older Americans is based on the 200 most widely dispensed drug products (including generic and brand name drugs) and the 200 drug products with the highest sales levels among retail and mail-order prescriptions from the AARP Pharmacy Service adjudicated in 2003. About two million people age 50 and over, including those with and without coverage, use the AARP Pharmacy Service annually to purchase their drugs.

The unit of analysis in this study was the “drug product presentation”—that is, a drug product with a unique combination of active chemical ingredient, strength, dosage form, package size, and manufacturer (for example, furosemide 40 mg tablets, package of 1000, Mylan). As a result, some drug entities may be listed more than once among the widely used generic drugs, e.g., when there are different strengths, such as furosemide 20 mg vs. furosemide 40 mg vs. furosemide 80 mg; different package sizes, such as furosemide 20 mg tablets in packages of 100 or 1000; or different manufacturers, such as furosemide 40 mg tablets in packages of 1000 by Mylan, Sandoz, Roxane or Ivax Pharmaceuticals.

First, all prescription drugs (including insulins) adjudicated by the AARP Pharmacy Service in 2003 were grouped into uniform drug product categories using the Generic Code Number (GCN) from First DataBank. The GCN groups drug products together when their National Drug Code (NDC) numbers indicate that they have the same active ingredients, dosage form, and strength; a single GCN would include NDCs for all package sizes and all manufacturers. For each GCN, the AARP Pharmacy Service identified the total sales revenue and the total prescriptions dispensed during 2003.

The top 250 GCN categories accounting for about 80 percent of the sales revenue, as well as the top 250 GCN categories accounting for about 80 percent of the prescriptions dispensed, were included. When a generic version of a drug was on the list, the GCN was subdivided to account separately for originator brand drug products in the GCN and generic drug products in the GCN; after this subdivision of GCNs, there was a total of 536 GCNs (including brand and generic versions of the same GCN). All NDCs within these GCNs were collated; there were 4,775 NDCs within these 536 GCNs, with each NDC indicating a unique combination of manufacturer and package size for the drug product indicated by that GCN. The next step was to rank the 4,775 NDCs by sales and by prescriptions dispensed. The top 200 NDCs by each criterion (sales and prescriptions) were selected and became the pool of drug products for this study. There were overlaps between NDCs in the two top 200 lists, resulting in a total of 291 unique NDCs across the two lists.

The 291 unique products identified by NDC level represent 60 percent of total AARP Pharmacy Service prescription drug *sales* in 2003 and 50 percent of all AARP Pharmacy Service *prescriptions* that year. Of these 291 NDCs, 94 were for generic drug products. However, the measure of manufacturer price used in this analysis—wholesale acquisition cost—was available for only 75 of the 94 generic products (the price measure used in this analysis is described in the next section). These 75 generic products account for 8 percent of sales and 29 percent of all prescriptions in the study sample of 291 brand and generic drug products.

Measuring Manufacturer List Prices

In order to explain the rationale for the approach used in this project to measure manufacturer prices for generic drugs, it is necessary to acknowledge a key difference between the market for brand name drugs and the market for generic drugs that affects pricing dynamics. In the market for single source brand name drugs (that is, brand name drugs that do not have generic substitutes), pharmacies and wholesalers face a single seller for the product and have no choice but to pay the price that the manufacturer charges in order to fill customers' prescriptions for that product. By contrast, when there are two or more generic versions of the same product on the market, pharmacies and wholesalers are able to use their leverage as purchasers to encourage generic manufacturers to compete on the basis of price and other factors.[ii] This competitive process occurs because both state laws and FDA's rating of therapeutic equivalence for generic versions allow and facilitate pharmacists' substitution of one manufacturer's generic product for another (or for the brand name product) if not prohibited by the prescribing physician. The easy substitution of generics creates price competition between different manufacturers' versions of the same drug because a pharmacy or wholesaler can, and often does, choose to stock only one version of each generic drug.

Competition among generic products has at least two effects on pricing that are relevant to this study. First, the entry of additional generics usually leads to decreases in manufacturer prices (both *list prices* and *net transaction prices*) over time. Second, reimbursement practices by third-party payers create incentives for pharmacies to seek—and manufacturers to provide—further reductions in net transaction prices through discounts and rebates below the published list price. These effects are further explained below.

The following illustration shows the effect of competitive pressures in the generic drug market on manufacturer list prices and net transaction prices. Typically, the first generic version of a drug product has manufacturer list prices (i.e., Average Wholesaler Price [AWPs] and Wholesale Acquisition Cost [WACs]) and net transaction prices that are about 20 to 30 percent below the corresponding prices of the original brand name drug product. If the first generic product approved happens to be the only generic, then the manufacturer's list and net transaction prices may be only 10 to 15 percent below those of the original brand. As more generic firms enter the market, the manufacturers' list price for the generic drug usually drop one or two more times, while the net transaction prices continue to decrease to less than 50 percent of the brand name drug prices within 6 to 12 months after the first generic entered the market and often reach 25 to 33 percent of

[ii] When a pharmacy (or wholesaler) chooses the version of generic drug product to stock, it may take into account several factors in addition to the price and price "spread" of a drug (i.e., difference between the price the pharmacy pays for the product and the price at which it sells the product) including, but not limited to, the reputation of the generic firm, breadth of product line, levels of service, in-stock rates, stability of supply over time, and availability through a wholesaler versus direct from the generic firm.

the brand price within 24 months after initial generic entry. The original brand drug product usually does not lower its price, and sometimes even continues to increase its price, to retail pharmacies when generics enter the market.[iii]

Reimbursement practices enter into the dynamic because, in choosing a generic drug product to stock, a pharmacy or wholesaler seeks to maximize the "spread" between the price it pays the generic firm for the product (i.e., the net transaction price) and the price that third-party programs pay the pharmacy for the products. The price paid to a generic firm largely is based on two factors: the published list price for that product (such as the AWP or WAC), and the discounts that the pharmacy or wholesaler is able to get from the manufacturer. The pharmacy's selling price is often determined by the source of payment for a prescription; about 85 percent of prescriptions are paid under terms set by third-party payers, including both public and private programs. Most third-party payers base their payments to a pharmacy on the lower of: (1) the pharmacy's usual and customary charge, (2) the AWP less a certain percent (e.g., AWP-12%) plus a dispensing fee, or (3) the maximum allowable cost (MAC) plus a dispensing fee.[iv] However, some payers—including certain state Medicaid programs—base their pharmacy payment for generic drugs on the WAC plus a certain percent (e.g., WAC+9%) instead of AWP less a certain percent.

Because, as described above, third-party payment (or selling) prices are almost always based on manufacturers' published list prices (i.e., WAC or AWP), pharmacies and other purchasers are more likely to stock the generic product that has a larger difference between manufacturer list price and net transaction price. This means that a generic firm faces competitive pressures to offer discounts that reduce the pharmacies' net transaction cost without decreasing the list price that determines the pharmacy's payment from third-party payers.

Suffice to say, this competitive process for generic drugs leads to net transaction prices that may depart substantially from manufacturer list prices, certainly more so than for brand name drugs. Ideally, a study of prices paid to manufacturers for generic drugs would be based on the net transaction price. However, there are no publicly available data on the size of discounts that generic drug manufacturers provide or on their net transaction prices. While individual purchasers have information about net transaction prices they paid to manufacturers, such information is considered proprietary and would only represent the experience of a single purchaser. Consequently, because it was not possible to use net transaction prices for this study, a manufacturer list price was used

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[iii] Agarwal, Shuchita, *Market Influences on Generic Drug Utilization: 1993 to 2001*, Ph.D. Dissertation, University of Minnesota, September 2004.

[iv] Many third party plans, including Medicaid and private plans, set a maximum allowable cost (MAC) to pay pharmacies for the ingredient cost of generic drug products. For Medicaid programs, the MAC rate (federal upper limit) for a given drug product is set at 150 percent of the lowest published price (which is usually the WAC) of all FDA-approved therapeutically equivalent versions of the same generic drug. Not all generic drugs have federally-established MACs, and MACs are not always the lowest published list price—of the 75 generic drug products in this study, 57 had federal financial participation limits (i.e., the federal Medicaid program's MAC rate), and more than one-half of these drugs (32 of 57) had Medicaid MAC rates that exceeded the WAC for the same product.

instead. These manufacturer list prices are not necessarily representative of changes in manufacturers' net transaction prices for generic drugs.

Despite the difficulties in using manufacturer list prices of generic drugs as a proxy measure for net transaction prices, it is possible to better understand the nature of the potential bias. For example, in theory, manufacturer list prices could *understate net price increases*. Hypothetically, an understated net price increase would result if the manufacturer raised the net transaction price while keeping the list price unchanged. However, this scenario is unlikely because such a practice would reduce a manufacturer's advantage relative to its competitors. That is, this action would reduce the difference between a pharmacy's actual acquisition costs and the payment received from third-party payers, effectively reducing a pharmacy's incentive to stock that particular product.

Therefore, in practice, the use of manufacturer list prices for generic drugs as a proxy measure of net transaction prices is likely to show bias in only one direction. That is, manufacturer list prices for generic drugs are more likely to *overstate increases* in net transaction prices. Such pricing practices provide pharmacies with larger differences between reimbursements and the amount that the pharmacy (or its wholesaler) pays the manufacturer for the generic drug. Consistent with the conclusion that the bias is one-sided, changes in manufacturer list prices that are presented in this report serve as an upper bound of net transaction price increases for generic drugs. Specifically, reported increases in manufacturer list prices for generic drugs would *overstate increases* in transaction prices if a manufacturer chose to make its product more competitive by raising its list price while keeping its net price unchanged.

For this project, manufacturer list prices for generic drugs were measured using wholesale acquisition cost (WAC) data published in the Medi-Span Price-Chek PC database.[v] According to Medi-Span, the WAC represents "the reported cost at which wholesalers purchase drug products from a manufacturer and is provided by the manufacturer." An alternative measure of manufacturer list price is the average wholesale price (AWP). Despite its name, AWP is not the average of manufacturers' actual prices to wholesalers; rather, it historically has been a suggested list price for the wholesaler's charge to the pharmacy, and this same list price is frequently used as a basis for payment and reimbursement rates for community pharmacies in private and public third-party programs. The WAC is a manufacturer-reported, publicly available price and was chosen for use in this study because it is closest to, but not the same as, the net transaction price between a

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[v] Price-Chek PC is a product of Medi-Span (Indianapolis, IN), a division of Wolters Kluwer Health, Inc., and is based on data from the Master Drug Database (MDDB®). This commercial drug database has been published for more than 25 years and provides "comprehensive, integratable drug databases to healthcare professionals worldwide. The Medi-Span product line is an accurate and trusted drug information source that integrates with healthcare software applications." (Open Letter to Pharmaceutical Manufacturers, Distributors and Re-packagers, Re: Pharmaceutical Product Pricing Information for the Medi-Span Drug File [MDDB®], July 2003, published on the Medi-Span website: www.medispan.com.) Manufacturers submit the data on wholesale acquisition cost directly to Medi-Span and Medi-Span supplements them, when appropriate, with information from drug wholesalers. (Matt Pike, "Drug File Editorial Policies," October 7, 2003 presentation to Medi-Span 2003 Users Meeting).

manufacturer and the wholesaler, or other direct purchaser, of a drug product. Specific reasons for using the WAC rather than the AWP as the list price measure are the following:

- The manufacturer sometimes changes the invoiced WAC without changing the AWP for a drug product.[vi] This might occur, for example, when there is a merger or acquisition of drug companies that had different pricing policies and strategies with respect to the relationship between AWP and WAC.

- A drug firm may also change WACs for reasons related to internal pricing policies such as increasing the difference between what a pharmacy or another purchaser pays for the drug and what they sell it for, resulting in a WAC change that is not matched by a corresponding change in AWP. This has been particularly true for generic drugs in recent years.

- For generic drugs, net price decreases often occur as more generic competitors enter the market; however, these decreases in manufacturers' net price or even WAC are not always matched by a decrease in the AWP for a drug product. Rather, generic manufacturers tend to maintain AWP while, at the same time, increasing the discounts they provide to wholesalers and retail pharmacies. Although WAC does not always reflect decreases in generic net transaction prices, to the extent that it does so, it is a better measure of prices and price changes than is AWP.

One limitation of using WAC as the list price measure rather than AWP is that not all generic firms list a WAC price for their drug products. Indeed, of the 94 generic drugs in the sample of widely used products, 19 did not have a WAC listed in 2003. As a result, this study is based on the 75 most widely used generic drug products for which WACs were reported in 2003. These drugs represent 77 percent of sales and 82 percent of prescriptions among the original set of 94 widely used generic drugs.

To assess the potential impact of changes in WAC on dollars spent, the annual cost of therapy for each product was calculated. The amount of a drug that would be taken by an average adult person on a daily basis was determined using the "usual daily dose" reported in the Medi-Span Price-Chek PC database. In cases where Medi-Span did not report such a "usual daily dose," the typical daily dose was determined based on dosing information in the FDA-approved labeling for the drug product. Although the vast majority of generic drugs in the study sample—64 of 75—represent products used in the management and/or treatment of chronic conditions (i.e., one can assume they are taken regularly throughout the year), the sample contains 11 drugs that are used primarily as acute care medications which patients would take for periods of less than one year. Consequently, an annual cost of therapy was calculated by excluding these 11 drugs and by multiplying the average cost per day of therapy of the remaining drugs by 365 days.

[vi] Indeed, on average, AWPs grew at nearly twice the rate of WACs for widely used generic drugs in 2001 (15.1 percent vs. 7.8 percent); in 2002 and 2003 this pattern reversed as WACs grew at roughly 2.5 times the rate of increases in AWPs (15.8 percent vs. 6.3 percent in 2002; 13.3 percent vs. 4.7 percent in 2003).

Calculating Annual Price Changes for Each Drug

Average annual price changes in a given year were calculated for each drug product for each year that the drug was on the market from 2001 to 2003. The average annual change in drug product prices was measured with a 12-month rolling average. First, each month was compared with the same month in the previous year (that is, January 2003 vs. January 2002, February 2003 vs. February 2002, etc.). Next, the average of these point-to-point changes was calculated for the 12 months in each calendar year. Thus, for example, average annual price changes for 2003 refer to the average of the price changes from 2002 for each of the 12 months in 2003. This 12-month rolling average tends to be a more conservative estimate of price changes than the point-to-point method (that is, a simple percentage change for a single month from the same month in the previous year), and it accounts for seasonal variations in drug manufacturers' pricing policies.

The following example shows how annual price changes are calculated. Suppose, for example, that drug A had the following pattern of price changes in 2003 when compared to the same month in 2002:

Table A-1: Average Annual Percent Change in Price for Hypothetical Prescription Drug A, 2003

Jan 02-Jan 03	Feb 02-Feb 03	Mar 02-Mar 03	Apr 02-Apr 03	May 02-May 03	Jun 02-Jun 03	Jul 02-Jul 03	Aug 02-Aug 03	Sep 02-Sep 03	Oct 02-Oct 03	Nov 02-Nov 03	Dec 02-Dec 03	AVERAGE
2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	**2.67**

In this example, the manufacturer price of drug A was two percent higher than the price for the same months in the previous year for the period from January through April of 2003. A price hike in May increased the percentage difference to three percent for each of the subsequent months in 2003. The 12-month average of these price differences is (2.0+2.0+2.0+2.0+3.0+3.0+3.0+3.0+3.0+3.0+3.0+3.0)/12, or 2.67 percent.[vii]

Calculating Average 2003 Price Changes for Multiple Drugs

To aggregate price changes for multiple drugs, a weighted average of price changes was calculated by weighting each drug's annual price change (calculated from Medi-Span Price-Chek data, as shown in the hypothetical example in Table A-1) by its share of total 2003 AARP Pharmacy Service sales among the study drugs. As an example, Table A-2 shows that the sample from which drug A was drawn has ten drugs (this small sample size was chosen to simplify this illustrative example). The second column of Table A-2 gives the average annual price change for each of these drugs, denoted as drugs A-J. A straight (or unweighted) average, which adds up individual values and divides by the number of

[vii] If the drug was introduced to the market in July of the previous year, then the price change for the given year is averaged using only the six months that the product was on the market in the previous year (that is, July to December).

drugs, would result in an average annual price change of 4.76 percent for the drugs in this hypothetical sample. Assuming the hypothetical changes in the dollar cost of therapy for these drugs, shown in the third column, the straight average change in the annual cost of therapy would be $236.13.

A *straight* average, however, distorts the actual impact of price changes because it does not account for each product's "weight" within the sample (that is, it gives equal weight to price changes of both commonly used drugs and drugs that are used less frequently). As a result, it does not accurately capture the average impact of price changes in the marketplace. In Table A-2, drugs with low price increases in percentage terms (drugs E and J) account for a small share (7 percent) of total 2003 sales for the specific group of drugs analyzed. By contrast, drugs with the highest percentage changes (drugs B, D, and I) account for a much larger share (37 percent) of sales. To reflect the relative importance of each drug's price change in the market basket of products, each annual price change was weighted by the drug's share of total 2003 sales. In this simple example, the *weighted* average price increase in 2003 is calculated as the sum of:

> (Unweighted average price change for drug A × drug A's share of total sales) +
> (Unweighted average price change for drug B × drug B's share of total sales) +
> (Unweighted average price change for drug C × drug C's share of total sales) +
> … +
> (Unweighted average price change for drug J × drug J's share of total sales)

or,

> (2.67 × 0.15) + (10.0 × 0.14) + (2.67 × 0.07) + … +(1.0 × 0.02)

Table A-2: Average Changes in Price and Cost of Therapy for Ten Hypothetical Prescription Drugs, 2003

Drug Name	Unweighted Average Annual Price Change (%)	Unweighted Average Change in Cost of Therapy ($/year)	Share of Total Sales	Weighted Average Annual Price Change (%)	Weighted Average Change in Cost of Therapy ($/year)
A	2.67%	$623.48	15%	0.40%	$93.52
B	10.00%	$108.68	14%	1.40%	$15.22
C	2.67%	$433.68	7%	0.19%	$30.36
D	8.00%	$54.08	10%	0.80%	$5.41
E	1.50%	$162.76	5%	0.08%	$8.14
F	4.33%	$54.08	14%	0.61%	$7.57
G	6.40%	$216.84	2%	0.13%	$4.34
H	3.25%	$433.68	18%	0.59%	$78.06
I	7.80%	$27.04	13%	1.01%	$3.52
J	1.00%	$247.00	2%	0.02%	$4.94
TOTAL	**4.76%**	**$236.13**	**100%**	**5.22%**	**$251.07**

The results of this calculation are listed in the fifth column of Table A-2, which shows that the weighted annual average price change for drugs in this hypothetical example is 5.22 percent, or approximately one-half percentage point higher than the unweighted annual average of 4.76 percent. The weighted dollar change in the annual cost of therapy would be $251.07, compared to an unweighted average dollar change of $236.13.

Calculating Average Price Changes for Multiple Drugs for Years Before 2003

The process for aggregating price changes for multiple drugs in years before 2003 is similar to that for 2003. Average price changes for 2001 and 2002 were derived by first calculating the rolling-average annual price change for each drug (as shown in Table A-1), then weighting each drug's price change by its share of total sales in the sample. The weights used for all years in this study were based on 2003 sales in the AARP Pharmacy Service. The 2003 weights were used to keep the market basket constant over time so that the change in prices would be a function of price changes alone and not a function of changes in market basket.

Calculating Average Price Changes for Drugs with Partial Year Data

Nearly half of the drugs that were in the sample at the end of 2003 were not on the market or did not have a WAC reported for part of the three-year study period (see Table 1). As a result, drug products were dropped out of the analysis in the month before they entered the market (or the month before a WAC was first reported) and for all previous months, and the weights of the products present in the market during each month were recalculated to reflect their relative share of the total sales as adjusted to reflect only drugs in the market during that period.

For example, suppose that drugs I and J in Table A-2 did not have a WAC reported until January 2002. Furthermore, assume that total drug spending in 2003 was $100,000. To capture the loss of drugs I and J from the analysis for 2001, the weights are redistributed across the drugs that remain in the analysis (drugs A through H); the new weights are still based on their 2003 sales but as a share of total sales for the smaller number of drugs in the analysis for the year. In this example, the total 2003 sales would be $85,000 without drugs I and J. Drug A's $15,000 in sales, which represented 15 percent of sales for all 10 drugs, rises to 18 percent of sales when I and J are excluded. This weight, along with the analogous weights for drugs B-H, was used to derive the weighted average price change for 2001 (see Table A-3).

Weighting the previous years' price changes by 2003 sales potentially creates a bias relative to using each specific year's sales as the basis for assigning weights for that year. Using 2003 sales gives more weight to drugs that, relative to other drugs, had high rates of sales growth in 2003 or earlier years compared to the year analyzed. The direction of the potential bias created by the approach used in this analysis was tested by calculating an average annual price change for 2001 through 2003 using only those drugs in the sample which were on the market as of January 1, 2001. Because the same drugs are in the sample from year to year, the weights used to calculate averages do not change. Using this modified sample did not result in a consistent bias. The average change in manufacturer price for the modified sample was higher than the average change for the entire sample in

Table A-3: Recalculating Weights When Prescription Drugs Drop Out of the Sample

	2003 weights		2001 weights	
Drug Name	**Share of 2003 Sales**	**Dollar Value of 2003 Sales**	**Dollar Value of 2003 Sales**	**Share of 2003 Sales**
A	15%	$15,000	$15,000	18%
B	14%	$14,000	$14,000	16%
C	7%	$ 7,000	$ 7,000	8%
D	10%	$10,000	$10,000	12%
E	5%	$ 5,000	$ 5,000	6%
F	14%	$ 14,000	$ 14,000	16%
G	2%	$ 2,000	$ 2,000	2%
H	18%	$ 18,000	$ 18,000	21%
I	13%	$ 13,000	-	-
J	2%	$ 2,000	-	-
TOTAL	**100%**	**$100,000**	**$ 85,000**	**100%**

2001 but lower than the average change for the entire sample in 2002 and 2003. The three-year change for the two samples was nearly identical.

Defining Manufacturer

A drug manufacturer is defined as the firm marketing the drug product under its corporate name in 2003. The analysis of drug manufacturer reported separately on manufacturers with at least three drug products (at the NDC level) among the 75 most widely used generic drugs that had WACs in 2003; these eight manufacturers supplied 63 drug products that accounted for nearly 75 percent of drug sales and 85 percent of prescriptions dispensed among the overall sample of 75 generic drugs. Another 12 drug products from ten drug firms with fewer than three drugs per firm were grouped together in an “Other Drug Firms” category.

Defining Therapeutic Category

Drug products can be classified by the therapeutic purpose for which they are used. In cases where a drug may have multiple uses, the drug is usually classified by the most common indication for which the drug is prescribed. To group drug products in this study into similar therapeutic categories, Medi-Span’s therapeutic coding scheme known as the GPI (or generic product indicator) code was used. This scheme consists of a series of hierarchical categories that has eight to 10 levels of aggregation ranging from the most general level with 10 to 12 broad categories to the most detailed level which specifies a unique chemical entity in a specific dosage form at a specific strength. For example, “Cardiovascular Agents” is one of the broadest categories. That category includes drugs that are “Diuretics,” and within the “Diuretics” category are various subcategories such as “Loop Diuretics,” Thiazide Diuretics,” and “Combination Diuretics.” Continuing with this example, at the most detailed level is a specific chemical entity, dosage form, and strength such as hydrochlorothiazide 25 mg tablets.

The therapeutic categories used in this study were assigned based on an intermediate level of the GPI code that specifies categories such as "Diuretics (Loop)" and "Diuretics (Thiazide)." When three or more generic drug products at the NDC level in the sample were in the same intermediate GPI code category, the category was reported separately in the therapeutic category analysis. There were 10 therapeutic categories, each containing three or more generic drugs, which together accounted for 57 of the 75 products in the generic drug sample, nearly two-thirds of sales within the generic drug sample, and over 80 percent of prescriptions in the generic drug sample. The remaining 18 generic drugs with other uses were grouped together in an "Other Therapeutic Agents" category. A therapeutic category may include drug products that are generics or branded generics.

APPENDIX B:
LIST OF GENERIC PRESCRIPTION DRUG PRODUCTS USED IN THIS STUDY

Rank by Sales Among Study Sample*	Rank by Scripts Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC 2001-2003**	Cumulative % Change in WAC, Dec. '00-Dec. '03
62	41	alprazolam tab 0.25 mg	500	Mylan	Anti-Anxiety Agents	37.3%	N/A
61	55	alprazolam tab 0.5 mg	500	Mylan	Anti-Anxiety Agents	41.9%	N/A
51	48	APAP/Codeine tab 300-30 mg	1000	Teva	Narcotic (Combination)	0.0%	N/A
53	59	atenolol tab 100 mg	100	Sandoz	Beta Blockers	30.9%	124.4%
26	11	atenolol tab 25 mg	100	Sandoz	Beta Blockers	17.9%	63.8%
34	15	atenolol tab 25 mg	100	Mylan	Beta Blockers	7.2%	N/A
35	14	atenolol tab 25 mg	1000	Sandoz	Beta Blockers	17.1%	60.5%
13	4	atenolol tab 50 mg	1000	Sandoz	Beta Blockers	45.8%	209.8%
31	13	atenolol tab 50 mg	1000	Mylan	Beta Blockers	48.2%	N/A
42	39	atenolol tab 50 mg	100	Sandoz	Beta Blockers	38.7%	167.0%
49	28	atenolol tab 50 mg	100	Mylan	Beta Blockers	45.3%	N/A
70	69	atenolol tab 50 mg	1000	Teva	Beta Blockers	0.0%	N/A
11	74	carbidopa/levodopa tab 25-100 mg	100	Teva	Anti-Parkinsonian Agents	0.0%	N/A
4	75	carbodopa/levodopa ER tab 50-200 mg	100	Mylan	Anti-Parkinsonian Agents	0.0%	N/A
40	50	cephalexin cap 500 mg	500	Teva	Anti-Infectives	0.0%	N/A
44	49	cephalexin cap 500 mg	500	Ranbaxy	Anti-Infectives	46.4%	213.7%
50	57	cephalexin cap 500 mg	100	Teva	Anti-Infectives	0.0%	N/A
2	72	ciprofloxacin tab 500 mg	100	Barr Labs	Anti-Infectives	0.0%	N/A
22	8	Digitek tab 0.125 mg	100	Bertek	Cardiac Glycosides	6.2%	19.7%
58	35	Digitek tab 0.125 mg	1000	Bertek	Cardiac Glycosides	0.0%	0.0%
36	18	Digitek tab 0.25 mg	100	Bertek	Cardiac Glycosides	6.2%	19.7%
45	16	folic acid tab 1 mg	1000	Watson Labs	Vitamins & Minerals	120.3%	969.1%
33	6	furosemide tab 20 mg	1000	Mylan	Diuretics (Loop)	15.9%	55.8%
63	25	furosemide tab 20 mg	100	Mylan	Diuretics (Loop)	6.6%	21.1%
65	38	furosemide tab 20 mg	1000	Sandoz	Diuretics (Loop)	26.7%	103.5%
73	44	furosemide tab 20 mg	1000	Ivax	Diuretics (Loop)	23.9%	90.2%
7	2	furosemide tab 40 mg	1000	Mylan	Diuretics (Loop)	19.0%	68.6%
39	12	furosemide tab 40 mg	1000	Sandoz	Diuretics (Loop)	20.2%	73.5%
59	23	furosemide tab 40 mg	1000	Ivax	Diuretics (Loop)	22.6%	84.5%
75	61	furosemide tab 40 mg	1000	Roxane	Diuretics (Loop)	0.0%	0.0%
66	66	furosemide tab 80 mg	100	Mylan	Diuretics (Loop)	6.2%	19.8%
10	40	gemfibrozil tab 600 mg	500	Teva	Cholesterol Reducers (Others)	12.5%	N/A
21	22	hydrochlorothiazide cap 12.5 mg	100	Mylan	Diuretics (Thiazides)	0.0%	N/A

Rank by Sales Among Study Sample*	Rank by Scripts Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC 2001-2003**	Cumulative % Change in WAC, Dec. '00-Dec. '03
6	1	hydrochlorothiazide tab 25 mg	1000	Ivax	Diuretics (Thiazides)	58.0%	294.2%
48	10	hydrochlorothiazide tab 25 mg	1000	Purepac	Diuretics (Thiazides)	0.0%	0.0%
60	24	hydrochlorothiazide tab 25 mg	1000	Qualitest	Diuretics (Thiazides)	0.0%	0.0%
74	68	hydrochlorothiazide tab 25 mg	100	Ivax	Diuretics (Thiazides)	15.0%	N/A
72	64	hydrochlorothiazide tab 50 mg	1000	Ivax	Diuretics (Thiazides)	74.2%	428.4%
8	3	hydrocodone/APAP tab 5-500 mg	500	Mallinckrodt	Narcotic (Combination)	0.0%	0.0%
32	19	hydrocodone/APAP tab 5-500 mg	500	Watson Labs	Narcotic (Combination)	0.0%	N/A
28	29	Klor-Con 10 tab 10 meq ER	100	Upsher-Smith	Potassium Supplements	11.9%	40.0%
47	51	Klor-Con 10 tab 10Meq ER	500	Upsher-Smith	Potassium Supplements	11.9%	40.0%
41	46	Klor-Con M10 tab 10 meq ER	100	Upsher-Smith	Potassium Supplements	0.0%	N/A
3	7	Klor-Con M20 tab 20 meq ER	100	Upsher-Smith	Potassium Supplements	0.0%	N/A
18	34	Levoxyl tab 100 mcg	100	Monarch	Thyroid Hormones	27.3%	106.1%
20	30	Levoxyl tab 50 mcg	100	Monarch	Thyroid Hormones	4.1%	13.0%
24	36	Levoxyl tab 75 mcg	100	Monarch	Thyroid Hormones	27.4%	106.9%
27	32	lisinopril tab 10 mg	100	Mylan	ACE Inhibitors	0.0%	N/A
15	31	lisinopril tab 20 mg	100	Mylan	ACE Inhibitors	0.0%	N/A
46	62	lorazepam tab 0.5 mg	100	Mylan	Anti-Anxiety Agents	0.0%	N/A
69	52	meclizine tab 25 mg	1000	Par	Antiemetics	0.0%	N/A
25	60	metformin tab 500 mg	100	Sandoz	Anti-Diabetics (Sulfas & Biquanides)	0.0%	N/A
14	67	methotrexate tab 2.5 mg	100	Barr Labs	Cancer Chemotherapy	-16.5%	-41.8%
16	5	metoprolol tab 50 mg	1000	Teva	Beta Blockers	0.0%	N/A
29	20	metoprolol tab 50 mg	100	Mylan	Beta Blockers	0.0%	N/A
43	21	metoprolol tab 50 mg	1000	Mylan	Beta Blockers	0.0%	N/A
71	58	metoprolol tab 50 mg	1000	Caraco	Beta Blockers	0.0%	0.0%
1	17	omeprazole cap 20 mg	30	Kremers Urban	Ulcer Agents (PPIs)	-6.3%	N/A
64	65	oxycodone/APAP tab 5-325 mg	100	Mallinckrodt	Narcotic (Combination)	0.0%	N/A
9	73	pacerone tab 200 mg	60	Upsher-Smith	Antiarrhythmics Agents	-4.3%	-12.3%
67	33	prednisone tab 5 mg	1000	Watson Labs	Glucocorticosteroids	15.8%	55.3%
30	37	propoxyphene-N/APAP tab 100-650	500	Mylan	Narcotic (Combination)	0.0%	N/A
37	47	spironolactone tab 25 mg	100	Mylan	Diuretics (Potassium-Sparing)	0.0%	N/A
54	45	temazepam cap 15 mg	100	Mylan	Hypnotics	4.5%	N/A
57	63	temazepam cap 30 mg	100	Mylan	Hypnotics	5.7%	N/A
5	27	timolol gel sol 0.5% (ophth)	5	Falcon	Ophthalmic Solutions	4.0%	12.5%

Rank by Sales Among Study Sample*	Rank by Scripts Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC 2001-2003**	Cumulative % Change in WAC, Dec. '00-Dec. '03
12	54	torsemide tab 20 mg	100	Teva	Diuretics (Loop)	0.0%	N/A
17	9	triamterene/HCTZ cap 37.5-25	1000	Sandoz	Diuretics (Combination)	0.0%	0.0%
38	42	triamterene/HCTZ cap 37.5-25	100	Sandoz	Diuretics (Combination)	0.0%	0.0%
55	56	triamterene/HCTZ cap 37.5-25	100	Mylan	Diuretics (Combination)	0.0%	N/A
52	43	triamterene/HCTZ tab 37.5-25	100	Sandoz	Diuretics (Combination)	0.0%	0.0%
68	70	triamterene/HCTZ tab 37.5-25	100	Mylan	Diuretics (Combination)	0.0%	N/A
56	26	Trimox cap 500 mg	500	Sandoz	Anti-Infectives	-9.6%	-26.2%
19	53	verapamil tab 240 mg SR	500	Ivax	Calcium Blockers	-21.0%	-50.6%
23	71	verapamil tab 240 mg SR	100	Ivax	Calcium Blockers	40.6%	N/A

*Ranking by sales is based on dollar value of prescriptions processed by the AARP Pharmacy Service in 2003; ranking by scripts is based on the number of prescriptions processed by the AARP Pharmacy Service in 2003.
**Average annual 2001-2003 change is calculated as change beginning with the month of product introduction or the first month within the time period for which a WAC was reported.
N/A indicates not applicable because products were not on the market or did not have a WAC in December 2000.
Prices do not reflect discounts that manufacturers may provide to wholesalers and other direct purchasers.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., July 2004).