#2004-06
May 2004
(Revised June 2004)

TRENDS IN MANUFACTURER PRICES OF BRAND NAME PRESCRIPTION DRUGS USED BY OLDER AMERICANS, 2000 THROUGH 2003

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ACKNOWLEDGMENTS

The authors would like to express their appreciation for the invaluable technical assistance provided by Molly Melvin of AARP's Public Policy Institute throughout the development of this report. The authors would like to thank and give credit to Shuchita Agarwal of the University of Minnesota's *PRIME* Institute for her assistance in data extraction. The authors also wish to cite the contributions of David Kreling of the University of Wisconsin School of Pharmacy and Judy Wagner of the Institute of Medicine for their comments on the methodology and their technical review of the report, as well as the contributions of other anonymous reviewers. Finally, the authors would like to express their gratitude to Noella Ronald of AARP Services, Inc. and to Tom Paul and Theresa Quinn, both of the AARP Pharmacy Service, managed by United Health Group, for facilitating use of pharmacy data.

FOREWORD

Prescription drug affordability is a function of both adequate coverage and price levels. Improvements in drug coverage are expected as a result of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (MMA), under which a prescription drug benefit will, for the first time, be offered in Medicare. The issue of drug prices, however, continues to be controversial. While some observers of the pharmaceutical marketplace believe that the MMA introduces competitive forces that will restrain drug prices, others contend that the legislation did not contain adequate provisions for reducing escalating drug costs. Furthermore, drug prices are a continuing concern of states, employers, individuals, and others outside of Medicare.

To address concerns about the impact that rising drug prices have on Americans, AARP recently called on major pharmaceutical manufacturers to limit their price increases to the level of general inflation. AARP also urged these companies to constrain the prices of new drugs and to use their influence to curtail greater mark-ups throughout the distribution chain. In addition, AARP announced that it would monitor prices for specific drugs at regular intervals and would report its findings—both favorable and unfavorable—to its members and to the public.

This study represents the first in a series of AARP Public Policy Institute analyses to report on trends in prices charged by drug manufacturers. While other reports have provided snapshots of drug price changes from one year to the next, this analysis is unique in that it reports on trends in manufacturer prices over a four-year period (calendar years 2000, 2001, 2002, and 2003). This study also stands out in its focus on a broad sample of drugs—nearly 200 of the brand name drugs most widely used by Americans age 50 and over—thereby allowing an analysis of differences in price changes by drug manufacturer and by therapeutic category. Finally, this report and a forthcoming companion report on generic drug price trends provide the baseline for assessing future changes in manufacturers' prices for prescription drugs.

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Introduction

Rising prescription drug costs are placing an increasing financial burden on Americans. Retail purchases of prescription drugs account for an estimated 11.6 percent of U.S. health expenditures in 2004, and they have been the fastest-rising component of health care spending since 1998. Concerns about prescription drug affordability and the specific contribution of prices to the problem have led to such policy recommendations as granting the Secretary of the U.S. Department of Health and Human Services the authority to negotiate lower drug prices in Medicare, legalizing importation of drugs from Canada or other countries, and extending the purchasing and bargaining power of states to negotiate lower drug prices.

This report presents the results of a study of changes in manufacturers' prescription drug prices—that is, the prices that drug manufacturers charge wholesalers for drugs—from calendar year 2000 through calendar year 2003 for the brand name prescription drugs most widely used by Americans age 50 and over. The report is the first in a series of reports by the AARP Public Policy Institute that will track drug price changes. A subsequent report will present changes in manufacturer prices for generic drugs, which are subject to different market dynamics than brand name drugs. These historical price change trends provide a useful point of reference for AARP and others to examine drug price changes subsequent to 2003, particularly as the prescription drug provisions of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 are implemented.

Specifically, this report compares brand name prescription drug price changes to the rate of general inflation and from one year to the next. The report also presents differences in average price changes by manufacturer and by major therapeutic category. The report focuses on changes in prices that brand name drug manufacturers charge to wholesalers for sales to the retail class of trade; the manufacturer's charge to wholesalers is the most substantial component of a prescription drug's retail price. Although these price changes do not reflect rebates, if any, provided to third-party payers, rebates generally do not benefit retail pharmacies or "cash pay" consumers, that is, people who pay up front for their prescriptions because they have no drug coverage or they have indemnity insurance. Furthermore, a change in manufacturer price to wholesalers generally results in a similar percent change in price to most prescription purchasers.

Methodology

The list of brand name prescription drugs that are widely used by older Americans is based on the 200 most widely dispensed drugs (including both generic and brand name drugs) and the 200 drugs with the highest sales levels among retail and mail-order prescriptions adjudicated by the AARP Pharmacy Service for 2003. The AARP Pharmacy Service is used annually by about two million people age 50 and over, including those with and without coverage, to purchase their drugs. Each product represents a unique combination of active chemical ingredient, strength, dosage form, package size, and manufacturer (for example, Prevacid 30 mg capsule, package of 100, TAP Pharmaceuticals).

Combining the two lists of the top 200 products resulted in 291 unique products because of the large number of products that appeared on both lists. These 291 drugs 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. The analytic set of drugs used for this report included only the 197 brand name drugs—170 single-source brand products and 27 multiple-source brand products. A separate study will consider trends in price changes among the 94 widely used generic drug products.

Although the sample of drugs studied was identified using AARP Pharmacy Service data, 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 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 drugs included in the analysis for a given year varies because not all drugs in the sample were on the market in earlier years. Analysis for 2000, the earliest year covered in this report, includes 155 drugs representing 78 percent of the total study sample of drug products.

The analysis of drug manufacturers reported separately on each manufacturer with at least three drugs among the 197 most widely used brand name drugs; these 183 drugs from 20 manufacturers accounted for over 90 percent of drug sales and prescriptions dispensed among the overall sample of 197 drugs. The analysis of therapeutic category reported separately on groupings of three or more drugs with a similar use or mechanism of action in treating patients. There were 30 therapeutic categories covering 183 of the 197 drug products in the overall study sample.

Findings

- **Overview.** On average, the rate of increase in manufacturer prices for brand name drugs has been accelerating over the past four years. While the average price increase by drug manufacturers in 2000 was slightly above the rate of general inflation, in 2003, the average price increase was three times the rate of inflation. On average, manufacturer prices for widely used brand name prescription drugs rose 4.1 percent in 2000 and accelerated to 6.9 percent in 2003, while the annual rate of general inflation fell from 3.4 percent in 2000 to 2.3 percent in 2003.

  For the four-year period 2000 through 2003, the average annual growth rate in manufacturers' brand name drug prices was 6.0 percent. Only four of the 197 drugs had an average annual increase that did not exceed the four-year average annual general inflation rate of 2.5 percent. The 20 brand name drugs with the highest average annual manufacturer price increases over the four years—10 percent or more per year—are

concentrated in a small number of drugs and the multiple strengths and package sizes in which these products are available.

In order to quantify the potential impact of multiple years of price increases on consumer expenditures, the cumulative increase in price was analyzed for the 155 brand name drugs that were on the market for the entire four-year period. On average, manufacturer prices for brand name drugs purchased at the beginning of the study period (December 1999) increased 27.6 percent by December 2003, compared to the general inflation rate of 10.4 percent during the same period.

- **Distribution of percentage price changes.** There was a dramatic increase from 2000 to 2003 in the share of the most widely used brand name drugs with annual manufacturer price increases greater than the rate of inflation. In 2000, 62 percent of the brand name drugs had manufacturer price increases that exceeded the rate of inflation, including 23 percent with price increases that exceeded twice the inflation rate. By 2003, however, nearly all (97 percent) of the brand name drugs in the sample had manufacturer price increases that exceeded the rate of inflation, including 87 percent of the drugs for which price increases exceeded twice the rate of inflation.

- **Average changes in estimated dollar cost of therapy.** The average estimated increase in the annual cost of therapy due to higher manufacturer prices for widely used brand name drugs nearly doubled from 2000 to 2003, rising from $33.76 to $60.38. For a typical older American (who takes three drugs), the average increase in annual consumer expenditure for 2000 would have been $101, rising to $181 in 2003, if the manufacturer price increases were passed on to consumers.

- **Distribution of changes in dollar cost of therapy.** Only 23 percent of brand name drugs in the sample had changes in the annual cost of therapy of more than $50 in 2000, compared to 54 percent in 2003. The distribution for 2000 included 7 percent of drugs for which the annual cost of therapy increased between $101 and $150 and 1 percent with annual cost increases above $150. By contrast, the distribution for 2003 included 10 percent with annual cost increases between $101 and $150 and 6 percent with annual increases between $151 and $313.

- **Differences by manufacturer.** Average increases in manufacturer prices for brand name drugs in 2003 were at least double the rate of general inflation for all 20 manufacturers with at least three products among the 197 most widely used brand name drugs. Four of these manufacturers—Boehringer Ingleheim, Wyeth, Abbott, and Monarch—raised their prices to wholesalers, on average, by more than five times the general inflation rate of 2.3 percent. Another six manufacturers raised their prices to wholesalers, on average, by three to four times the general inflation rate.

- **Differences by therapeutic category.** Manufacturer prices for brand name drugs in all 30 therapeutic categories increased faster, on average, than the rate of general inflation in 2003. Those that increased most rapidly were estrogens and thyroid hormones, which had average price increases of more than nine times and more than six times the

rate of general inflation, respectively. Most other categories had price increases ranging between two and five times the general inflation rate.

Concluding Observations

Manufacturer's drug product price increases are typically passed on from wholesalers to retail pharmacies. Although increased wholesale acquisition costs do not necessarily translate dollar-for-dollar to similar retail price increases, the price changes documented in this analysis are expected to have a substantially similar impact on the retail prices for consumers, particularly those who pay up front for their own prescriptions. For drugs on the market during the entire four-year period analyzed in this study, the cumulative average increase in manufacturer drug prices was 27.6 percent, compared to a general inflation rate of 10.4 percent over the same period.

Among drugs in this study, average manufacturer price increases for all but four products were greater—and most were far greater—than the growth in Social Security income, which is pegged to the rate of general inflation. The rate of the drug price increases also exceeded income growth for the 50-64 year old population which was even less than the general inflation rate. This trend implies that filling the same prescriptions from year to year is taking an ever-increasing share of consumer income, particularly for older consumers who use more prescription drugs on a per capita basis than their younger counterparts. Even those consumers with prescription drug coverage will face an increasing burden because the substantial increases in drug prices are likely to be passed on by third-party payers in the form of higher premiums or increased cost-sharing.

I. INTRODUCTION

Rising prescription drug costs are placing an increasing financial burden on Americans. Retail purchases of prescription drugs account for an estimated 11.6 percent of U.S. health expenditures in 2004, and they have been the fastest-rising component of health care spending since 1998.[1] One can attribute some of the drug spending increase to greater use of drugs and some to a change in the mix of drugs used (with an increase in use of more costly drug products). Higher prices, however, are also a substantial component, accounting for between one-quarter and one-third of increases in drug expenditures in past years.[2] Concerns about prescription drug affordability and the specific contribution of prices to the problem have led to such policy recommendations as granting the Secretary of the U.S. Department of Health and Human Services the authority to negotiate lower drug prices for Medicare, legalizing the importation of drugs from Canada or other countries, and extending the purchasing and bargaining power of states to negotiate lower drug prices.

This report presents the results of a study of changes in manufacturers' prescription drug prices—that is, drug manufacturers' prices charged for drugs they sold to wholesalers—from calendar year 2000 through calendar year 2003 for the brand name prescription drugs most widely used by Americans age 50 and over. This is the first in a series of reports to be published by the AARP Public Policy Institute that will track drug price changes. A subsequent report will present changes in manufacturer prices for generic drugs, which are subject to different market dynamics than brand name drugs. These historical price change trends provide a useful point of reference for examining drug price changes subsequent to 2003, particularly as the prescription drug provisions of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 are implemented.

Specifically, this report compares brand name prescription drug price changes over time and to the rate of general inflation.[3] 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 brand name drug manufacturers charge to wholesalers for sales to the retail class of trade. The manufacturer's charge to wholesalers is the most substantial

[1] Center for Medicare and Medicaid Services (CMS). Table 2: National Health Expenditure Amounts and Average Annual Percent Change by Type of Expenditure: Selected Calendar Years 1990-2013, www.cms.hhs.gov/statistics/nhe/projections-2003/t2.asp, accessed March 31, 2004.

[2] See for example: David Kreling et al., *Prescription Drug Chartbook: An Update* (Menlo Park, CA: Kaiser Family Foundation), November 2001, p. 40; Stanley S. Wallack et al., *Recent Trends in Prescription Drug Spending for Insured Individuals Under 65 and Age 65 and Older* (Waltham, MA: Schneider Institute for Health Policy, Brandeis University), July 30, 2001.

[3] 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 primary basis of comparison in this analysis, information about the rate of medical care inflation is provided in the findings section.

component of a prescription drug's retail price.[4] Although these price changes do not reflect any rebates provided to third-party payers, rebates generally do not benefit retail pharmacies or "cash pay" consumers, that is, people who pay up front for their prescriptions because they have no drug coverage or they have indemnity insurance. Furthermore, a change in manufacturer price to wholesalers generally results in a similar percent change in price to most prescription purchasers.

II. METHODOLOGY

The list of brand name prescription drugs that are widely used by older Americans is based on the 200 most widely dispensed drugs (including both generic and brand name 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, Prevacid 30 mg capsule, package of 100, TAP Pharmaceuticals).

Combining the two lists of the top 200 products resulted in 291 unique drug products, since 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. The analytic set of drugs used for this report included only the 197 brand name drugs—170 single-source brand products and 27 multiple-source brand products.[5] Trends in price changes among the 94 widely used generic drug products will be considered in a separate study.

Although the sample of drugs studied was identified using AARP Pharmacy Service data, 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. Medi-Span is a private organization that collects price data directly from drug manufacturers and wholesalers. WACs are the prices typically reported on invoices between the manufacturer and the drug wholesaler. Over time, WAC has become a list price between the manufacturer and the wholesaler. The WAC offers several advantages over an alternative price, Average Wholesale Price (AWP), as a measure of price change. First, AWP—which tends to be 20 to 25 percent higher than WAC—is a suggested wholesale list price; that is, the suggested invoice price from wholesaler to

[4]In 2003, drug manufacturers' prices to wholesalers accounted for 76.7 percent of the average estimated retail cost of a prescription drug. (National Association of Chain Drug Stores, *Industry Statistics*, http://www.nacds.org/wmspage.cfm?parm1=507, accessed May 3, 2004).

[5] If the original new drug application (NDA) holder still has a patent or other form of market exclusivity that prohibits entry of competing generic drug products, then the brand name drug is called a brand single-source product. Once one or more FDA-approved generic equivalents to the reference brand name drug product enter the market, the drug product of the original NDA holder (or its licensee) is called a brand multiple-source drug product (also known as an off-patent brand).

pharmacy or provider. Second, while the WAC changes often parallel changes in AWP, in some cases WAC is a more conservative measure of price change because AWPs for certain products have been growing somewhat faster than WAC. Finally, WACs are better than AWP as a measure of price changes for generic drugs because WACs are more likely than AWPs to reflect decreases in specific generic drug prices over time.

Neither WAC nor AWP routinely capture the absolute level of prices paid (for example, they do not capture rebates that manufacturers pay to some third-party payers). Changes in the WAC, however, are the most consistent estimate available for change in both prices paid to manufacturers for brand name drugs and the ingredient cost component of prices paid for those drugs by retail pharmacies. This is because manufacturers typically reference WAC or AWP as the basis for charging wholesalers and pharmacies that buy directly from drug manufacturers. In addition, nearly all third-party contracts (including both private programs and public programs such as Medicaid and Medicare) specifically reference WAC or AWP as the basis for determining prescription payment amounts. Furthermore, because Americans who must pay out-of-pocket for their own prescriptions (that is, "cash pay" consumers) typically do not have access to such rebates or discounts, the consideration of rebates is not relevant to an assessment of changes in drug prices for sales to the retail market segment. Finally, even if drug manufacturer rebates to third-party payers were to be considered, they typically provide only a modest decrease in drug price—about 2 to 5 percent of total drug spending by a drug benefit plan.[6]

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 changes for 2003 refer 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 changes than the point-to-point method (that is, a simple average 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 price or change 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.

The average annual price change for each drug product was calculated for each year from 2000 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 marketed in 2003 were not on the market in all of the previous four years. Table 1 provides more detailed information on the number of drugs in the 2003 study sample that were on the market each year from 2000 through 2003. At the beginning of the earliest year analyzed, the drug products within the sample that were on the market represented 78 percent of sales for the study drugs in 2003.

[6] See PriceWaterhouseCoopers, *Study of Pharmaceutical Benefit Management*, HCFA Contract No. 500-97-0399/0097, June 2001, p. 131; Patrick Holjo and Matthew Kamm, *Pharmacy Benefit Managers: Keeping a Lid on Drug Costs*, Banc of America Securities, February 20, 2002, p. 29.

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, this bias actually understates average percentage price changes for those years.[7]

Table 1: Number of Brand Name Prescription Drug Products in the 2003 Study Sample on the Market Each Year (as of January 1)

Year	# of Drug Products	% of Sales in 2003 Study Sample	% of Drug Products in 2003 Study Sample
2003	197	100.0%	100.0%
2002	188	95.6%	95.4%
2001	169	88.1%	85.8%
2000	155	78.1%	78.7%

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., March 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 six products in the sample that are used primarily for treatment of acute conditions and 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 those 20 manufacturers with at least three drug products among the 197 most widely used brand name drugs. 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 30 therapeutic categories covering 183 of the drug products in the overall study sample.

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

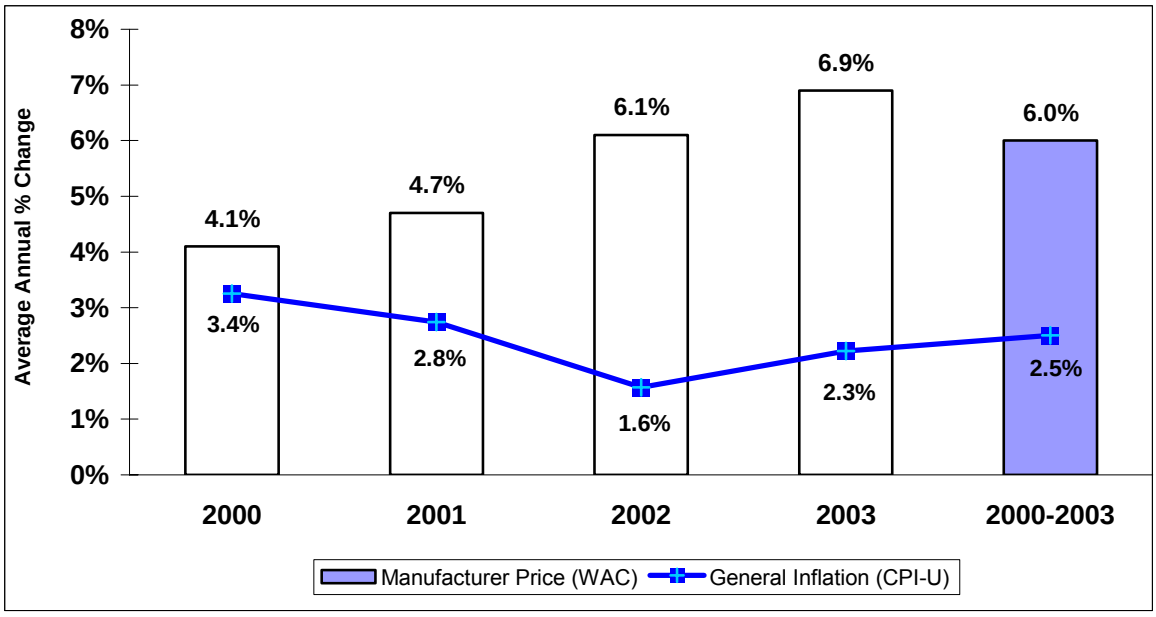
[7] The direction of the bias was tested by constructing a modified average price change consisting only of those drugs in the sample that were on the market on January 1, 2000.

III. FINDINGS

Manufacturer Price Changes for Most Widely Used Brand Name Prescription Drugs, 2000-2003

Manufacturers' price increases for brand name prescription drugs most widely used by older Americans both outpaced the rate of general inflation in all years from 2000 to 2003 and accelerated over time. On average, manufacturer prices for the most widely used brand name prescription drugs rose 4.1 percent in 2000 and accelerated to a 6.9 percent increase in 2003. While the average price increase by drug manufacturers in 2000 was slightly above the rate of general inflation, in 2003, the average price increase was three times the rate of inflation (see Figure 1).[8]

Figure 1: Average Annual Percentage Change in Manufacturer Prices for Most Widely Used Brand Name Prescription Drugs, 2000-2003



Years refer to change from previous 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., March 2004).

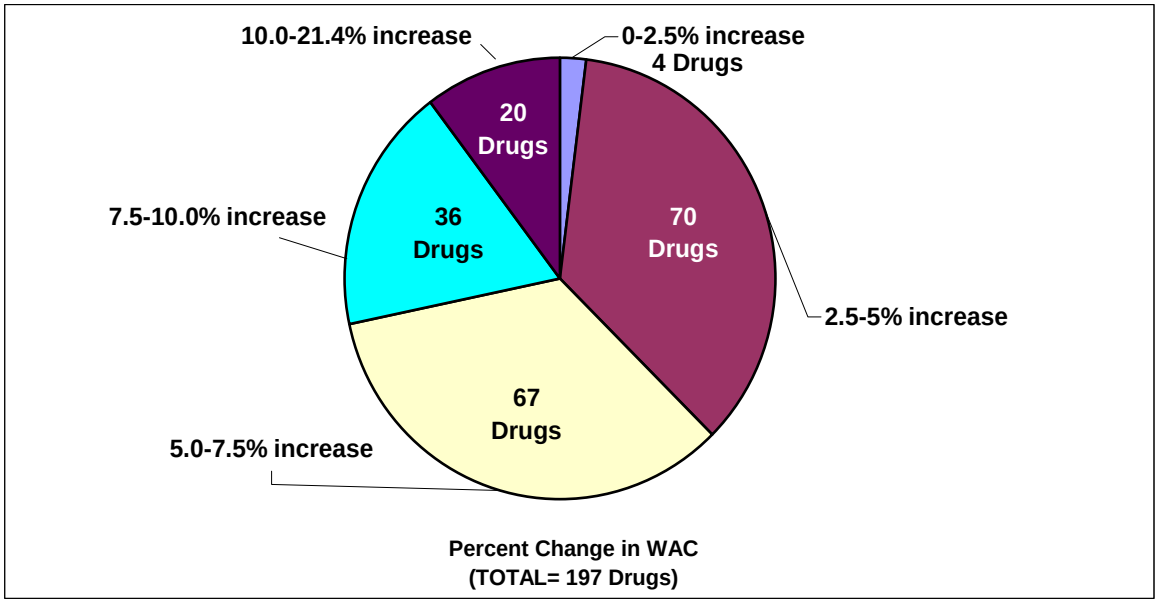
Among all 197 drugs in the sample, the four-year average *annual* growth rate in manufacturers' brand name drug prices was 6.0 percent.[9] The average *cumulative* growth rate for the four-year period 2000 through 2003 was 23.6 percent;[10] this compares to the general inflation rate of 10.4 percent during the same period. Including only the 155 brand

[8] Furthermore, while in 2000 and 2001 the average rates of increase in manufacturer prices were just slightly above the rate of *medical inflation* (4.0 percent and 4.6 percent, respectively), they far exceeded *medical inflation* in 2002 (4.7 percent) and 2003 (4.0 percent).
[9] For drugs not on the market for the entire four-year period, average annual 2000-2003 change is calculated as change beginning with the month of product introduction.
[10] This cumulative growth rate is calculated by compounding the average annual growth rate for each year from 2000 to 2003.

name drugs that were on the market for the entire four-year period results in a December 1999 to December 2003 average cumulative price increase of 27.6 percent.

Figure 2 shows the distribution of the average annual changes in manufacturer prices for these widely used brand name drugs for the four-year period 2000 through 2003. Only four of the 197 drugs had an average annual increase that did not exceed the four-year average annual general inflation rate of 2.5 percent.

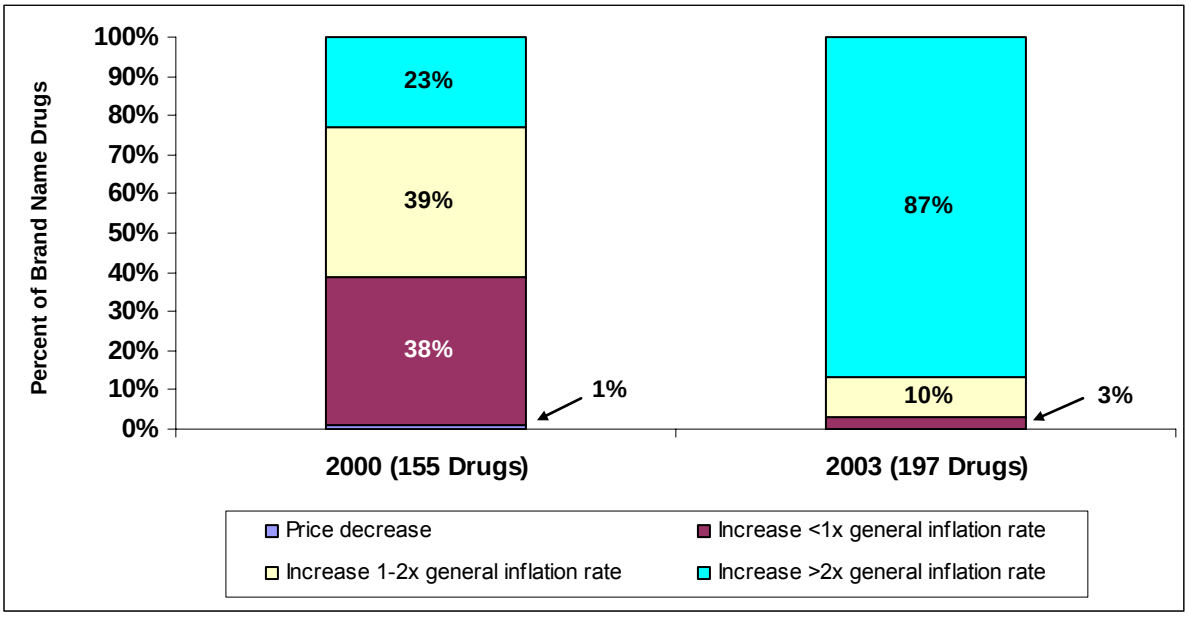
Figure 2: Distribution of Average Annual Percentage Changes in Manufacturer Prices for Most Widely Used Brand Name Prescription Drugs, 2000-2003*



*For drugs not on the market for the entire four-year period, average annual 2000-2003 change is calculated as change beginning with the month of product introduction.
Years refer to change from previous 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., March 2004).

From 2000 to 2003, there was a dramatic increase in the share of the most widely used brand name drugs with annual manufacturer price increases substantially greater than the rate of general inflation. In 2000, 62 percent of the brand name drugs had manufacturer price increases that exceeded the rate of inflation, including 23 percent with price increases that exceeded twice the inflation rate. By 2003, however, nearly all (97 percent) of the brand name drugs in the sample had manufacturer price increases that exceeded the rate of inflation, including 87 percent of the drugs for which price increases exceeded twice the rate of inflation (see Figure 3).

Figure 3: Distribution of Average Annual Percentage Change in Manufacturer Prices Relative to General Inflation for Most Widely Used Brand Name Prescription Drugs, 2000 and 2003



Numbers may not sum to 100 percent due to rounding.
Years refer to change from previous year. Prices are based on WAC. General inflation is based on CPI-U.
Includes products that were on the market for the entire year. Data for the year 2000 included 17 drugs which were not on the market for the entire previous year (1999). Fifteen of these drugs were on the market by July 1999, and the remaining two drugs entered the market in August and October 1999.
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., March 2004).

Manufacturer price changes varied substantially from product to product. For example, Table 2 shows that, for the 25 brand name drugs with the highest sales in 2003, the average annual percentage price changes for the four-year period 2000 through 2003 ranged from zero (for Norvasc 10 mg tablets and Lipitor 40 mg tablets) to 8.3 percent (for Ambien 10 mg tablets). Five drugs had cumulative price increases exceeding 30 percent over the four-year period.

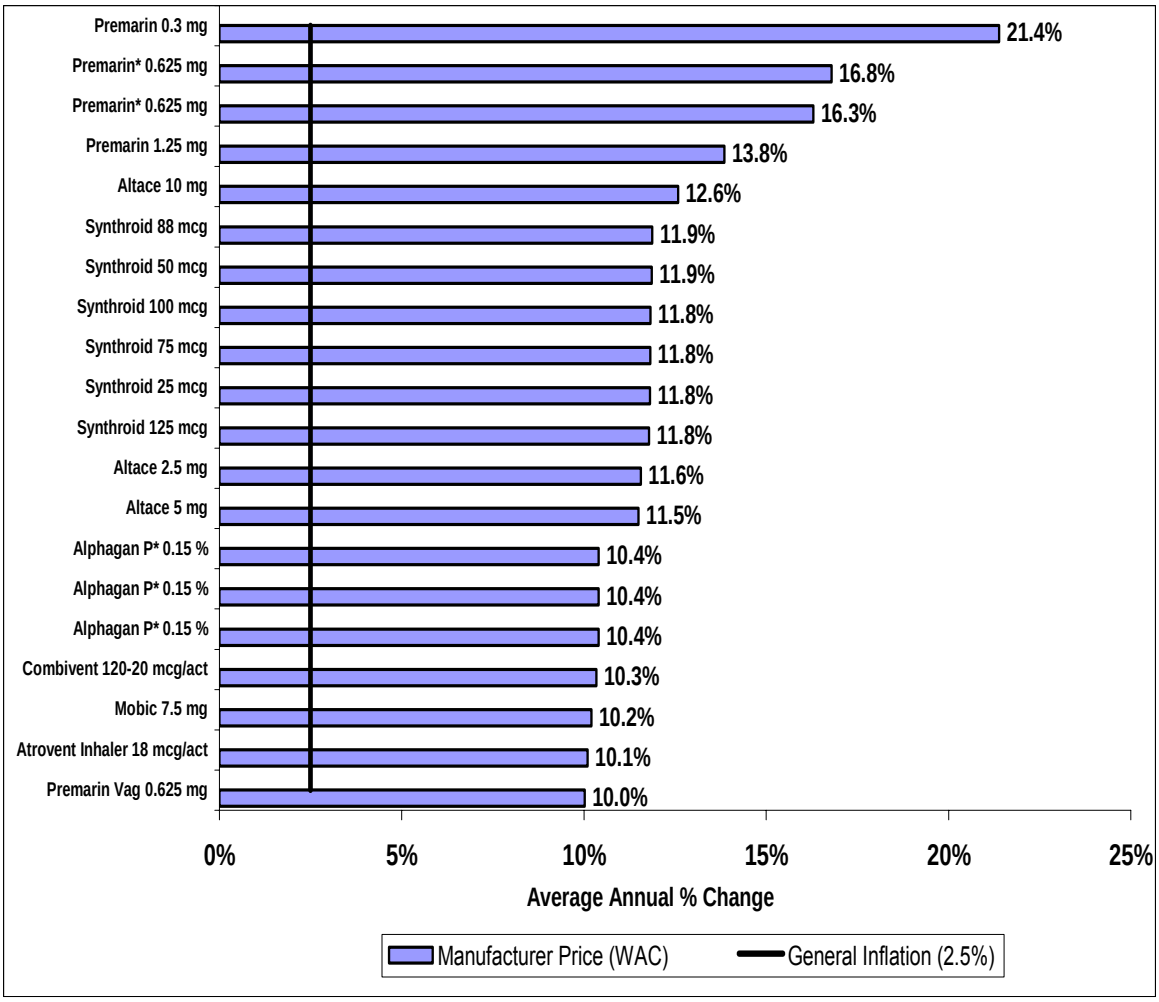
Table 2: Change in Manufacturer Prices for Top 25 Brand Name Prescription Drug Products, 2000-2003

Rank by Sales Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99- Dec. 03
1	Fosamax 70 mg tab	4	Merck	Calcium Regulators	5.6%	N/A
2	Lipitor 10 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	6.0%	26.3%
3	Plavix 75 mg tab	90	BMS	Platelet Aggregation Inhibitors	7.8%	35.1%
4	Lipitor 20 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	4.8%	20.4%
5	Prevacid 30 mg cap DR	100	TAP	Ulcer Agents (PPIs)	5.2%	22.6%
6	Celebrex 200 mg cap	100	Pfizer	Arthritis Agents, COX 2s	4.1%	17.7%
7	Protonix 40 mg tab	90	Wyeth	Ulcer Agents (PPIs)	5.4%	N/A
8	Norvasc 5 mg tab	90	Pfizer	Calcium Blockers	4.6%	19.7%
9	Plavix 75 mg tab	30	BMS	Platelet Aggregation Inhibitors	7.8%	35.1%
10	Norvasc 10 mg tab	90	Pfizer	Calcium Blockers	0.0%	0.0%
11	Nexium 40 mg cap	30	AstraZeneca	Ulcer Agents (PPIs)	4.1%	N/A
12	Flomax 0.4 mg cap	100	Abbott	Genitourinary Products	7.3%	32.7%
13	Actonel 35 mg tab	4	P&G Pharm	Calcium Regulators	4.8%	N/A
14	Xalatan 0.01 % sol	2.5	Pfizer	Ophthalmics Solutions	5.4%	23.5%
15	Aricept 10 mg tab	30	Eisai	Antidementia Agents	4.2%	17.7%
16	Vioxx 25 mg tab	100	Merck	Arthritis Agents, COX 2s	4.5%	19.4%
17	Ambien 10 mg tab	100	Sanofi Pharm	Misc. Therapeutic Agents	8.3%	37.8%
18	Pravachol 40 mg tab	90	BMS	Antihyperlipidemic (Statins)	4.9%	21.0%
19	Pravachol 20 mg tab	90	BMS	Antihyperlipidemic (Statins)	7.9%	35.5%
20	Evista 60 mg tab	30	Lilly	Calcium Regulators	6.5%	28.6%
21	Lipitor 40 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	0.0%	0.0%
22	Toprol XL 50 mg tab	100	AstraZeneca	Beta Blockers, Cardioselective	6.5%	28.9%
23	Levaquin 500 mg tab	50	McNeil	Anti-Infective Agents	4.4%	18.9%
24	Zocor 20 mg tab	30	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
25	Neurontin 300 mg cap	100	Pfizer	Anticonvulsants	3.5%	15.0%
General inflation rate (as measured by growth in CPI-U)					**2.5%**	**10.4%**

*Ranking based on dollar value of prescriptions processed by the AARP Pharmacy Service during 2003.
**For drugs not on the market for the entire four-year period, average annual 2000-2003 change is calculated as change beginning with the month of product introduction.
N/A indicates not applicable (for products that were not on the market in December 1999).
Years refer to change from previous 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., March 2004).

The 20 brand name drugs with the highest average annual manufacturer price increases—10 percent or more per year—for the four-year period 2000 through 2003 are shown in Figure 4. 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.

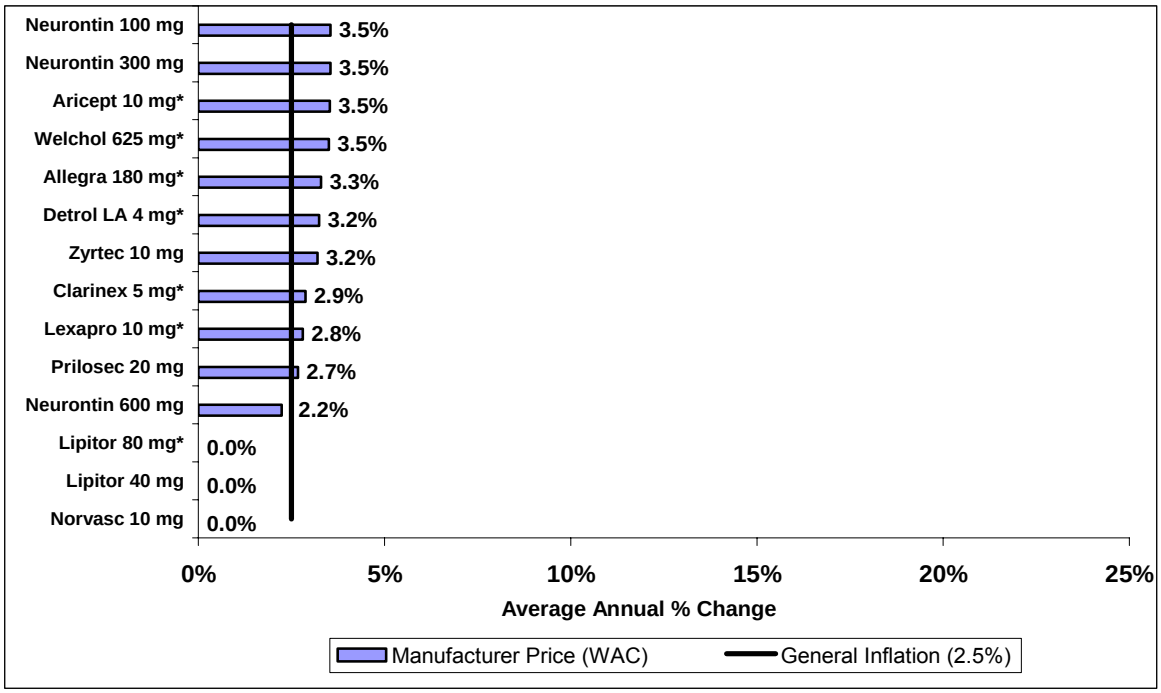
Figure 4: Brand Name Prescription Drug Products with Highest Average Annual Percentage Change in Manufacturer Price, 2000-2003



*Multiple listing is due to different package sizes.
Years refer to change from previous year. General inflation is based on CPI-U.
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., March 2004).

The 14 brand name drugs with average annual manufacturer price changes of 3.5 percent or less for the four-year period 2000 through 2003 are shown in Figure 5. Compared to the 20 drugs with the highest percentage increases, there is more variety among the drugs with the lowest average annual change in manufacturer price.

Figure 5: Brand Name Prescription Drug Products with Lowest Average Annual Percentage Change in Manufacturer Price, 2000-2003

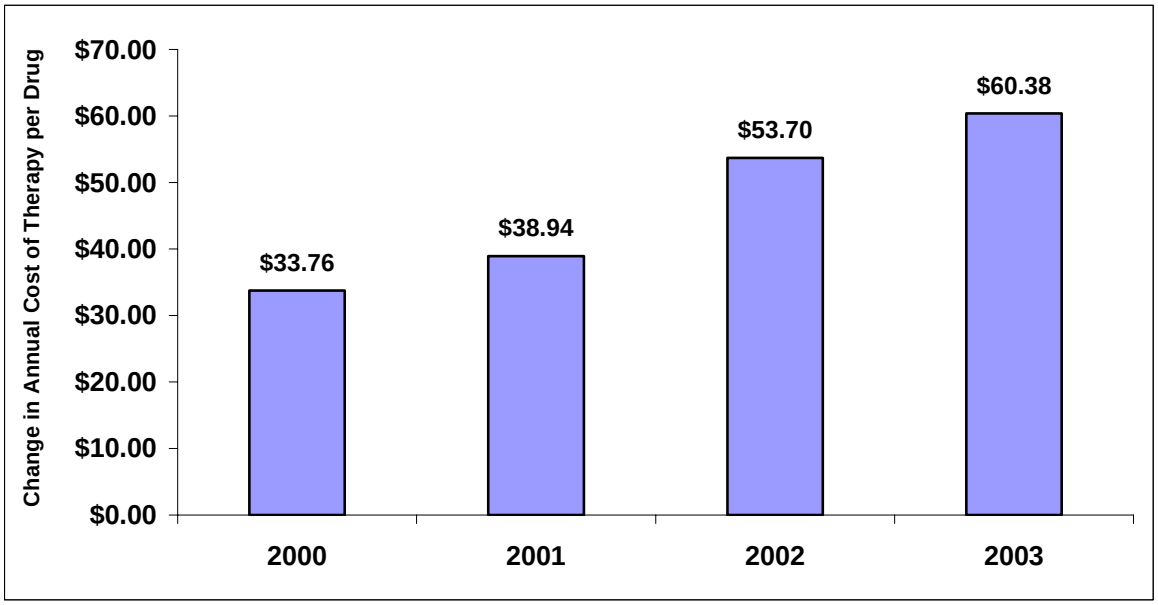


*For drugs not on the market for the entire four-year period, average annual 2000-2003 change is calculated as change beginning with the month of product introduction.
Years refer to change from previous year. General inflation is based on CPI-U.
Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., March 2004).

Changes in Estimated Cost of Therapy Due to Manufacturer Price Changes for Most Widely Used Brand Name Prescription Drugs, 2000-2003

The vast majority of drugs in the study sample—191 of 197—are used primarily to treat chronic conditions. The average estimated annual increase in spending due to higher manufacturer prices for the 191 widely used brand name drugs used to treat chronic conditions rose year by year from 2000 to 2003 (see Figure 6). While the average increase in the annual cost of therapy for a brand name drug due to manufacturer price increases was $33.76 in 2000, the average annual increase nearly doubled, to $60.38 per drug, in 2003. Over these four years, the average cumulative increase in the cost of therapy for a drug was $186.78.

Figure 6: Average Change in Annual Cost of Therapy Due to Manufacturer Price Changes for Most Widely Used Brand Name Prescription Drugs Treating Chronic Conditions, 2000-2003



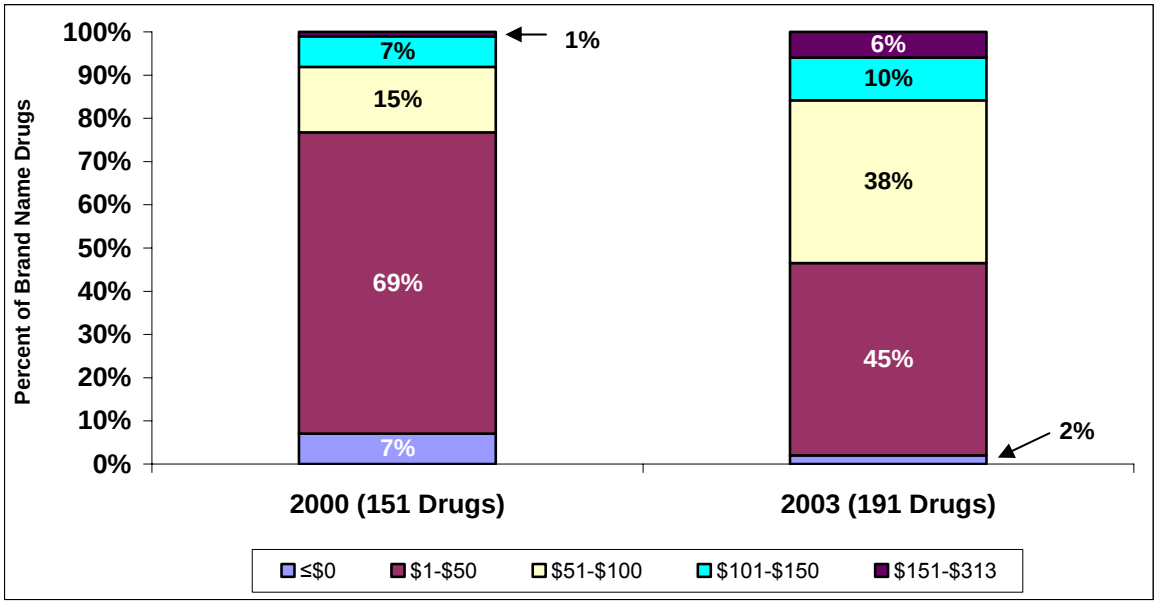
Years refer to change from previous year. Does not include six drugs used primarily for treatment of acute conditions. Prepared by the AARP Public Policy Institute and the *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., March 2004).

As an example of how this average change in cost of therapy affects consumers, a typical older American (who takes three prescription drugs[11]) is likely to have experienced an annual increase, on average, in the cost of therapy of $101.28 in 2000 and an annual increase of $181.14 in 2003, if the price increases were passed along to the consumer. Due to the four-year cumulative effect of annual increases in each year from 2000 to 2003, the typical older American with three prescriptions would have paid $560.34 more for the same three prescriptions in the year 2003 than four years earlier.

[11]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 monthly (that is, in retail pharmacies) or quarterly (that is, in mail-order pharmacies), thereby making it difficult to ascertain the average number of drugs taken.

There was also an increase from 2000 to 2003 in the share of brand name drugs with substantial dollar increases in the cost of therapy associated with manufacturer price changes. In 2000, only 23 percent (35 drugs) of the brand name drugs used primarily to treat chronic conditions had changes in the annual cost of therapy of more than $50, including 7 percent (11 drugs) with annual increases of between $101 and $150 and just under 1 percent (one drug) with annual increases of greater than $150 ($158). In 2003, however, 54 percent (104 drugs) of the brand name drugs for chronic conditions had annual therapy cost increases of more than $50, including 10 percent (20 drugs) with annual increases between $101 and $150 and 6 percent (11 drugs) with annual therapy increases between $151 and $313 (see Figure 7).

Figure 7: Distribution of Changes in Annual Cost of Therapy Due to Manufacturer Price Changes for Most Widely Used Brand Name Prescription Drugs, 2000 and 2003



Numbers may not sum to 100 percent due to rounding.
Years refer to change from previous year.
Includes products that were on the market for the entire year. Does not include six drugs (only four of which were on the market in 2000) used primarily for treatment of acute conditions. Data for the year 2000 included 17 drugs which were not on the market for the entire previous year (1999). Fifteen of these drugs were on the market by July 1999, and the remaining two drugs entered the market in August and October 1999.
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., March 2004).

Manufacturer Price Changes for Most Widely Used Brand Name Prescription Drugs, by Manufacturer, 2003

The brand name drugs most widely used by older Americans in 2003 were grouped by manufacturer to assess the rate of change in prices for individual drug companies. While only companies with three or more brand name drugs in 2003 are reported separately in this analysis, these 20 companies accounted for 183 drug products and more than 90 percent of sales and prescriptions in the full study sample (14 drugs from nine 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.

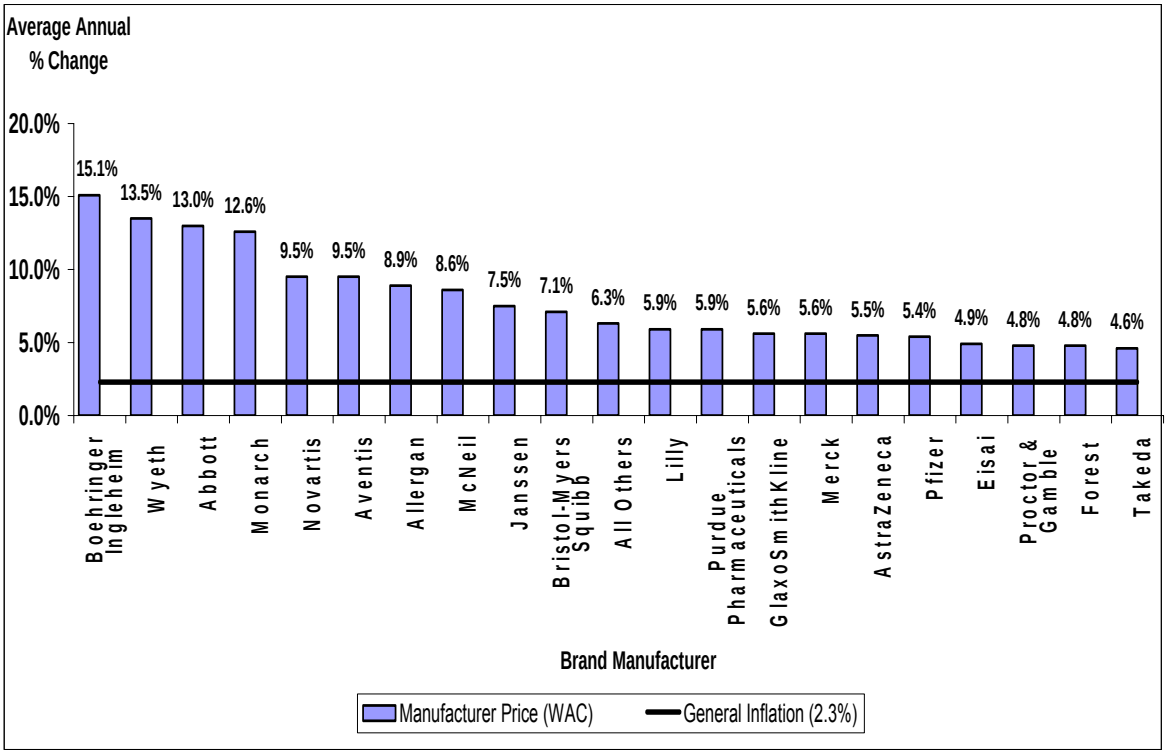
Table 3: Relative Prevalence of Manufacturer Among Most Widely Used Brand Name Prescription Drugs, 2003

Manufacturer	Number of Products	% of 2003 Sales* Among Widely Used Brand Name Drugs	% of 2003 Prescriptions* Among Widely Used Brand Name Drugs
Pfizer	32	25.4%	25.7%
Merck	26	14.1%	11.8%
GlaxoSmithKline	22	5.6%	6.0%
Bristol-Myers Squibb	14	9.3%	7.9%
Novartis	14	5.8%	6.2%
AstraZeneca	9	5.1%	6.4%
Abbott	9	3.7%	7.1%
Wyeth	8	4.3%	4.7%
Janssen	6	2.1%	1.2%
Lilly	5	2.7%	2.1%
Proctor & Gamble	5	2.4%	2.4%
McNeil	5	2.2%	2.3%
Aventis	5	1.4%	2.0%
Allergan	5	1.1%	1.2%
Eisai	3	2.2%	1.2%
Forest	3	1.4%	1.5%
Monarch	3	1.3%	1.8%
Boehringer Ingleheim	3	1.3%	1.4%
Takeda	3	0.9%	0.4%
Purdue Pharmaceuticals	3	0.7%	0.4%
Other Drug Firms	14	6.9%	6.4%
TOTAL	**197**	**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., March 2004).

The magnitude of price increases in 2003 varied substantially across drug manufacturers. Four of the 20 manufacturers—Boehringer Ingleheim, Wyeth, Abbott, and Monarch—raised their prices to wholesalers, on average, by more than five times the 2003 general inflation rate of 2.3 percent (and more than three times the 2003 medical care inflation rate of 4.0 percent). Another six manufacturers raised their prices to wholesalers, on average, by three to four times the general inflation rate. Even the drug manufacturer with the lowest average change raised brand name drug prices, on average, by twice the rate of general inflation in 2003 and slightly more than the rate of medical care inflation (see Figure 8).

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



Manufacturers with fewer than three drugs in the 2003 sample of most widely used brand name prescription drugs are included in the "All Others" category. Year refers to change from previous year. General inflation is based on CPI-U. Prepared by *PRIME* Institute, University of Minnesota, based on data found in Medi-Span Price-Chek PC (Indianapolis, IN: Wolters Kluwer Health Inc., March 2004).

Manufacturer Price Changes for Most Widely Used Brand Name Prescription Drugs, by Therapeutic Category, 2003

Therapeutic categories with three or more brand name drugs in the sample in 2003 are reported separately in this analysis; these 30 categories accounted for 183 drug products and nearly 95 percent of sales and prescriptions in the full sample (14 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 Brand Name Prescription Drugs, 2003

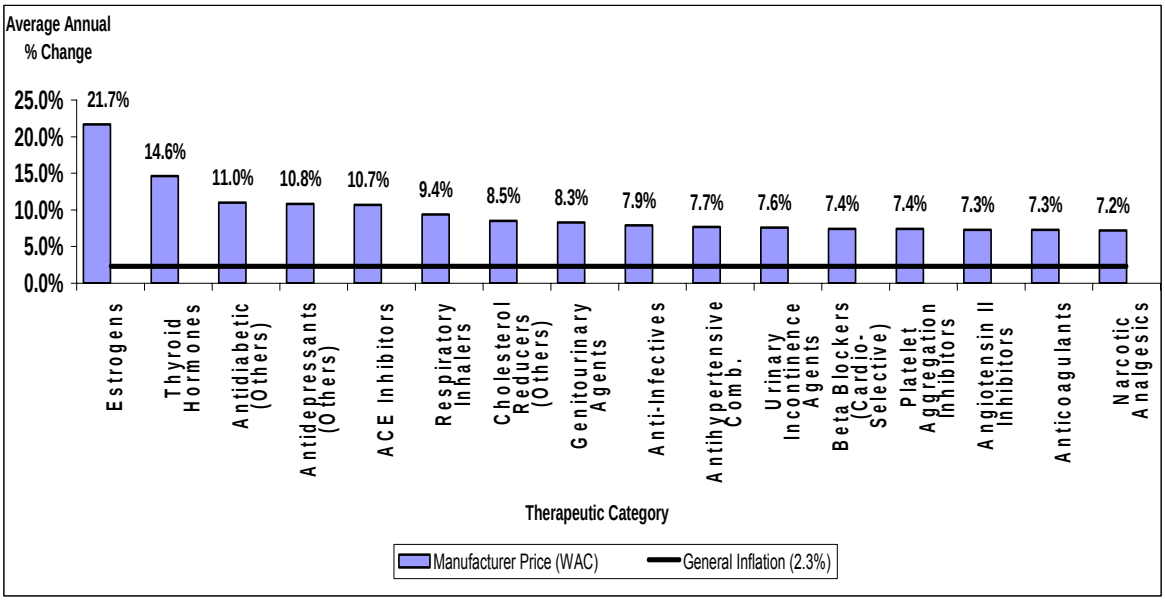
Therapeutic Category	Number of Products	% of 2003 Sales* Among Widely Used Brand Name Drugs	% of 2003 Prescriptions* Among Widely Used Brand Name Drugs
Antihyperlipidemic (Statins)	18	15.6%	11.2%
Antidepressants, SSRIs	10	4.2%	4.0%
Respiratory Inhalers	10	3.5%	3.1%
ACE Inhibitors	10	3.1%	4.5%
Ophthalmics Solutions	9	3.3%	4.0%
Antihypertensive Combinations	9	3.1%	3.2%
Calcium Regulators	8	9.1%	8.4%
Arthritis Agents, COX 2s	8	5.5%	4.5%
Angiotensin II Receptor Antagonist	7	2.6%	3.1%
Antidiabetics (Sulfas & Biguanides)	7	2.0%	3.4%
Ulcer Agents (PPIs)	6	7.2%	4.3%
Antidementia Agents	6	2.9%	1.6%
Narcotic Analgesics	6	1.6%	1.2%
Thyroid Hormones	6	1.3%	4.8%
Platelet Aggregation Inhibitors	5	5.3%	3.4%
Genitourinary Products	5	2.6%	2.7%
Urinary Incontinence	5	1.9%	1.5%
Antidiabetics (Insulin-sensitizers)	5	1.4%	0.8%
Calcium Blockers	4	4.4%	5.4%
Anti-Infective Agents	4	2.4%	2.9%
Estrogens	4	1.5%	2.6%
Antihistamines, NonsSedating	4	1.3%	1.6%
Antipsychotics	4	1.3%	0.7%
Beta Blockers Non-Selective	4	1.0%	0.8%
Cardiac Glycosides	4	0.3%	1.9%
Beta Blockers Cardio-selective	3	2.1%	4.7%
Anticonvulsants	3	1.4%	1.4%
Antihyperlipidemic (Other Agents)	3	1.4%	1.2%
Antidepressants, Other	3	0.8%	0.6%
Anticoagulants	3	0.7%	1.4%
Other Therapeutic Agents	14	4.9%	5.1%
TOTAL	**197**	**100%**	**100%**

*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., March 2004).

Manufacturer prices for brand name drugs in all 30 therapeutic categories increased faster, on average, than the rate of general inflation in 2003. The most rapid price increases were for estrogens and thyroid hormones, which had average price increases of more than nine times and more than six times the rate of general inflation, respectively. Most other categories had price increases ranging from two to five times the general inflation rate (see Figures 9a and 9b).

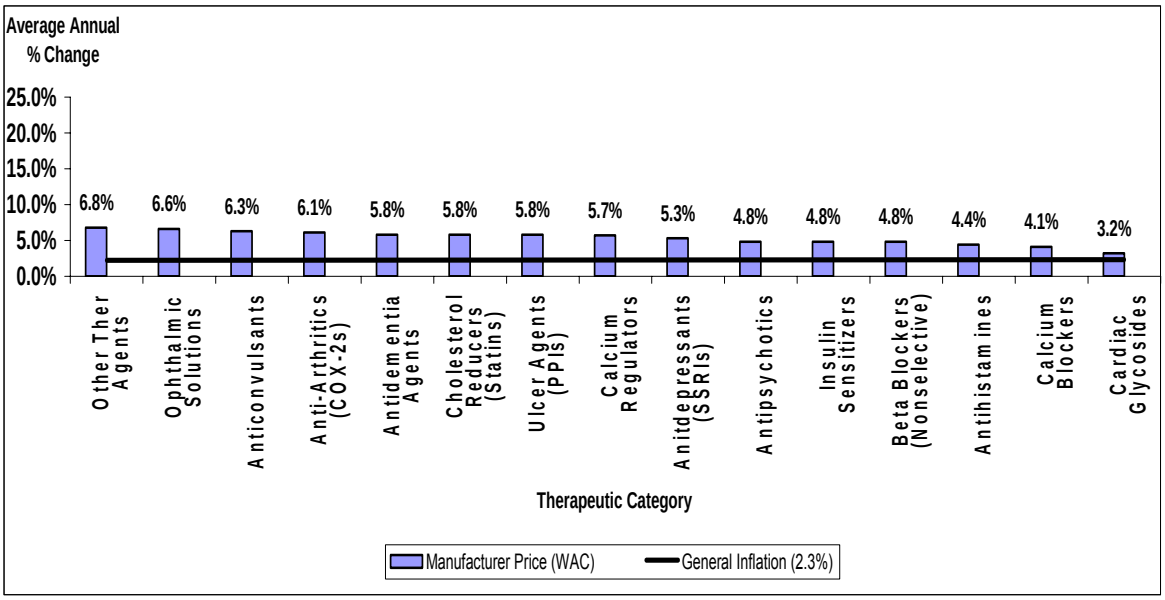
Figure 9a: Part 1—Average Annual Percentage Change in Manufacturer Price for Brand Name Prescription Drugs, by Therapeutic Category, 2003



Therapeutic categories with fewer than three drugs in the 2003 sample of most widely used brand name prescription drugs are included in the "Other Therapeutic Agents" category. Year refers to change from previous year. General inflation is based on CPI-U.

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

Figure 9b: Part 2—Average Annual Percentage Change in Manufacturer Price for Brand Name Prescription Drugs, by Therapeutic Category, 2003



Therapeutic categories with fewer than three drugs in the 2003 sample of most widely used brand name prescription drugs are included in the "Other Therapeutic Agents" category. Year refers to change from previous year. General inflation is based on CPI-U.

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

IV. CONCLUDING OBSERVATIONS

The findings of this report show that, on average, drug manufacturers have been increasing the prices of widely used brand name prescription drugs well above the rate of inflation in each of the past four years (calendar years 2000 through 2003). For the subset of drugs on the market for the entire four-year period, the average cumulative manufacturer price increase was 27.6 percent, compared to a general inflation rate of 10.4 percent over the same period. Furthermore, the average rate of price increase, both in absolute terms and relative to the rate of general inflation, has been greater in the last two years (2002 and 2003) than in the preceding two years (2000 and 2001). For 2003, average price increases above the rate of general inflation are evident for all brand name drug manufacturers and across all therapeutic categories.

Wholesalers typically pass on manufacturer's drug product price increases to retail pharmacies. Although increased wholesale acquisition costs do not necessarily translate dollar-for-dollar to similar retail price increases, the price changes documented in this analysis are expected to have a substantially similar impact on the retail prices for consumers, particularly those who pay out-of-pocket for their own prescriptions.

For all but four of the 197 brand name drugs in this study's sample of widely used brand name drug products, price increases were greater—and most were far greater—than the growth in Social Security income, which is pegged to the rate of general inflation.[12] Drug price increases also exceeded income growth for the 50-64 year old population, which—at an average 1.7 of percent per year during the three-year period of 2000 through 2002—was even less than general inflation. This trend implies that filling the same prescriptions from year to year is taking an ever-increasing share of consumer income, particularly for older consumers who use more prescription drugs on a per capita basis than their younger counterparts. Even those consumers with prescription drug coverage will face an increasing burden because the substantial increases in drug prices are likely to be passed on by third-party payers as higher premiums or increased cost-sharing.

This paper represents an objective analysis based on the best available data and a transparent methodology. However, some analysts—particularly those associated with the pharmaceutical industry—may argue that the price increases reported in this study overstate actual price increases. For example, one might contend that rebates offered by drug manufacturers offset the price increases shown in this study. This assertion would be true only if the amount of rebates increased at a rate faster than the price increases and if the rebates were passed on to the ultimate consumer in some way. One can not assess such assertions in a public, transparent way because pharmaceutical manufacturers often keep data on the amount and disposition of rebates confidential. To evaluate the impact of discounts and rebates and to enhance overall understanding of the pharmaceutical industry, it would be useful to be able to study the data and methods used by other analysts, including analysts associated with the pharmaceutical industry.

[12] According to the Social Security Administration, Social Security accounted for 100 percent of income for 20 percent of people age 65 and older in 2000, 90 to 99 percent of income for 11 percent of this population, 50 to 89 percent of income for 33 percent of this population, and less than 50 percent of income for 36 percent of this population.

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 first report focuses on changes in prices of brand name drugs; price changes of generic drugs will be the subject of a forthcoming report. For purposes of the 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 marketed by an entity other than the holder of the NDA. Separate analysis of the price changes of brand name drugs and generic drugs are important because brand name and generic 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 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 usually face price competition from a bioequivalent brand name 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).

This appendix describes in detail how the study identified the sample of drugs, how it measured prices, and how it calculated weighted average price changes. In addition, it describes methods and assumptions used to determine prices and price changes by drug manufacturer and by therapeutic category.

Identifying the Sample of Drugs

The list of brand name 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 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, Prevacid 30 mg capsule, package of 100, TAP Pharmaceuticals). As a result, some drugs may be listed among the widely used drugs more than once, for example, when there are different strengths, such as Lipitor 10 mg vs. Lipitor 20 mg, or different package sizes, such as Alphagan P 0.15% ophthalmic solution in 5 ml, 10 ml, or 15 ml containers.

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 selected. When a generic version of a drug was on the list, the GCN was subdivided to account separately for 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 GCNs); 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. After setting aside the NDCs for 94 generic drugs for a separate analysis, the remaining 197 NDCs for brand name drugs—170 single-source brand products and 27 multiple-source brand products—make up the analytic set of drugs used for this report.[i] These brand name drugs accounted for 90 percent of sales and 65 percent of all prescriptions in the study sample of 291 drug products.

Measuring Manufacturer Prices

Although the sample of drugs studied was identified using AARP Pharmacy Service data, price changes by drug manufacturers were measured using Wholesale Acquisition Cost (WAC) data published in the Medi-Span Price-Chek PC database.[ii] 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. WAC may not represent *actual*

[i] If the original NDA holder still has a patent or other form of market exclusivity that prohibits entry of competing generic drug products, then the brand name drug is called a brand single-source product. Once one or more FDA-approved generic equivalents to the reference brand name drug product enter the market, the drug product of the original NDA holder (or its licensee) is called a brand multi-source drug product (also known as an off-patent brand).

[ii] 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).

acquisition cost as wholesalers may obtain discounts through volume purchases or special deals." WAC is a publicly available price that is the closest reported price to the actual transaction price between a manufacturer and the wholesaler or other direct purchaser of a drug product. Although drug wholesalers may receive "discounts or special deals" for some drug purchases, the wholesalers' price to the retail class of trade is typically based on, or is a function of, the WAC. A change in WAC generally results in a similar percent change in price to most prescription purchasers, including "cash pay" customers as well as private and public third-party programs.

An alternative measure of manufacturer price is the average wholesale price (AWP). Despite its name, AWP is not the average of manufacturers' 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 to determine payment and reimbursement rates for community pharmacies in private and third-party programs. Among the various reasons for using the WAC rather than the AWP as the price measure are the following:

- The manufacturer sometimes changes AWPs without changing the invoiced (WAC) or actual price charged to a wholesaler. 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, and the newly formed firm standardizes the AWP-WAC spread across all of its products.

- A drug firm may also change AWPs for reasons related to internal pricing policies that are unrelated to mergers or acquisitions, resulting in an AWP change that is not matched by a corresponding change in WAC.[iii]

- For generic drugs, price decreases often occur as more generic competitors enter the market; however, the decrease in manufacturer prices or WAC is 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. While WAC does not always reflect decreases in generic prices, to the extent that it does so, it is a better measure of prices and price changes than is AWP. (While generic drugs are not addressed in this report, using WAC in this analysis will provide some comparability to the forthcoming report on changes in generic drug prices).

Neither WAC nor AWP routinely capture the absolute level of prices paid (for example, they do not capture rebates that manufacturers pay to certain third-party payers nor do they capture chargebacks from wholesalers to the manufacturer). However, changes in the WAC are the most consistent, publicly available estimate of change in both prices paid to manufacturers and the ingredient cost component of prices paid at retail pharmacies by

[iii] Indeed, while, on average, AWPs and WACs for widely used brand name drugs grew at roughly the same rate in 2000 and 2001, AWPs increased an average of nearly 30 percent faster than WACs in 2002 and about 7 percent faster than WACs in 2003.

third-party programs or "cash pay" customers. This is because manufacturers typically reference WAC or AWP as the basis for charging wholesalers and pharmacies that buy directly from drug manufacturers. Also, nearly all third-party contracts (including private programs and public programs such as Medicaid and Medicare) specifically reference WAC or AWP as the basis for determining prescription payment amounts.

Furthermore, because Americans who must pay out-of-pocket for their own prescriptions (that is, "cash pay" consumers) typically do not have access to such rebates or discounts, the consideration of third-party rebates and wholesaler discounts is not relevant to an assessment of changes in drug prices for sales to the retail market segment. Finally, even if drug manufacturer rebates to third-party payers are considered, they typically provide only a modest decrease in drug price—about 2 to 5 percent of total drug spending by a drug benefit plan.[iv] In this scenario, a change in the WAC would still be relevant because it would result in a cost change (that is, a 5 percent increase in WAC would also result in a 5 percent increase in the rebated price of a drug product to a third-party program) unless accompanied by a corresponding change in the rebate percentage.

To assess the impact of price changes on dollars spent, it was also necessary to calculate a cost of therapy for each product. 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 drugs in this sample—191 of 197—represent products used in the management and/or treatment of chronic conditions, so one can assume they are taken regularly throughout the year, the sample contains six drugs that are used primarily as acute care medications which patients would take for a shorter period. Consequently, an annual cost of therapy was calculated by excluding these six drugs and by multiplying the average cost per day of therapy of the remaining drugs by 365 days.

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 2000 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.

[iv] PriceWaterhouseCoopers, *Study of Pharmaceutical Benefit Management*, HCFA Contract No. 500-97-0399/0097, June 2001, p. 131; Patrick Holjo and Matthew Kamm, *Pharmacy Benefit Managers: Keeping a Lid on Drug Costs*, Banc of America Securities, February 20, 2002, p. 29.

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.[v]

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 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

[v] 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-December).

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 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 2000, 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.

However, some drugs that were in the sample in 2003 were not on the market in all earlier years (see Table 1). As a result, drug products were dropped out of the analysis in the month before they entered the market and for all previous months, and the weights of the products present in the market during each year prior to 2003 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 were not on the market in 2001. 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, were used to derive the weighted average price change for 2001 (see Table A-3).

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%**

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. In general, however, newer drugs initially have higher rates of sales growth, but relatively lower rates of price growth, than do older drugs. This pattern occurs both because newer drugs may have been introduced at higher prices and because price increases for brand name drugs tend to accelerate in rate and amount closer to the end of a product's effective patent life.

The direction of the potential bias created by the approach used in this analysis was tested by calculating an average annual price change for 2000 through 2003 for only those drugs

in the sample that were on the market as of January 1, 2000. Because the same drugs are in the sample from year to year, the weights used to calculate averages do not change. This modified sample had a higher weighted average price change from 2000 to 2003 (6.2 percent, compared to 6.0 percent for the entire sample), suggesting that the approach used in this paper for weighting in years before 2003 results in a downward bias; that is, it understates average price changes for years before 2003.

Defining Manufacturer

A drug manufacturer is defined as the firm marketing the drug product under its corporate name in 2003. If a listed manufacturer is a division of another firm, its drugs are defined as being manufactured by the parent firm. This includes cases where the firm marketing a drug product may have changed over time due to mergers and acquisitions, divestitures of specific drug products, or for other reasons. The analysis of drug manufacturer reported separately on manufacturers with at least three drug products (at the NDC level) among the 197 most widely used brand name drugs; these 20 manufacturers supplied 183 drug products that accounted for more than 90 percent of drug sales and prescriptions dispensed among the overall sample of 197 brand name drugs. Another 14 drug products from nine 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 "Beta Blockers," and within the "Beta Blockers" are various subcategories such as "Beta Blockers, Cardioselective" and "Beta Blockers, Nonselective." Continuing with this example, at the most detailed level is a specific chemical entity, dosage form, and strength such as carvedilol tab 6.25 mg.

The therapeutic categories used in this study were assigned based on an intermediate level of the GPI code that specifies categories such as "Beta Blockers, Cardio-Selective" and "Beta Blockers, Non-Selective." When three or more 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 30 therapeutic categories, each containing three or more drugs from the sample, which together accounted for 183 of the total 197 drugs in the sample. The remaining 14 drugs with other uses were grouped together in an "Other Therapeutic Agents" category. A therapeutic category may include drug products that are brand single-source or brand multiple-source.

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

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
134	88	Accupril 10 mg tab	90	Pfizer	ACE Inhibitors	5.4%	23.5%
65	55	Accupril 20 mg tab	90	Pfizer	ACE Inhibitors	5.4%	23.5%
68	56	Accupril 40 mg tab	90	Pfizer	ACE Inhibitors	5.4%	23.5%
27	64	Aciphex 20 mg tab	30	Janssen	Ulcer Agents (PPIs)	5.1%	21.8%
156	146	Actonel 5 mg tab	30	Proctor & Gamble	Calcium Regulators	7.7%**	N/A
144	152	Actonel 30 mg tab	30	Proctor & Gamble	Calcium Regulators	7.1%	31.3%
13	11	Actonel 35 mg tab	4	Proctor & Gamble	Calcium Regulators	4.8%**	N/A
162	180	Actos 15 mg tab	30	Takeda	Antidiabetics (Insulin-sensitizers)	3.9%	16.5%
78	167	Actos 30 mg tab	30	Takeda	Antidiabetics (Insulin-sensitizers)	3.9%	16.5%
99	187	Actos 45 mg tab	30	Takeda	Antidiabetics (Insulin-sensitizers)	3.9%	16.5%
69	124	Advair Diskus 100-50 mg mist	60	GlaxoSmithKline	Respiratory Inhalers	4.5%**	N/A
35	90	Advair Diskus 250-50 mg mist	60	GlaxoSmithKline	Respiratory Inhalers	4.8%**	N/A
121	194	Advair Diskus 500-50 mg mist	60	GlaxoSmithKline	Respiratory Inhalers	5.1%**	N/A
76	125	Aggrenox 25-200 mg cap	60	Boehringer Ingleheim	Platelet Aggregation Inhibitors	8.0%	35.8%
130	116	Allegra 60 mg tab	100	Aventis	Antihistamines, Non-Sedating	7.8%**	N/A
63	74	Allegra 180 mg tab	100	Aventis	Antihistamines, Non-Sedating	3.3%**	N/A
173	93	Alphagan P 0.15 % sol	5	Allergan	Ophthalmics Solutions	10.4%	48.7%
87	99	Alphagan P 0.15 % sol	10	Allergan	Ophthalmics Solutions	10.4%	48.6%

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
146	179	Alphagan P 0.15 % sol	15	Allergan	Ophthalmics Solutions	10.4%	48.6%
108	75	Altace 2.5 mg cap	100	Monarch	ACE Inhibitors	11.6%	54.9%
58	44	Altace 5 mg cap	100	Monarch	ACE Inhibitors	11.5%	54.6%
48	47	Altace 10 mg cap	100	Monarch	ACE Inhibitors	12.6%	60.6%
190	85	Amaryl 2 mg tab	100	Aventis	Antidiabetics (Sulfas & Biguanides)	9.4%	43.2%
86	61	Amaryl 4 mg tab	100	Aventis	Antidiabetics (Sulfas & Biguanides)	9.4%	43.2%
40	34	Ambien 5 mg tab	100	Sanofi Pharm	Misc Therapeutic Agents	8.3%	37.8%
17	18	Ambien 10 mg tab	100	Sanofi Pharm	Misc Therapeutic Agents	8.3%	37.8%
38	95	Aricept 5 mg tab	30	Eisai	Anti-Dementia Agents	4.2%	17.7%
15	41	Aricept 10 mg tab	30	Eisai	Anti-Dementia Agents	4.2%	17.7%
124	181	Aricept 10 mg tab	90	Eisai	Anti-Dementia Agents	3.5%**	N/A
115	195	Arimidex 1 mg tab	30	AstraZeneca	Misc Therapeutic Agents	3.7%	15.8%
101	172	Asacol 400 mg tab EC	100	Proctor & Gamble	Misc Therapeutic Agents	8.9%	40.6%
152	136	Atacand 32 mg tab	30	AstraZeneca	Angiotensin II Receptor Antagonist	4.5%	19.3%
147	112	Atrovent Inhaler 18 mcg/act aer	14.7	Boehringer Ingleheim	Respiratory Inhalers	10.1%	46.9%
118	150	Avandia 4 mg tab	100	GlaxoSmithKline	Antidiabetics (Insulin-sensitizers)	4.9%	21.0%
110	183	Avandia 8 mg tab	30	GlaxoSmithKline	Antidiabetics (Insulin-sensitizers)	5.3%	22.8%
104	94	Avapro 150 mg tab	90	Bristol-Myers Squibb	Angiotensin II Receptor Antagonist	6.4%	27.9%
44	62	Bextra 10 mg tab	100	Pfizer	Arthritis Agents, COX 2s	3.8%**	N/A
56	80	Bextra 20 mg tab	100	Pfizer	Arthritis Agents, COX 2s	3.8%**	N/A

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
109	196	Casodex 50 mg tab	30	AstraZeneca	Misc Therapeutic Agents	4.8%	20.6%
106	113	Celebrex 100 mg cap	100	Pfizer	Arthritis Agents, COX 2s	5.0%	21.4%
6	10	Celebrex 200 mg cap	100	Pfizer	Arthritis Agents, COX 2s	4.1%	17.7%
168	177	Celebrex 200 mg cap	500	Pfizer	Arthritis Agents, COX 2s	4.1%**	N/A
37	45	Celexa 20 mg tab	100	Forest	Antidepressants, SSRIs	6.7%	29.6%
145	138	Celexa 40 mg tab	100	Forest	Antidepressants, SSRIs	5.5%	24.1%
52	66	Cipro 500 mg tab	100	Bayer Pharm	Anti-Infective Agents	7.6%	34.0%
161	127	Clarinex 5 mg tab	100	Schering	Antihistamines, Non-Sedating	2.9%**	N/A
32	27	Combivent 120-20 mcg/act aer	14.7	Boehringer Ingleheim	Respiratory Inhalers	10.3%	48.2%
138	160	Coreg 3.125 mg tab	100	GlaxoSmithKline	Beta Blockers Non-Selective	3.9%	16.5%
92	135	Coreg 6.25 mg tab	100	GlaxoSmithKline	Beta Blockers Non-Selective	3.9%	16.5%
143	171	Coreg 12.5 mg tab	100	GlaxoSmithKline	Beta Blockers Non-Selective	3.9%	16.5%
120	156	Coreg 25 mg tab	100	GlaxoSmithKline	Beta Blockers Non-Selective	3.9%	16.5%
183	114	Cosopt 2-0.5 % sol	5	Merck	Ophthalmics Solutions	4.7%**	N/A
64	97	Cosopt 2-0.5 % sol	10	Merck	Ophthalmics Solutions	4.7%**	N/A
176	89	Coumadin 2 mg tab	100	Bristol-Myers Squibb	Anticoagulants	3.7%	15.8%
188	105	Coumadin 2.5 mg tab	100	Bristol-Myers Squibb	Anticoagulants	3.7%	15.8%
71	35	Coumadin 5 mg tab	100	Bristol-Myers Squibb	Anticoagulants	4.5%	19.1%
184	139	Cozaar 50 mg tab	30	Merck	Angiotensin II Receptor Antagonist	7.4%	32.8%
43	43	Cozaar 50 mg tab	100	Merck	Angiotensin II Receptor Antagonist	7.4%	32.8%
163	153	Cozaar 100 mg tab	100	Merck	Angiotensin II Receptor Antagonist	4.8%	20.7%

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
128	143	Detrol 2 mg tab	60	Pfizer	Urinary Incontinence	9.4%	43.2%
30	46	Detrol LA 4 mg cap	30	Pfizer	Urinary Incontinence	3.2%**	N/A
182	188	Detrol LA 4 mg cap	90	Pfizer	Urinary Incontinence	3.2%**	N/A
42	31	Diovan 80 mg tab	100	Novartis	Angiotensin II Receptor Antagonist	7.5%	32.9%
51	50	Diovan 160 mg tab	100	Novartis	Angiotensin II Receptor Antagonist	9.3%	33.7%
103	98	Diovan HCT 80-12.5 mg tab	100	Novartis	Antihypertensive Combinations	7.4%	33.7%
55	59	Diovan HCT 160-12.5 mg tab	100	Novartis	Antihypertensive Combinations	7.5%	42.8%
91	129	Ditropan XL 5 mg tab	100	McNeil	Urinary Incontinence	7.8%	34.9%
79	115	Ditropan XL 10 mg tab	100	McNeil	Urinary Incontinence	5.7%	24.7%
119	158	Duragesic 25 mcg/hr dis	5	Janssen	Narcotic Analgesics	5.5%	23.7%
116	193	Duragesic 50 mcg/hr dis	5	Janssen	Narcotic Analgesics	7.4%	33.2%
73	117	Effexor XR 75 mg cap	100	Wyeth	Antidepressants, Other	8.9%	40.4%
149	178	Effexor XR 150 mg cap	100	Wyeth	Antidepressants, Other	8.9%	40.4%
20	25	Evista 60 mg tab	30	Lilly	Calcium Regulators	6.5%	28.6%
41	72	Evista 60 mg tab	100	Lilly	Calcium Regulators	6.5%	28.6%
135	186	Exelon 3 mg cap	60	Novartis	Anti-Dementia Agents	3.8%	16.2%
12	9	Flomax 0.4 mg cap	100	Abbott	Genitourinary Products	7.3%	32.7%
75	78	Flonase 0.05 % spr	16	GlaxoSmithKline	Respiratory Inhalers	5.3%	22.8%
125	128	Flovent 110 mcg/act aer	13	GlaxoSmithKline	Respiratory Inhalers	7.1%	31.4%
192	100	Foltx 2.5-25-1 mg tab	90	Pam Lab	Misc Therapeutic Agents	4.6%**	N/A

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
142	147	Fosamax 35 mg tab	4	Merck	Calcium Regulators	5.9%**	N/A
1	1	Fosamax 70 mg tab	4	Merck	Calcium Regulators	5.6%**	N/A
54	38	Glucophage 500 mg tab XR	100	Bristol-Myers Squibb	Antidiabetics (Sulfas & Biguanides)	6.2%**	N/A
150	40	Glucotrol XL 5 mg tab	100	Pfizer	Antidiabetics (Sulfas & Biguanides)	7.0%	31.3%
81	53	Glucotrol XL 10 mg tab	100	Pfizer	Antidiabetics (Sulfas & Biguanides)	7.1%	31.4%
160	131	Glucovance 2.5-500 mg tab	100	Bristol-Myers Squibb	Antidiabetics (Sulfas & Biguanides)	8.1%**	N/A
94	102	Glucovance 5-500 mg tab	100	Bristol-Myers Squibb	Antidiabetics (Sulfas & Biguanides)	8.1%**	N/A
167	92	Humulin N 100 IU inj	10	Lilly	Misc Therapeutic Agents	6.3%	27.6%
129	107	Hyzaar 50-12.5 mg tab	30	Merck	Antihypertensive Combinations	7.4%	32.8%
181	140	Hyzaar 50-12.5 mg tab	100	Merck	Antihypertensive Combinations	7.4%	32.8%
113	104	Hyzaar 100-25 mg tab	30	Merck	Antihypertensive Combinations	4.8%	20.7%
170	163	Hyzaar 100-25 mg tab	100	Merck	Antihypertensive Combinations	4.8%	20.7%
195	76	Lanoxin 0.125 mg tab	100	GlaxoSmithKline	Cardiac Glycosides	3.7%	15.9%
194	42	Lanoxin 0.125 mg tab	1000	GlaxoSmithKline	Cardiac Glycosides	3.7%	15.8%
196	87	Lanoxin 0.25 mg tab	100	GlaxoSmithKline	Cardiac Glycosides	3.7%	15.9%
197	77	Lanoxin 0.25 mg tab	1000	GlaxoSmithKline	Cardiac Glycosides	3.7%	15.8%
98	83	Lantus 100 U/ml inj	10	Aventis	Misc Therapeutic Agents	9.8%**	N/A
141	130	Lescol 20 mg cap	100	Novartis	Antihyperlipidemic (Statins)	7.6%	33.8%
100	101	Lescol 40 mg cap	100	Novartis	Antihyperlipidemic (Statins)	7.6%	33.8%

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
67	91	Lescol XL 80 mg tab	100	Novartis	Antihyperlipidemic (Statins)	7.2%**	N/A
114	96	Levaquin 250 mg tab	50	McNeil	Anti-Infective Agents	4.9%	21.2%
23	24	Levaquin 500 mg tab	50	McNeil	Anti-Infective Agents	4.4%	18.9%
53	52	Lexapro 10 mg tab	100	Forest	Antidepressants, SSRIs	2.8%**	N/A
2	2	Lipitor 10 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	6.0%	26.3%
4	6	Lipitor 20 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	4.8%	20.4%
21	37	Lipitor 40 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	0.0%	0.0%
127	164	Lipitor 80 mg tab	90	Pfizer	Antihyperlipidemic (Statins)	0.0%**	N/A
186	109	Lotensin 10 mg tab	100	Novartis	ACE Inhibitors	7.7%	34.5%
132	86	Lotensin 20 mg tab	100	Novartis	ACE Inhibitors	7.7%	34.5%
57	65	Lotrel 5-10 mg cap	100	Novartis	Antihypertensive Combinations	6.6%	29.2%
29	36	Lotrel 5-20 mg cap	100	Novartis	Antihypertensive Combinations	7.3%	32.5%
158	161	Lotrel 10-20 mg cap	100	Novartis	Antihypertensive Combinations	6.6%**	N/A
166	121	Lumigan 0.03 % sol	2.5	Allergan	Ophthalmics Solutions	6.0%**	N/A
140	175	Lumigan 0.03 % sol	5	Allergan	Ophthalmics Solutions	6.0%**	N/A
148	82	Macrobid 100 mg cap	100	Proctor & Gamble	Genitourinary Products	8.9%	40.4%
28	30	Miacalcin 200 IU/AC spr	2 x 2	Novartis	Calcium Regulators	6.2%	27.2%
193	103	Miralax 3350 mg powder	255	BrainTree	Misc Therapeutic Agents	7.5%	33.7%
187	108	Miralax 3350 mg powder	527	BrainTree	Misc Therapeutic Agents	7.5%	33.7%
117	137	Mobic 7.5 mg tab	100	Abbott	Arthritis Agents, COX 2s	10.2%**	N/A

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
164	106	Monopril 10 mg tab	90	Bristol-Myers Squibb	ACE Inhibitors	9.2%	42.1%
172	120	Monopril 20 mg tab	90	Bristol-Myers Squibb	ACE Inhibitors	9.2%	42.1%
179	149	Nasonex 50 mcg/act spr	17	Schering	Respiratory Inhalers	7.9%	35.4%
112	63	Neurontin 100 mg cap	100	Pfizer	Anticonvulscants	3.5%	15.0%
25	32	Neurontin 300 mg cap	100	Pfizer	Anticonvulscants	3.5%	15.0%
131	189	Neurontin 600 mg tab	100	Pfizer	Anticonvulscants	2.2%	9.2%
11	26	Nexium 40 mg cap	30	AstraZeneca	Ulcer Agents (PPIs)	4.1%**	N/A
82	70	Norvasc 2.5 mg tab	90	Pfizer	Calcium Blockers	4.6%	19.7%
8	3	Norvasc 5 mg tab	90	Pfizer	Calcium Blockers	4.6%	19.7%
47	28	Norvasc 5 mg tab	300	Pfizer	Calcium Blockers	4.6%	19.7%
10	8	Norvasc 10 mg tab	90	Pfizer	Calcium Blockers	0.0%	0.0%
178	159	Oxycontin 10 mg tab CR	100	Purdue Pharmaceuticals	Narcotic Analgesics	4.5%	19.2%
85	170	Oxycontin 20 mg tab CR	100	Purdue Pharmaceuticals	Narcotic Analgesics	4.5%	19.2%
155	197	Oxycontin 40 mg tab CR	100	Purdue Pharmaceuticals	Narcotic Analgesics	4.5%	19.2%
123	134	Paxil 10 mg tab	30	GlaxoSmithKline	Antidepressants, SSRIs	5.8%	25.3%
49	69	Paxil 20 mg tab	100	GlaxoSmithKline	Antidepressants, SSRIs	5.8%	25.3%
180	166	Paxil CR 12.5 mg tab	30	GlaxoSmithKline	Antidepressants, SSRIs	4.3%**	N/A
175	173	Paxil CR 25 mg tab	30	GlaxoSmithKline	Antidepressants, SSRIs	4.3%**	N/A
9	21	Plavix 75 mg tab	30	Bristol-Myers Squibb	Platelet Aggregation Inhibitors	7.8%	35.1%
3	7	Plavix 75 mg tab	90	Bristol-Myers Squibb	Platelet Aggregation Inhibitors	7.8%	35.1%

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
157	184	Plavix 75 mg tab	500	Bristol-Myers Squibb	Platelet Aggregation Inhibitors	7.8%	35.1%
80	118	Pletal 100 mg tab	60	Otsuka America	Platelet Aggregation Inhibitors	6.0%	26.2%
19	29	Pravachol 20 mg tab	90	Bristol-Myers Squibb	Antihyperlipidemic (Statins)	7.9%	35.5%
18	48	Pravachol 40 mg tab	90	Bristol-Myers Squibb	Antihyperlipidemic (Statins)	4.9%	21.0%
139	73	Premarin 0.3 mg tab	100	Wyeth	Estrogens	21.4%	117.1%
33	14	Premarin 0.625 mg tab	100	Wyeth	Estrogens	16.3%	82.9%
72	39	Premarin 0.625 mg tab	1000	Wyeth	Estrogens	16.8%	86.0%
171	122	Premarin 1.25 mg tab	100	Wyeth	Estrogens	13.8%	68.0%
185	145	Premarin Vag 0.625 mg cre	42.5	Wyeth	Genitourinary Products	10.0%	46.5%
90	165	Prevacid 15 mg cap DR	30	TAP	Ulcer Agents (PPIs)	5.2%	22.6%
5	15	Prevacid 30 mg cap DR	100	TAP	Ulcer Agents (PPIs)	5.2%	22.6%
96	176	Prilosec 20 mg cap CR	30	AstraZeneca	Ulcer Agents (PPIs)	2.7%	11.2%
89	132	Proscar 5 mg tab	30	Merck	Genitourinary Products	6.0%	26.1%
70	110	Proscar 5 mg tab	100	Merck	Genitourinary Products	6.0%	26.1%
7	12	Protonix 40 mg tab	90	Wyeth	Ulcer Agents (PPIs)	5.4%**	N/A
151	191	Reminyl 4 mg tab	60	Janssen	Anti-Dementia Agents	5.5%**	N/A
102	174	Reminyl 8 mg tab	60	Janssen	Anti-Dementia Agents	5.5%**	N/A
153	185	Risperdal 0.5 mg tab	60	Janssen	Antipsychotics	6.2%	27.0%
154	162	Serevent 21 mcg/act aer	13	GlaxoSmithKline	Respiratory Inhalers	7.2%	32.0%
165	168	Serevent Disk 50 mcg aer	60	GlaxoSmithKline	Respiratory Inhalers	7.3%	32.7%

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
105	126	Seroquel 25 mg tab	100	AstraZeneca	Antipsychotics	4.7%	20.0%
61	84	Singulair 10 mg tab	30	Merck	Misc Therapeutic Agents	6.1%	26.7%
126	154	Singulair 10 mg tab	90	Merck	Misc Therapeutic Agents	6.1%	26.7%
191	60	Synthroid 25 mcg tab	100	Abbott	Thyroid Hormones	11.8%	56.3%
97	16	Synthroid 50 mcg tab	100	Abbott	Thyroid Hormones	11.9%	56.6%
107	22	Synthroid 75 mcg tab	100	Abbott	Thyroid Hormones	11.8%	56.3%
189	67	Synthroid 88 mcg tab	100	Abbott	Thyroid Hormones	11.9%	56.6%
88	20	Synthroid 100 mcg tab	100	Abbott	Thyroid Hormones	11.8%	56.4%
174	54	Synthroid 125 mcg tab	100	Abbott	Thyroid Hormones	11.8%	56.2%
66	23	Toprol XL 25 mg tab	100	AstraZeneca	Beta Blockers Cardio-Selective	7.0%**	N/A
22	4	Toprol XL 50 mg tab	100	AstraZeneca	Beta Blockers Cardio-Selective	6.5%	28.9%
31	13	Toprol XL 100 mg tab	100	AstraZeneca	Beta Blockers Cardio-Selective	6.5%	28.9%
169	123	Travatan 0.004 % sol	2.5	Alcon Vision	Ophthalmics Solutions	8.1%**	N/A
45	71	Tricor 160 mg tab	90	Abbott	Antihyperlipidemic (Other Agents)	9.6%**	N/A
84	68	Ultracet 37.5-325 mg tab	100	McNeil	Narcotic Analgesics	6.8%**	N/A
136	141	Viagra 50 mg tab	30	Pfizer	Misc Therapeutic Agents	3.7%	15.7%
60	79	Viagra 100 mg tab	30	Pfizer	Misc Therapeutic Agents	3.7%	15.7%
111	133	Vioxx 12.5 mg tab	100	Merck	Arthritis Agents, COX 2s	4.5%	19.4%
16	19	Vioxx 25 mg tab	100	Merck	Arthritis Agents, COX 2s	4.5%	19.4%
177	190	Welchol 625 mg tab	180	Sankyo	Antihyperlipidemic (Other Agents)	3.5%**	N/A

Rank by Sales Among Study Sample*	Rank by Prescriptions Among Study Sample*	Product Name, Strength, and Dosage Form	Package Size	Manufacturer	Therapeutic Class	Average Annual % Change in WAC, 2000-2003**	Cumulative % Change in WAC, Dec. 99-Dec. 03
133	155	Wellbutrin SR 150 mg tab	60	GlaxoSmithKline	Antidepressants, Other	7.8%	35.3%
14	5	Xalatan 0.01 % sol	2.5	Pfizer	Ophthalmics Solutions	5.4%	23.5%
39	49	Zetia 10 mg tab	30	Merck/Schering	Antihyperlipidemic (Other Agents)	4.5%**	N/A
36	17	Zithromax 250 mg tab	3 x 6	Pfizer	Anti-Infective Agents	4.6%	19.7%
93	119	Zocor 10 mg tab	30	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
122	148	Zocor 10 mg tab	90	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
24	57	Zocor 20 mg tab	30	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
77	169	Zocor 20 mg tab	60	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
50	111	Zocor 20 mg tab	90	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
34	81	Zocor 40 mg tab	30	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
137	192	Zocor 40 mg tab	60	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
74	144	Zocor 40 mg tab	90	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
95	151	Zocor 80 mg tab	30	Merck	Antihyperlipidemic (Statins)	5.9%	25.8%
159	157	Zoloft 25 mg tab	50	Pfizer	Antidepressants, SSRIs	5.5%	23.9%
26	33	Zoloft 50 mg tab	100	Pfizer	Antidepressants, SSRIs	4.7%	20.0%
46	58	Zoloft 100 mg tab	100	Pfizer	Antidepressants, SSRIs	3.9%	16.7%
62	142	Zyprexa 2.5 mg tab	60	Lilly	Antipsychotics	3.7%	15.4%
83	182	Zyprexa 5 mg tab	60	Lilly	Antipsychotics	3.7%	15.4%
59	51	Zyrtec 10 mg tab	100	Pfizer	Antihistamines, Non-Sedating	3.2%	13.4%

*Ranking by sales is based on dollar value of prescriptions processed by the AARP Pharmacy Service in 2003; ranking by prescriptions is based on the number of prescriptions processed by the AARP Pharmacy Service in 2003.
**For drugs not on the market for the entire four-year period, average annual 2000-2003 change is calculated as change beginning with the month of product introduction
N/A indicates not applicable (for products that were not on the market in December 1999).
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., March 2004).