# Prescription Drug Spending Trends In The United States: Looking Beyond The Turning Point

The drug spending trends observed in the 1980s, 1990s, and the first few years of this decade have changed dramatically in the past five years—bringing both opportunity and threat.

**by Murray Aitken, Ernst R. Berndt, and David M. Cutler**

**ABSTRACT:** Annual growth in real prescription drug spending averaged 9.9 percent during 1997–2007 but has slowed since 2003, falling to 1.6 percent in 2007. More patent expirations, increased generic penetration, and reduced new product innovations have contributed to this turning point. We document trends and identify underlying components: declines in the role of blockbuster drugs, increased importance of biologics and vaccines relative to traditional pharmaceuticals, and a changing medication mix away from those prescribed principally by primary care physicians toward those mostly prescribed by specialists. We conclude with policy implications. [*Health Affairs* 28, no. 1 (2009): w151–w160 (published online 16 December 2008; 10.1377/hlthaff.28.1.w151)]

Adjusted for inflation, U.S. spending on prescription drugs grew 9.9 percent annually between 1997 and 2007—tripling in total real spending.[1] Since 2003, however, growth rates have declined rapidly, and in 2007 spending grew but 1.6 percent—the slowest since 1974, the only decline on record (Exhibit 1).

Although comparable 2007 national data on other health-sector spending are not yet available, prescription drug spending growth is likely to be lower than any other major medical care sector. Whereas prescription drug costs were once the bane of payers, that concern has now been replaced by worries about hospital care, imaging, and professional services.[2]

What accounts for the decline in the growth of overall drug spending? Do re-

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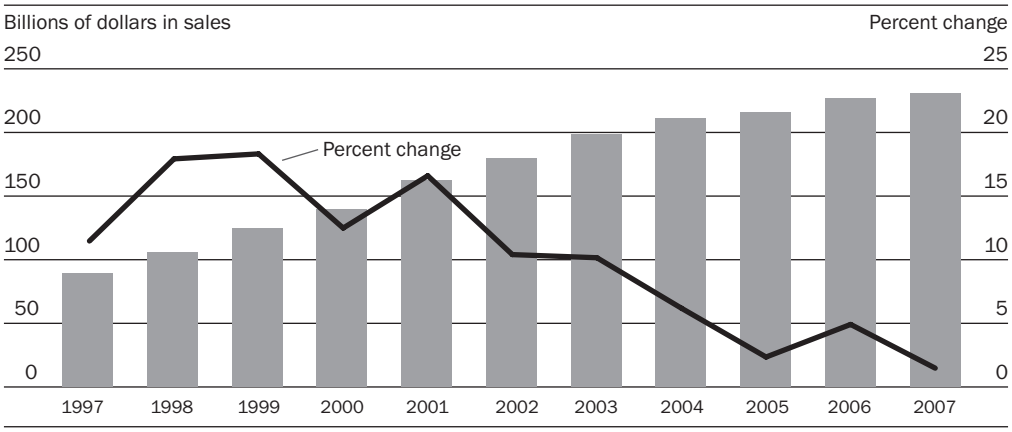
**EXHIBIT 1**
**Size And Growth Of The U.S. Retail Pharmaceutical Market, 1997–2007**




**SOURCE:** IMS Health, National Sales Perspectives, December 2007 (sales deflated by implicit gross domestic product deflator, $2000).
**NOTES:** Dollar figures (bars) relate to the left-hand *y* axis. Percent change (line) relates to the right-hand *y* axis.

cent trends suggest a new era of low growth? What are the policy implications of the turning point? We explore these issues here. Our data come from the National Sales Perspectives (NSP), which audits sales of pharmaceutical products from wholesalers to pharmacies and other outlets, and the National Prescription Audit (NPA), which tracks prescriptions dispensed by pharmacists; both are produced by IMS Health.

## Components Underlying Changing Trends In Prescription Drug Sales

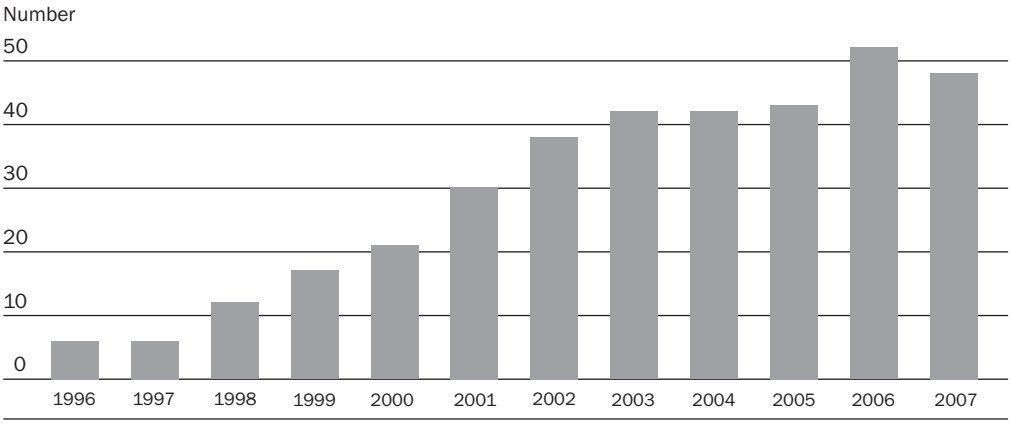
Underlying the trends in overall drug sales are several dynamics driven by changes in "blockbuster" drugs; shifts in the mix of medications between primary care and specialist drugs; and changes in the mix among traditional chemical-based pharmaceuticals, biologics, and vaccines.

■ **Blockbuster drugs.** The number of blockbuster drugs—those selling in excess of $1 billion (real 2000 dollars) in the United States—increased more than eightfold between 1997 and 2006, from six to fifty-two (Exhibit 2).[3] Concomitantly, spending on blockbusters increased from about 12 percent of all sales in 1996 to almost half of all sales in 2006, accounting for three-quarters of prescription drug spending growth over the same time period.

In 2007, for the first time, the number of billion-dollar products fell—from fifty-two to forty-eight—and their share of all sales also fell slightly, to 44 percent. As more blockbusters go off patent and fewer new ones are developed, the share of sales attributable to blockbuster molecules will likely decline still further.

■ **Primary care and specialist drugs.** A marked change has occurred in the mix of medications away from those prescribed principally by primary care physicians

**EXHIBIT 2**
**Number Of Blockbuster Drugs, 1996–2007**




**SOURCE:** IMS Health, Market Insights Analysis, December 2007.
**NOTE:** Blockbuster drugs are those exceeding $1 billion in sales per year in 2000 dollars.

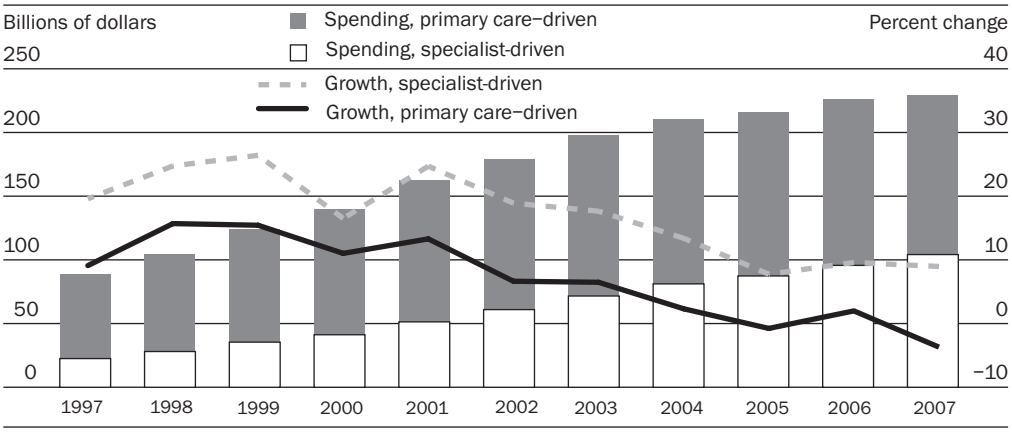
and toward those prescribed mostly by specialists.[4] In 2007, the five leading primary care–driven therapeutic classes (by dollars) were the lipid regulators, acid pump inhibitors, respiratory agents, antidepressants, and oral antidiabetics. Together they accounted for 22 percent of drug spending. Primary care drugs as a whole accounted for 55 percent of all sales. Leading specialist drug therapeutic classes included oncologics, antipsychotics, anti-epileptics, erythropoetins, and autoimmune agents. These five categories accounted for 20 percent of all drug spending, while specialist drugs as a whole accounted for 45 percent.

Notably, real spending growth in primary care–driven drugs fell steadily between 2003 and 2005, from 6.4 percent in 2003 to –0.8 percent in 2005, increasing temporarily to 1.9 percent in 2006, but then declining by 3.7 percent in 2007 (Exhibit 3). In sharp contrast, specialist-driven real drug spending grew 17.5 percent in 2003, slowed to 7.7 percent in 2005 and then rebounded to 9.5 percent in 2006 and 8.9 percent in 2007. The reduction in overall prescription drug sales growth is therefore due entirely to slower growth and even declines in sales of primary care drug classes.

■ **Pharmaceuticals, biologics, and vaccines.** Changes are also apparent in the mix among traditional pharmaceuticals, biologics, and vaccines. Traditional pharmaceuticals are "small molecule" drugs, in contrast to larger-protein biologics (defined as medications manufactured via recombinant DNA technology) and vaccines. The most significant biologic molecules are oncologics; they are significant for their targeted approach to slowing cancer progression and for their high cost of treatment: According to IMS Health data, Avastin (colorectal cancer) cost on average $42,960, Herceptin (breast cancer) cost $27,990, and Tykerb (breast cancer) cost $16,575 per course of treatment in 2007.

The price of oncologics has been increasing over time. The most expensive drug

**EXHIBIT 3**
**Size And Growth Of The U.S. Primary Care–Driven And Specialist-Driven Prescribing Markets, 1997–2007**




**SOURCE:** IMS Health, National Sales Perspectives, December 2007 (sales deflated by implicit gross domestic product deflator, $2000).
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in the early 1990s was Taxol (used for treating breast cancer), which sold for $4,000 per year. The cost of Avastin today is ten times higher.

Vaccines, once a neglected sector, have recently become much more important. Prevnar, a conjugate pneumococcal vaccine, and Gardasil, for prevention of cervical cancer, are the first two blockbuster vaccines, with the current private-sector price being $84 and $125 per dose, respectively, for the three-dose regimen.[5]

The decomposition among pharmaceuticals, biologics, and vaccines corresponds as well to drugs that are mostly self-administered (small-molecule pharmaceutical tablets and capsules) versus therapies primarily administered by health care providers (biologics and vaccines, injected or infused).

Between 2002 and 2007, real spending on biologics grew at an average annual rate of 16 percent, while vaccine spending grew 19.3 percent annually. In comparison, sales of traditional small-molecule drugs grew only 3.7 percent annually. Overall, biologics' share of the market rose from 9 percent in 2002 to 15 percent in 2007, while vaccine sales grew from less than 1 percent in 2002 to 2 percent in 2007. Molecule types are also related to the specialty of the prescribing physician. Almost all biologics are prescribed by specialists and a sizable portion of spending in specialty-driven biologics is for oncology products. Thus, the growth of biologics and the shift to specialty-physician therapies are intimately related.

## Causes Of Change

Underlying these trends in sales are dramatic changes in pharmaceutical innovation, along with a transformed market environment.

■ **Pharmaceutical innovation.** Despite remarkable advances in our under-

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