

# HEALTH INSURANCE AND THE GROWTH IN PHARMACEUTICAL EXPENDITURES\*

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## ABSTRACT

This paper examines the contribution of insurance coverage to the recent unprecedented growth in spending on pharmaceuticals. Trends in drug spending over time closely paralleled the growth in drug coverage. Most of the coverage growth reflects an increase in the number of people with coverage, 65 percent from 1987 to 1996, rather than increased depth of coverage. The direct moral hazard effect of this insurance growth accounts for between one-fourth and one-half of the increase in drug spending. Technological change contributed to these changes, because both the flow of new drugs increased the demand for insurance and information technologies enabled the development of pharmacy benefit management, which reduced the real price of drug coverage. It is plausible that insurance growth also stimulated drug promotion. The only obvious source of inefficiency is the tax subsidy, which may lead to excessive insurance and promotion. This applies to all health care, not just pharmaceuticals.

## I. INTRODUCTION

**T**HE rapid growth of spending on pharmaceuticals in recent years has captured the attention of managers, policy makers, consumers, and analysts. Spending on outpatient drugs grew at a rate of 17 percent in 1999, compared with 8.2 percent in 1990 and 1.1 percent in 1980, whereas total health spending grew at a rate of 3.3 percent in 1999, 6.4 percent in 1990, and 5.6 percent in 1980. Consequently, the share of total health spending accounted for by outpatient drugs increased from 4.9 percent in 1980 to 8.5 percent in 1999. Drug spending is also blamed for a resumption of increases in health insurance premiums, from .8 percent in 1996 to 8.3 percent in 2000.<sup>1</sup> Previous analyses of these trends have provided an accounting decomposition of the growth in drug spending and have distinguished increases in volume of prescriptions (scripts), shifts to more expensive products, and price increases for existing products. In the 1990s, the dominant contributors to spending growth are

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<sup>1</sup> Bradley C. Strunk, Paul B. Ginsburg, & Jon R. Gabel, Tracking Health Care Costs: Growth Accelerates Again in 2001, Health Aff. Web Exclusive (September 2002) (<http://www.healthaffairs.org/WebExclusives/2106Strunk.pdf>).

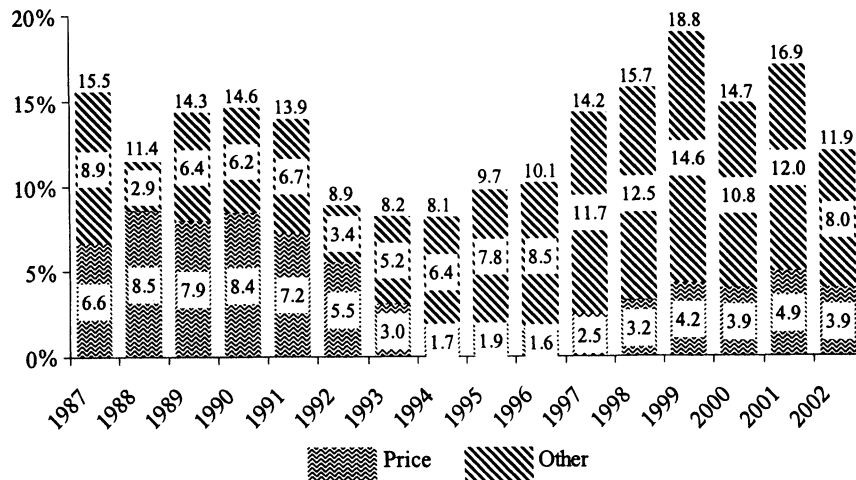


FIGURE 1.—Growth in spending due to price versus volume and innovation (other). Year over year percentage changes are shown. Data are from IMS Health, Retail and Provider Perspective (February 2003).

more prescriptions and shifting to more expensive products, which together account for 75 percent of total drug-spending growth in the 1994–99 time period, with price increases accounting for only 25 percent of the total (see Figure 1).

The purpose of this paper is to analyze the causes of the unprecedented rise in outpatient drug use in the 1990s and, in particular, to examine the role of growth in insurance coverage, which paralleled the acceleration of drug spending. The share of outpatient drug expenditures paid out-of-pocket declined from 69.4 percent in 1980 to 59.1 percent in 1990, with a more rapid decline to 33.4 percent in 1999. Standard theories of insurance and moral hazard suggest that this increase in drug coverage would trigger some growth in utilization. Ernst Berndt identifies the growth in insurance as one of four contributors to drug-spending growth, along with new products, the relaxing of the rules governing direct-to-consumer (DTC) advertising in 1997, and “the importance of being unimportant,” a spending share too small to attract the interest of cost controllers and one that has already self-corrected.<sup>2</sup> Robert DuBois et al. discuss the role of new products. Neither of these prior studies quantify the direct effect of insurance growth, nor do they discuss the connection between insurance and these other contributing factors.<sup>3</sup>

<sup>2</sup> Ernst R. Berndt, *The U.S. Pharmaceutical Industry: Why Major Growth in Times of Cost Containment?* 20 *Health Aff.* 100 (March/April 2001).

<sup>3</sup> Robert W. DuBois et al., *Explaining Drug Spending Trends: Does Perception Match Reality?* 19 *Health Aff.* 231 (March/April 2000).

In this paper, we analyze both the direct effect of insurance on drug use (the moral hazard effect) and several indirect channels whereby growth of insurance can contribute to growth in drug spending. Specifically, we first decompose the growth in overall insurance coverage to provide evidence on how much of the decline in the percent paid out-of-pocket reflected an increase in the number of people covered and how much reflected an increase in the depth of coverage (fraction of spending covered) for those with insurance. Second, we use empirically based demand elasticity measures to estimate how much of the spending growth might reasonably be attributed to the direct or moral hazard effect of these insurance changes. We conclude that these direct effects alone may account for one-fourth to one-half of the growth in drug spending. Third, we discuss more qualitatively the possible indirect effects of insurance, through incentives for research and development (R&D) and hence the flow of new products, through incentives for DTC and other forms of drug promotion, and through prices.

We also take the inquiry one step further back, to examine reasons for the unprecedented growth in drug insurance during the 1990s. Several previous authors (for example, Burton Weisbrod) have hypothesized that an increase in insurance coverage can lead to a higher rate of technological change and hence to a higher rate of change in spending and that there may be some feedback effect from spending on demand for insurance.<sup>4</sup> In the case of drugs, we argue that the reverse effect is more likely, that technological change, in the form of new drug therapies and new insurance technologies, contributed to the growth in level and type of drug coverage, which in turn played a major role in drug-spending growth. In conclusion, we offer some comments on whether these trends are likely to continue and some preliminary normative analysis of whether the increases in coverage and in drug spending is efficient.

## II. TRENDS IN DRUG EXPENDITURES AND COVERAGE

Table 1 documents the time trends in expenditures and insurance coverage for drugs relative to other medical services in the United States for the period 1960–98. Over this long time frame, spending growth shifted from the inpatient sector to the outpatient sector. For the first 2 decades, drug spending grew less rapidly than hospital spending. Consequently, the drug share of total spending declined from 10 percent in 1960 to about 5 percent in 1985. In the last half of the 1980s, hospital spending growth declined relative to both drug spending and physician spending. Since 1990, drug spending has outpaced all the other major spending components. In real terms, drug-spending growth, although higher than the growth of real gross domestic

<sup>4</sup> Burton A. Weisbrod, *The Health Care Quadrilemma: An Essay on Technological Change, Insurance, Quality of Care, and Cost Containment*, 29 *J. Econ. Literature* 523 (1991).

TABLE 1  
TRENDS IN EXPENDITURES AND INSURANCE COVERAGE, 1960-99: PHARMACEUTICALS AND OTHER MEDICAL SERVICES

	1960	1970	1980	1990	1995	1996	1997	1998	1999
Expenditure share categories (%):									
Hospital care	34.4	37.8	41.3	36.5	34.7	34.2	33.7	33.0	32.3
Physician services	20.1	19.1	19.2	22.6	22.3	22.1	22.1	22.3	22.2
Prescription drugs	10.0	7.5	4.9	5.8	6.1	6.5	6.9	7.6	8.5
All other	35.5	35.5	34.6	35.1	36.9	37.3	37.3	37.1	37.0
Growth rates:									
Prescription drugs:									
Real annual expenditure growth <sup>a</sup>	N.A.	4.6	1.1	8.2	6.0	8.4	11.2	13.6	17.0
% paid out of pocket	96	82.4	69.4	59.1	42.7	39.5	36.8	34.9	33.4
Average annual change in % paid out of pocket	N.A.	-1.4	-1.3	-1.0	-3.2	-2.7	-2.7	-1.9	-1.5
Average annual % change in proportion paid out of pocket	N.A.	-1.4	-1.8	-1.5	-6.2	-6.6	-7.0	-5.3	-4.3
Total personal health spending:									
Real annual growth <sup>a</sup>	N.A.	7.3	5.6	6.4	4.8	3.4	3.7	3.9	3.3
% paid out of pocket	55.2	39.7	27.1	22.5	16.9	16.7	16.9	17.3	17.4
Average annual % change in proportion paid out of pocket	N.A.	-2.8	-3.2	-1.7	-5.0	-1.2	1.2	2.4	.5

SOURCE.—Health Care Financing Administration, Historical National Health Expenditures by Type of Service and Source of Funds: Calendar Years 1960-2000 (September 17, 2002) (<http://cms.hhs.gov/statistics/nhe/default.asp>)

NOTE.—These figures differ from those in table 2 in Patricia M. Danzon & Mark V. Pauly, Insurance and New Technology: From Hospital to Drug Store, 20 (5) Health Aff. 86 (2001), because they reflect substantial revisions in government estimates of health expenditures and, especially, prescription drug coverage.

<sup>a</sup> Deflated by GNP implicit price deflator; continuous growth rates.

product (GDP), decelerated until about 1980, then began to pick up and grew at double-digit rates from 1997 onward.<sup>5</sup> These trends no doubt reflect many causes, including technological change, that enabled the shift of care from inpatient to outpatient settings. However, the bottom seven rows of Table 1 suggest that trends in insurance coverage may have played a role.

Trends in insurance coverage for outpatient drugs move in close parallel to these trends in drug expenditures, growing slowly initially and then accelerating in the 1990s. The center four rows of Table 1 show that for each decade from 1960 to 1990, the proportion of aggregate drug expenditures paid out-of-pocket fell about 12 percentage points per decade, from 96 percent in 1960 to about 59 percent in 1990, then dropping to about 33 percent in 1999. But measured as an annual percentage change in the out-of-pocket share, which takes into account the decline in the base coverage level over time, the rate of growth of coverage has accelerated from less than 2 percent per year through the 1960s, 1970s, and 1980s to 6–7 percent per year in the mid-1990s. Thus, the acceleration of drug spending in the 1990s coincides with a dramatic acceleration in the rate of growth of drug coverage. By contrast, the percent paid out-of-pocket for other personal health spending leveled off and then slightly increased in the late 1990s (Table 1).

This overall pattern for the last 40 years of positive correlation between trends in growth in drug insurance coverage and (slightly lagged) drug-spending growth is consistent with the hypothesis that changes in spending are positively related to changes in insurance coverage. But correlation, of course, does not establish causation in any event.

With regard to the components of the drug-spending growth, as indicated in Figure 1, on the basis of IMS Health data, the increase in drug spending in the 1990s was associated primarily with increases in the volume of prescriptions or units per capita and shifts toward more expensive products, which together comprise about 80 percent of the growth in drug spending over this period. Only about 20 percent (or less, depending on the year) is attributable to rising prices for existing products;<sup>6</sup> of this, over half is due to economy-wide inflation, leaving a very small share attributable to excess

<sup>5</sup> The measures of drug expenditures reported in the National Health Accounts (NHA) do not include drugs purchased during a hospital stay, physician or clinic visit, or some nursing home stays, because these expenditures are classified as revenues of the institution that received payment. The NHA drug-spending estimates are also reduced to reflect rebates from drug manufacturers to insurers. For these and other reasons, total drug spending as reported in the NHA may differ from the drug-spending total reported by IMS Health.

<sup>6</sup> The contribution of price increase may depend on the type of index used—base-weighted Laspeyres or chained Divisia. The source is unclear on this point. IMS Health, Retail and Provider Perspective (February 2003) (<http://www.imshealth.com>).

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