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The Coming of Age

**A Technical Paper on
Aging, Health and
Arizona's Capacity to Care**

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**The Reasons Behind
Increasing Pharmaceutical Expenditures**

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Preface

Aging affects all dimensions of our society, but none so much as health. Because of this, St. Luke's Health Initiatives asked Arizona State University's School of Public Affairs and Morrison Institute for Public Policy to explore Arizona's capacity to meet the demands likely from an aging population.

This complex topic called for analysis from a variety of disciplines. Hence, as a key part of The Coming of Age research effort, we invited experts from different fields to explore and write about the topics essential to understanding public policy choices for an aging future. *The Coming of Age Technical Series* is the result. These papers provide in-depth, objective analyses of important trends and facts at the heart of the coming of age.

These technical papers provided the foundation for *The Coming of Age: Aging, Health and Arizona's Capacity to Care*, as well as *Four Scenarios of Arizona's Future*. All of the products from The Coming of Age project are available at www.slhi.org.

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The Reasons Behind Increasing Pharmaceutical Expenditures

During the 1990s, prescription drug expenditures increased at a much more rapid rate than all other health care expenditures.¹ These increases led to such media cover stories as *Newsweek*'s "Why Drugs Cost So Much"² and *Business Week*'s "Drug Prices: What's Fair?."³ This paper presents a more technical analysis than those done in the popular press. It explains the reasons why pharmaceutical expenditures have increased so rapidly in recent years in the United States and Arizona, and then considers the policy implications of rising prices.

The Increase in U.S. Pharmaceutical Expenditures

Table 1 shows the annual percent change from the preceding year in hospital care, physician/clinical service, and prescription drug expenditures during the 1990s. Except for 2000, rates of increase in hospital care expenditures have generally been downward, reaching a low of 2.6 percent in 1998. Rates of increase in physician/clinical service expenditures also declined during most of the 1990s but, as with hospital care expenditures, have shown a slight upward trend in the last two years. Rates of increase in prescription drug expenditures declined between 1990 and 1993, but then increased dramatically from 1993–2000. Between 1999–2000 alone, prescription drug expenditures increased by 17.4 percent. That is why many policymakers and politicians are concerned about prescription drug prices.

Table 1
Annual Percent Change in Selected
National Health Expenditures, 1990–2000

	Hospital Care (%)	Physician/Clinical Services (%)	Prescription Drugs (%)
1990	8.8	11.9	13.1
1991	10.1	11.0	11.4
1992	8.2	8.4	7.3
1993	5.9	6.1	6.2
1994	3.9	4.6	6.6
1995	3.4	4.8	11.4
1996	3.6	4.0	10.5
1997	3.3	5.1	11.8
1998	2.6	5.5	13.4
1999	3.7	6.0	16.9
2000	6.4	7.3	17.4

Source: Data from the Kaiser Family Foundation.⁴

Growth in prescription drug expenditures is the result of more than increases in drug prices. Table 2 shows the components of increases in prescription drug expenditures from 1993–1997

and 1997–2000, two periods when prescription drug expenditures increased at relatively rapid rates. What Table 2 clearly shows is that, despite the complaints of such consumer-advocate groups as the AARP and Families USA, price increases only accounted for 19 percent of the expenditure increase during the period 1993–1997, and for 24 percent between 1997–2000. In both periods, the largest single contributor to prescription drug expenditure increases was utilization (the number of prescriptions dispensed). Utilization accounted for 48 percent of the increase in prescription drug expenditures in both time periods. Indeed, between 1992–2000, the number of prescriptions dispensed increased from 1,873.4 million to 2,979.9 million, or, from 7.3 prescriptions per capita to 10.8 per capita.⁵ As will be shown shortly, a flood of newer, safer, and more effective drugs have come onto the market in recent years; however, they are also more expensive to research and to produce than many of the older drugs. That is why prescription drug “Types” in the last row of Table 2 accounted for 33 percent of the increase in drug expenditures between 1993–1997, and for 28 percent between 1997–2000.

Table 2
Contribution of Price, Utilization, and Types of Prescription Drugs
Consumed to Rising Prescription Drug Expenditures, 1993–1997 and 1997–2000

	1993–1997		1997–2000	
	(% Contribution to Total)	Average Annual Change (%)	(% Contribution to Total)	Average Annual Change (%)
Price ^a	19	1.9	24	3.8
Utilization ^b	48	4.6	48	7.1
Types ^c	33	3.2	28	4.2
	100		100	

^a Manufacturer price increases.

^b Number of prescriptions dispensed.

^c Types of prescription drugs consumed.

Source: Data from the Kaiser Family Foundation, *Prescription Drug Trends: A Chartbook Update*.⁶

Table 3 contains per capita personal health care expenditures and prescription drug expenditures for the United States between 1980 and 1998. The third column of Table 3 shows prescription drug expenditures as a percent of personal health care expenditures. Between 1980 and 1989, this percentage ranged from 5.3 percent in 1982 to 6.0 percent in 1989. Between 1990 and 1998, the percentage continuously increased from 6.2 percent to 8.9 percent.

The increasing importance of prescription drugs as a component of personal health care expenditures is generally attributable to three factors: (1) the growth in insurance coverage for prescription drugs; (2) the rapid introduction of new, more effective drugs; and (3) the explosive growth of direct-to-consumer advertising.⁷

Table 4 shows the change in insurance coverage for prescription drugs between 1990 and 2000. In 1990, out-of-pocket expenditures paid for 59.1 percent of prescription drugs; by 2000, this percentage had fallen to 34.3 percent. Most of the decrease in out-of-pocket expenditure was due to the large increase in private health insurance coverage, but *not* much to an increase in public health insurance coverage, which only increased from 16.4 percent in 1990 to 21.8 percent in 2000. Although now somewhat dated, the RAND health insurance experiment did show that prescription drug expenditures are price elastic with respect to insurance coverage.⁸

That means that insurance coverage affects how people purchase prescription drugs and at what prices they are willing to purchase them. For example, someone with insurance coverage who pays less for prescription drugs now than they did without coverage is probably more likely to use more drugs for a greater total expenditure.

Table 3
U.S. Per Capita Personal Health Care and
Prescription Drug Expenditures (1980–1998)

Year	\$ Personal Health Care (millions)	\$ Prescription Drugs (millions)	Prescription Drugs in Personal Health Care Expenditures (%)
1980	952.64	53.19	5.6
1981	1,092.48	58.39	5.4
1982	1,216.82	64.87	5.3
1983	1,326.34	72.05	5.4
1984	1,441.14	79.25	5.5
1985	1,574.81	88.92	5.6
1986	1,701.46	99.55	5.9
1987	1,847.45	109.51	5.9
1988	2,032.92	120.32	5.9
1989	2,219.48	133.19	6.0
1990	2,454.49	151.05	6.2
1991	2,684.89	167.17	6.2
1992	2,894.24	182.74	6.3
1993	3,056.34	196.44	6.4
1994	3,193.09	212.03	6.6
1995	3,334.58	232.23	7.0
1996	3,472.87	259.78	7.5
1997	3,606.81	293.36	8.1
1998	3,760.22	335.36	8.9

Source: Data from the Kaiser Family Foundation, *Prescription Drug Trends: A Chartbook Update*.⁹

Table 4
Expenditures for Prescription Drugs, by Source of Funds

Source of Funds	1990 (%)	2000* (%)
Out-of-Pocket	59.1	34.3
Private Health Insurance	24.5	43.9
Public	16.4	21.8
Total	100.0	100.0

* Projected

Source: Data from the Kaiser Family Foundation, *Prescription Drug Trends: A Chartbook Update*.¹⁰

Table 5 presents the number of new drugs brought to market between 1990–2001, ranging from a low of twenty-two new drugs in 1994 to a high of fifty-three in 1996. Research indicates that the increase in the rate of new drug introductions accelerated after the passage of the *Waxman-Hatch Act* in 1984, that streamlined the FDA review process for new drugs and expedited the introduction of generics.¹¹

Table 5
New Drugs Approved by FDA, 1990–2001

Year	Number of New Drugs
1990	23
1991	30
1992	26
1993	25
1994	22
1995	28
1996	53
1997	39
1998	30
1999	35
2000	27
2001	24

Source: Alan F. Holmer and Pharmaceutical Research and Manufacturers Association.¹²

Finally, Table 6 shows drug company expenditures for direct-to-consumer advertising for prescription drugs have increased from \$266 million in 1994 to about \$2.5 billion in 2000.

Table 6
Spending for Consumer Drug Advertising, 1994–2000^a

Year	Amount (millions \$)	Television Advertising (%)
1994	266	13.4
1995	375	14.6
1996	791	27.8
1997	1,069	29.0
1998	1,317	50.5
1999	1,848	61.5
2000	2,467	63.6

^a Television advertising, print, and other.

Source: Data from the Kaiser Family Foundation, *Prescription Drug Trends: A Chartbook Update*.¹⁴

The percentage of those expenditures that were devoted to television advertising increased from 13.4 percent to 63.6 percent. This advertising has been particularly effective in increasing sales

of drugs for chronic ailments, such as arthritis.¹³ The pharmaceutical industry maintains that these expenditures make consumers better informed about the nature of illness and the options that are available to them. Critics believe that the advertising pushes consumers to “ask your doctor” more often. The truth probably lies somewhere between the two positions.

The relatively large increase in the availability and effectiveness of new drugs and spending on them is seen as a problem by some observers. However, the problem is not that these drugs are deemed to be ineffective; indeed, there is strong evidence that, relative to other developed countries, the United States does not spend enough per capita on prescription drugs, with respect to health outcomes.¹⁵ Rather, the problem is seen as one of affordability and, consequently, of access to these pharmaceuticals. About 39 million persons are enrolled in Medicare¹⁶ and, for the most part, Medicare does not cover outpatient prescription drugs. Some 11.9 million Medicare enrollees purchase the so-called Medigap policies and only three of the ten plans available have shallow drug coverage at fairly high premiums.

Table 7 shows the distribution of income for those persons sixty-five plus and for those under age sixty-five. At the bottom end of the income distribution, 33.8 percent of those sixty-five plus have incomes below \$15,000, but only 13.9 percent of those below the age of sixty-five have such low incomes. Clearly, many elders have less financial ability to purchase pharmaceuticals, especially to pay for them out of pocket. Or, it could be that many of them have to spend a larger percentage of their income on pharmaceuticals and less on other things. The second group that would have less access to pharmaceuticals would be the 14 percent of U.S. individuals under the age of sixty-five who are uninsured. In general, this group of people works for small companies, are low paid, and are not in good health.¹⁷

Table 7
Income for Households with Persons Aged 65 and Older
and for Households with Persons Younger than 65 Years, 1998

Household Income (\$)	Age 65 ⁺		Below Age 65	
	Number (000)	% ^a	Number (000)	% ^a
Under \$10,000	3,836	17.8	6,859	8.3
\$10,000 to \$14,999	3,448	16.0	4,645	5.6
\$15,000 to \$24,999	4,893	22.7	9,694	11.8
\$25,000 to \$34,999	3,071	14.2	10,627	12.9
\$35,000 to \$49,999	2,631	12.2	14,029	17.0
\$50,000 to \$74,999	1,886	8.7	17,386	21.1
\$75,000 and over	1,824	8.4	19,036	23.1
Total No. of Households	21,589		82,276	
Median Income	\$21,729		\$41,880	

^a Percentages do not total 100 because of rounding.

Source: U.S. Bureau of the Census, 2000, *Statistical Abstract of the United States 2000*.¹⁸

Arizona's Pharmaceutical Expenditures

Data on drug expenditures for Arizona are not as comprehensive as those for the United States as a whole. Nonetheless, the Arizona data do allow comparisons with U.S. patterns.

Table 8 tracks per capita drug and related medical expenditures for the United States and Arizona between 1980 and 1998. As can be seen, the experience in Arizona fairly mirrors the U.S. experience. Prior to 1989, per capita expenditures in Arizona were slightly above those in the United States, dipped slightly below between 1989–1994, then rose again for two years, and since 1997 have been slightly below.

Table 8
Per Capita Drug and Other Medical Nondurable Expenditures
United States and Arizona, 1980–1998

Year	Expenditures Per Capita (\$)	
	U.S.	Arizona
1980	95.44	96.39
1981	106.99	110.32
1982	119.18	124.57
1983	130.74	136.07
1984	142.53	147.38
1985	155.76	159.86
1986	170.45	173.82
1987	184.91	187.95
1988	200.78	201.98
1989	217.65	216.73
1990	240.21	236.75
1991	260.02	253.59
1992	279.12	269.98
1993	295.77	290.44
1994	313.26	312.68
1995	337.35	342.47
1996	369.59	371.16
1997	405.51	399.96
1998	451.00	442.49

Source: Centers for Medicare and Medicaid Services.¹⁹

Table 9 compares per capita prescription drug expenditures as a percentage of personal health care expenditures for Arizona between 1980 and 1998. Until 1992, Arizona spent a smaller percentage of personal health care expenditures on prescription drugs than did the United States as a whole. The percentage increased, however, so that by 1998 Arizona spent 9.5 percent, whereas the United States spent 8.9 percent. The population aged sixty-five plus has been growing at a much more rapid rate in Arizona than in the rest of the United States, particularly in

recent years. Perhaps this more rapid growth rate in the sixty-five plus population explains part of the acceleration in Arizona's prescription drug spending, because seniors spend roughly four times the amount on prescription drugs that younger ages do.²⁰

Table 9
Arizona Per Capita Personal Health Care and Prescription Drug Expenditures:
Rates of Growth in 65+ Population, U.S. and Arizona, 1980–1998

Year	Personal Health Care (\$)	Prescription Drugs (\$)	Prescription Drugs within Personal Health Care (%)	Rate of Growth 65+ Population	
				U.S.	Arizona
1980	898.45	44.89	5.0	—	—
1981	1,036.30	49.47	4.8	2.6	6.2
1982	1,146.37	55.02	4.8	2.2	4.9
1983	1,270.80	61.64	4.9	2.1	5.0
1984	1,369.42	68.80	5.0	1.9	4.5
1985	1,533.61	77.89	5.1	1.9	4.5
1986	1,615.48	88.27	5.5	2.1	4.6
1987	1,751.53	98.05	5.6	2.1	4.6
1988	1,904.67	108.06	5.7	1.7	4.0
1989	2,072.61	119.55	5.8	1.9	3.8
1990	2,327.26	135.63	5.8	1.8	3.9
1991	2,468.90	150.19	6.1	1.7	3.7
1992	2,576.67	164.21	6.4	1.6	3.8
1993	2,726.34	179.27	6.6	1.6	4.2
1994	2,818.95	196.48	7.0	1.2	3.5
1995	2,867.89	218.25	7.6	1.2	3.2
1996	2,966.16	239.17	8.1	1.0	2.8
1997	3,038.44	262.90	8.7	0.7	2.2
1998	3,165.99	299.21	9.5	0.6	2.0

Source: Centers for Medicare and Medicaid Services.²¹

Finally, Table 10 contains annual rates of change in per capita personal health care and prescription drug expenditures in Arizona between 1980 and 1998. The rates of change in per capita prescription drug expenditures have been higher than rates of change in per capita personal health care expenditures, again mirroring the trends in the U.S. data.

Table 10
Annual Rates of Change in Per Capita Personal
Health Care and Prescription Drug Expenditures in Arizona, 1981—1998

Year	Change Personal Health Care (%)	Change Prescription Drugs (%)
1981	15.3	10.2
1982	10.6	11.2
1983	10.9	12.0
1984	7.8	11.6
1985	12.0	13.2
1986	5.3	13.3
1987	8.4	11.1
1988	8.7	10.2
1989	8.8	10.6
1990	12.3	13.5
1991	6.1	10.7
1992	4.4	9.3
1993	5.8	9.2
1994	3.4	9.6
1995	1.7	11.1
1996	3.4	9.6
1997	2.4	9.9
1998	4.2	13.8

Source: Centers for Medicare and Medicaid Services.²²

Policy Implications

Projections show that persons sixty-five plus will constitute 20.1 percent of the U.S. population by 2030²³ and, possibly, will constitute an even greater percentage of the Arizona population.²⁴ In 1965, the American Medical Association and the American Hospital Association reluctantly supported the Medicare and Medicaid programs, once they had been able to convince Congress that the Medicare program should reimburse health care providers in the same manner that BlueCross BlueShield had, namely on a cost-based, retrospective basis.²⁵ The creation of these two programs did assure these providers of medical care that they would not have to render as much charity care in the future as they had in the past.²⁶ In contrast, the pharmaceutical industry has not favored Medicare coverage for prescription drugs and the reason seems simple. The industry looks to western Europe, where public budgets pay for a large percentage of the pharmaceuticals consumed. As public health care budgets tighten, there is always the temptation on the part of governments to initiate pharmaceutical price and/or volume controls. In fact, this has happened in one form or another in every country in western Europe.²⁷ The United States is one of the very few countries where there is a relatively free market in pharmaceuticals.

Any form of price control for pharmaceuticals in the United States would have two deleterious effects from a public policy perspective. If rising pharmaceutical expenditures are the “problem” then, as shown in Table 2, price controls would only alleviate about 30 percent of it. This is because, in recent years, it has been the volume, mix, and new elements that have been driving rising pharmaceutical expenditures. Volume controls could solve the latter problem; however, the major negative effect of price and volume controls would be upon the incentives for future research and development outlays by the U.S. pharmaceutical industry. Most of the world’s drug research is now done in the United States, as a result of the price and volume controls in other developed countries.

Elsewhere, it has been argued that the “problem” is *not* rising pharmaceutical expenditures.²⁸ Indeed, it may be highly desirable economically to have safer, more effective pharmaceuticals, that act as substitutes for some medical conditions for less safe, less effective surgery (for example, for peptic ulcers).²⁹ Along this line, it has been estimated that if the use of tuberculosis drugs had spread as rapidly as the Salk polio vaccine, about 80,600 lives would have been saved. Again, if major tranquilizers had been more heavily promoted, this might have resulted in a saving of 645 million patient days in mental hospitals.³⁰ Moreover, as the research process produces safer, more effective pharmaceuticals, one would expect prescription drugs to consume an ever larger percentage of the health care dollar and even a higher percentage of national and individual income. This is because health care expenditures in general have been doing this during the last forty years.

The view here is that the “problem” with prescription drugs lies in the distribution of income and the attendant inability of some, particularly seniors, to pay for prescription drugs. This might not even be a problem if the majority of citizens did not rightly view health care and prescription drug access as one of the most basic of human rights. For seniors and the poor, the general health care problem has been resolved by creating the Medicare and Medicaid programs that pay for care, albeit in a fairly ungenerous fashion. For the poor, we have also resolved the prescription drug problem by using the Medicaid program that does pay for outpatient prescription drugs. An effort was made to do this for seniors in 1988, with the *Medicare Catastrophic Coverage Act* (MCCA), but the MCCA was repealed only eighteen months after its enactment. This was due to the political unpopularity of its financing provisions, which were misunderstood by many seniors.³¹ Ever since the demise of the MCCA, Congress has been reluctant to deal with the pharmaceutical problem in Medicare, although Al Gore and George W. Bush promised to “do something” during their respective presidential campaigns in 2000. The federal tax cut of 2001 and the response to the events of September 11, 2001 have eliminated projected federal budget surpluses for the time being. This, then, precludes the possibility of “doing anything” within the foreseeable future. Instead, what we now observe is that many of the states have begun to deal with the incipient prescription drug “problem” as an income distribution problem, by means testing state contributions toward the purchase of pharmaceuticals by low-income seniors and others who are near-poor.³² However, as will always be the case for solely state-financed programs, the states vary in their fiscal capacity.

Conclusion

It is almost impossible to predict the long-term future for pharmaceutical safety and efficacy and, as a consequence, for pharmaceutical expenditures as a percentage of individual and national income. In January 2001, the Center for Health Outcomes and PharmacoEconomic Research in the College of Pharmacy at University of Arizona devoted its annual national conference to the very new science of “pharmacogenomics.”³³ Now that the human genome has almost been unraveled, further research on the some 30,000 genes, will present enormous possibilities for pharmaceutical interventions for prevention and for cure. Already, major pharmaceutical firms, such as Merck and Pfizer, are combining resources with newly founded biotechnology firms and spending millions of dollars on this kind of research. Some medical futurists predict that, some day, we will no longer need hospitals and doctors. Rather, pharmacogenomic analysts and their genomic-analytical machines will substitute for hospital and doctor services. This is because once having analyzed the genetic makeup of an individual, it will be possible to prescribe and render simple, inexpensive genetic alterations, either as preventive or curative measures. This implies also that “pharmaceuticals” will be individualized rather than marketed to the masses. For example, Celebrex™ would no longer be one of the few very effective arthritis drugs prescribed for almost everyone with the disease; instead each person will have an individualized genetic intervention to prevent or cure arthritis.

Other medical futurists think that this whole genetic revolution will be enormously expensive, per intervention, because of the need to recoup large investments necessary for genetic solutions. Although the some 30,000 genes are slowly being isolated it may take years, and great sums of money, to understand the interactions among the genes in each person’s body. They also think that the expenses involved per individual intervention will raise ethical questions about who should receive the genetic interventions and who could, or should, pay for them.³⁴

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