

**The Total Cost of Health Care in Delaware  
2002**

**prepared for  
the Delaware Health Care Commission**

**by**

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July 2003**

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## **Introduction**

The Delaware Health Care Commission has, since its inception, been concerned about access to health care for all Delawareans. While improving access to health care is not its only focus, since the Commission's mandate is broad, it is a primary goal. Access to health care has several dimensions. The aspect this report will cover is the cost of health care in Delaware. Through its Cost Containment Committee, the Commission is pursuing a number of projects to better understand the underlying factors that determine the cost of health care for Delawareans. This report is the result of one of those projects. It intends to provide current estimates of health care expenditures in the state and to describe some of the dynamics that influence those expenditures.

The report is divided into six sections. The first section is largely background material and provides information that will give the reader a broad perspective on health care expenditures and the demographic trends that influence those expenditures. Some comparative information is provided to show how Delaware compares with the US and with neighboring states.

The second section describes each of the health accounts. Estimates are provided for each account annually from 1990 through 2002. Where possible, two series of estimates are provided; one by the US Centers for Medicare and Medicaid Services (CMS -- formerly the Health Care and Finance Administration (HCFA)) and the other by the Center for Applied Demography and Survey Research (CADSR) at University of Delaware. The third section presents an overview of the estimates of total personal health care expenditures through 2002. Indicators of this sector's impact upon the Delaware economy are also provided. The fourth section discusses the topical issue of prescription drugs. The fifth, updates the cost shift estimates for Delaware. And the sixth presents the observations from the report.

This information is offered as a starting point from which both measurement and methodology can evolve to provide increasingly better estimates and better understanding of the issues addressed in this paper.

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## Executive Summary

Many states across the nation are attempting to better measure personal health care expenditures. They are doing this for two predominant reasons. First, policy-makers need to understand the structure and size of those costs to more fully comprehend the problems of access that can be related to cost. Second, policymakers need to understand the future course of these costs so that appropriate plans and policies can be developed to support their citizens. The study's findings are presented below.

- Medical price inflation is again accelerating. After a decade of declining medical price inflation that brought the measure in line with the general rate of inflation, the rate of increase of medical prices outpaces core inflation.
- The relaxation of Managed Care restrictions brought increased demand for health care services. Hospitals, physicians, and other specialists, are experiencing rising demand after a decade of managed care constrained demand. This resurgent growth in hospital and physician demand is a major driver in rising health care expenditures.
- Despite the Balanced Budget Act, the Medicare program still faces trouble. The government must wrestle with the health care demands of an aging population. Hospitals are the most threatened by Medicare cuts, which augurs further trimming of hospital services and payrolls.
- The health care industry is growing leaner and more efficient. Delaware's health care providers are more productive, treating a growing population with fewer resources. The average hospital length of stay is declining, as is the total number of beds available. Consumers are increasingly being handled on an outpatient basis, allowing hospitals to pare payrolls.
- Individuals pay out-of-pocket for the majority of costs for drugs, vision products, and dental services. The government pays for the majority of hospital charges, and private insurers are the primary payers for physicians.
- Hospitals' share of total health care expenditures decreased both in the US and in the State of Delaware. While traditionally the share earned by hospitals was higher in Delaware than in the US, that is no longer the case. Overall the pattern of health care expenditures is very similar to that seen throughout the country.

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- Restructuring in the health care industry is changing the manner in which health care services are provided. The emergence of managed care has brought about consolidation in hospital services, and a decline in hospital employment. Meanwhile, home health care, and nursing services industries are enjoying strong growth as many treatments now occur outside of the hospital environment.
  - The drug sector is rapidly expanding and shows no sign of abating. Several factors foster this growth. The FDA accelerated its approval process of new drugs. Also managed care greatly reduced the out-of-pocket expense of prescription drugs. The outlook for drug expenditures is for continued strong growth.
  - The growth in prescription drug expenditures is driven by increased utilization (47%), substitution of newer, more costly drugs for older drugs (27%), and by price increases (26%).<sup>1</sup>
  - While Delaware is higher than the US in per capita expenditures for health care, it compares favorably with Pennsylvania and New Jersey and is only slightly higher than Maryland.
  - Overall, about \$4.4 billion annually is spent on personal health care in Delaware. The rate of increase is 10% per year.
  - Delawareans spend less of Gross State Product (10%) when compared to the US in general (12%).
  - The health care sector of the Delaware economy is an important source of employment with 8% of the total workforce and 10% of the reportable wages.

When taken together, these data suggest that Delaware is essentially in the mainstream regarding personal health care expenditures. While the costs per capita are slightly higher, as a high-income state Delaware can afford to consume more of these services. The managed care revolution has and will undoubtedly continue to change the landscape of health care expenditures. Some of these changes may affect the quantity of services, and some will affect the distribution of the expenditures across the sectors. There will also be alterations in how these payments are allocated between public, private, and individual payers.

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<sup>1</sup> Kaiser Family Foundation Prescription Drug Trends, March 2003.



## **Background**

### **Introduction**

In this section addresses several topics. First, some of the economic and demographic factors that are currently influencing the cost of health care will be introduced, followed by the presentation of national and state indicators of health care costs. These data will address expenditures by sector of health care and source of payment.

Several key factors influence changes in total expenditures for health care. Among these are the current cost of health care services and commodities, the size and structure of the population using health care, and the availability of and demand for new health care products and services.

The first factor is simply the increase or decrease in prices for a fixed set of health care products and services. For example, how much has the cost of a typical visit to a primary care physician changed over time?

The second factor has two components. First, as the number of people in the State of Delaware increases, the total cost of health care will increase. Since 1990, more than 135,000 people have joined Delaware's population (a growth rate of 17.6%). Collectively, they will increase total health expenditures by more than 200 million dollars annually. Even if the total population remained the same and price levels were constant, total expenditures would increase through a greater demand for health care services by the aging population.

### **The Health Care Industry**

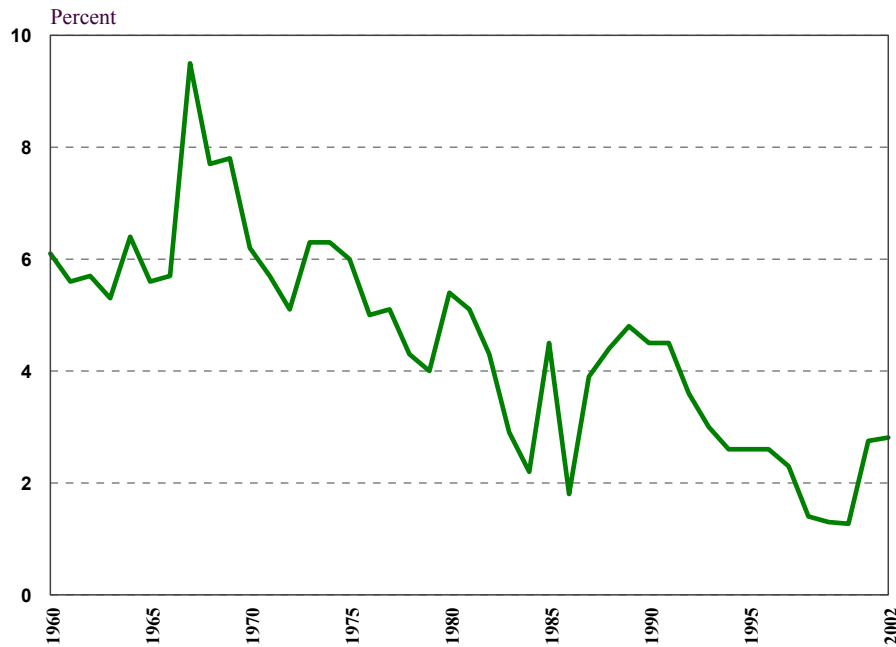
The health care industry is undergoing significant structural change. The swing toward managed care practices in the nineties impacted both healthcare providers and users. Indeed, the emergence of managed care, such as that offered by Health

Maintenance Organizations (HMOs) as a means of cost-containment, tempered medical price inflation during this decade while simultaneously altering the manner in which health care services are obtained.

Responding to consumer backlash, health plans loosened restrictions on care and broadened the choice of doctors and hospitals available. Fewer restrictions on care are leading to higher utilization and taxing the capacity of many hospitals and physicians to meet demand. With broad provider networks and tighter capacity than the norm, health plans lost leverage over providers to negotiate price discounts—a key element in lower health cost trends throughout much of the nineties. The result is increasing prices and increasing utilization are contributing to rising health care expenditures.

The emergence of managed care in the U.S. brought greater budgetary discipline to the industry. The growth of employment in the health services industry slowed significantly. In 2002, medical services employment growth rate is under 3%: half the rate in 1990. Hospital employment, by far the largest segment of medical services employment, has seen its growth wane significantly during the decade as rounds of consolidation have resulted in layoffs at hospitals across the country. Driving this attrition is the effort of managed care providers to contain costs. However, hospital growth may have reached its nadir. Hospital employment growth accelerated in 2001 and 2002.

**Figure 1.1**  
**US Health Care Industry**  
**Employment, % Change Year Ago**



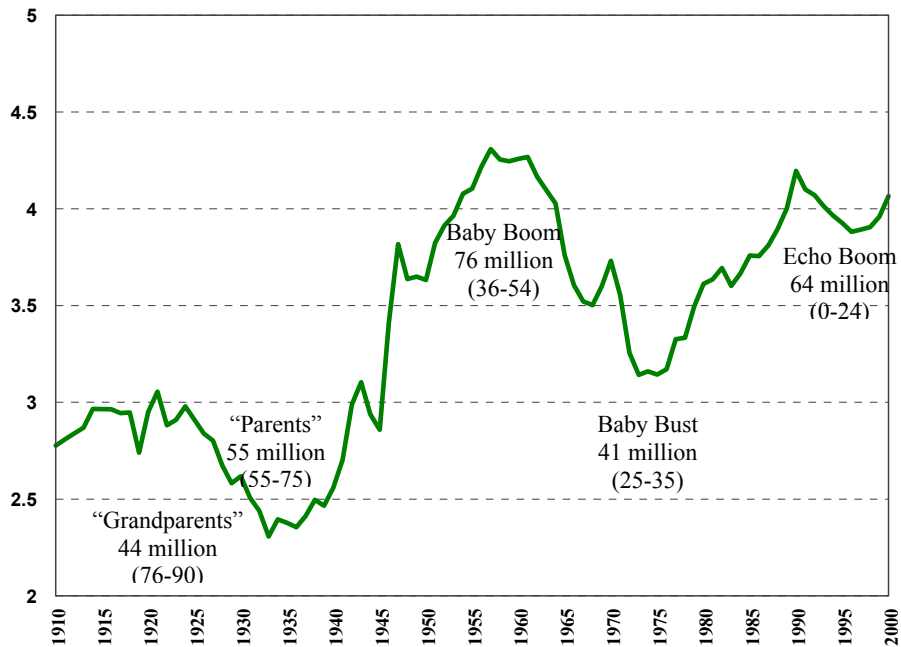
Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Bureau of Labor Statistics

Despite this attrition in national health care industry employment, the size of the industry --as measured by the proportion of the economy dedicated to it-- continues to grow. In 1980, health care expenditures composed 9% of the economy. By 1998, that share had risen to 13.1% of gross domestic product (GDP). The typical consumer saw personal expenditures rise from 4.4% of their income to 5.4% during the same period. The difference between those two sets of numbers is that the 13.1% estimate encompasses both public and private spending. In contrast, the 5.4% figure only considers private expenditures. (Of course, those public expenditures for health care are paid through payroll and income taxes that indirectly and differentially affect consumers of health care.) In both instances, the increased shares include both price rises and increases in the quantities of health care products and services obtained by consumers.

Demand for medical services is at an all-time high. Expenditures on health care services continue to be high, accounting for an ever-increasing share of the nation’s resources. More is spent on medical services than ever before, despite the taming of medical price inflation. Fueling this demand are the aging baby boomers and rising incomes<sup>2</sup>.

The baby boomers are typically defined as that segment of the population born between 1946 and 1964. During this period 76 million live births occurred, (see Figure 1.2 below), amounting to a significant spike in the birth rate. It is this segment of the population that will be the primary driver of health care expenditures.

**Figure 1.2  
The Baby Boomers  
Live Births**



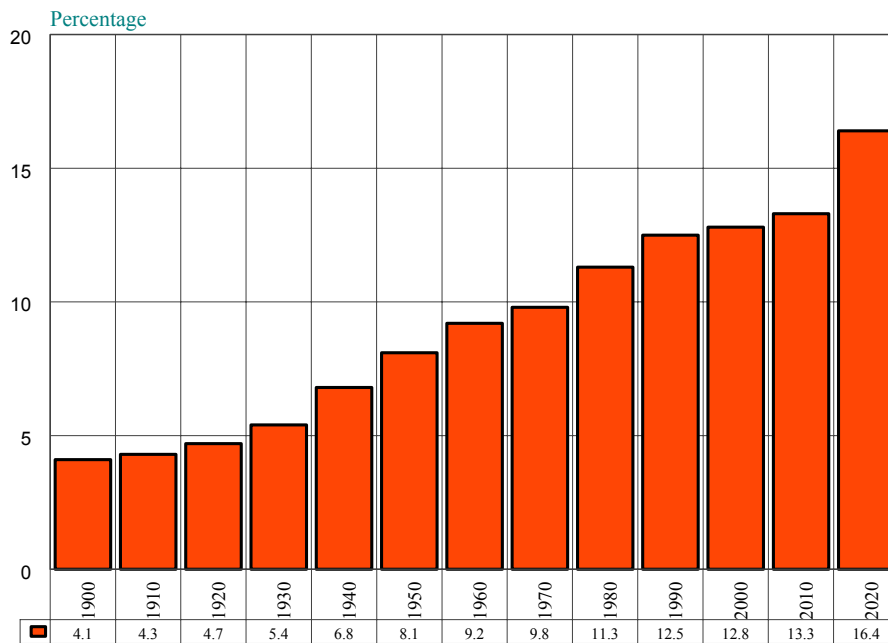
Source: Center for Applied Demography and Survey Research, University of Delaware  
Bureau of the Census

Note: Figures in parenthesis are the youngest and oldest ages of group members during 2000.

<sup>2</sup> Health care is a ‘normal’ good: as income rises, more health care is ‘consumed’.

The proportion of the US population aged 65 and over is growing. As Figure 1.3 below illustrates, in 2000, nearly 13% of the population will be over 65 years old. This is triple its share at the start of the century. In level terms, the elderly population increased eleven-fold over the past 100 years. This is naturally fostering an ever-growing demand for health care services as the over-65 age cohorts are the heaviest users of medical care. Of the total health care expenditures paid for out-of-pocket, over 40% are by the over-sixty-fives, the next closest cohort being those forty-five to sixty-four, which account for 29%.

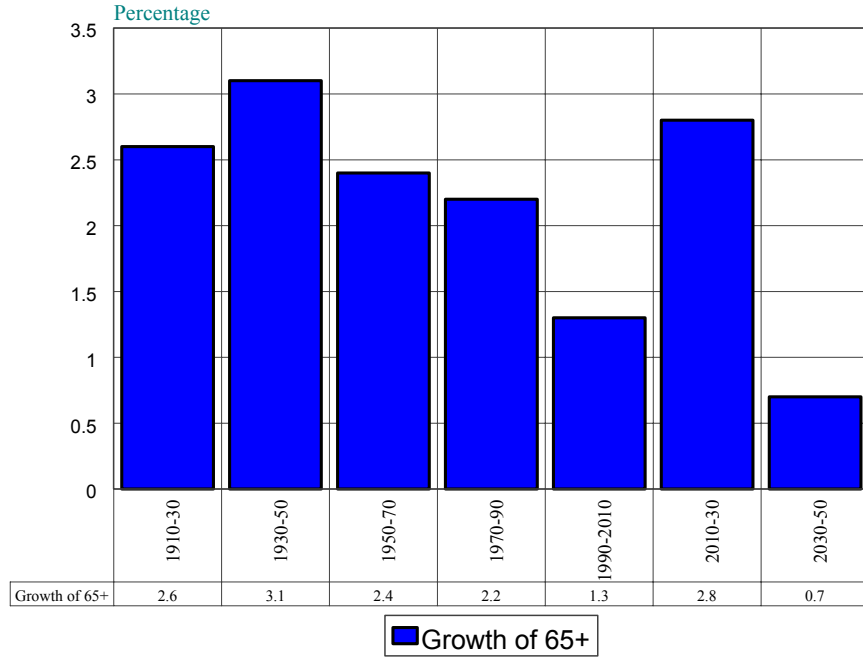
**Figure 1.3**  
**US Population**  
**Age 65 Plus as a Percentage of Population**



Source: Center for Applied Demography and Survey Research, University of Delaware Census Bureau

Further, the demand for health care is poised to accelerate rapidly throughout the approaching decades as the baby boomers move into retirement. The baby boomers will be aged 36-54 in the year 2000, and aged 46-64 in the year 2010. Accordingly, the average annual growth of the elderly population is expected to double in the period 2010-30 versus the previous interval. While this high annual growth rate is not unprecedented, in absolute numbers the increase in elderly population growth is unparalleled.

**Figure 1.4**  
**US Population**  
**Average Annual Growth of the Elderly**



Source: Center for Applied Demography and Survey Research, University of Delaware Census Bureau

The table below shows the estimated effects population size, aged population, and managed care have on the growth of real consumption expenditures dedicated to medical services. The interpretation of these results is as follows: for a 1% change in population, the growth rate of personal medical care expenditures will rise over 4%. A one-percentage point rise in the share of population that is over 65 will cause a 0.6% increase in the growth of the medical expenditures as a percentage of total consumption.

The effect of managed care is estimated to have reduced expenditures during the nineties. This is consistent with the belief that managed care has reduced the cost to consumers of many medical services such as prescriptions and doctors visits.

**Dependent variable:  
Growth of personal medical care expenditures**

	Coefficient	Standard Error	T-Statistic
Population growth (exc. over 65)	3.9	0.95	4.1
Share of population aged over 65	0.6	0.43	1.3
Effect of managed care	-0.2	0.03	-5.9

R-Squared: 0.98

Adjusted R-Squared: 0.99

Sample size: 40 annual data points

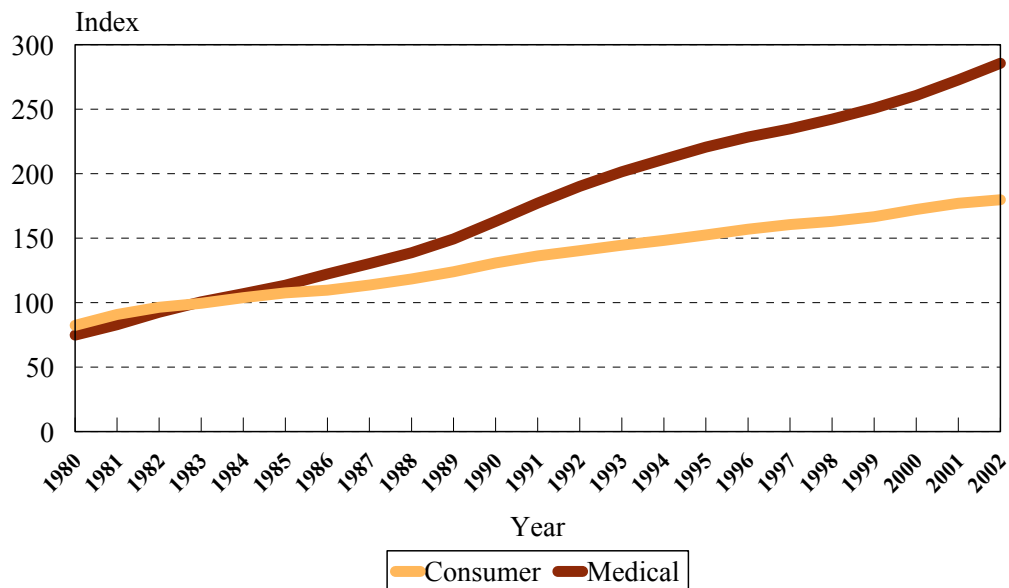
The message to be taken from the above information is that the largest growth engine for the health care services industry is demographics. The changing make-up of the American population will naturally bolster demand for health care. Furthermore, the huge spike in the population that is the baby boomers will present a significant challenge for the industry.

The outlook for the medical industry is for continuing reform throughout the decade. Demand for health care services will escalate as the baby boomers move into retirement later next decade, placing further strain on health care providers. Indeed, insurers and providers find themselves struggling to maintain costs in the face of robust demand. Medical cost inflation will reaccelerate in light of growing numbers of consumers demanding health services, squeezing future profits. Moreover, if federal support for the Medicare program diminishes, insurers will increasingly look for higher premiums and co-payments to compensate for the shortfall in federal funds.

**Pricing of Health Care**

Rapidly accelerating health care costs was one of the primary factors that drove the shift of patients from fee for service to managed care. These costs began to accelerate rapidly during the eighties.

**Figure 1.5  
Consumer and Medical Price Indexes  
All US Urban Consumers (1983=100)**



Source: Center for Applied Demography and Survey Research, University of Delaware  
US Bureau of Labor Statistics.

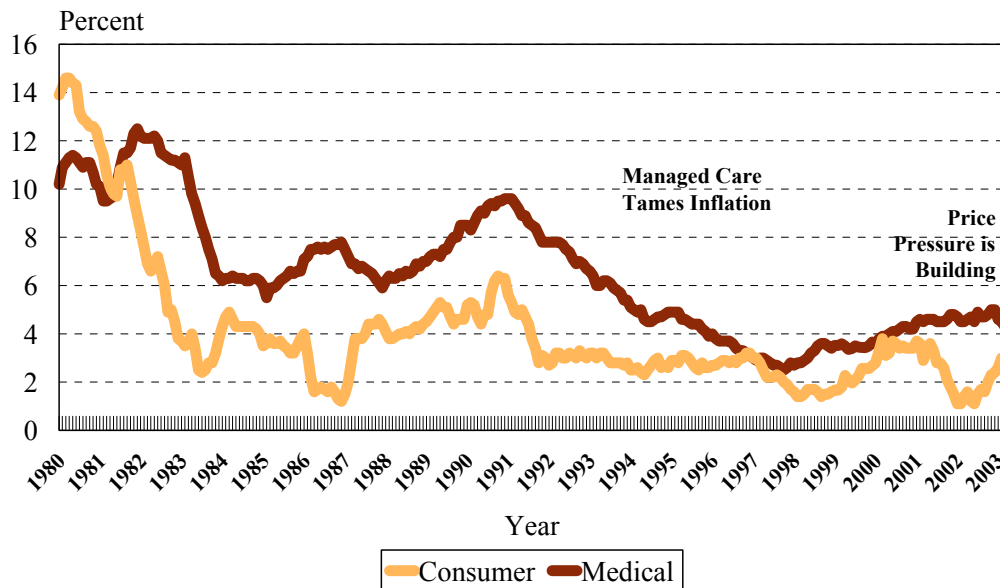
Indexing consumer prices (CPI) and medical prices (MPI) highlights the disparate growth of these two comparable baskets of goods. In the second half of the eighties, medical price inflation outpaced consumer price inflation significantly. The cost of measured medical goods and services increased by more than 150% since 1980. Simultaneously, consumer prices rose by approximately 75%, or half as much. The annual growth rates are more easily seen in Figure 1.6 below. The MPI growth rates exceeded those of the CPI from 1982 forward. In general, the MPI was usually between



2% and 3% higher over the period. It was not until 1991 that the two rates began to converge and, in 1997, the two measures were equal. However, eighteen years of higher growth rates place the MPI nearly 50% higher than the CPI.

The success of HMOs in containing medical costs is well documented. The once double-digit medical price inflation experienced in the early eighties-- wherein the cost of medical services expanded twice as fast as the general level of prices-- has now been replaced with price growth approximating general inflation.

**Figure 1.6**  
**Annual Growth Rates for the Consumer and Medical Price Indexes**  
**All US Urban Consumers**



Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Bureau of Labor Statistics.

Employers embraced the savings that HMOs afforded them, switching their employee health plans from traditional service providers to the managed-care practitioners. Enrollment in HMOs exceeds over 20% of total health care users in many markets across the U.S., a figure that increased steadily throughout the decade. Moreover, HMOs now cover almost 50% of Medicaid patients, up from less than 10% in 1991. HMOs bargain with healthcare providers to lock in prices for services in return for a guaranteed patient base. The HMO then negotiates with employers over insurance

premiums. As managed care increased its prominence, this process led to diminished negotiating power for hospitals and doctors alike.

Part of the HMO's success in controlling costs was borne from limiting the provision of medical services to enrollees. Indicative of this is the length of hospitalization, which declined throughout the decade since HMO's coverage cuts off after a relatively shorter time than previously enjoyed under a traditional fee-for-service system. Indeed, the Journal of the American Medical Association reports that HMOs reduced hospital stays by fully 30% by 1994. While this type of activity generates criticism of managed health care organizations, it led to greater cost management in the industry. For hospitals, however, the cost-management tactics of HMOs constrained the services provided by hospitals, limiting their income stream.

As HMO's power is now receding, demand for health care services rises. After a decade of consolidation in the industry and managed care price constraints, providers must deal with increased demand and increased pricing power. The net result is rising health care expenditures.

Medical price inflation is at a turning point. Until 1998, the growth in medical prices declined precipitously over the decade, plummeting seven percentage points in total. However, there is mounting evidence that these savings are almost exhausted and indeed may have been false economy. In their rush to secure enrollees via employer-related plans, HMO's promised savings they could not sustain. In 1996, only 35% of HMOs turned in a profit. This weak financial performance augurs poorly for further medical price inflation as HMOs will inevitably begin to raise premiums in an effort to restore profitability. Already there are nascent signs that medical price inflation is trending upwards: medical price inflation accelerated steadily over the past four years; it now stands at 4.1%, 1.1% greater than the CPI.

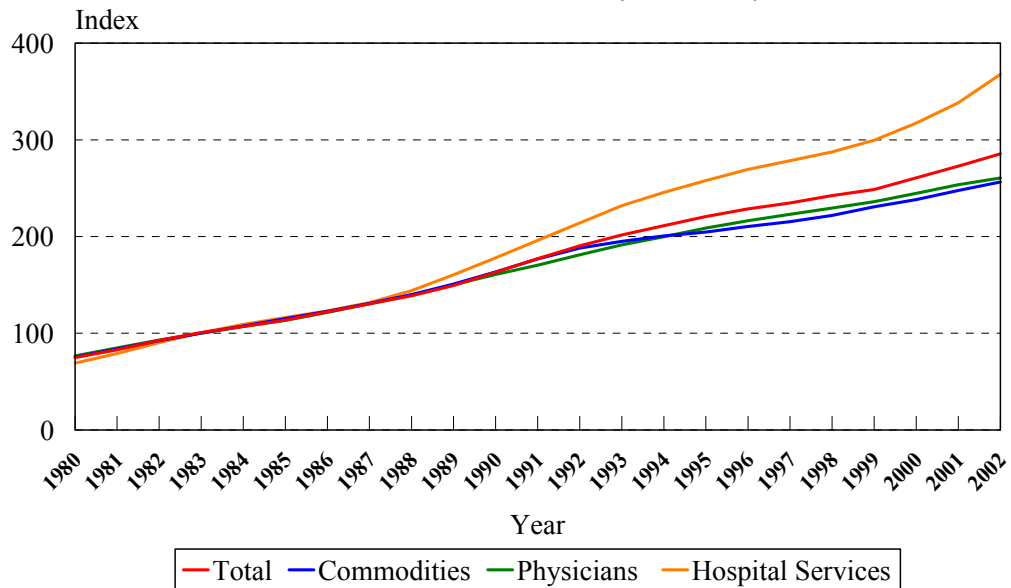
Not all parts of the Medical Price Index grew at the same rate. Figure 1.7 below illustrates this fact. The top (brown) line represents the index for *hospital services*. The

second line marked (red) represents the index for all *medical services*. The next line (green) represents prices for *physician services*. The final line (blue) represents *medical commodities*.

The typical hospital room rate clearly out-paced the other indicators. The reason for this difference arises from several sources. The most likely candidates include capacity, qualitative changes in the product represented by a hospital room, and new technology reflected in higher overhead rates. Increases in uncompensated care may influence these charges as well.

The increases in the indexes for medical commodities and physician services are quite similar. Prices for dental services (not shown) were comparable.

**Figure 1.7**  
**Medical Price Indexes**  
**All US Urban Consumers (1983=100)**

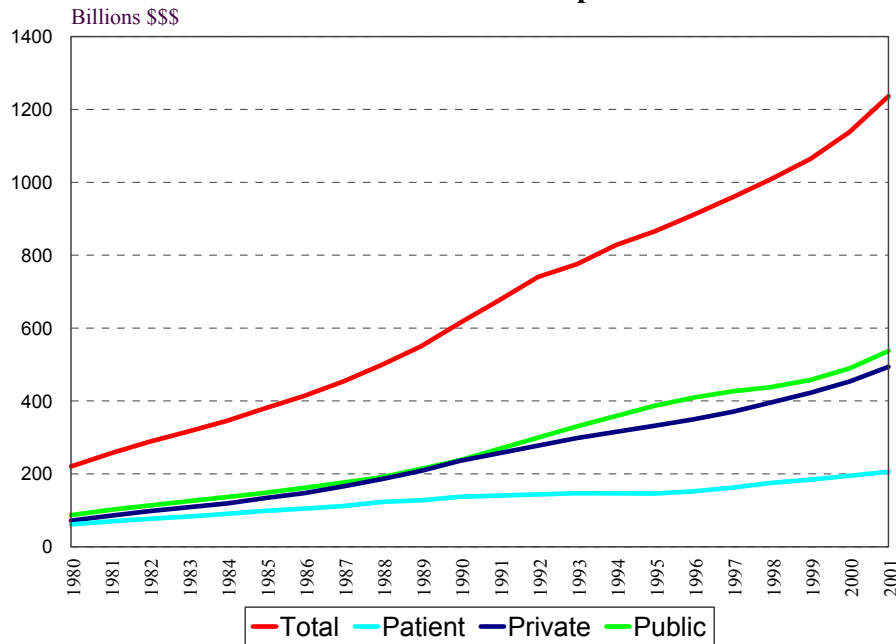


Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Bureau of Labor Statistics

**Sources of Payment**

There are three potential sources of funds for personal health care expenditures. First, an individual can pay the bill out-of-pocket. In this case, the payment does not include payments for insurance premiums; it literally means out-of-pocket. Second, the bill may be paid by private insurance. Third, the funds may come from the government, i.e., Medicare, Medicaid, and several other programs.

**Figure 1.8**  
**Sources of Payment for**  
**US Personal Health Care Expenditures**



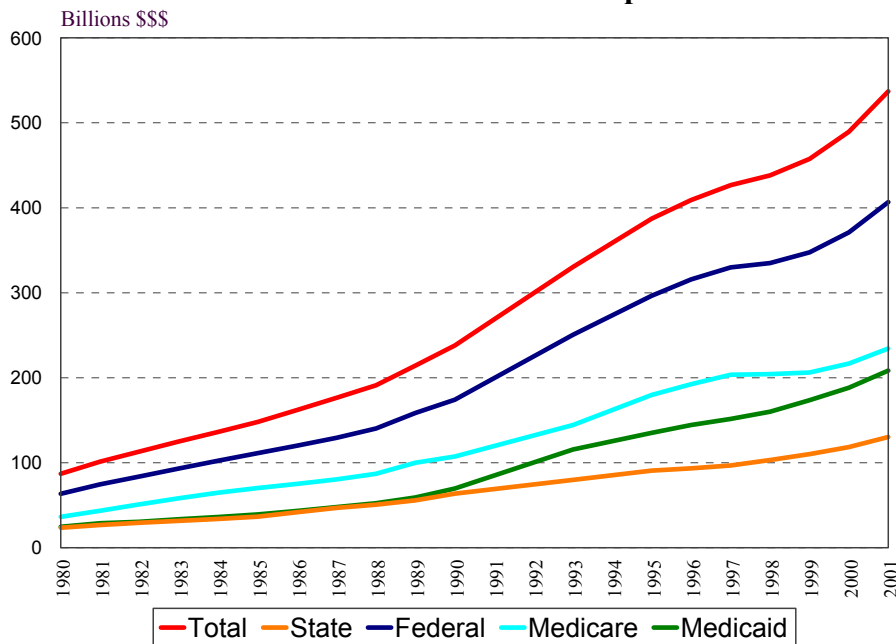
**Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services. 2001 is the latest year available.**

As evident in Figure 1.8 above, there was a rapid rise in nationwide expenditures for personal health care, particularly in the late 1980’s through the early 1990’s, and again in the early 2000’s. There were, however, significantly different patterns among the sources. First, public sector expenditures continue to rise rapidly and will do so as Medicaid eligibility grows and Medicare expenditures rise with the aging population. Second, the rate of growth slowed significantly for expenditures paid for by private

insurance. Certainly, managed care had an impact by 1991. However, the rate of increase of private payments is quickening once more. Finally, patient out-of-pocket expenses continue to rise, albeit at a steadier rate.

Figure 1.9 below breaks out the government sector of health care expenditures further. The federal share of the bill for personal health care is accelerating. The state share, which is almost entirely Medicaid, shows a significant increase after 1990 as new parts of the population gained eligibility, most notably young children and pregnant women. Understandably, Medicare continues to increase over the entire period and will continue to for the foreseeable future, as the “baby boomers” pass into retirement.

**Figure 1.9**  
**Sources of Payment for**  
**Public US Personal Health Care Expenditures**

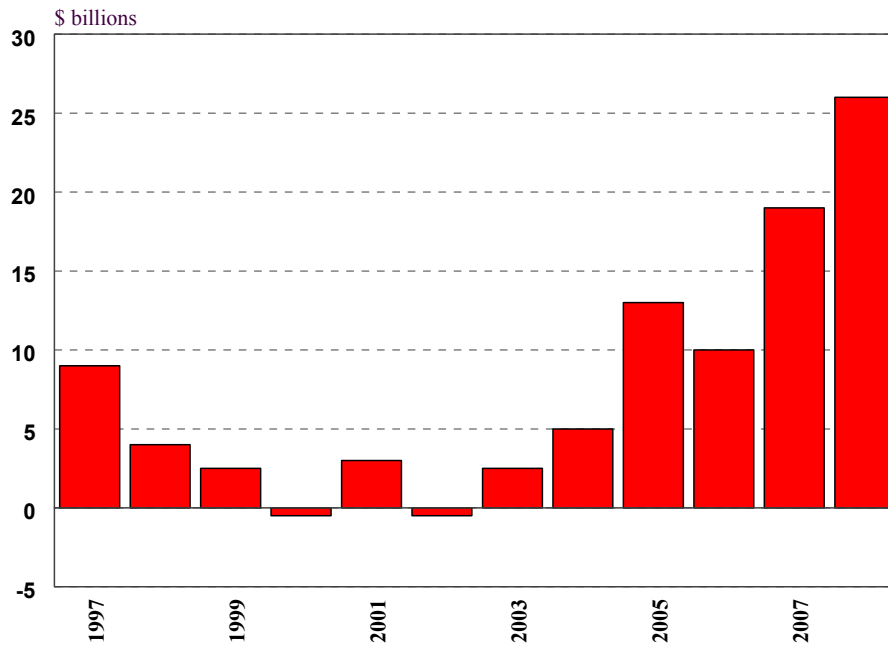


Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services. 2001 is the latest year available.

Medicare’s outlook eased only slightly in light of the Balanced Budget Act of 1997 (BBA). The BBA will slow the growth of Medicare spending until 2002. By 2008, however, the Medicare deficit projects to swell to \$25 billion as the baby boomers move into retirement, see Figure 2.0. The challenge for Congress is to weigh the options of increasing funding to Medicare or encouraging the population to adopt private health

insurance. In an effort to meet the balanced budget requirements, Congress may look to consumers to pay an increasing part of the health care services they receive.

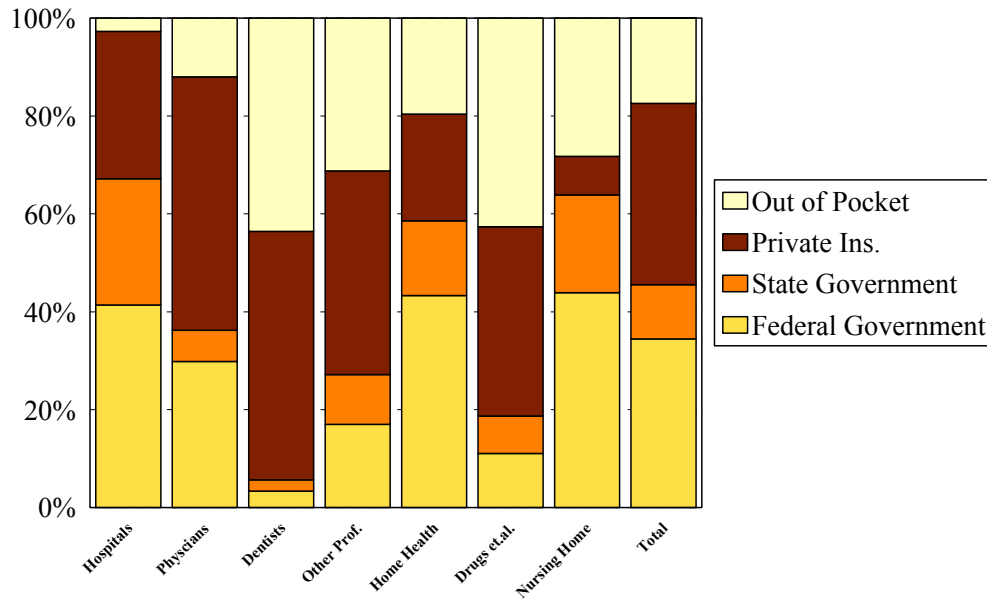
**Figure 2.0**  
**US Health Care Industry**  
**Medicare Deficit**



Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services

The source of payment also differs depending on the type of health care sought. Figure 2.1 below clearly shows this point. Expenditures for hospital services are rarely paid for out-of-pocket and are more likely to be paid by the government than by private health insurance. Since older people have a higher likelihood to need these services, Medicare is the most likely source of payment. In contrast, dental expenditures are nearly as likely to be paid out-of-pocket as by private health insurance. The government has little stake in this category. These data suggest that those using Medicaid for health services will probably struggle to afford adequate dental care.

**Figure 2.1**  
**Share of US Personal Health Care Expenditures**  
**By Source of Payment and Sector in 2001**



Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

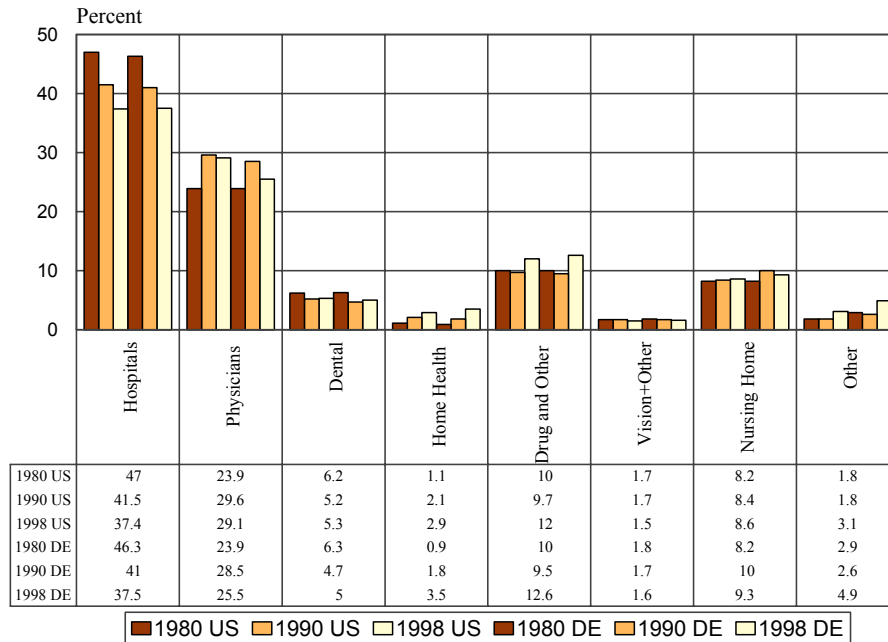
These data illustrate the complexities inherent in the health care system. Government involvement varies radically from one service to another. Thus, while Medicare is often seen to substantially protect the oldest segment of the population, that protection does not extend to all potential health problems. Similarly, Medicaid solves only part of the health care problem for the poorest segment of the population. If the trends identified in Figure 2.1 continue, out-of-pocket costs will continue to rise as the health care delivery/payment system of health care transforms itself.

**Expenditures by Sector**

Personal health care expenditures are usually classified into several distinct categories. Each captures a differential share of the personal health care dollar and that share changes through time. This is shown in Figure 2.2, below.

For each of the personal health care categories, a time series (1980, 1990, 1998<sup>3</sup>) is provided for the US followed by three values for the State of Delaware.

**Figure 2.2**  
**Share of US Personal Health Care Expenditures**  
**By Sector**



Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

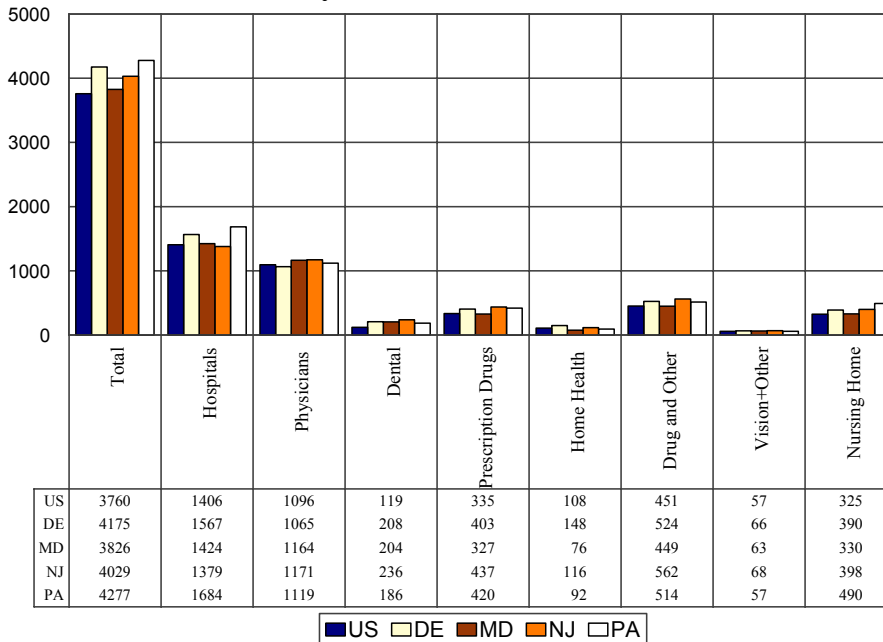
In the US, the share of total health care dollars allocated to *hospitals* declined from 47% in 1980 to less than 38% in 1998. Delaware echoed this pattern. The other categories are more stable, although *dentists* appear receive a smaller share. In contrast, *home health* increased its share significantly. This increase is consistent with changes taking place in the health care delivery system. It is interesting to note that the structure of these shifts appears to be national in scope and Delaware simply reflects those larger trends.

<sup>3</sup> Latest CMS data for states and U.S. Estimates for Delaware in 2002 are provided later in the document.



**Interstate Comparisons**

**Figure 2.3  
Per Capita Personal Health Care Expenditures  
By Sector and Area in 1998**



**Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services**

One method used to measure relative costs in the local health care system is interstate comparison. While useful, it can also be misleading. For example, the health care systems in two states could be identical with respect to cost structure, but the populations served are not precisely the same<sup>4</sup>. Per capita measures for a state where the population is on the average four years older will almost certainly have higher health care costs. Similarly, one state may explicitly pay for charity care through a state grant while another pays for it through cost shifting.

In Figure 2.3, above, the per capita costs for personal health care are shown for the US, Delaware, and the surrounding states in 1998. (That is the last year for which the

<sup>4</sup> For example, Pennsylvania’s and New Jersey’s populations are proportionately older than Delaware’s population; Maryland’s population is proportionately younger.

CMS released state-level estimates.) For the most part, Delaware tends to be fractionally higher (8%) than the US as a whole. Hospital costs per capita, for example, are approximately 10% higher. However, this result holds for the region. All four states are above the US per capita figure. Delaware, in fact, has neither the highest, nor the lowest cost per capita in any of the health care sectors displayed. Maryland has the lowest cost per capita overall, but has the second highest cost for *physician services*. The low cost of nursing home care could reflect an underlying difference in the age structure of the Maryland population or it could be an indicator of greater efficiency. In general, the differences between the four states are probably not significant given the methodology and data used to develop the estimates. The differences between the region and the US could simply be a matter of regional price differences, which are compensated for through higher wages.

Having examined the national trends of health care restructuring and the demands placed on the system, it is important to consider the Delaware experience. Consistent with the national trend, Delaware's health care industry is also growing leaner, see figure 2.4 below. The number of beds, admits, and inpatient days all declined over the period from 1993 to 2002, a testament to the consolidation and downsizing that the industry underwent. This consolidation becomes even more pronounced when framed against the backdrop of rising population: Delaware's population grew 14.5% over the period (compared to 8% national population growth).

**Figure 2.4**  
**Delaware Health Care Industry**  
**Utilization, % Change**

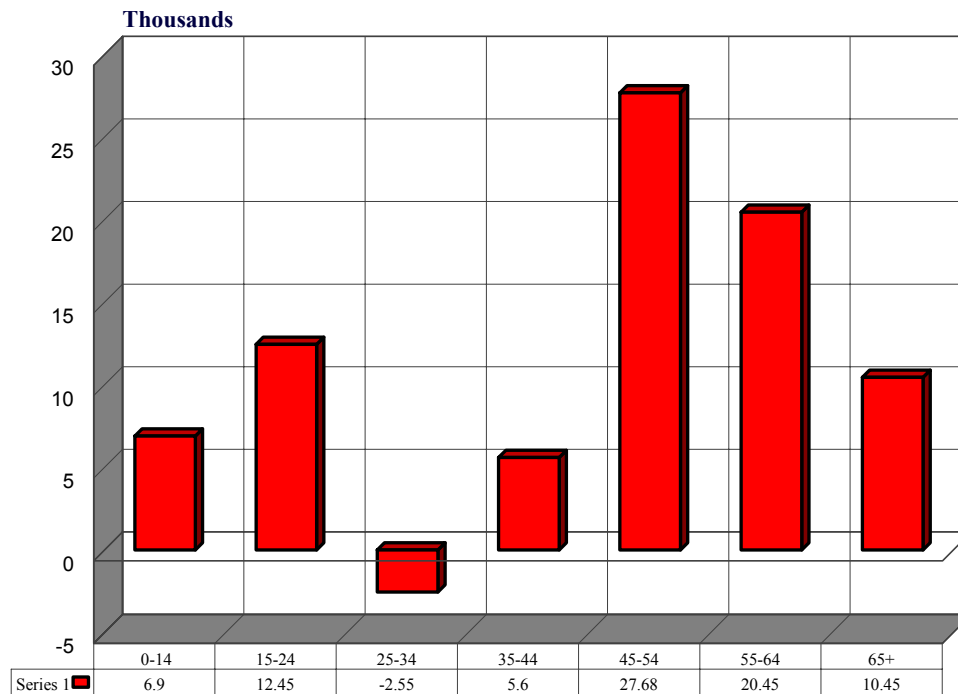
	1993	2001	Percent Change
Population	695,000	796,000	14.5
Beds	2,153	1,853	-13.9
Admissions	79,345	83,047	4.7
Inpatient Days	561,190	502,238	-10.5
Average Length of Stay (days)	7.1	6	-15.5

**Source: Center for Applied Demography and Survey Research, University of Delaware  
American Hospital Association**

In absolute terms, the number of beds available decreased by 300 since 1993 (or from 3.1 to 2.3 beds per 1,000 population). Further, the average length of stay fell from 7.1 days to 6, as health care providers have increased the turnover of beds.

Aiding the reduction in the length of hospital stays are technological improvements. The limitation of hospital stays does not necessarily imply a reduction in the level or quality of medical services. The rapid diffusion of technology in the health care industry brought patients in contact with cutting edge treatment. As the efficacy of medical care improves, the speed of treatment increases, reducing the length of time between illness and health.

**Figure 2.5**  
**Delaware Population**  
**Net Change by Age Group, 1990-2010**



Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

Turning to demographics, Delaware's age profile is expected to track the national changes. Projections for Delaware's aged population show a rapid increase over the next twenty years as the baby boomers move into retirement. In 2000, the proportion of the Delawareans aged over 65 was 13%. By 2020 this figure will rise to almost 15%, as the aged population rises to more than 127,000. The trend of Delaware's population growth is evident in Figure 2.5 above. Between 1990 and 2010 the 25-34 age group will actually decline, and the 35-44 age group will rise only moderately. In stark contrast is the rapid increase in the 45-54 and 55-64 age groups.

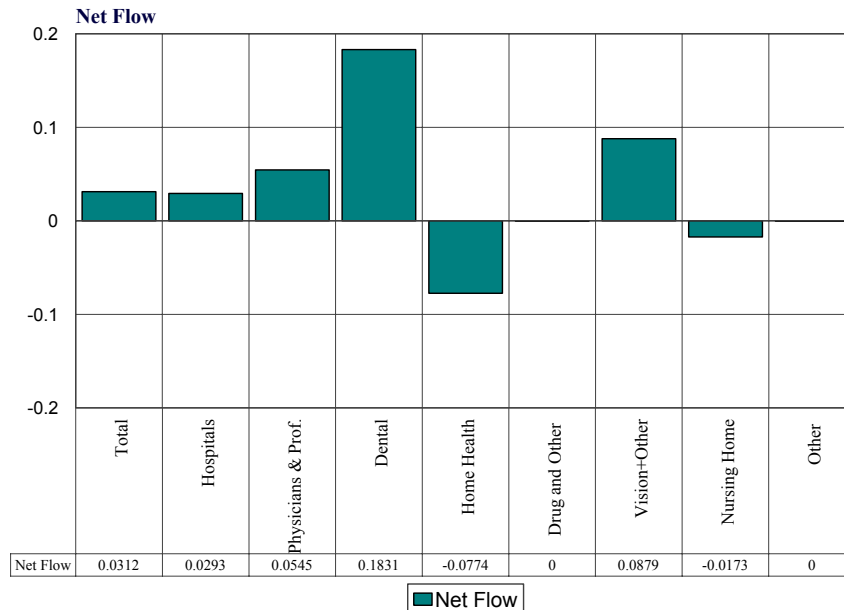
This aging of the Delaware population fosters greater demand for health care services in the future, and is consistent with rising health care expenditures forecast over the next twenty years.

## Estimates by Sector

### Basis of Measurement

Personal health care expenditures are usually reported in two ways. The first method measures the size of the health care industry serving the geographic area of interest. For example, this approach focuses on the revenues received by health care providers (hospitals, physicians, dentists, etc.) who provide services in Delaware. These revenues are considered indicative of personal health care expenditures. In this instance the source of payment is of no interest: the revenues could be provided from the individual, a third party payer, or the government.

**Figure 2.6**  
**Delaware Personal Health Care Expenditures in 1998**  
**By Sector and Basis**



Source: Center for Applied Demography and Survey Research, University of Delaware, US Centers for Medicare and Medicaid Services. For Drugs and Other Non-Durables and Other Personal Health Care, no adjustments were made between state-of-provider and state-of-residence (net flow ratios are 1 for all states). Net flow equals expenditures by State of residence divided by expenditures by State of provider. Ratios greater than 1 mean that residents consume more health care than the state produces (imports); ratios less than 1 mean that the state produces more health care than it's residents consume (exports). Home health and Nursing home include services provided by freestanding facilities only. Additional hospital-based service expenditures of this type are included with hospital services.

The second method attempts to measure direct expenditures of individuals within the geographic area of interest. Here, measurements are made of out-of-pocket expenditures, insurance premiums, and payments by government and business. The first approach is used more often, which will be the adopted approach here.

The difference between the two methods is illustrated in Figure 2.6, above. The graph shows Delaware's net flow personal health care expenditures in 1998. Net flow equals expenditures by state of residence divided by expenditures by state of provider. Ratios greater than 1 mean that residents consume more health care than the state produces; ratios less than 1 mean that the state produces more health care than its residents consume. The difference arises because more Delaware residents travel outside the state to use hospital and physician services than non-Delaware residents enter the state. The most likely sources of this "importing" of services come from hospitals in Elkton, Salisbury, Philadelphia, and Baltimore.

Fortunately, for many categories, the measures are within a reasonable proximity to each other, at least for the single year for which this data was available. If third party payers were to become more aggressive insisting that the lowest cost provider be used independent of location, then the relationship between "imports" and "exports" could change. Regardless, the balance of this report uses the provider basis of measurement.

### **Hospital Services**

Estimating expenditures for hospitals is the least hazardous of the categories that this paper examines. Fortunately, the American Hospital Association (AHA) conducts an annual survey of both registered and non-registered hospitals. CMS depends heavily on this information to produce its estimates of personal health care expenditures for states. The AHA survey covers all hospitals but reports revenues only for "community hospitals". That category excludes federal and state government hospitals, long-term care

facilities and specialty hospitals such as Rockford and Meadowood. However, there is a reasonably stable relationship between those who directly report revenues and those who do not. In addition, expense revenue ratios are available to estimate revenues where only expenses are reported.

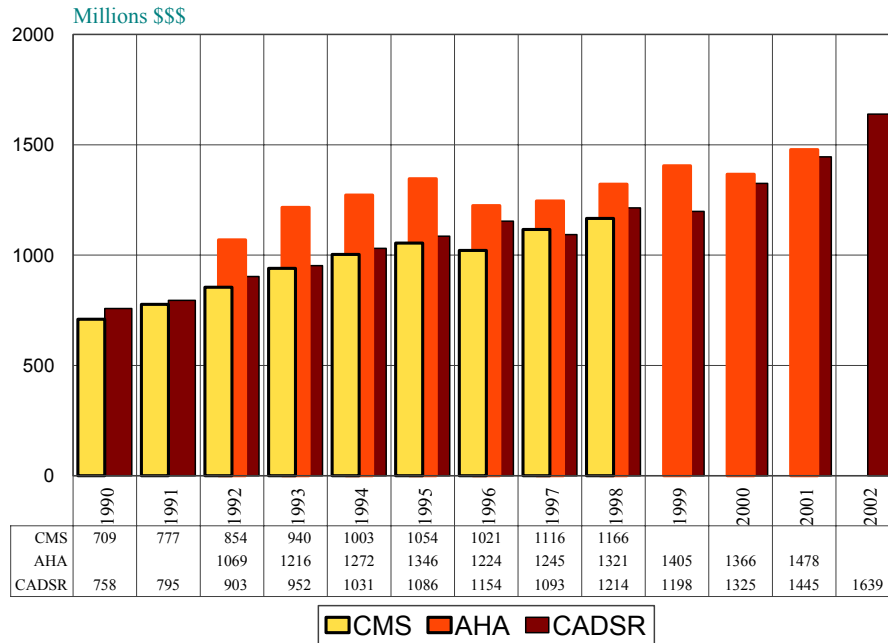
The CMS methodology relies heavily on the AHA but makes several technical adjustments. These adjustments, while quite correct, do not substantially alter either the trend or the basic structure of the data. The methodology used by this report for producing more current estimates relies on wages paid by hospitals that are reported to the Department of Labor. That data is current through 1998.

Figure 2.7 below includes estimates are included for three sources and provides overlap where data was available. The CMS and CADSR estimates attempt to measure the total revenue received by hospitals. The AHA estimate comprises total gross revenue. For the most recent complete AHA data, that revenue is reported to have risen over the course of the decade.

Overall, the three estimates appear to track each other fairly well. The CADSR estimate tends to approximate the CMS estimate during the period in which they overlap. On average, this difference is 4%. This difference is within the accuracy of the data and the methods used to produce the estimates. The AHA expenditure estimate (gross revenue) serves to confirm the trend of hospital revenues.

While the early part of the nineties produced steady increases in personal health care expenditures for hospitals, both the AHA data and the estimates produced by CADSR show some slowing. This diminished growth was coupled with a decrease in hospital-based employment during the decade. Part of this is certainly linked to restructuring (e.g. the acquisition of Riverside by Christiana Care). It also probably reflects the shift to managed care and the accompanying reduction in relative hospital days.

**Figure 2.7  
Delaware Personal Health Care Expenditures:  
Hospital Services by Source of Estimate**



**Source: Center for Applied Demography and Survey Research, University of Delaware  
American Hospital Association  
US Centers for Medicare and Medicaid Services**

The AHA data reports an absolute decline in total net revenue in 1996. While this may be statistical artifice, again it may also reflect some restructuring. Regardless, the 1997, 1998 and 1999 data resume the upward trend in hospital revenue, and reestablishes the closer relationship between the AHA and CADSR estimates of personal care expenditures on health care.

**Physician and Other Professional Services**

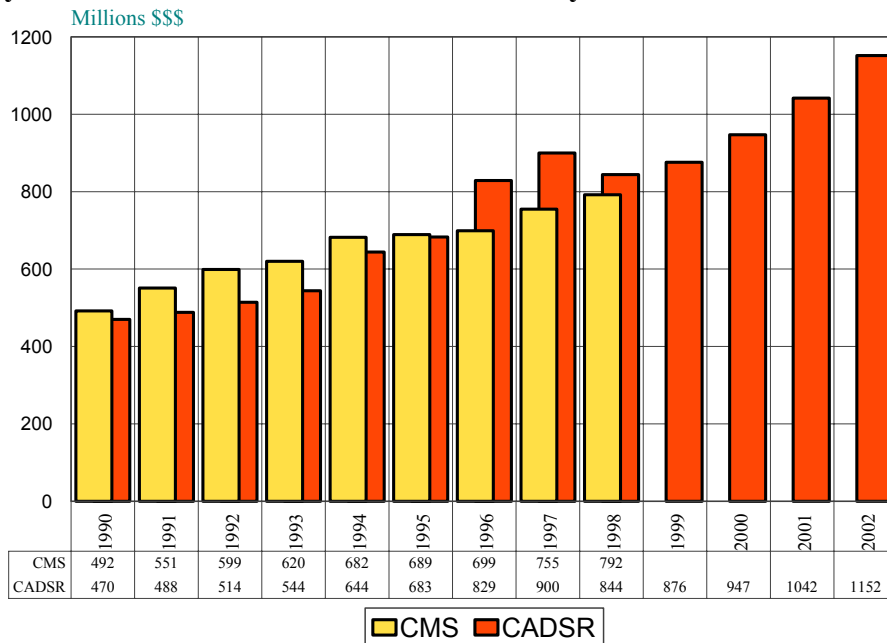
Estimating personal health care expenditures for physicians and other professionals is made difficult due to the absence of a survey of the type used for hospitals. There is no equivalent survey that covers the 2,300 physicians licensed to practice in the state. To further complicate the task, the organization of physicians is changing. There are far more physicians working at salaried positions for managed care organizations. Now, hospitals are more likely to acquire physician services through



outsourcing rather than having these doctors on staff. As a result, some of the indicators may represent this structural shift rather than any real change in expenditures.

CMS relies on a combination of sources to produce their estimate, including the Census of Service Industries (1997), the IRS Business Master file, and the Bureau of Labor Statistics estimates of wages and salaries paid in physician offices and clinics. Two of these, the CSI and the BLS data were available for this work, as well as information from the Delaware Department of Labor.

**Figure 2.8**  
**Delaware Personal Health Care Expenditures:**  
**Physician and Other Professional Services by Source of Estimate**



Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

The estimates of personal health care expenditures for physician and other professional services are found in Figure 2.8, above. The data are consistent with national figures for physician services. CMS combines estimates for physicians and other professional services. From 1995 onwards, there was a significant increase in both employment and wages reported to the Delaware Department of Labor.

Expenditures for *other professional services* include those organizations in SIC codes 804 and 809. These include services rendered by chiropractors, optometrists, podiatrists, and nurses in private practice, among others.

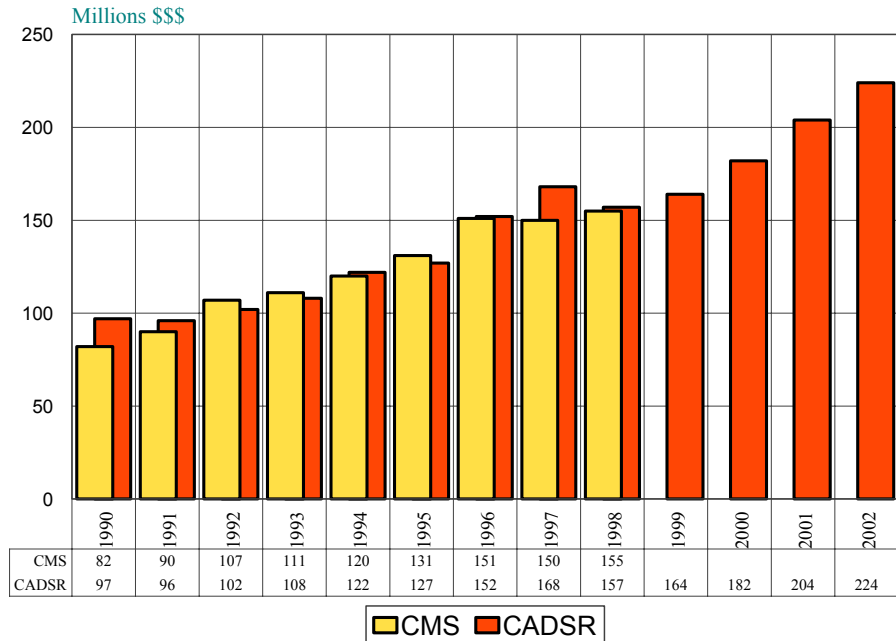
The CMS estimates indicate rapid growth in the *other professional services* account. One explanation may be that there are more facilities to serve drug and alcohol dependent populations, school and child health programs, and other similar programs that use non-physician services outside of the traditional medical setting.

### **Dental Services**

The CMS methodology for estimating revenues for dental organizations is the same as that for physicians. Dental organizations fall into SIC code 802 for estimates produced from the data provided by the Delaware Department of Labor.

The pattern of expenditures shown in Figure 2.9, below, is similar to that observed with physicians. Solid growth is occurring during the decade, although the rate may be diminishing. While total physician expenditures grew at an average annual rate of 6.3%, dental services grew by 7% annually. Since dentists have not been as strongly impacted as physicians by the move to managed care, these data suggest that the increase observed for dentists may not be an artifact. The solid growth rate complies with the income effect of the strong economy, which raised consumer spending on all items, including health services.

**Figure 2.9  
Delaware Personal Health Care Expenditures:  
Dental Services by Source of Estimate**



Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services

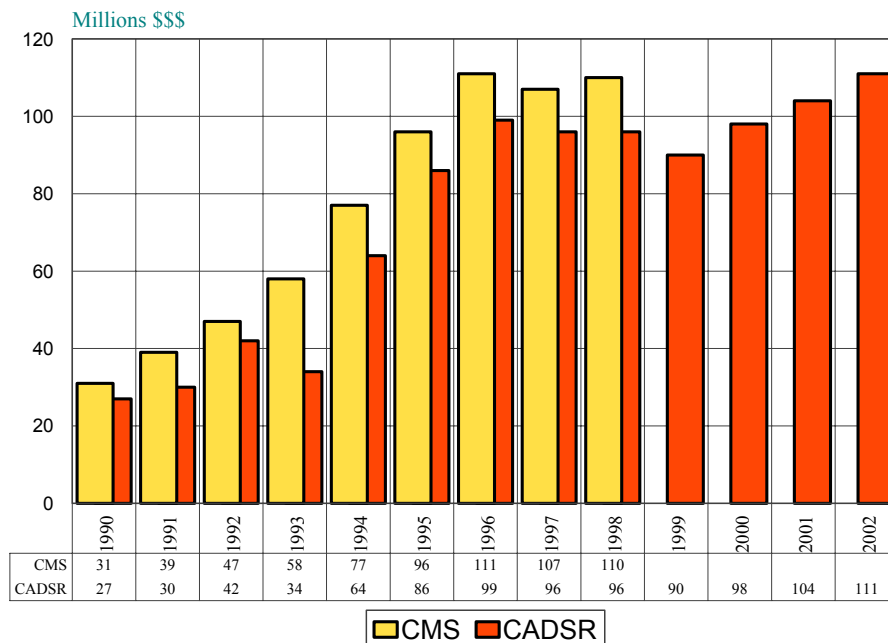
### Home Health Care Services

Standard industry classification code 808 represents home health care services. Private and government agencies provide these services. CMS uses the Census of Service Industries (CSI) as its benchmark for private firms, and then adjusts this estimate with Medicare and Medicaid payments for home health care supplied by governmental agencies. In Delaware, the difference between the CMS final estimate and the CSI estimate for 1992 is less than 10%. This suggests that government expenditures for direct provision of services (i.e. not by contract to a private firm) in this area are small. The estimates are provided in Figure 3.0 below.

This category of personal health expenditures exhibits a different pattern of growth than what was shown in the earlier figures. Estimates show that annual expenditures quadrupled between the period 1990 to 2002, exhibiting the highest growth rate by any of the sectors; and well above the rate for all sectors combined.

Mitigating the growth of home health services will be the effect of the Balanced Budget Act. The home health industry is under siege from declining Medicare reimbursements. The Balance Budget Act of 1997 delineated a schedule of reimbursement reductions and visit limitations, both of which directly impact the income stream of Home Health Care providers. Home health providers are responding by paring their payrolls. Nationally, home health employment peaked in 1997 following a decade of unbroken expansion. Since 1997, employment declined sharply. Total employment in the industry fell 5.5% in 1998 and 1999. Home health expenditures are now recovering, with growth in excess of 6% over the past two years.

**Figure 3.0**  
**Delaware Personal Health Care Expenditures:**  
**Home Health Services by Source of Estimate**



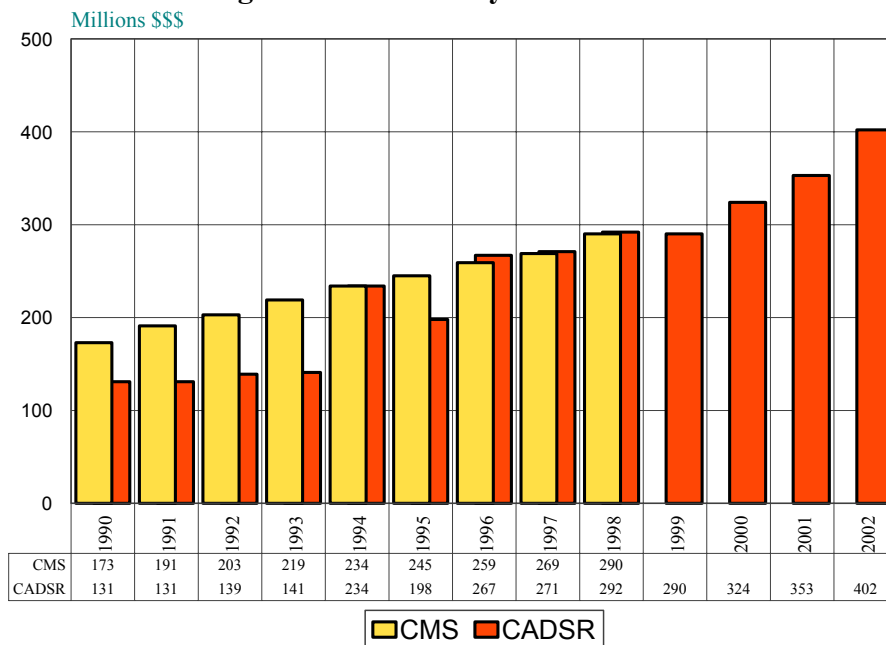
Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

### Nursing Home Services

Personal health care expenditures on nursing home services are covered by SIC code 805 and state facilities lie within SIC code 806. Since there includes a private and public component to this account, CMS uses two different methodologies similar to those employed for home health care. The estimates produced in this study are found in Figure 3.1 below.

This account exhibits stable to strong growth over the period. Since 1999, nursing home expenditures exceeded 9% per year. The 2002 data estimate suggests accelerating growth. Whether this rate of growth is sustainable, a one-time event, or statistical artifice will be discerned as further data become available.

**Figure 3.1**  
**Delaware Personal Health Care Expenditures:**  
**Nursing Home Services by Source of Estimate**



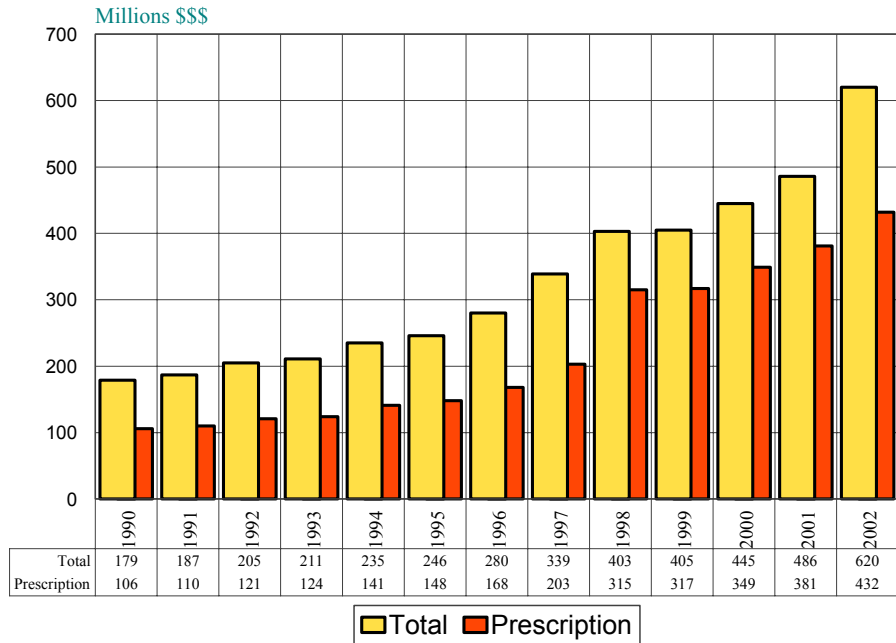
Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

### **Other Expenditures**

There are three other areas of the health care accounts that have not, as yet, been addressed. The first area is *drugs and other medical non-durables*. The second is *vision products and other medical durables*. And the final segment is *other personal health care*, which includes place-of-work health services. For the first two, CMS utilizes the Census of Service Industries (CSI). For the third area, the estimates are an amalgamation of indicators from sources that have no Delaware equivalents. The pages that follow present the CADSR estimates for prescription drugs. A separate section dedicated to the subject of prescription drugs appears later in the report, and presents a sample of the current issues related to that health care account.

The drug sector accounted for approximately 10% of the market since 1980. Figure 3.2, below, shows the estimates for the entire sector along with an estimate for prescription drugs. The estimates from 1990 to 1993 approximate those produced by CMS. All estimates after that time are provided by CADSR. Prescription drugs are expected to account for 57% of the prescription drugs and other medical non-durables account, while its share of the entire sector increases from 10% to 11%.

**Figure 3.2  
Delaware Personal Health Care Expenditures:  
Drugs and Other Medical Non-Durables**



**Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services**

Drugs are expected to continue to be the fastest growing component of health care expenditures. The growth of prescription drugs expenditures has a staggering rate of 12.8% nationally for the period 1995-1999. This torrid rate of growth reflects a number of factors, not least of which is the slew of new drugs introduced during the period. The spate of new drug offerings can be credited in part to the Food and Drug Administration’s (FDA’s) move to speed expedite the approval process for new drug candidates. New drugs tend to be more costly than old drugs, so the substitution of new for old drives expenditures higher.

The cost of prescription drugs continues to be a hot-button issue. A prescription drug plan for Medicare remains a topic of debate in the government. Seniors are heavier users of prescription drugs and therefore bear the brunt of rising drug costs. Indeed, prescription drug costs is one aspect of health care that managed care has been unable to control. While managed care does lower co-pays to consumers who opt for generic

alternatives to brand name drugs, consumers often find that no generic equivalent is available. The drug companies have been savvy in extending the patents on their best sellers through a process called ‘evergreening’ – a process by which the producer patents new inventions in connection with a popular drug that is already on the market. Under current law, each of those patents can serve as a deterrent to generic entry to the market. This forces consumers to stay with the patented drug, until the time when a generic alternative comes to the market.

Moreover, there are a number of potential top-selling prescription drugs that are due to be on the market within the next few years. These include medication for cholesterol, arthritis, obesity, migraines, and hepatitis. Consequently, drug expenditures are expected to remain in double-digit growth in the near term as consumers switch from older drugs to newer, more costly drugs.

The demand of prescription drugs is so great that some HMOs are refusing to cover certain classes, such as “lifestyle.” For example, Kaiser Permanente’s decision to exclude the drug Viagra from coverage sets a precedent for other health care providers to follow. While Kaiser’s move may not deter consumption of this particular drug, consumers may find more drugs excluded from coverage, placing them beyond consumer’s financial means. Presently, private out-of-pocket expenses account for 28% of expenditures for personal health care, with private insurance picking up 51% of the bill, and the government the remainder. Private expenditure will likely rise if the trend of drug exclusions by HMOs persists.

Prescriptions-by-mail is emerging as a popular means of acquiring drugs. The incentive is to lower the out-of-pocket expenditure of the consumer by offering drugs at a significant discount versus pharmacy prices. Typically, consumers will save by purchasing several months’ drug supply rather than one-month’s.

Nevertheless, demand for prescription drugs will only be enhanced further by the emergence of prescriptions-by-mail. Therefore, the trend of rising drug expenditures – the fastest growing component of health care expenditures – is expected to continue

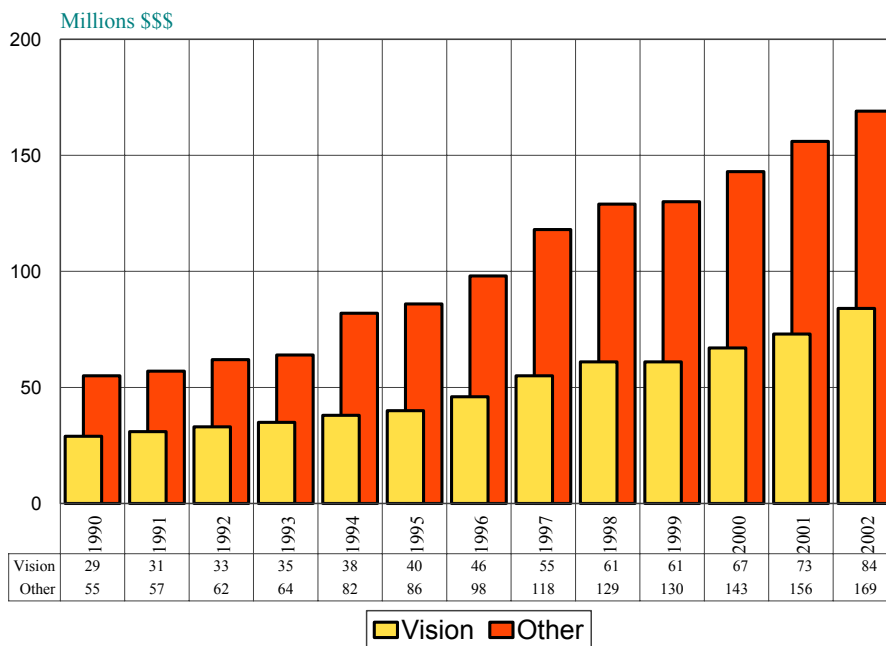


unabated. The prescriptions-by-mail program does present a data collection issue. Should these drugs be supplied by an out of state company, these expenditures will not be reported in Delaware. The estimates presented here are consistent with the national trend of drug prescriptions and are therefore taken to capture the prescription drug expenditures of the state.

**Vision and Other Medical Durables**

Figure 3.3 reports the estimates for the last two accounts. Vision products are allowed to grow sufficiently to keep the share around 1.6%. Their annual average growth rate is about 10%. This includes a slight increase after 1994, which is consistent with the pattern found in the other accounts.

**Figure 3.3  
Delaware Personal Health Care Expenditures:  
Vision Products and Other Medical Durables, and  
Other Personal Health Care**



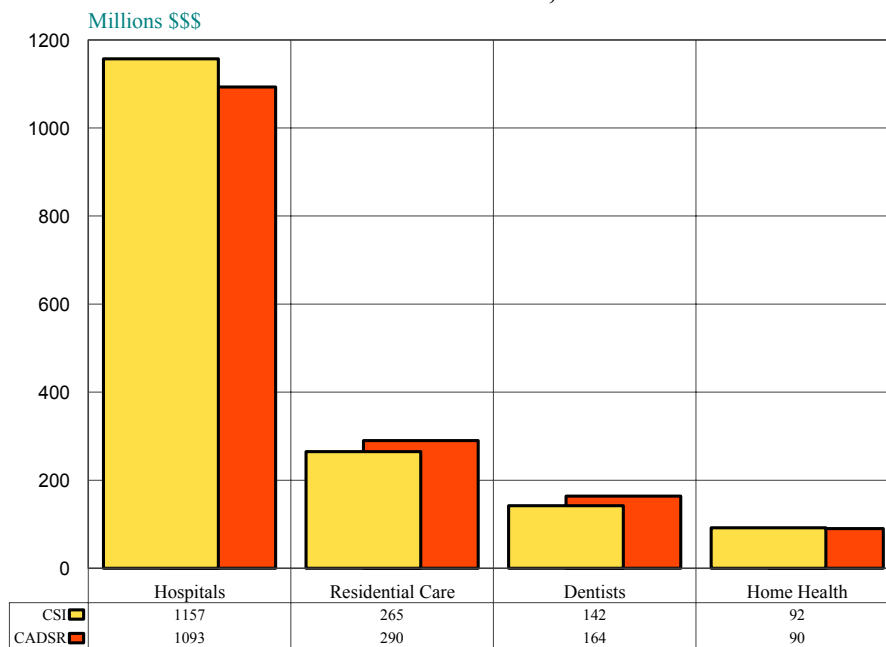
Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services

The timeliness of the BLS wage and employment data makes it a valuable resource for estimating the more recent trends in the industry. The infrequent release of

the Economic Census, discounts the reports' usefulness for yearly comparisons. Nevertheless, using the two reports in conjunction serves to verify the industry's trends.

Using the CSI estimates for 1997 as a benchmark tool, the accuracy of the CADSR estimates for 1997 can be assessed. In most cases, where CSI has comparable data to the sectors considered, the CADSR estimates fall within a reasonable range of the CSI data (see Figure 3.4).

**Figure 3.4**  
**Delaware Personal Health Care Expenditures:**  
**CSI versus CADSR, 1997**

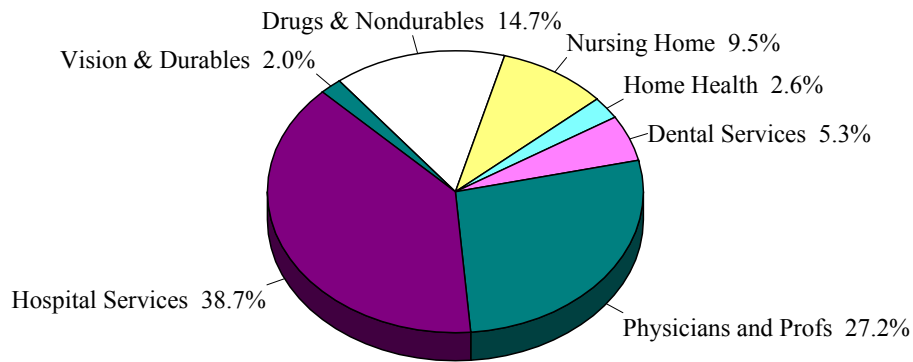


**Source: Center for Applied Demography and Survey Research, University of Delaware**  
**Census of Service Industries, 1997**

The composition of total personal health care expenditures in Delaware continues to evolve. In 1990, hospital services commanded an impressive 42% of total personal health care expenditures in the state. CADSR estimates that in the year 2002, although hospital expenditures will remain the single largest destination for expenditures, they will account for a smaller 39% of total expenditures (see Figure 3.5). All other accounts save hospitals gained a portion of are gaining share in health care expenditures. This reflects

the trend of health care provision away from traditional hospital care and toward alternative providers; the effect of managed care on limiting the provision of costly hospital care; and the greater efficacy of health care that requires either shorter hospitalization or even full treatment on an outpatient basis.

**Figure 3.5**  
**Delaware Personal Health Care Expenditures:**  
**Share of Total Expenditures in 2002 by Category**



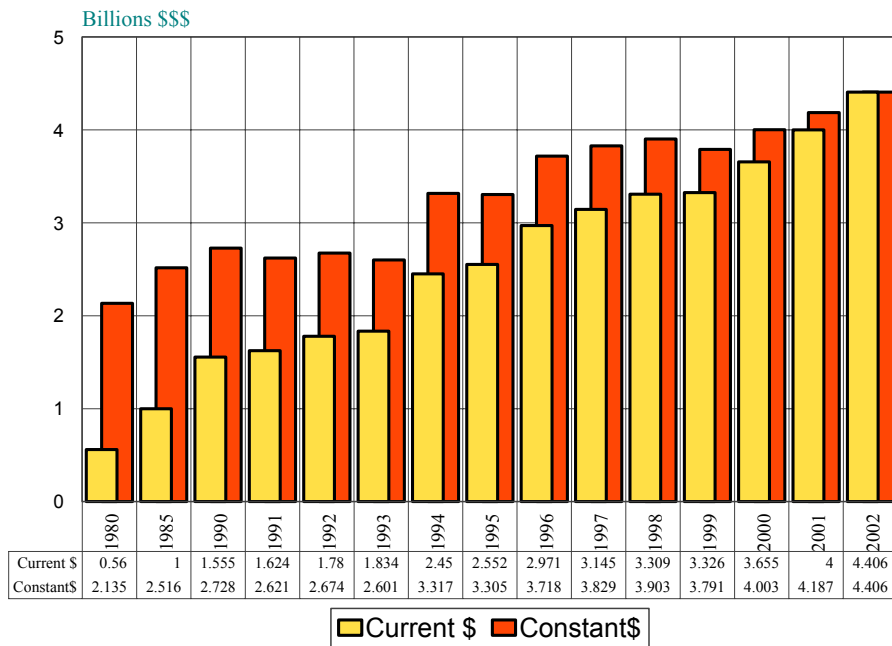
**Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services**

## Total Cost of Health Care

### Total Costs

After compiling all of the estimates for the various services and products, an estimate can be offered for the total cost of personal health care in Delaware. That estimate is found in Figure 3.6, below.

**Figure 3.6**  
**Delaware Personal Health Care Expenditures**  
**In Current and Constant Dollars**



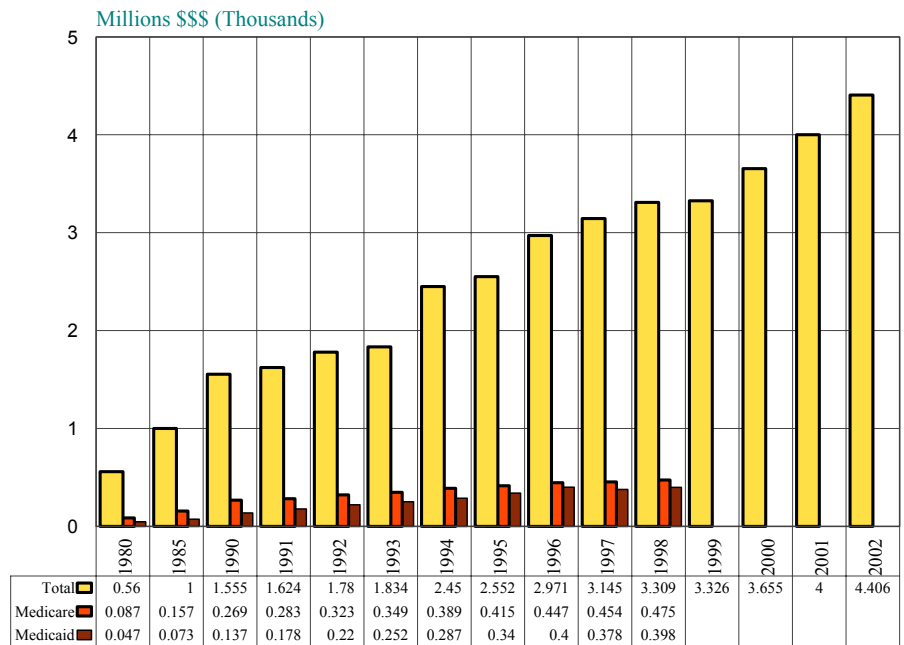
Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services

In 2002, the estimated total cost of personal health care in Delaware is approximately 4.4 billion dollars. The figure shows estimates both in **Current** dollars and in **Constant** 2001 dollars. From 1980 to 1990, the personal health care sector grew at 12% per year in current dollar terms (6% in constant dollars using revised inflation data). During that same period, the population increased by about 1% per year. Since 1990, the real growth rate has slowed to 6%. In the first half of the decade this rate was even

lower, but in the last few years it appears to be increasing again. Rising wages of health care providers augurs increased expenditures on health care services and, hence, an expanding industry. The recent Census of Service Industries (1997) reports that revenue/receipts of health care providers indeed are on the rise. Moreover, the CSI estimate of total revenue/receipts falls within an acceptable range of the CADSR estimate. The greatest pressure on expenditures is from the hospitals account.

In current dollars, the annual increase of total personal health care expenditures in Delaware averaged 8.9% per year since 1990. Approximately 65% of that annual increase is directly attributable to changes in prices, rather than quality or quantity of services. An additional 18% of the increase reflects population growth. The remaining 17% results from demographic change (aging of the population, increases in income, etc.), availability of new services and products, and changes in the preferences for personal health care over other goods and services.

**Figure 3.7**  
**Delaware Personal Health Care Expenditures:**  
**Medicare and Medicaid**



Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services

Medicare is increasing at an annual rate of 7.4%. The aging population is driving this increase: the over-65 population comprised 12.6% of the total population in 1990 and rises gradually to 15.3% by 2020. By that time only about half of the “baby boomers” will have retired. Since that age group uses health care services intensively, annual increases well above inflation and population growth are already considered.

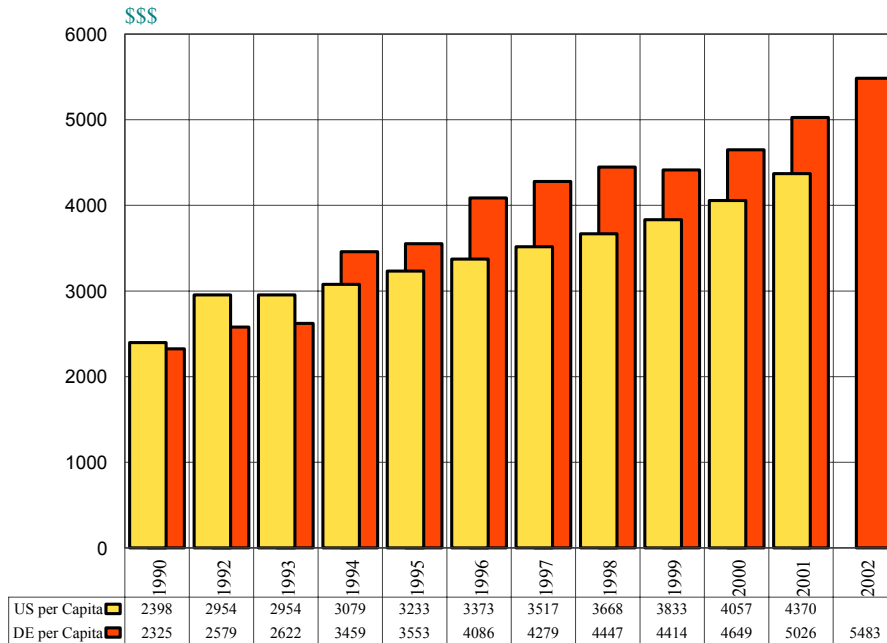
Medicaid costs grew 9% per year over the past decade and increased from 8.4% of total personal health care expenditures to 13% since 1980. This increase, however, is predominantly due to policy change. There have been significant efforts to increase access to health care for the poor, and in particular, young children. Unless there is a dramatic increase in the poverty rate, which has been declining, these annual increases should decline as the proportion of the needy population with coverage increases.

### **Per Capita Costs**

Another useful way to examine the total cost of personal health care expenditures is by using the per capita measure: a calculation that removes from the analysis the effect of increases in the population. Those results are shown in Figure 3.8, below.

Per capita health expenditures continue to rise in the state and nation. Because these data control for population growth, rise per capita health expenditures reflect increased use of health care (from an aging population, increasing consumption of health care services, and increasing costs of these services).

**Figure 3.8**  
**Personal Health Care Expenditures Per Capita:**  
**US and Delaware**



**Source: Center for Applied Demography and Survey Research, University of Delaware  
 US Centers for Medicare and Medicaid Services**

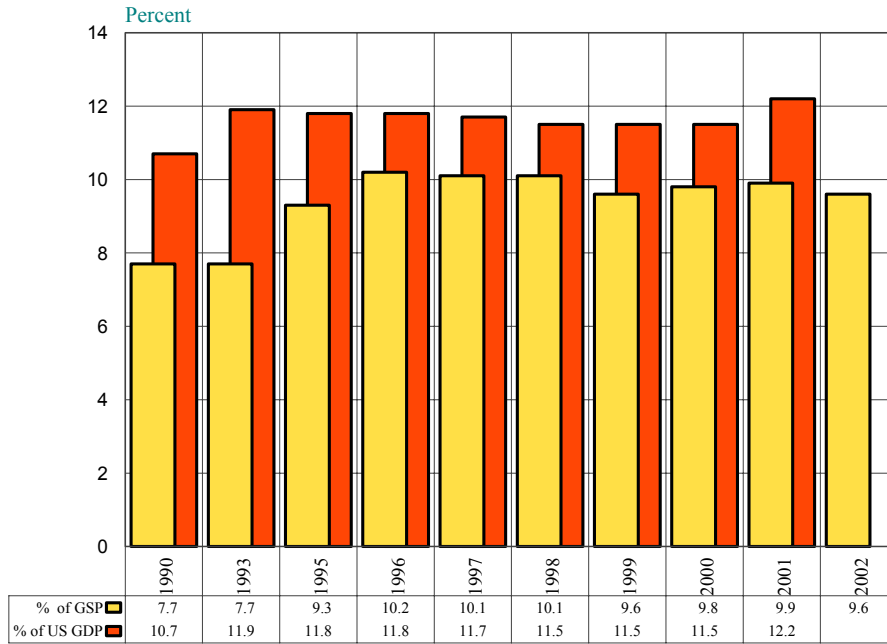
**Economic Importance**

Two provided measures of economic impact show the importance of personal health care expenditures in the Delaware economy. First, Figure 3.9 below displays the ratio of these expenditures to gross state product (the total value of goods and services produced in Delaware). Also shown, for comparison, is the ratio of personal health care expenditures in the US to gross domestic product (the total value of goods and services produced in US).

This chart illustrates a number of points. First, the health care sector has been growing as a proportion of total output in both the US and Delaware. Second, Delawareans spend significantly less than the US as a whole on health care; 10% compared to 12%. Perhaps 0.3% of this difference can be allocated to the fact that Delawareans purchase more health care services outside of the state than non-Delawareans purchase inside the state. The balance must be attributed to differences in

income, preferences, and needs. Delaware is well above average in income and gross state product, and well below average in poverty. However, Delaware lies slightly above average in age, which tends to increase the share of GSP devoted to health care.

**Figure 3.9  
Personal Health Care Expenditures:  
Share of US GDP and Delaware GSP**

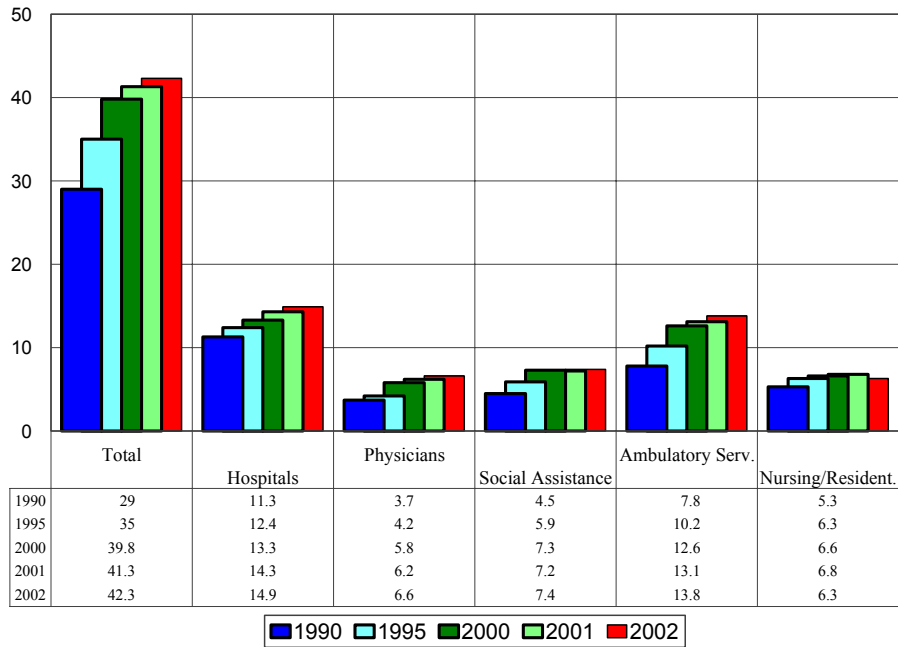


**Source: Center for Applied Demography and Survey Research, University of Delaware  
US Centers for Medicare and Medicaid Services**

Finally, the health care sector is an important part of the employment in the state. Information reported to the Delaware Department of Labor shows that the health care sector provides employment for 7.3% of the labor force of 415,000. Those workers earn 10% of the reportable wages. In Figure 4.0 below, employment by sector over time is shown.



**Figure 4.0  
Delaware Employment in Health Services**



**Source: Center for Applied Demography and Survey Research, University of Delaware, Delaware Department of Labor. Employment is reported by NAICS category. Components may not sum to totals due to rounding.**

Emblematic of the changing structure of the health care industry is the shift in employment in the State. Hospitals command a declining share of Delaware’s health care industry. In 1990, hospital employment accounted for 38% of the state’s health care industry. By 2002, the latest year of complete data, this number had fallen to 35%.

An examination of the employment growth rates in Delaware confirms the disparate pattern across the health care sectors. Home/nursing health care employment growth stagnated over the past three years. Physicians grew by six percent, 2001-2002.

There is evidence that hospital employment growth reached its nadir, however. After stalling in 1996, hospital employment growth turned positive again, and added 2,500 jobs between 2000 and 2002. While this is not the fastest growth, it is a significant turnabout from the second half of the nineties.

## Prescription Drugs

Prescription drug coverage, expenditures, and prices garner considerable attention across the nation. Medicines are increasingly relied upon to maintain or improve health. However, concerns have been raised about the rising cost of prescription drugs and its impact on health plans, employers, and uninsured individuals. Other issues include the lack of outpatient prescription drug coverage under Medicare, the methods for determining the price of drugs and the development, the approval process, and the pricing of new drugs.

This section reviews the current research on prescription drugs. The CMS provides data on aggregate prescription drug expenditures for Delaware, albeit with a time lag of several years. *Delawareans Without Health Insurance 1999*<sup>5</sup> provides estimates of the number and profile of the state's uninsured. However, there is no specific information available on prescription drug coverage or expenditures by Delaware's households. Research indicates that those with any type of health insurance typically enjoy some form of prescription drug benefit. It is reasonable, therefore, to infer that Delawareans with health insurance also have some form of coverage for prescription drug expenditures.

Historically, Delaware's uninsured population figures followed closely with those of the region and nation. With this in mind, national research on the subject of prescription drugs will not only offer insight into this industry in aggregate, but will be highly applicable to the State.

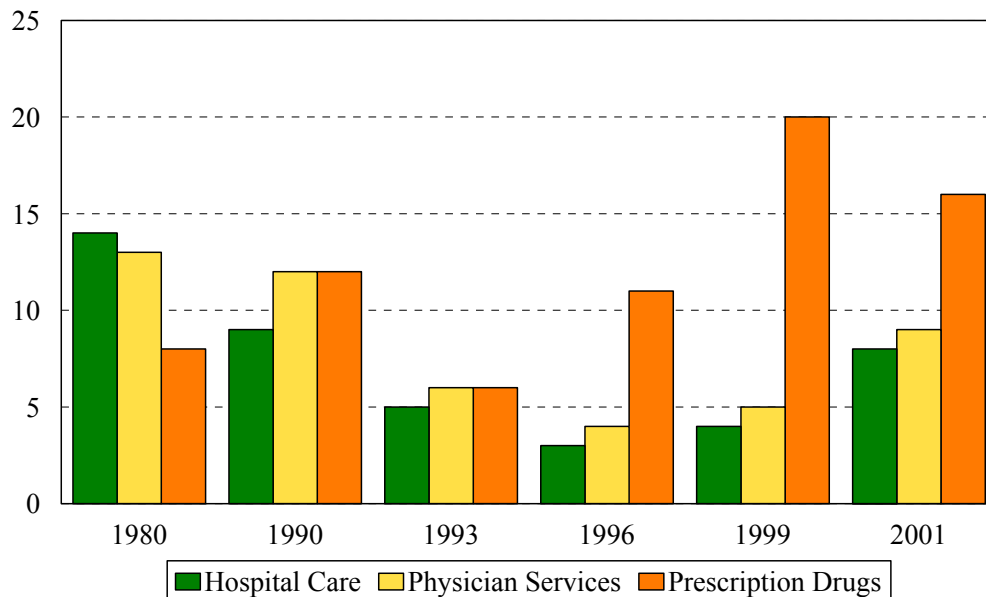
Prescription drugs is one of the fastest growing health care accounts. Nationally, increases in prescription drug expenditures were responsible for almost half (44%) of total health care expenditure increases in 1999, and 27% in 2000. Spending on prescription drugs more than doubled since 1990. Although prescription drug spending is

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<sup>5</sup> See <http://www.cadsr.udel.edu/DOWNLOADABLE/DOCUMENTS/Hcc994pdf.pdf>

a small proportion of personal health care spending (9%), it is one of the fastest growing components, see Figure 4.1 below.

**Figure 4.1:**  
**Annual Percent Change from Prior Year in Selected National Health Expenditures, 1980-2001**



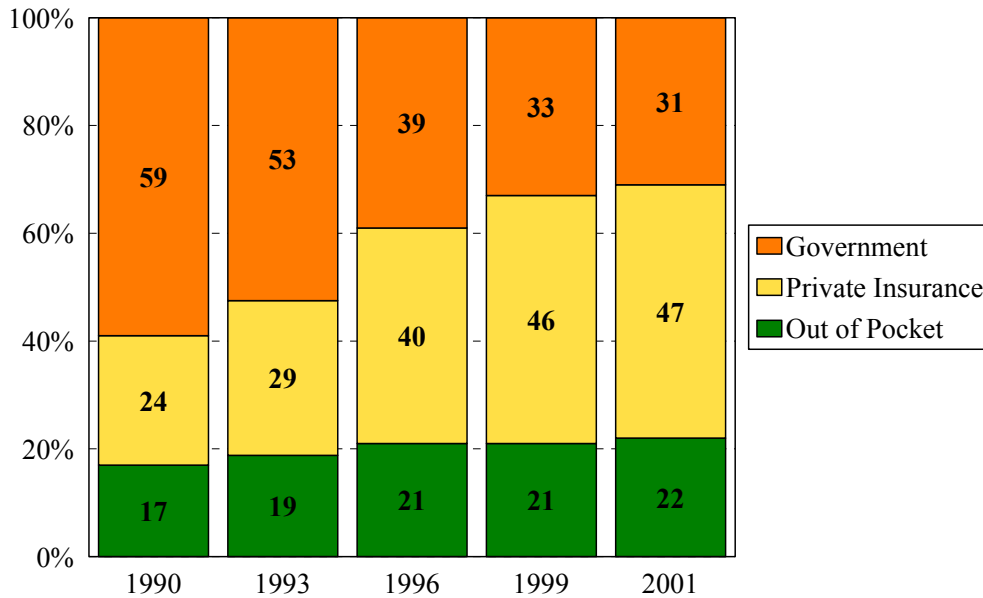
Source: Kaiser Family Foundation.

Despite being only a small component of total health care expenditures, the rise in prescription drug prices has a marked effect on employer-based insurance. Prescription drug costs are the most rapidly increasing expense for employer-based insurance, representing 40% of the premium increase from 1998-1999.

Two factors are at play. First, health insurance coverage for prescriptions greatly expanded over the previous decade. In 1990 approximately one-quarter of all prescription drugs were still paid for by private insurance (see Figure 4.2 below). However, by 2001 private insurance comprised almost fifty percent of prescription drug expenditures. Second, the greater availability of new products, especially antihistamines, antidepressants, cholesterol reducers, and anti-ulcerants, drives increased expenditures as consumers switch from older to newer, more expensive drugs. Moreover, pharmaceutical

companies use aggressive direct-to-consumer marketing to maximize the demand for their products.

**Figure 4.2**  
**Percent of Total National Prescription Drug Expenditures by Type of Payer, 1990-2001**



Source: Kaiser Family Foundation.

The driving factors for rising prescription drug expenditures include a combination of increased utilization, rising prices of existing drugs, and the introduction and substitution toward new drugs. Figure 4.4 below illustrates the relative size of each of these factors. Almost fifty percent of the increase in expenditures is attributable to increased utilization. Between 1992 and 2001, the number of prescriptions purchased increased 68% (from 1.9 billion to 3.2 billion), compared to a U.S. population growth of 11%. The average number of prescriptions per person increased from 7.3 to 11.1.

Retail prescription prices (which reflect both manufacturer price changes for existing drugs and changes in use to newer, higher-priced drugs) increased an average of 7.7% a year since 1991, more than double the inflation rate of 2.7%. Manufacturer prices

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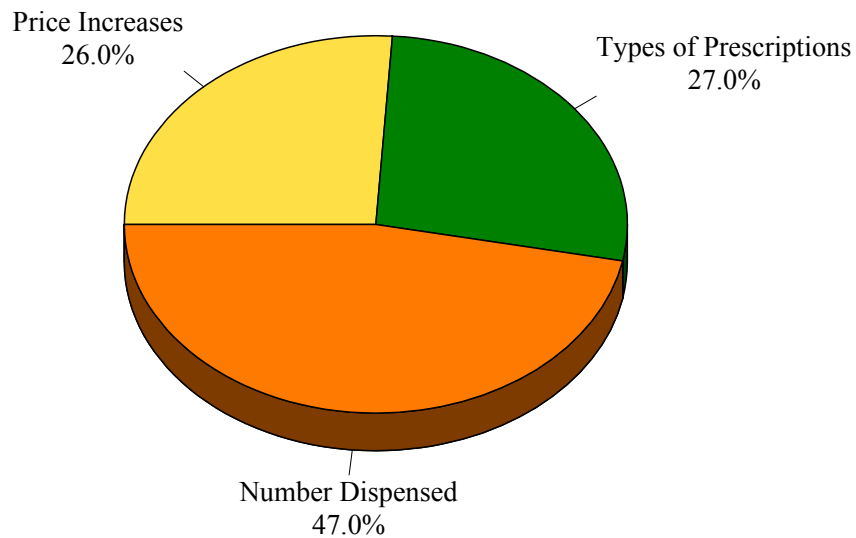
(which reflect only price increases for existing drugs) grew less rapidly, and average of 4% a year since 1991.

Most of the top selling prescriptions are newer, higher-price brand name drugs, whose availability directly relates to the research and development (R&D) activities of pharmaceutical manufacturers and government supported research. Manufacturer R&D spending increased from \$10 billion in 1991 to \$30 billion in 2001, though R&D as a percentage of sales (17% in 1991) has remained relatively flat since the mid-1980s (PhRMA). The number of new drugs approved by the U.S. Food and Drug Administration also affects new drug use. The FDA typically approved 30 drugs a year on average over the past 10 years, but approved only 17 in 2002.

It is important to note that an additional dollar spent on prescription drugs is not necessarily an additional dollar spent on total health care. For many ailments, prescription drugs are a substitute for more costly physician or hospital treatment. Depression is one example where treatment by prescription drug replaces the more costly traditional treatment methods. Rather than costly outpatient treatment and counseling, which incur lost work time as well as high provider costs, patients are treated via drugs such as Zoloft and Prozac.

With breakthroughs in drug therapy leading to more efficient treatment, rising prescription drug expenditures do not necessarily mark a pure increase in total health care costs; rather they reflect the switch away from traditional treatment techniques.

**Figure 4.3**  
**The Relative Contributions of Price, Utilization, and Types of Prescription Drugs**  
**Used to Rising Prescription Drug Expenditures, 1997-2001**



Source: Center for Applied Demography and Survey Research, University of Delaware and Kaiser Family Foundation Prescription Drug Trends, March 2003. U.S. data.

Having established that prescription drug expenditures are on the rise, it is useful to put this increase into context. Describing prescription drug expenditures as a percentage of GDP provides a measure of a nation's resources that are devoted to these items. Using OECD data, the United States compares favorably with other nations in terms of its prescription drug expenditures per capita. In 1997, 1.4 percent of GDP was spent on prescription drugs, which gives the country a mid-table placing of nations ranked by prescription drug spending-to-GDP. This measure (the percentage of GDP devoted to prescription drugs) is poised to rise as the baby boomers move into retirement. Persons aged 65-74 use four times as many prescriptions as those aged 25-34. Mitigating

this rise are factors like an expanding economy, which should prevent drug expenditures becoming intolerably burdensome on the economy.

However, the aggregate picture gives an artificially sanguine view of the market for prescription drugs. Consider prescription drug spending at the household level. For many families, average outlays on prescription drugs are a manageable budget item, whether or not that family has insurance coverage for drugs. In 1999, for example, the average U.S. per capita spending on prescription drugs was \$358, compared with \$413 for alcohol, tobacco, and entertainment combined. However, subjecting the national averages to closer scrutiny reveals that some households do face exorbitant costs.

A study by Express Scripts found that the top two percent of their most costly patients accounted for thirty-three percent of annual drug spending. And the highest spending five percent of households accounted for about fifty percent of total expenditures.

Furthermore, the profile of high expenditure households is not as clear-cut as one would imagine. Research suggests that high expenditure households cannot be simply categorized as elderly or in poor health. Of those with high expenditures (in the top 1% of households for prescription drug expenditures), less than half are elderly. This suggests that a member of this group cannot be assumed to be elderly. Furthermore, the top 1% of spenders do not consider themselves to be in poor health (based on self-reported health status). These statistics point to some of the complexities of providing affordable prescription drugs to the high-cost users.

A similar skewing of expenditures holds for personal health care expenditures in general. For example, health care spending varies greatly across groups and is highly skewed even within age groups. Research revealed a considerably skewed distribution, with a relatively small proportion of the population accounting for a large share of health care expenditures (see figure below).

**Figure 4.4:**  
**Distribution of Health Expenditures For The U.S. Population, By Magnitude Of Expenditures, Selected Years 1987-1996**

Percent of U.S. population ranked by expenditures	1987	1996
Top 1 percent	28	27
Top 2 percent	39	38
Top 5 percent	56	55
Top 10 percent	70	69
Top 30 percent	90	90
Top 50 percent	97	97

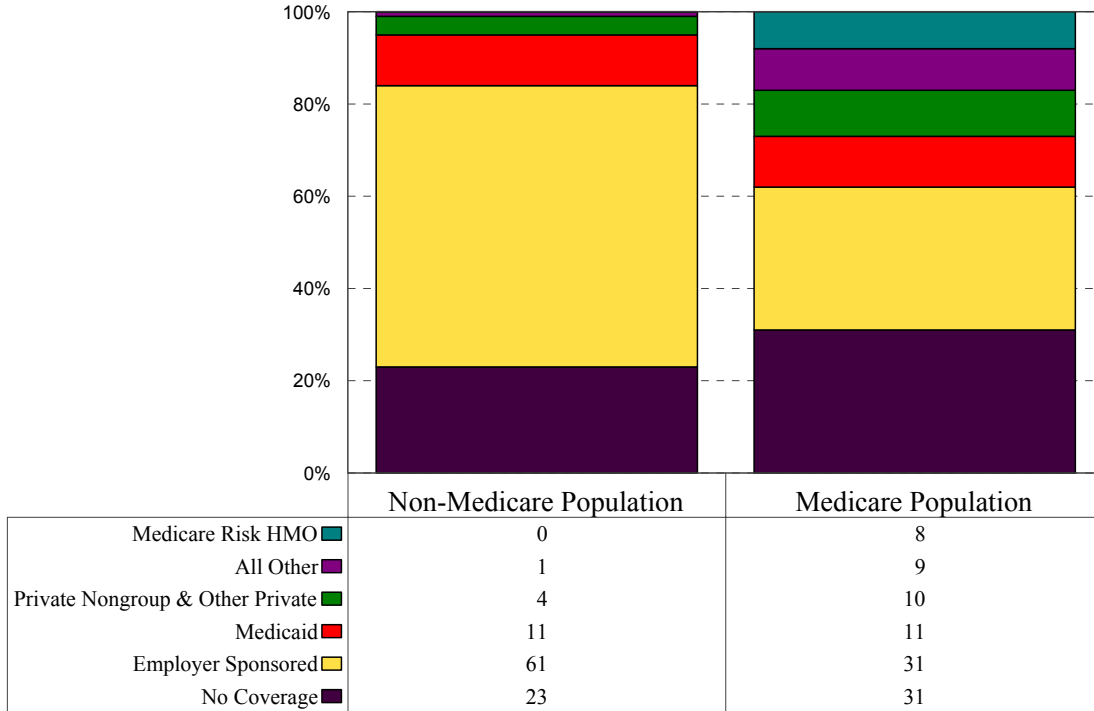
Source: The Concentration of Health Care Expenditures, Revisited, Health Affairs, March/April 2001.

The top five percent of health care spenders account for more than half of total health spending. The top fifty percent of households account for ninety-seven percent of total health spending. It is clear that the majority of Americans collectively are responsible for only a very small proportion of what is spent (or paid for) on health care, and a relatively small proportion of the population spends exorbitant sums of money.

The Figure 4.5 below illustrates the composition of insurance coverage for prescription drugs.



**Figure 4.5:**  
**U.S. Insurance Coverage for Prescription Drugs, 1996**



Source: Kaiser Family Foundation, Prescription Drug Trends – A Chartbook, July 2000.

Almost a quarter of Americans under the age of 65 and almost a third of Medicare beneficiaries had no prescription drug coverage in 1996. It is this statistic that has brought the Federal government to consider the provision of a prescription drug plan for seniors.

Industry watchers forecast deterioration in health care affordability in the near future. The introduction of new drugs will continue unabated. These drugs typically have no low cost generic during their early years. This coupled with the rise in average copayments and three-tier cost sharing will ensure that consumers’ protection from prescription drug costs will erode.

Health plan organizations and employers already feel the added pressure from rising drug costs. Inevitably, consumers will be asked to meet this additional cost, which impacts households in direct proportion to their prescription drug usage. For many

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households, the increase will be manageable, for others it will represent a financial hardship.

The purpose of this section is to present research on the prescription drugs. While it provides an overview of the subject, nevertheless there are some facts that are worth reiterating. Future research includes gathering information on prescription drug health coverage and expenditures in Delaware.

- Prescription drugs are the fastest growing health care account.
- Many households are shielded from the full cost of prescription drugs through insurance.
- For the majority of households, the cost of prescription drugs is a manageable budget item.
- Household prescription drug expenditures are heavily skewed: a small proportion of households account for a sizeable proportion of total expenditures.
- Seniors are the heaviest users of prescription drugs, yet Medicare recipients have proportionately lower prescription drug coverage than their non-Medicare counterparts.
- Rising prescription drug costs are exerting pressure on employers and health plan providers alike. These costs are leading health plan providers to limit their drug coverage, demand higher premiums from employers, or both.
- Employers, in turn, pass on the costs to employees by asking for greater health care enrollment fees, or by opting for higher copayment plans. In either case, consumer spending on health care increases.

## Cost Shift In Delaware

In 1999 the Health Care Commission released a report prepared by the Lewin Group on the subject of Cost Shift. As cost shifting could ultimately impact the financial stability of Delaware's hospital and insurance markets, continued monitoring of cost shifting is important. This section updates some of the findings from that initial report.

Cost shifting is defined as the process by which health care providers recover the unpaid costs of care delivered to one patient population by collecting above cost revenues from another patient population. The process is a common dynamic in the health care marketplace and occurs in different contexts and settings.

In the case of hospitals and physicians, cost shifting has been attributed to two factors: below-cost reimbursement rates paid by public programs such as Medicare and Medicaid, and uncompensated care losses due to bad debt or charity care.

The data for this update of the original analysis<sup>6</sup> draws from the Public 1991-99 Medicare Payment Advisory Commission (MedPAC) analysis of American Hospital Association (AHA) annual survey data, and the American Hospital Association (AHA) Hospital Statistics. Citing data integrity issues, MedPAC and the AHA ceased to publish state level hospital financial data. National data are still published, which provides an indicator of the cost shift trend in the nation.

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<sup>6</sup> The original analysis covered the period 1991 to 1996. This analysis will, where possible, update the analysis to 1999. MedPAC and AHA have ceased to publication of state level hospital financial data. Where available, U.S. data for 2000 and 2001 are included to provide the nation trend.

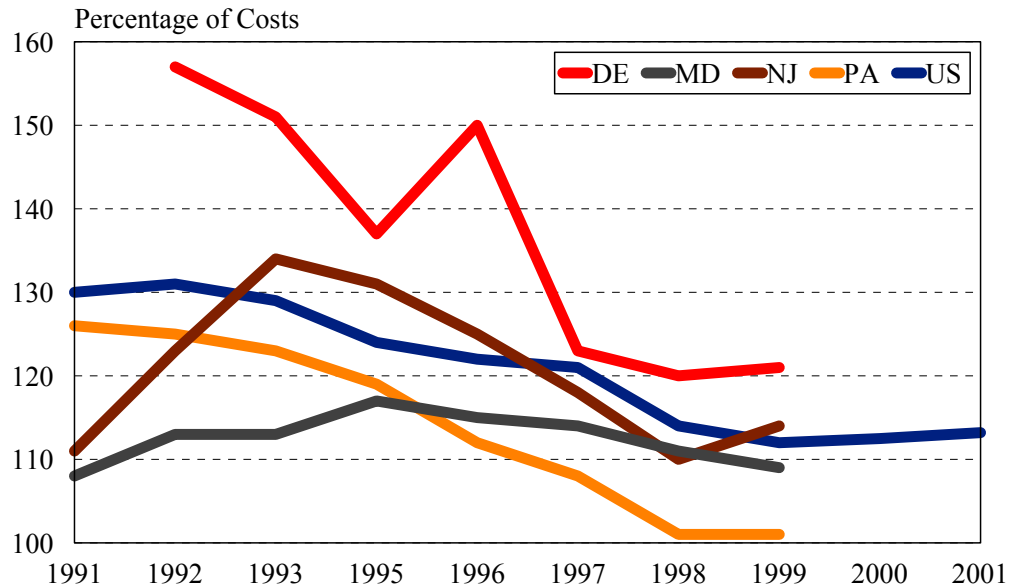
### **Above-Cost Payers**

From 1991 to 1999, Delaware exhibited a consistently higher level of private payer cost shift relative to surrounding states. In Figure 4.6 below, the level of cost shift is measured as the ratio of total private payer's payments to their costs. An excess (greater than 100%) is reflective of the cost shift required in order for the hospital to recover the costs of below-cost payers, as well as the allocation required for the hospital to achieve its desired patient margin<sup>7</sup>. When all other payers aside from private insurers reimburse at less than cost, the full weight of both the lost revenue as well as the hospital's overall desired patient margin is collected from private insurance companies. A cost shift scenario exists if payments from above-cost payers are greater than their associated costs to a degree higher than their expected patient margin. Over the past twenty years, U.S. hospital total patient margins have averaged five percent. Therefore, private payer payments as a percent of costs considerably above the 105% range would reflect cost shifting. As the chart below clearly illustrates, there has been some degree of cost shift present in Delaware, its neighboring states, and the nation. However, the level of cost shift implied by this measure fell steeply in recent years, though Delaware still reports higher levels than those at the regional and national level. The U.S. data for 2000 and 2001 imply that cost shifting remains low relative to earlier levels.

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<sup>7</sup> Patient Margin is defined as the profit margin achieved per patient.

**Figure 4.6:**  
**Total Private Payers' Hospital Payments as a Percentage of Costs**



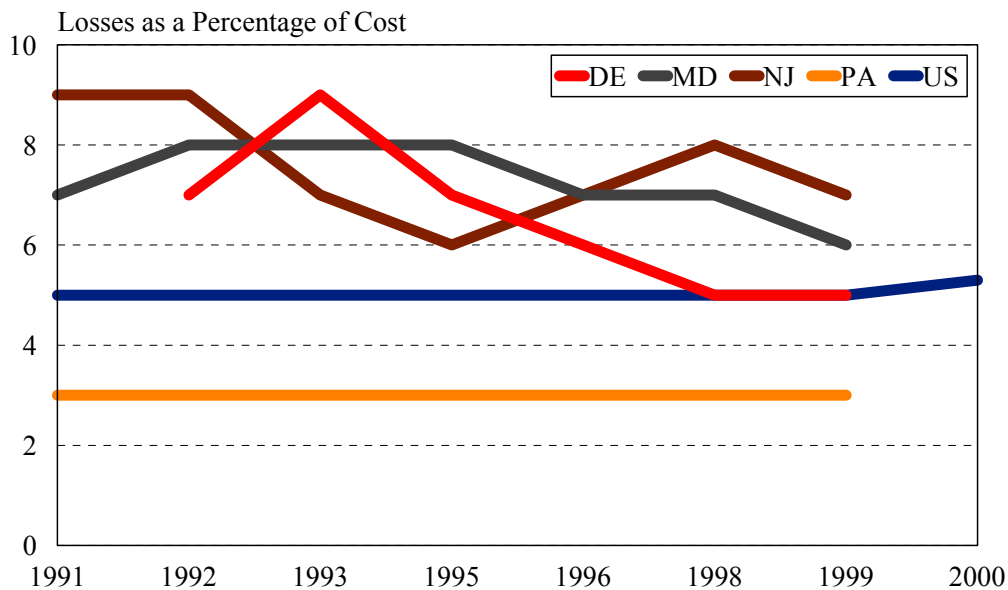
Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable. The level of cost shift is measured as total private payers' hospital payments in relation to the costs of their hospital treatment. The volatility in the DE data may be due to a different mix of hospitals responding to the AHA survey.

**Below-Cost Payers: Uncompensated Care**

As mentioned previously, losses from uncompensated care contribute to the pattern of cost shift. Delaware does not operate a public subsidy system for uncompensated care. State-level subsidy programs reduce uncompensated care losses, therefore states that do not operate these programs would have more of a tendency to cost shift. New Jersey, Pennsylvania, and Maryland all offer some form of public subsidy to cover bad debt and charity care expenses. Delaware’s reports a cost shift comparable to these states’ net of public subsidy (see Figure 4.7). In 1999, for example, Delaware’s cost shift was comparable to the United States average, but was below those of New Jersey and Maryland. If subsidy programs in other states were removed, the level of uncompensated care losses in other states would increase, as would their need to cost shift.

**Figure 4.7:**

**Hospital Uncompensated Care Losses as a Percentage of Total Cost**

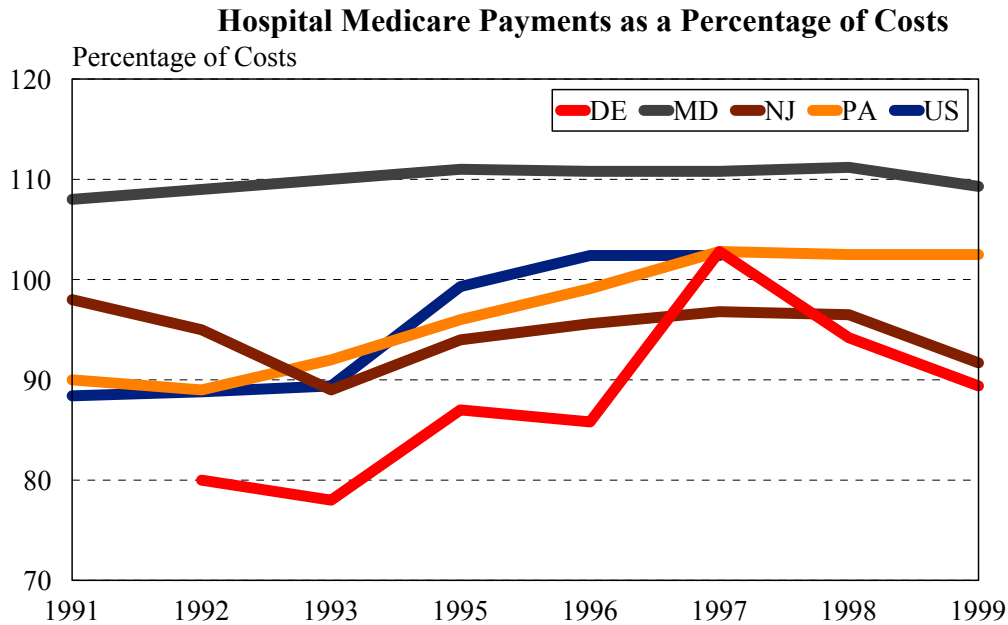


Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable. The figures are net of local subsidies and DSH payments.

**Below-Cost Payers: Medicare**

Delaware’s Medicare payments as a percentage of costs is lower than the regional and national averages. Below-cost reimbursement from Medicare is a source of revenue shortfall in Delaware, although Medicare reimbursement rates in Delaware recently have improved relative to the cost of medical services. In the past few years, the measure has fluctuated, but averages approximately 90%. Medicare reimbursement rates are set to reflect average hospital costs and are therefore useful indicators of relative costs between states. A lower Medicare payment-to-cost ratio is an indicator of higher costs. While Delaware hospitals tend to lose money on Medicare patients, U.S. hospitals on average tend to cover their costs. MedPAC reports that national Medicare payment-to-cost ratios have exceeded 102% in recent years. Thus in other states, Medicare easily covers its associated costs, while in Delaware Medicare represents a significant source of revenue shortfall.

**Figure 4.8:**

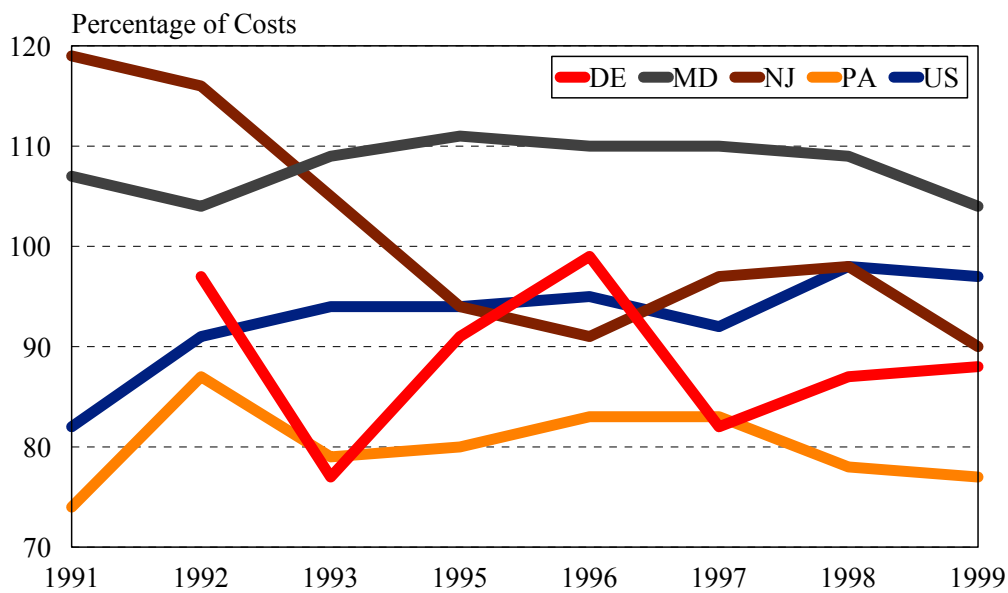


Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable.

**Below-Cost Payers: Medicaid**

Medicaid is a further source of revenue shortfall for the state, see Figure 4.9 below. The measure of Medicaid revenue-to-costs improved over the past decade, averaging 90% in 1999 versus 80% in 1992.

**Figure 4.9:**  
**Hospital Medicaid Payments as a Percentage of Costs**



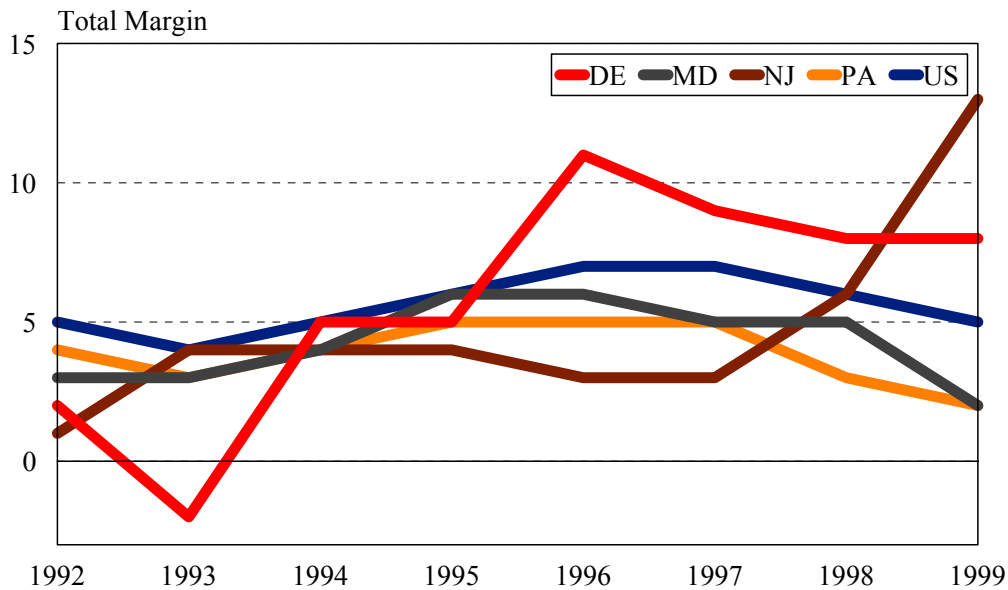
Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable.



**Hospital Margin**

Updated hospital margins are derived from the AHA Hospital Statistics publication. If the data for Delaware were smoothed for the period reported, the state would be comparable to its peers. The volatility in the Delaware measure may be statistical artifact.

**Figure 5.0:  
Total Hospital Margin**



Source: AHA Statistics.

Over time, Delaware hospitals have neither lower nor higher margins than hospitals in surrounding states or the nation, as seen in figure 5.0. Because Delaware’s hospitals’ total margins are not significantly different than surrounding states, the margins do not appear to contribute or detract from the cost shift in Delaware. The volatility of Delaware hospital margins in 1993 and 1996 are likely due to non-participation by certain hospitals in the AHA annual survey.

**Summary of Above and Below-Cost Payers and Margin**

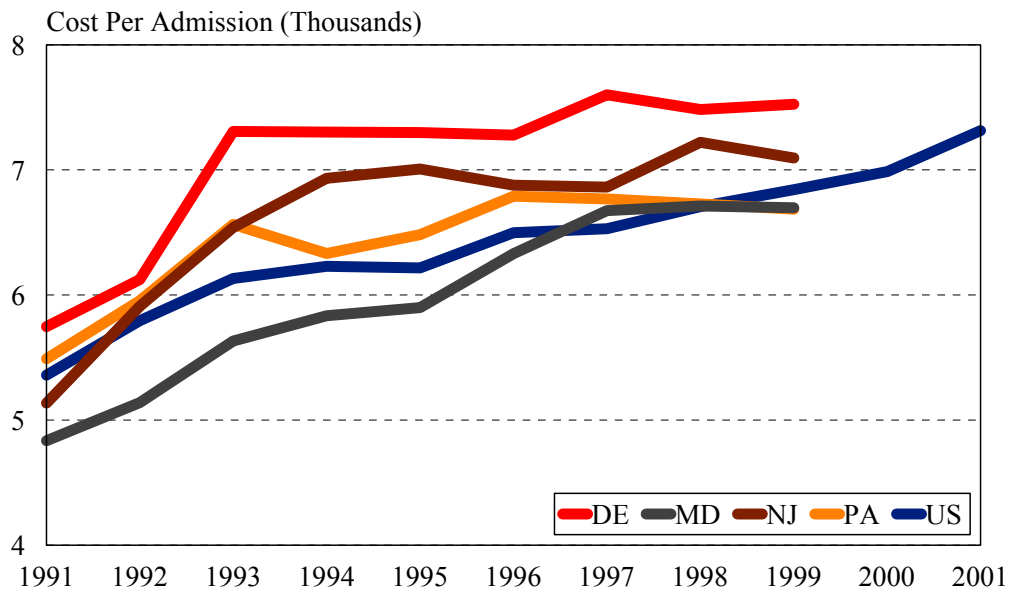
As discussed in the preceding pages, despite the existence of subsidy programs in other states, losses from uncompensated care are comparable between Delaware and surrounding states. Furthermore, Medicaid is a source of loss in Delaware as it is in surrounding states (with the exception of Maryland, due to its special waiver status). Medicare is a source of revenue shortfall in Delaware, while in other states Medicare payments improved relative to costs and nationally Medicare reimbursed at rates slightly greater than cost by 1996. Delaware's lower Medicare payment-to-cost ratio suggests that the state's hospitals have higher costs on average than hospitals nationally and in surrounding states.

**Underlying Cost Structure**

As seen in the chart below, Delaware hospitals do have higher costs than surrounding states and the nation, which contributes to Delaware’s need to cost shift. AHA statistics indicate that Delaware hospitals have higher per case costs than hospitals in surrounding states. However, it is important to note that Delaware held its hospital costs-per-adjusted admission constant for several years, while surrounding states and the United States average have tended to increase. This suggests that the need to cost shift due to the underlying hospital cost structure decreased for Delaware hospitals relative to hospitals in surrounding states. This is consistent with the generally declining cost shift seen in figure 4.6.

**Figure 4.11.**

**Hospital Cost Per Adjusted Admission**



Source: AHA statistics

High hospital costs, with all else equal, exacerbate the level of cost shift in two ways. First, high hospital costs make it more likely that certain payers, especially public programs, may reimburse at less-than-cost. Second, when one payer category reimburses at less-than-cost for a high cost case, the resulting revenue shortfall is higher, requiring a greater level of cost shift to above-cost payers. Therefore, high Delaware per-case costs result in greater costs to private insurance payers, both directly through higher costs and indirectly through greater cost shifting.

## Observations

Many states across the nation are attempting to better measure personal health care expenditures. They are doing this for two predominant reasons. First, policy-makers need to understand the structure and size of those costs to more fully comprehend the problems of access that can be related to cost. Second, policymakers need to understand the future course of these costs so that appropriate plans and policies can be developed to support their citizens.

This project is a step toward measuring the size and structure of personal health care costs in Delaware. It is pursued with a number of constraints; these include using Delaware data wherever possible, keeping comparability with CMS where possible to allow interstate comparisons, utilizing secondary data sources where Delaware data was not available, and using the provider as the basis of measurement.

There are a number of findings that are worth reiterating from the study.

- Medical price inflation is again accelerating. After a decade of declining medical price inflation that brought the measure in line with the general rate of inflation, the rate of increase of medical prices is accelerating.
- The relaxation of Managed Care restrictions brought increased demand for health care services. Hospitals, physicians, and other specialists, are experiencing rising demand after a decade of managed care constrained demand. This resurgent growth in hospital and physician demand is a major driver in rising health care expenditures.
- Despite the Balanced Budget Act, Medicare still faces trouble. The government must wrestle with the health care demands of an aging population. Hospitals are the most threatened by Medicare cuts, which augurs further trimming of hospital services and payrolls.

- The health care industry is growing leaner and more efficient. Delaware's health care providers are more productive, treating a growing population with fewer resources. The average hospital length of stay is declining, as is the total number of beds available. Consumers are increasingly being handled on an outpatient basis, allowing hospitals to pare payrolls.
- Individuals pay out-of-pocket for the majority of costs for drugs, vision products, and dental services. The government pays for the majority of hospital charges, and private insurers are the primary payers for physicians.
- Hospitals' share of total health care expenditures decreased both in the US and in the State of Delaware. While traditionally the share earned by hospitals was higher in Delaware than in the US, that is no longer the case. Overall the pattern of health care expenditures is very similar to that seen throughout the country.
- Restructuring in the health care industry is changing the manner in which health care services are provided. The emergence of managed care has brought about consolidation in hospital services, and a decline in hospital employment. Meanwhile, home health care, and nursing services industries are enjoying strong growth as many treatments now occur outside of the hospital environment.
- The drug sector is rapidly expanding and shows no sign of abating. Several factors foster this growth. The FDA accelerated its approval process of new drugs. Also managed care greatly reduced the out-of-pocket expense of prescription drugs. The outlook for drug expenditures is for continued strong growth.
- While Delaware is higher than the US in per capita expenditures for health care, it compares favorably with Pennsylvania and New Jersey and is only slightly higher than Maryland.
- Overall, about \$4.4 billion annually is spent on personal health care in Delaware. The rate of increase is 10% per year.
- Delawareans spend less of Gross State Product (10%) when compared to the US in general (12%).
- The health care sector of the Delaware economy is an important source of employment with 8% of the total workforce and 10% of the reportable wages.

When taken together, these data suggest that Delaware is essentially in the mainstream regarding personal health care expenditures. While the costs per capita are slightly higher, as a high-income state Delaware can afford to consume more of these services. The managed care revolution has and will undoubtedly continue to change the landscape of health care expenditures. Some of these changes may affect the quantity of services, and some will affect the distribution of the expenditures across the sectors. There will also be alterations in how these payments are allocated between public, private, and individual payers.

Improvements can be made in the estimates presented here. With the release of the 2002 Census of Service Industries, the CMS should soon be ready to release new benchmark data. Currently, the accuracy of the estimates is assessed as +/- 7%. As more data is collected and the methodologies are refined, the accuracy will improve.