

**The Total Cost of Health Care in Delaware
2004**

**prepared for
the Delaware Health Care Commission**

by

**Simon Condliffe
and
Edward C. Ratledge**

**Center for Applied Demography and Survey Research
College of Human Services, Education and Public Policy
University of Delaware
www.cadsr.udel.edu
June 2005**

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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, and 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. This report 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 2004. 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 2004. 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 reports the cost shift evidence 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.

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, policymakers 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 again exceeds the increase in prices generally. However, the rate of medical price inflation is still significantly lower than the runaway rates of the late eighties.
- The relaxation of Managed Care restrictions brings 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.
- 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.
- Overall, about \$5.3 billion annually is spent on personal health care in Delaware. The total health cost of personal health care has increased 20% since 2001. There is evidence that the rate of increase of health care expenditures is slowing. Provider wages continue to grow but at less aggressive rates than recent experience. This mirrors the national trend of continued growth of health care expenditures, albeit at diminished rates. Annual growth is averaging 7%.
- Delawareans spend less of Gross State Product (12%) on health care when compared to the US (15%).

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- The health care sector of the Delaware economy is an important source of employment with 11% of the total workforce and 11% of the reportable wages.
 - 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. Overall the pattern of health care expenditures is very similar to that seen throughout the country. The greatest pressure on expenditures is from the hospitals account.
 - 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 this growth shows no sign of abating. Several factors drive this growth. The FDA accelerated its approval process of new drugs. Also, managed care greatly reduced the out-of-pocket expense of prescription drugs (though copays are rising and formularies are used to encourage the use of generic equivalents). Direct to consumer marketing by pharmaceutical companies is also contributing to the growth of drug expenditures. The outlook for drug expenditures is for continued strong growth.
 - 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. In 2002, the average consumer spent \$884 on prescription drugs, compared with \$415 for alcohol, \$2,167 for entertainment, and \$2,395 on dining out.
 - 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.
 - This update makes use of new data from the Census of Service Industries 2002, and Center for Medicare and Medicaid Services through 2000 for the estimation process.

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, Delaware is a relatively high-income state. 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.

Background

Introduction

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 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 164,000 people have joined Delaware's population (a growth rate of 25%). Collectively, they will increase total health expenditures by almost 1 billion 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.

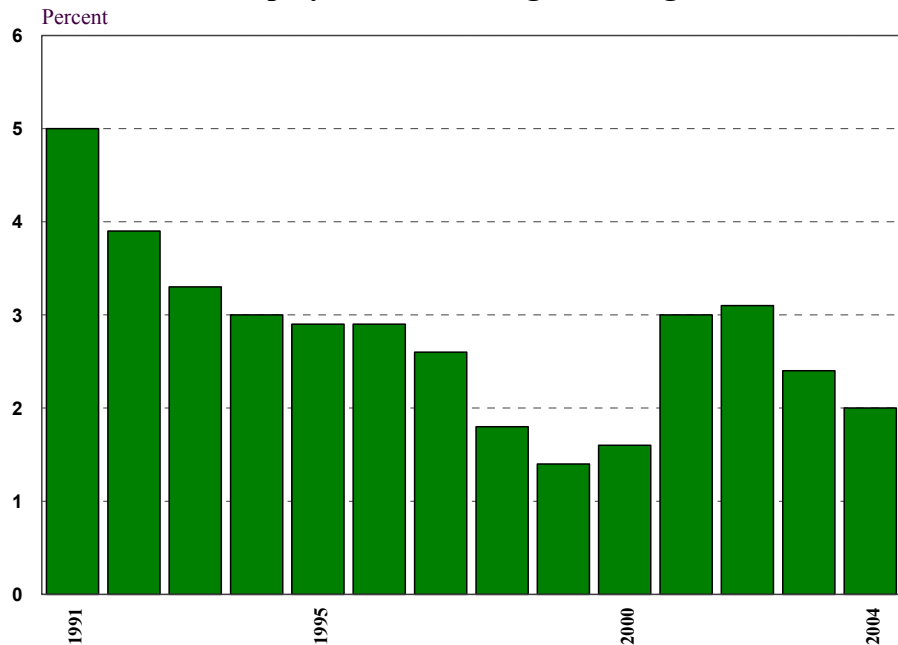
The Health Care Industry

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 have 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 US brought greater budgetary discipline to the industry. The growth of employment in the health services industry slowed significantly. In 2004, medical services employment growth rate is 2%: 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 in 2000. Hospital employment growth has averaged 2% annual growth since 2001.

Figure 1.1
US Health Care Industry 1991-2004
Employment, % Change Year Ago



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

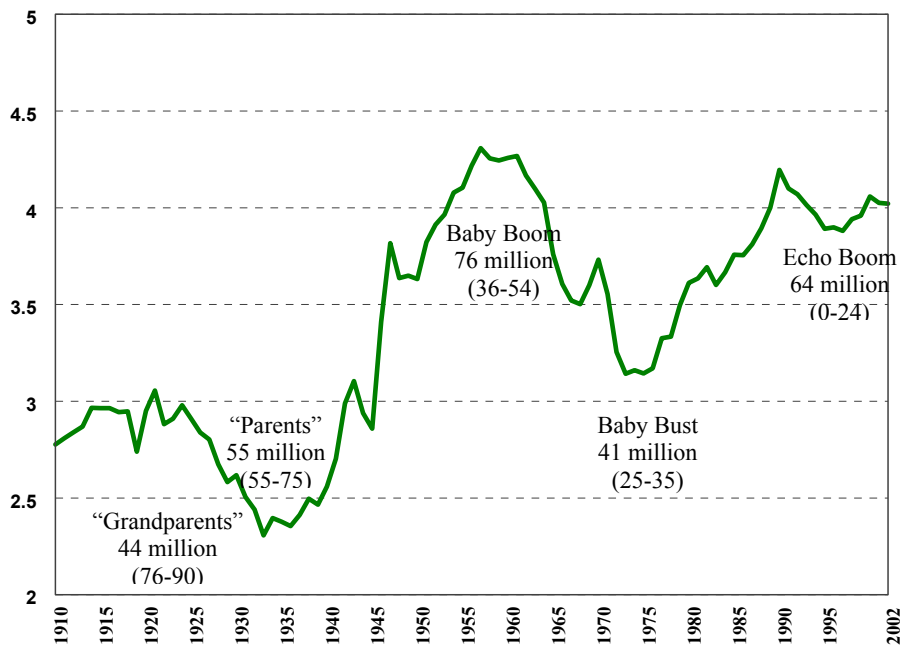
Despite this attrition in national health care industry employment, the size of the industry --as measured by the proportion of the economy dedicated to it-- continues to grow. In 1980, health care expenditures composed 9% of the economy. By 2003, that share had risen to 15.3% of gross domestic product (GDP).

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. Fueling this demand are the aging baby boomers, a growing population, rising incomes, and new products and services¹.

¹ Health care is a 'normal' good: as income rises, more health care is 'consumed'.

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 among the primary drivers of health care expenditures.

**Figure 1.2
The Baby Boomers
Live Births**

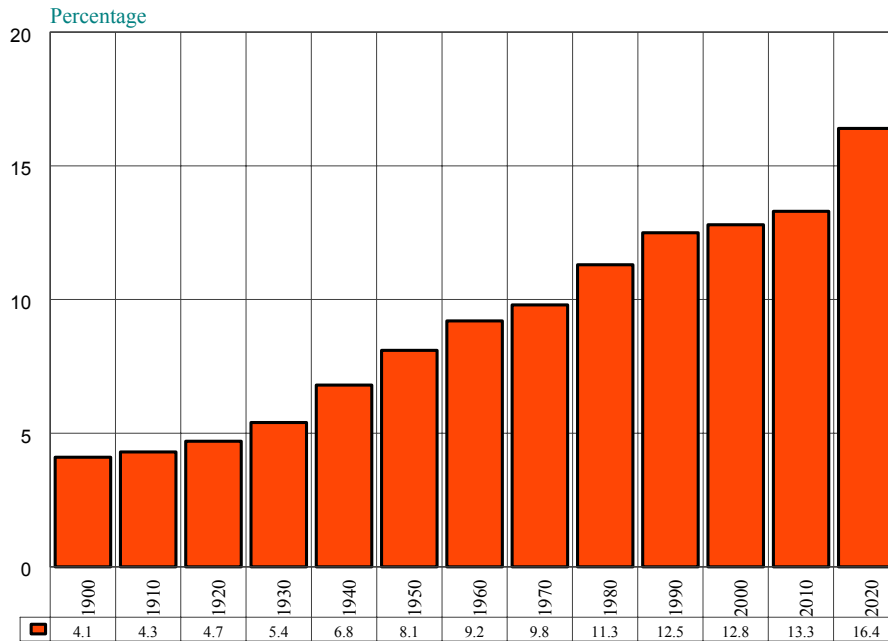


Source: Center for Applied Demography and Survey Research, University of Delaware Bureau of the Census

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

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 is 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. The probability of requiring health care services rises significantly with age. 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%.

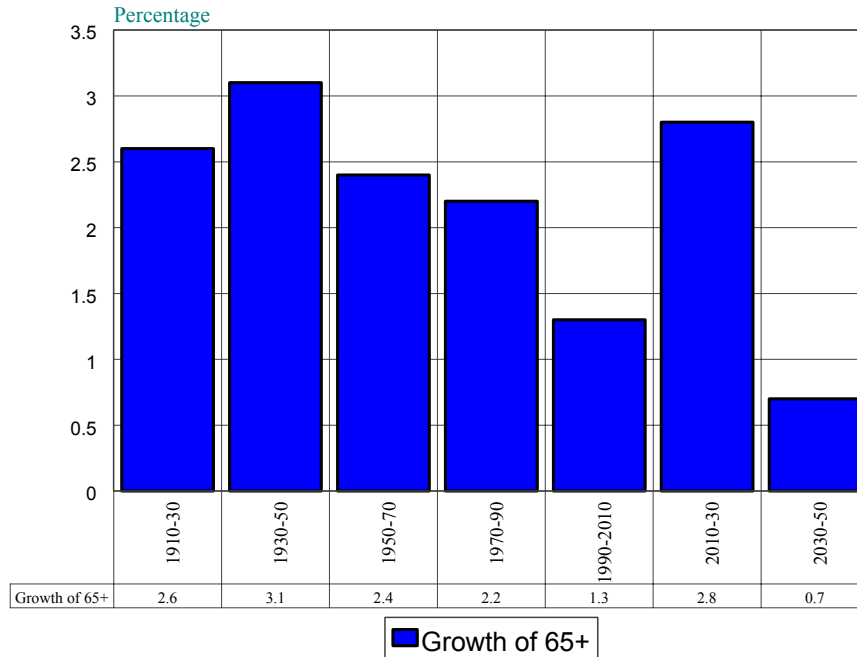
Figure 1.3
US Population
Age 65 Plus as a Percentage of Population



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



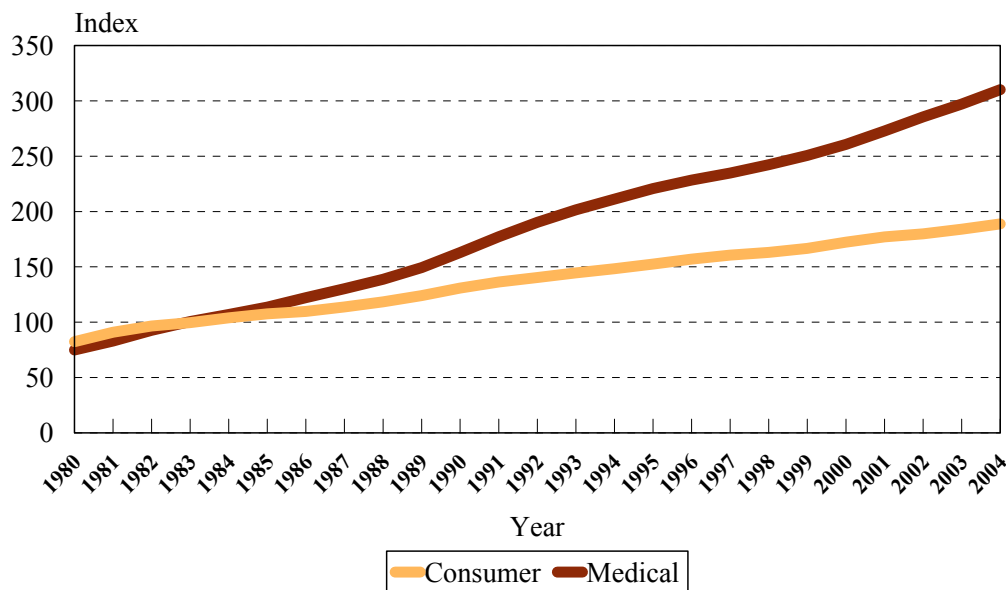
Source: Center for Applied Demography and Survey Research, University of Delaware Census Bureau

The 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 this 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, and 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)**



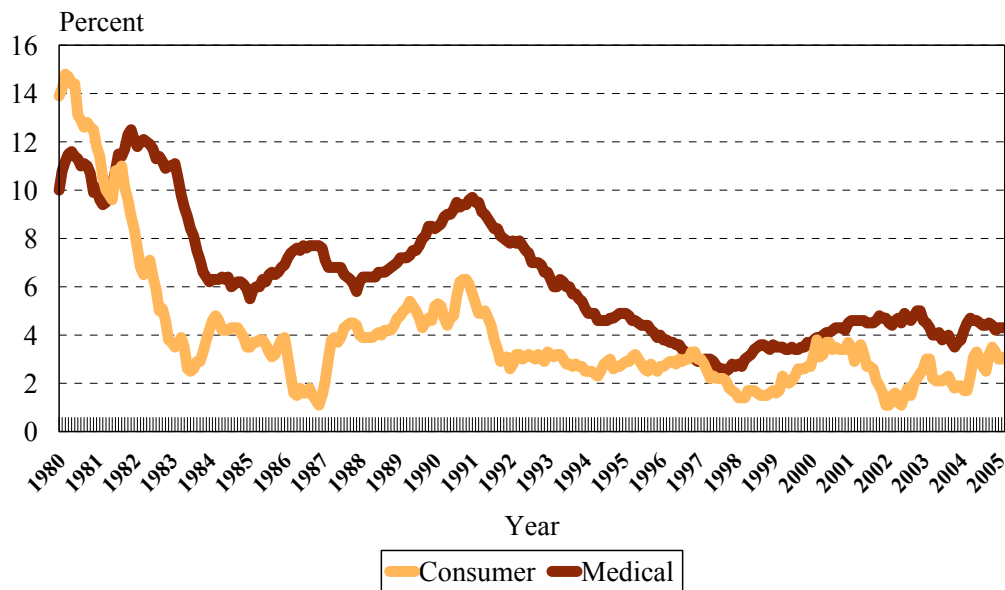
Source: Center for Applied Demography and Survey Research, University of Delaware
US Bureau of Labor Statistics.

Indexing consumer prices (CPI) and medical prices (MPI)² 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

² Medical items include prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, and hospital services.

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.

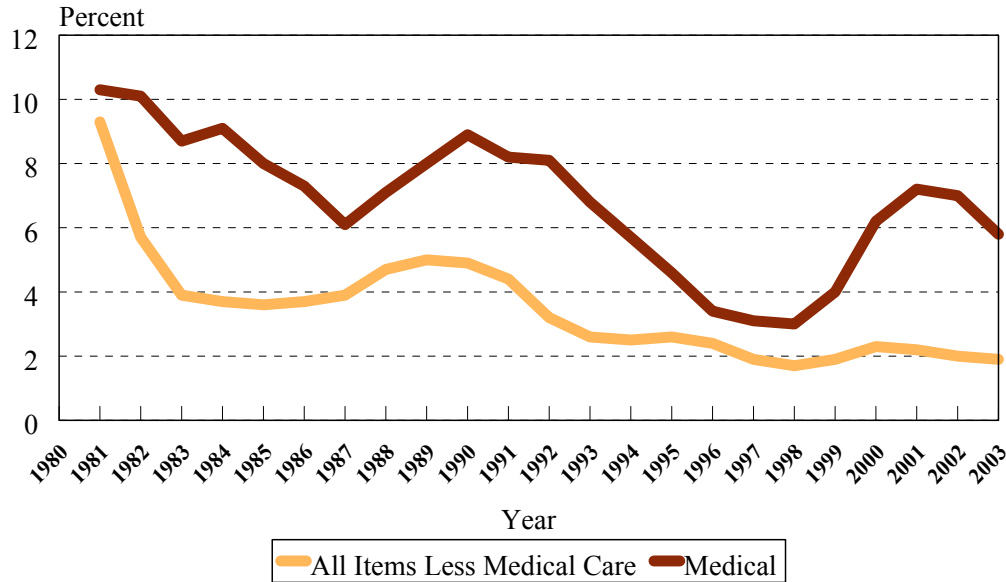
Figure 1.6
Annual Growth Rates for the Consumer and Medical Price Indexes
All US Urban Consumers



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

Chart 1.7 below illustrates the trend in medical prices in the Philadelphia-Atlantic City-Wilmington metropolitan area. The data serve to underscore the different rates of growth between medical care and all other items. While other consumer items experience stable, muted price growth over the past ten years, medical prices have fluctuated between three and eight percent since 1990.

Figure 1.7
Annual Growth Rates for All Items Less Medical Items and Medical Items
PA-NJ-DE-MD



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

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.

Employers embraced the savings that HMOs afforded them, switching their employee health plans from traditional service providers to the managed-care practitioners. 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 1994.³ 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 again accelerating. Nineteen-ninety eight marked a turning point: the growth in medical prices declined precipitously over the decade, plummeting seven percentage points in total. However, after 1998 medical price growth accelerated from 2% to 4% per year. There is evidence that the pre-1998 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 inevitably raise premiums in an effort to restore profitability. Medical price inflation is trending upwards: medical price inflation accelerated steadily over the past four years; it now stands at 4.3%, approximately 1 percentage point greater than the CPI⁴. However, this is still lower than the rate of the late eighties and early nineties.

Not all parts of the Medical Price Index grew at the same rate. Figure 1.8 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

³ The Medicare Payment Advisory Council (MEDPAC) reports that the decline in hospital length of stay is slowing. The annual percent change in average length of stay was only -0.3 percent for Medicare and all payers in 2002, compared to -1.5 percent for Medicare and -3.7 percent for all payers in 1997.

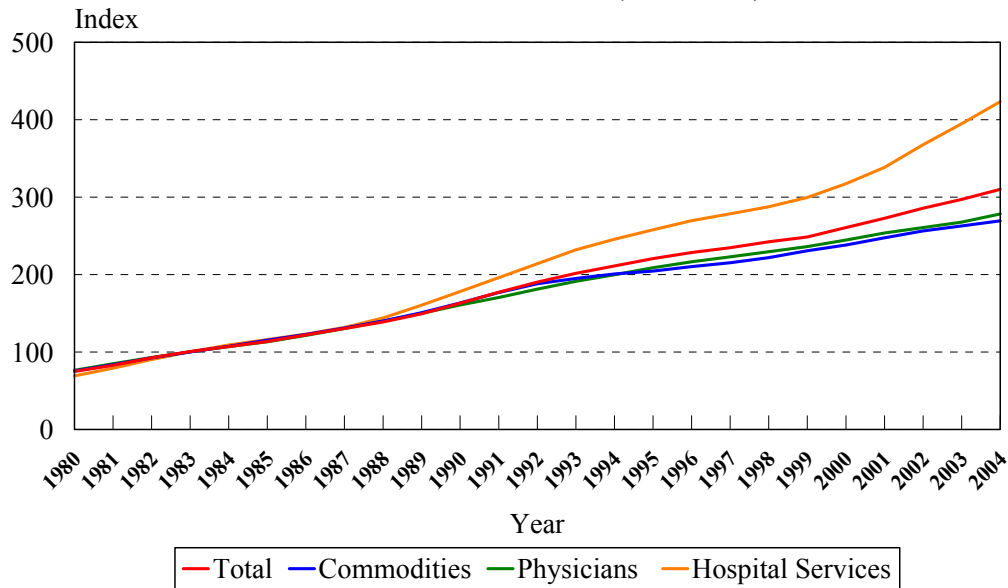
⁴ As of March 2005 CPI.

(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 1.8
Medical Price Indexes
All US Urban Consumers (1983=100)

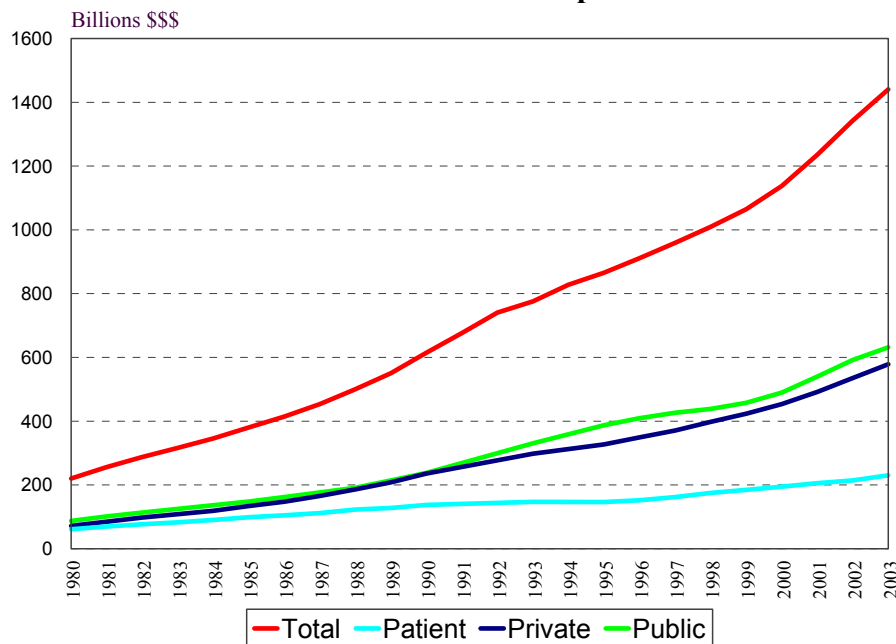


Source: Center for Applied Demography and Survey Research, University of Delaware
 US Bureau of Labor Statistics

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 1.9
Sources of Payment for
US Personal Health Care Expenditures



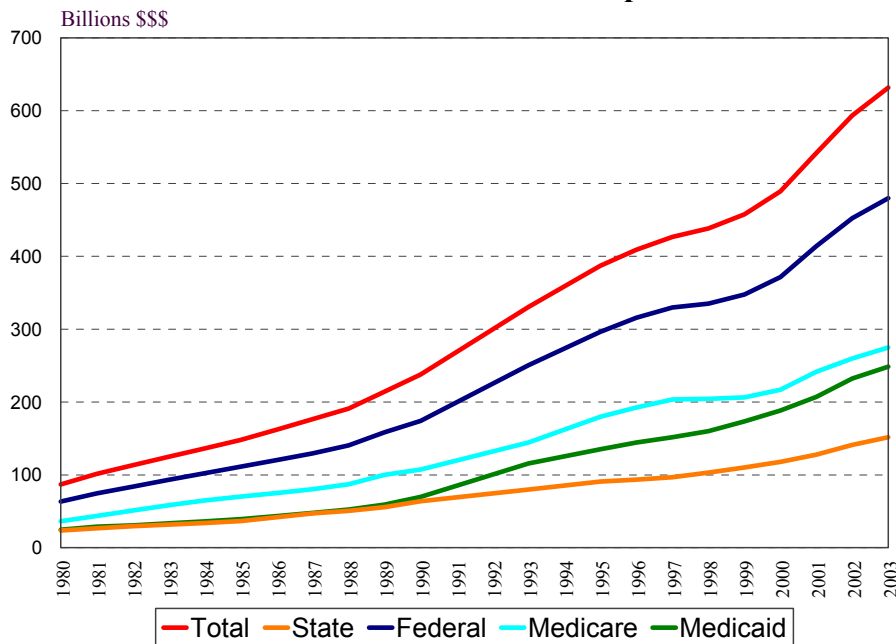
Source: Center for Applied Demography and Survey Research, University of Delaware
US Centers for Medicare and Medicaid Services. 2002 is the latest year available.

As evident in Figure 1.9 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 1.10 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 1.10
Sources of Payment for
Public US Personal Health Care Expenditures

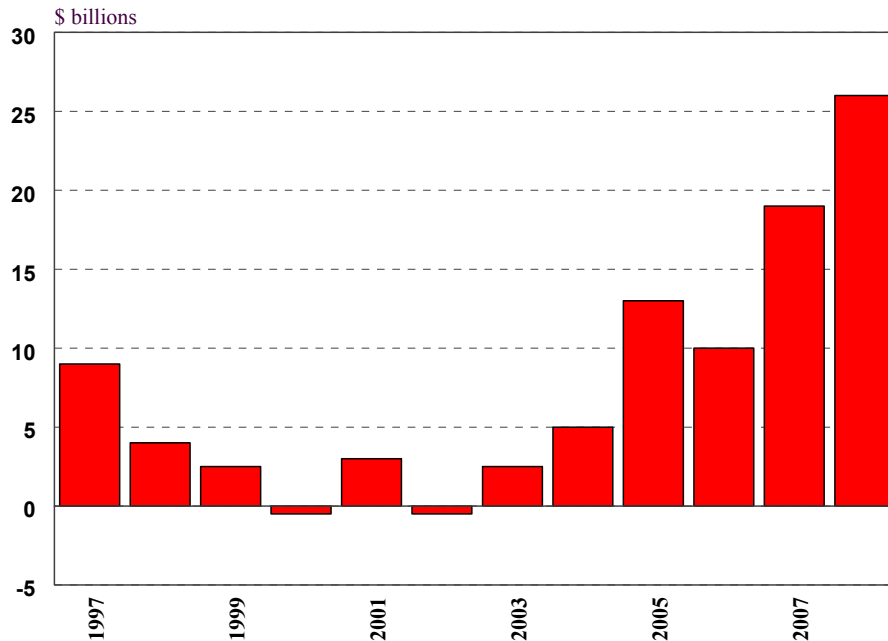


Source: Center for Applied Demography and Survey Research, University of Delaware
 US Centers for Medicare and Medicaid Services. 2002 is the latest year available.

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 1.11. 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.

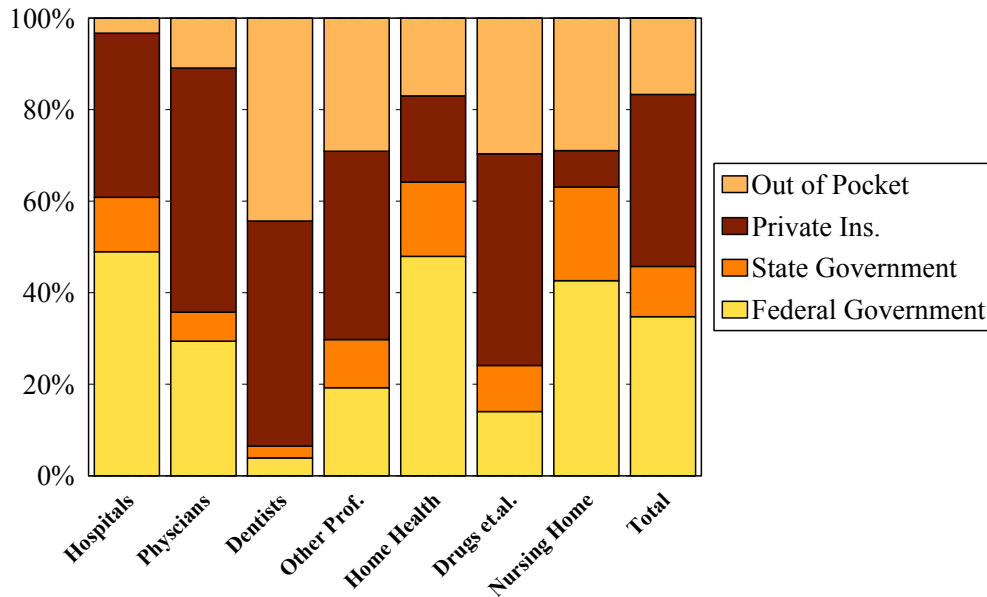
Figure 1.11
US Health Care Industry
Medicare Deficit



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 1.12 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 1.12
Share of US Personal Health Care Expenditures
By Source of Payment and Sector in 2003



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

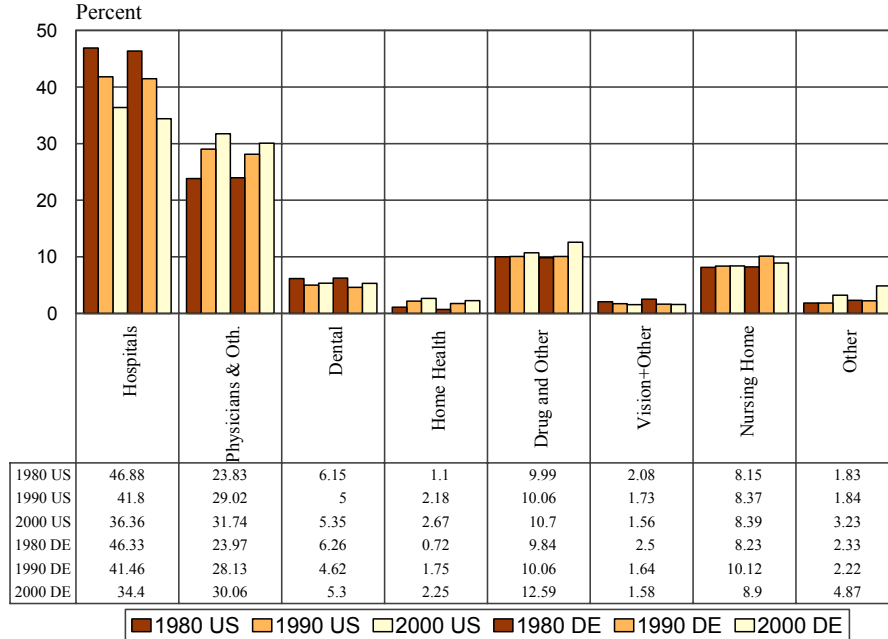
These data illustrate the complexities inherent in the health care system. Government involvement varies radically from one service to another. Thus, while Medicare is often seen to substantially protect the oldest segment of the population, that protection does not extend to all potential health problems. Similarly, Medicaid solves only part of the health care problem for the poorest segment of the population. If the trends identified in Figure 1.10 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 1.13, below.

For each of the personal health care categories, a time series (1980, 1990, 2000⁵) is provided for the US followed by three values for the State of Delaware.

Figure 1.13
Share of US Personal Health Care Expenditures
By Sector



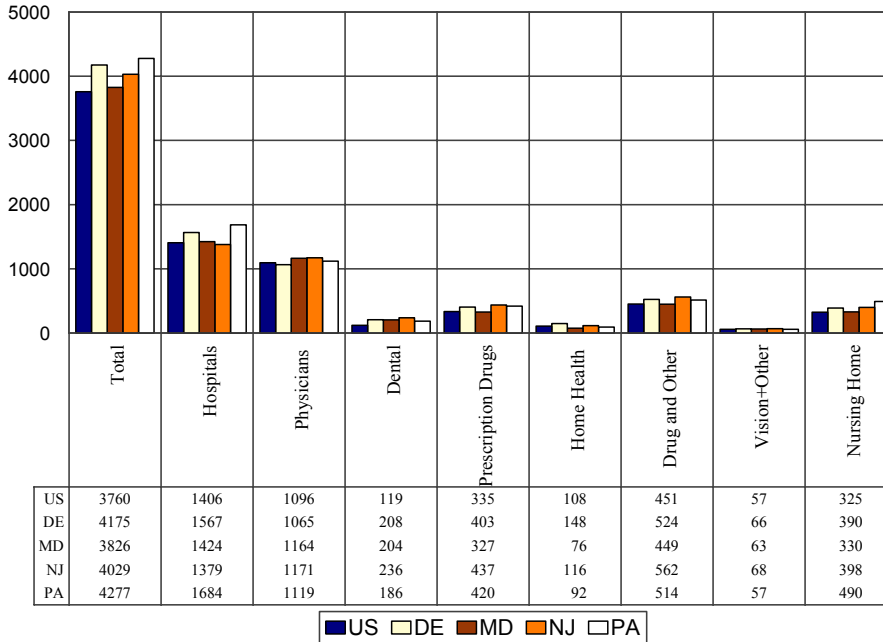
Source: Center for Applied Demography and Survey Research, University of Delaware
 US Centers for Medicare and Medicaid Services

In the US, the share of total health care dollars allocated to *hospitals* declined from 47% in 1980 to less than 35% in 2000. Delaware echoed this pattern. *Dentists and drugs and other nondurables* appear to 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.

⁵ Latest CMS data for states and U.S. Estimates for Delaware in 2004 are provided later in the document.

Interstate Comparisons

**Figure 1.14
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 same⁶. 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 1.14, above, the per capita costs for personal health care are shown for the US, Delaware, and the surrounding states in 1998. For the most part, Delaware tends

⁶ For example, Pennsylvania’s and New Jersey’s populations are proportionately older than Delaware’s population; Maryland’s population is proportionately younger.

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 among 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 1.15 below. The number of beds, admits, and inpatient days all declined over the period from 1993 to 2003, 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 17.6% over the period (compared to 8% national population growth).

Figure 1.15
Delaware Health Care Industry
Utilization, % Change

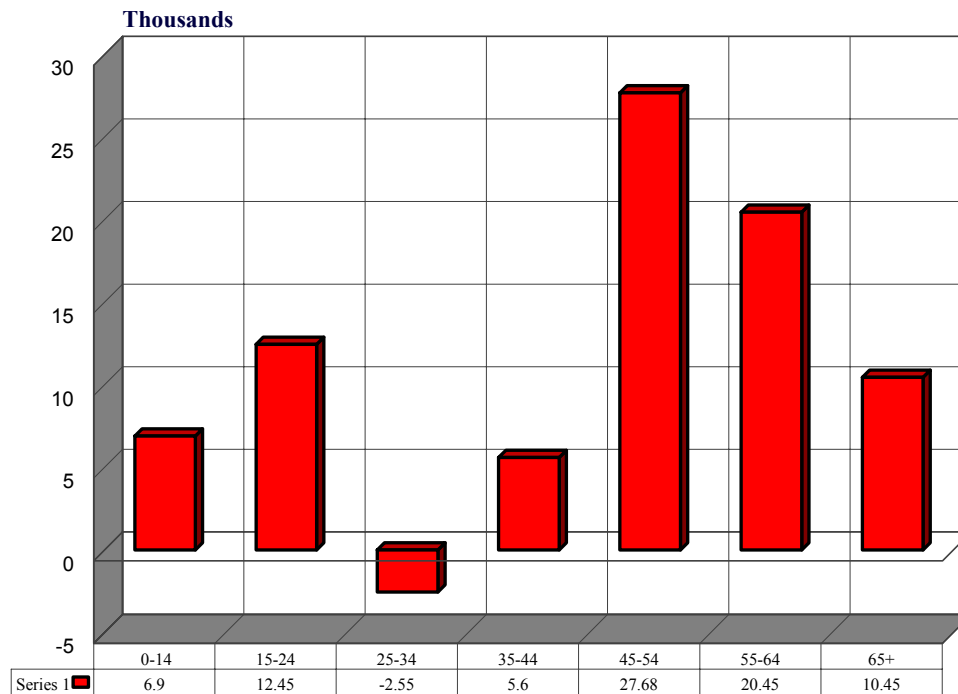
	1993	2003	Percent Change
Population	695,000	817,000	17.6
Beds	2,153	2,051	-4.7
Admissions	79,345	97,074	22.3
Inpatient Days	561,190	606,183	8.0
Average Length of Stay (days)	7.1	6.2	-12.7

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

In absolute terms, the number of beds available decreased by 152 since 1993 (or from 3.1 to 2.5 beds per 1,000 population). Further, the average length of stay fell from 7.1 days to 6.2, 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 1.16
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

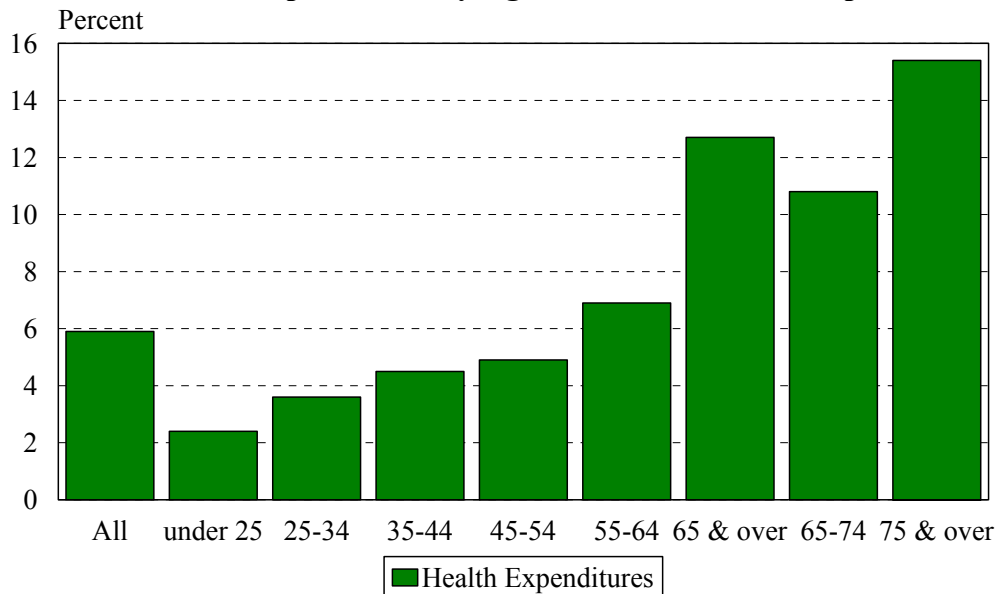
Turning to demographics, Delaware's age profile is expected to track the national changes. Projections for Delaware's aged population show a rapid increase over the next twenty years as the baby boomers move into retirement. In 2004, the proportion of the Delawareans aged over 65 is 13%. By 2020 this figure will rise to 18%, as the aged population rises to more than 176,000. The trend of Delaware's population growth is evident in Figure 1.16 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.

Evidence from the Consumer Expenditure Survey

The Consumer Expenditure Survey (Bureau of Labor Statistics) provides data on health care related spending at the national and regional level by age and income class. These data help to understand the variation in health care costs across age groups and income.

Figure 1.17
U.S. Consumer Health Expenditures by Age as a Share of Total Expenditures, 2003



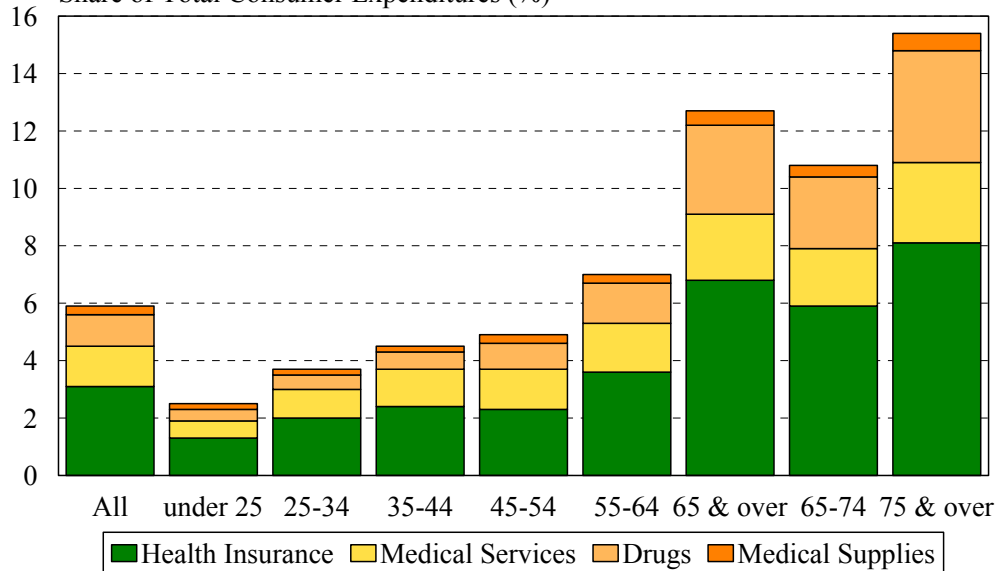
Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

For the average consumer, health expenditures comprise 6% of total spending. The breakout by age cohort reveals that older age groups spend a far greater proportion of total expenditures on health care than younger age groups. Health expenditures' share of total expenditures is lowest among the under 25 cohort, where the share is less than 3%. The share rises steadily through the age cohorts until the 65 cohort, where the share doubles to over 6% compared to the 55-64 cohort.

Figure 1.18 below breaks out these data into health insurance, medical services, drugs, and medical supplies. For all age cohorts, medical insurance is the single largest component of health care expenditures. Drug and health insurance expenditures are the

primary drivers of the rise in health expenditures between the 55-64 and 65 and over age cohorts.

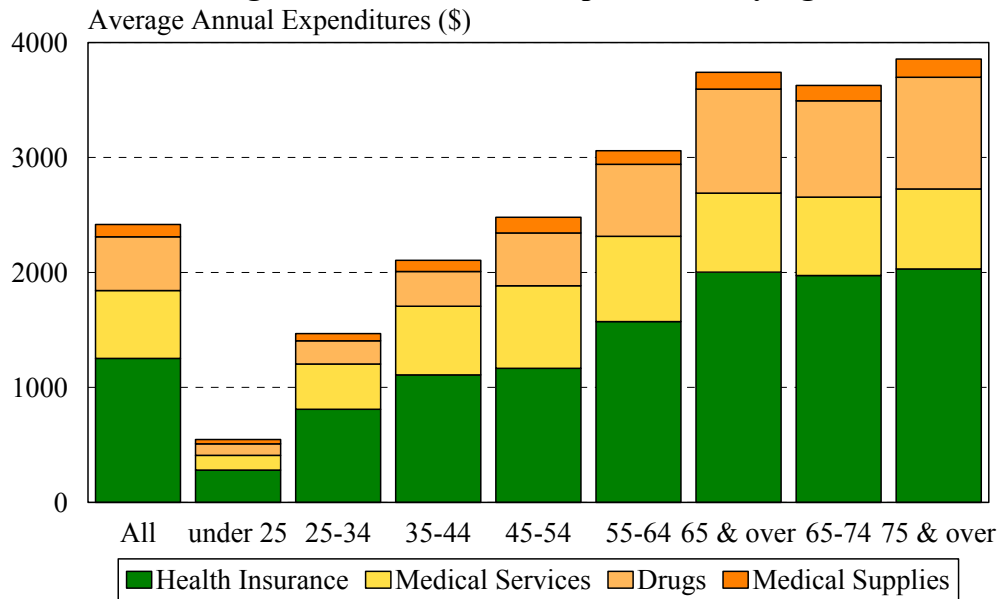
Figure 1.18
U.S. Share of Average Annual Consumer Expenditures by Age, 2003
 Share of Total Consumer Expenditures (%)



Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

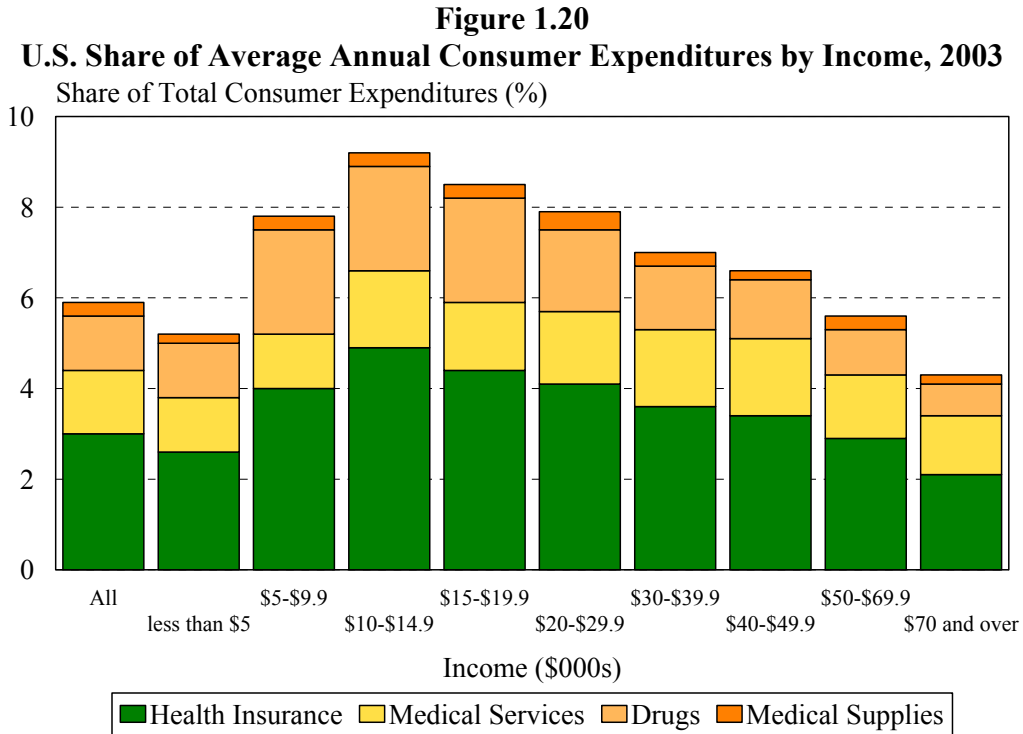
The following chart illustrates the average dollar expenditures by age group, rather than the share of total consumer expenditures. The average consumer spends \$1,252 on health insurance. For the under 25 cohort, average health insurance is \$201. Health insurance expenditures rise steadily with age until age 65, when their share of total expenditures doubles.

Figure 1.19
U.S. Average Annual Consumer Expenditures by Age, 2003



Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

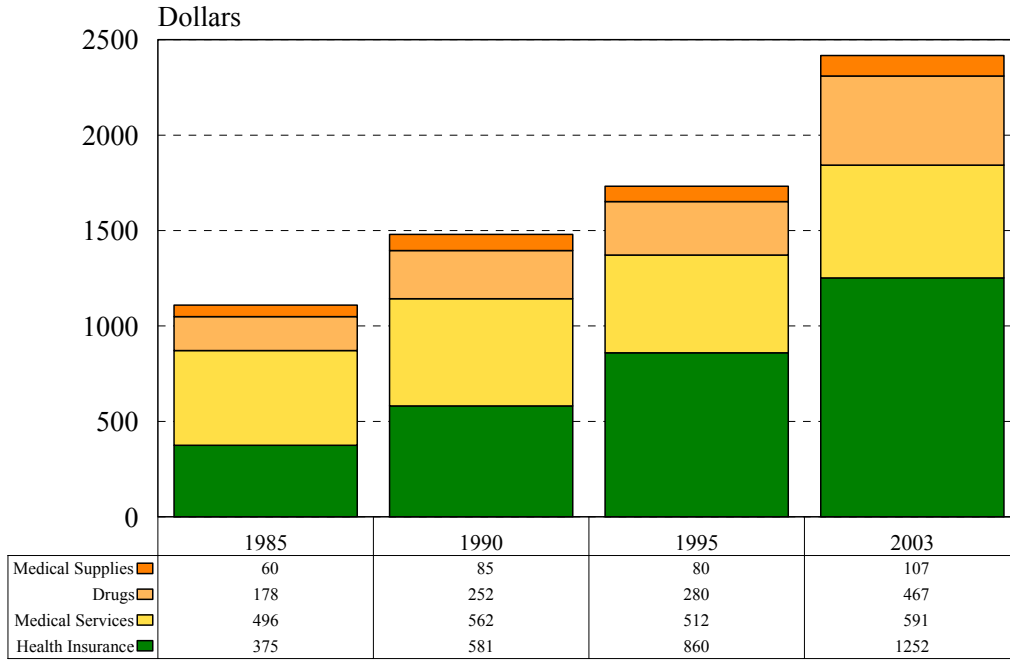
The burden of health costs varies by income in addition to age. Health costs as a share of total expenditures are highest among the \$10,000-\$14,999 earners. The share tapers off as income rises (see Figure 1.20 below).



Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

Figure 1.21 below provides a time series of consumer expenditures for all ages. In 1985, the average consumer spent \$1,109 per month on health care. By 2002, expenditures had risen to \$2,416. Drugs and health insurance exhibit the fastest growth over this period (162% and 234% respectively).

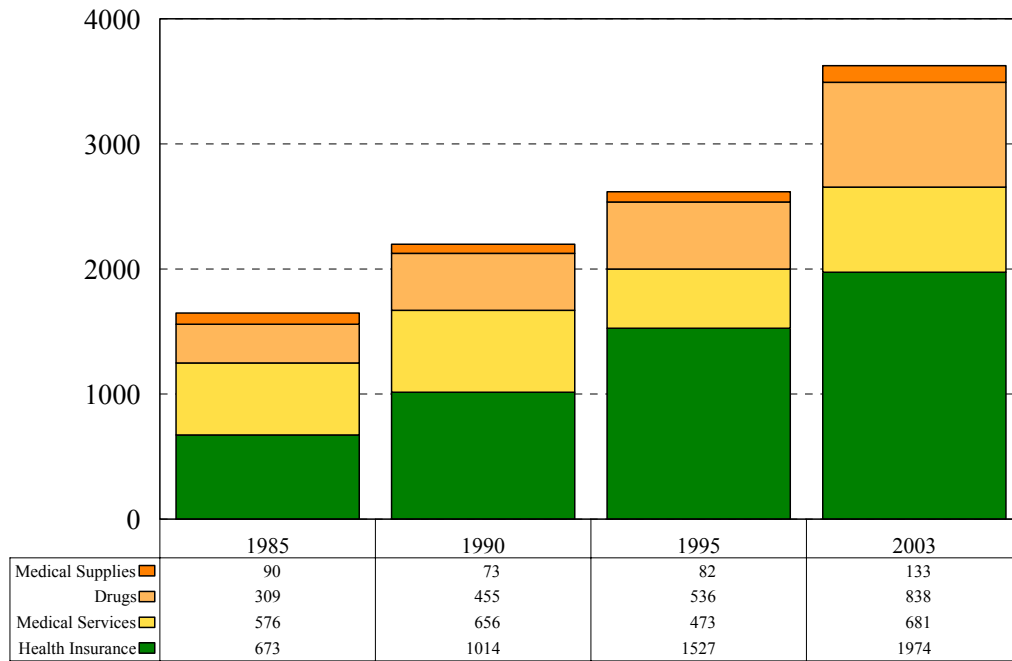
Figure 1.21
U.S. Average Annual Consumer Expenditures on Health Care, All Ages



Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

Figure 1.22 shows expenditures of the 65-74 cohort for select years. The gap between expenditures of all ages and the 65-74 cohort has widened from \$539 in 1985 to \$1,209 in 2002.

Figure 1.22
U.S. Average Annual Consumer Expenditures on Health Care, Aged 65-74

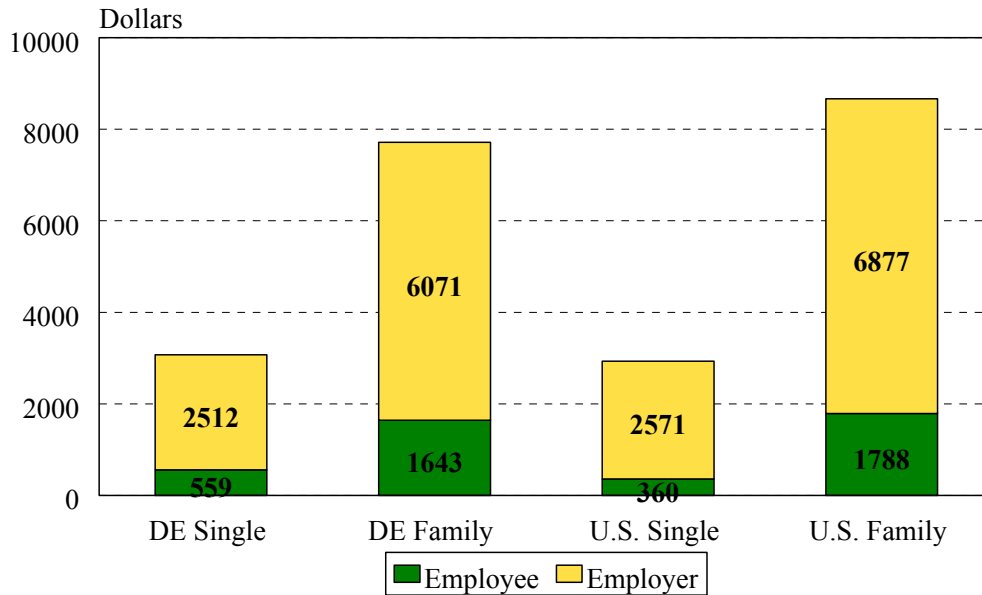


Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

Figure 1.23 shows average single and family insurance premiums for Delaware and the US. Small sample size for Delaware creates large standard errors on the components of insurance premiums, and their trends over time. However, the following figure is presented as an indicator of the state versus the US experience.

Single insurance premium averages \$560 for Delaware compared to \$360 nationally. The employer single premiums for Delaware and the nation are approximately the same. Family premiums appear smaller in Delaware than the nation, both for the employee contribution and the employer contribution.

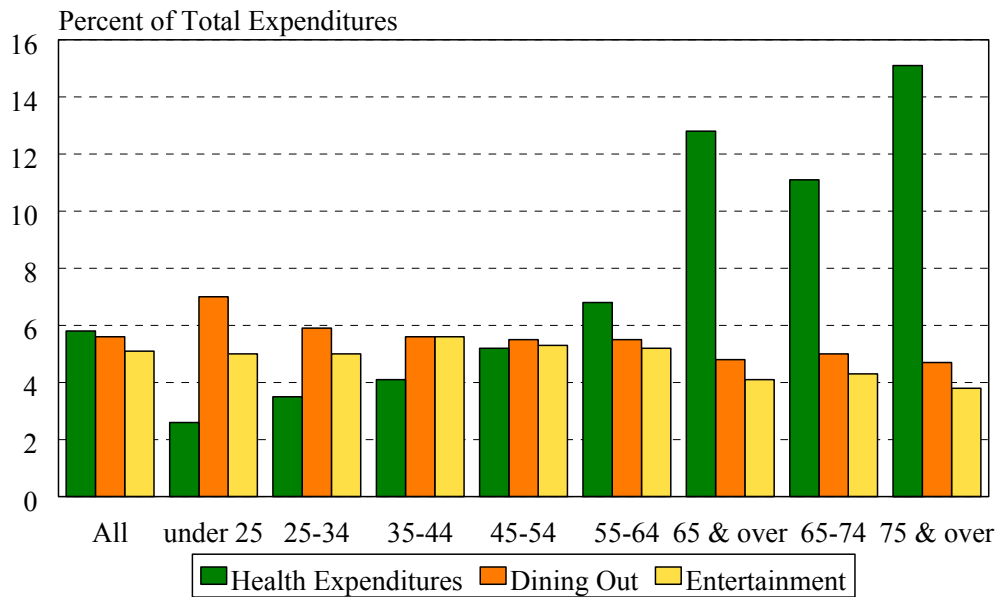
Figure 1.23
Delaware and U.S. Average Insurance Premiums, 2001



Source: Center for Applied Demography and Survey Research, University of Delaware, Census Bureau estimates from the Medical Expenditure Panel Survey Insurance Component. Kaiser Family Foundation.

The following charts serve to underscore that for the general consumer, the health care expenditures are a manageable budget item. The chart below expresses consumer expenditures on certain items as a share of total expenditures. The average consumer spends almost as much on dining out and entertainment as health expenditures. Consumers under the age of fifty-five spend more on dining out and entertainment than on health care. At the age of fifty-five, health expenditures as a share of total consumer expenditures rises rapidly. At fifty-five the probability of requiring health care rises sharply, and correspondingly so too do health insurance costs.

Figure 1.24
Select U.S. Consumer Expenditures by Age, 2002

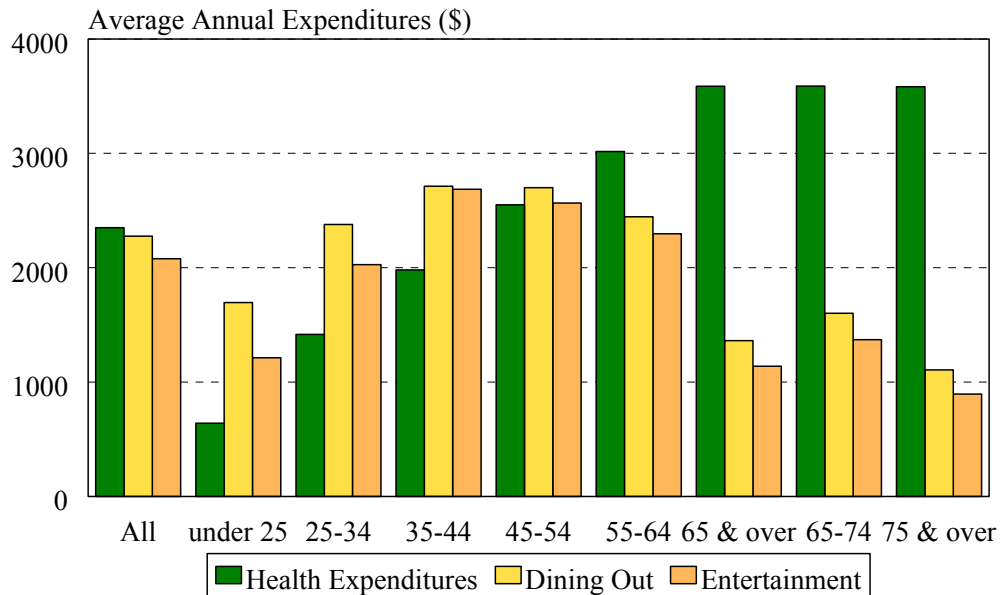


Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

Figure 1.25 expresses consumer expenditures in dollar terms. The average consumer spends \$2,300 on health expenditures per year, and almost as much on entertainment and dining out. Up to the age cohort of 45-54, expenditures on dining out and entertainment outstrip those on health expenditures. In the 45-54 age cohort, expenditures on health, dining out and entertainment are approximately equal. Over the older age cohorts, health expenditures greatly exceed the other categories.

These data highlight the variation in health expenditures versus other select consumer items over various ages.

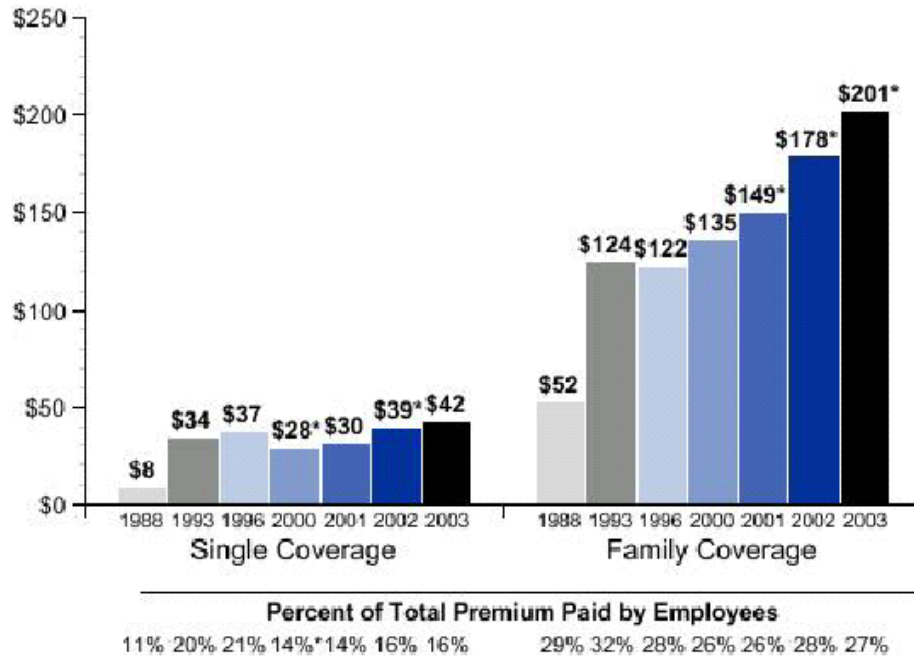
Figure 1.25
U.S. Average Annual Expenditures by Age, 2002



Source: Center for Applied Demography and Survey Research, Consumer Expenditure Survey, Bureau of Labor Statistics

The following chart presents the national employee premium for single and family coverage over the period 1988 to 2003. The percentage of the total single premium that is met by the employee has been steady around 15%. The average contribution is rising, but the employee is not shouldering a larger part of this increase. For family coverage, the employee premium is approximately one-third of the total premium. Again, the dollar amount is rising, but the employer contribution is matching its share of the increase.

Figure 1.26
Average Monthly Employee Premium Contributions and Percent of Total Premium Paid by Employees, by Coverage Type, 1988-2003



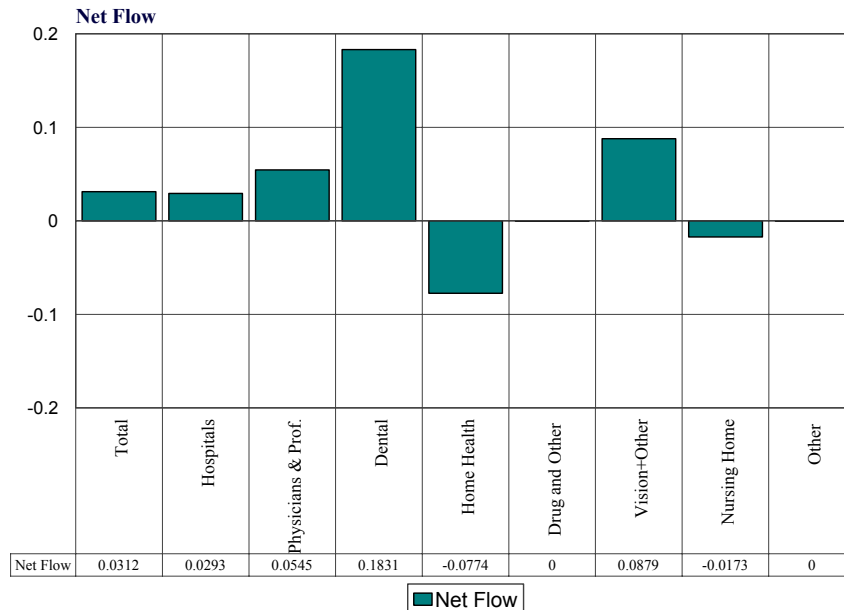
Source: Kaiser Family Foundation

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 2.1
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 0 for all states). Net flow equals expenditures by State of residence divided by expenditures by State of provider, minus 1. Ratios greater than 0 mean that residents consume more health care than the state produces (imports); ratios less than 0 mean that the state produces more health care than its 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 2.1, 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 0 mean that residents consume more health care than the state produces; ratios less than 0 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. The balance of this report uses the provider basis of measurement.

This update of the report incorporates revised data from the Census of Service Industries (CSI) and Centers for Medicare and Medicaid Services (CMS). The Census of Service Industries occurs every five years; the 2002 update is being released in piecemeal form in 2005. The CMS recently updated the state health accounts estimates to 2000. These two updated products combine with Delaware Department of Labor information to produce the estimates presented here.

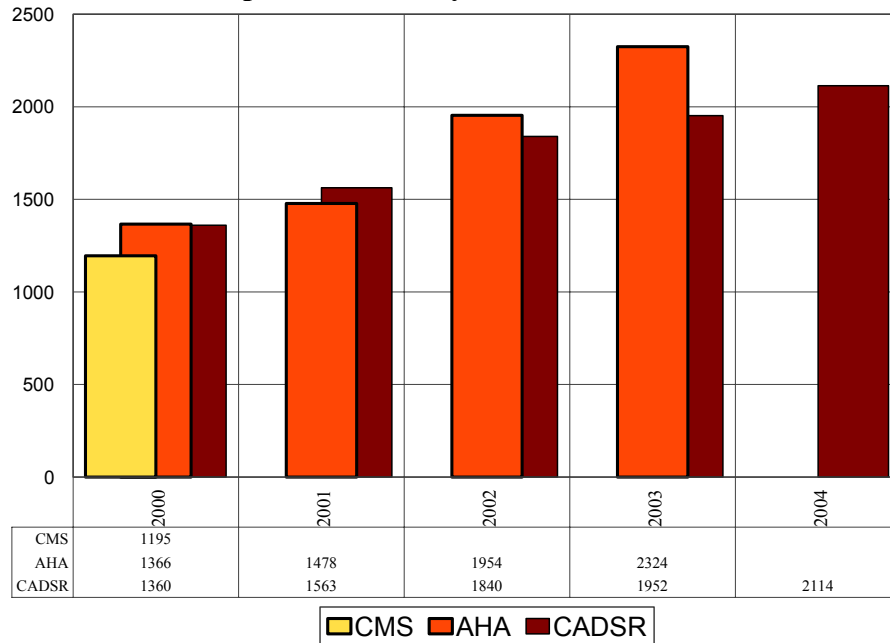
Hospital Services

Estimating expenditures for hospitals is the least hazardous of the categories that this paper examines. 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 2000.

Figure 2.2 below includes estimates that 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 past four years.

**Figure 2.2
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 does exhibit some volatility, including aggressive growth in 2002 and 2003. This may be statistical artifice. The CADSR estimates track the upward trend in hospital expenditures, albeit at a less robust rate. As more data become available, the trend may become more apparent.

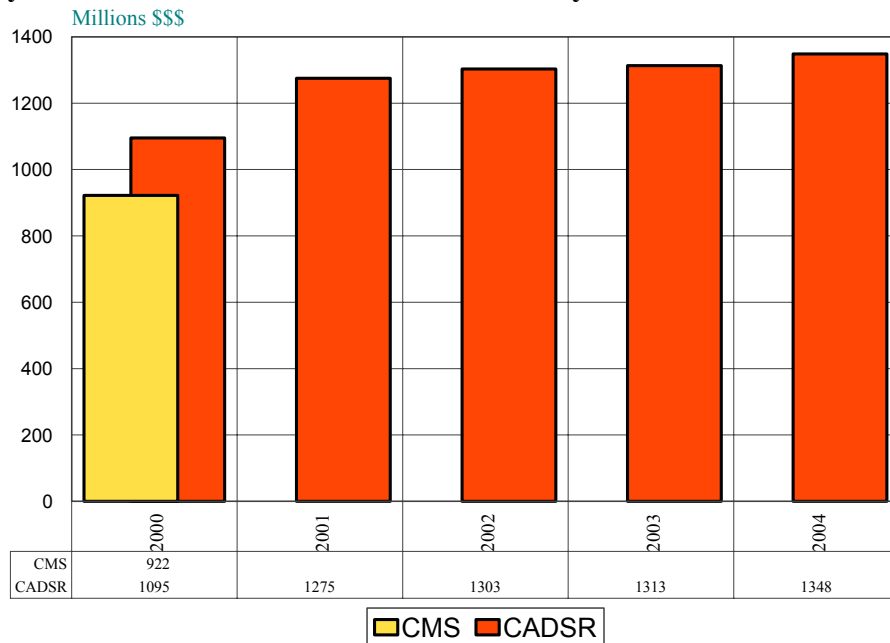
Physician and Other Professional Services

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, 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 2.3
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 2.3, above. The data are consistent with national figures for physician services. CMS combines estimates for physicians and other professional services. From 1995 onward, there was a significant increase in both employment and wages reported to the Delaware Department of Labor.

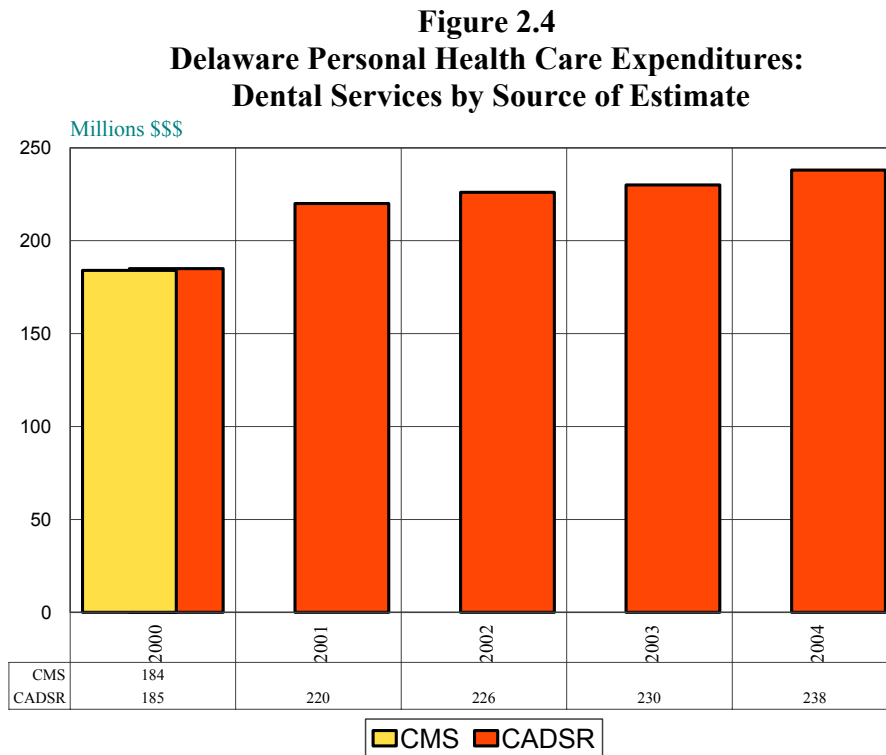
Expenditures for *other professional services* include those organizations in SIC codes 804 and 809. These include services rendered by chiropractors, optometrists, podiatrists, and nurses in private practice, among others.

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 2.4, below, is similar to that observed with physicians. Solid growth is occurring during the decade. Dental service expenditures growth is averaging 3% per year (2001 to 2004). 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. Technology is also a likely cause of the increase.



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

Home Health Care Services

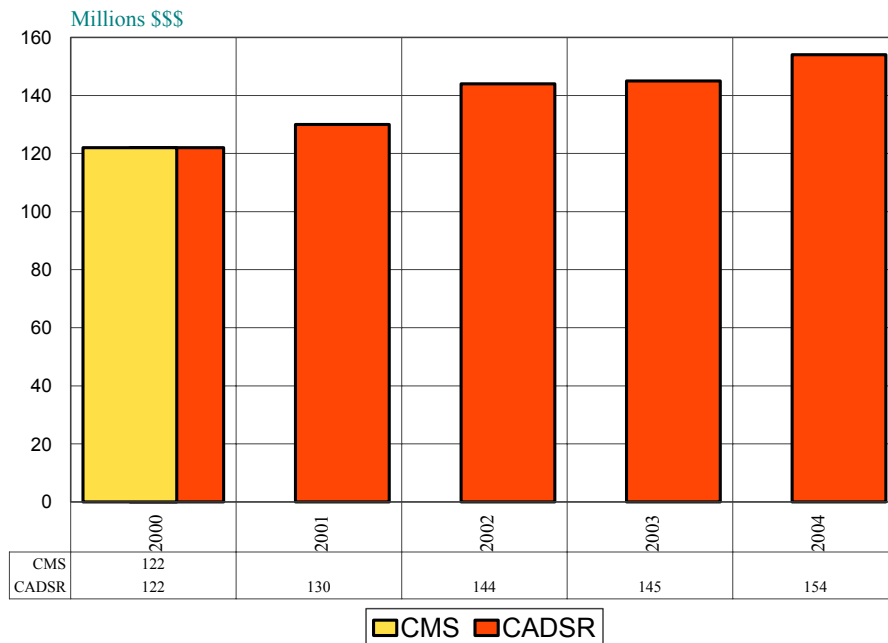
North America Industrial Classification System (NAICS) 6216 represents home health care services. Private and government agencies provide these services. CMS uses the Census of Service Industries (CSI) as its benchmark for private firms, and then adjusts this estimate with Medicare and Medicaid payments for home health care supplied by governmental agencies. The estimates are provided in Figure 2.5 below.

This category of personal health expenditures exhibits a different pattern of growth than what was shown in the earlier figures. Home health services has been among

the fastest growing health care sectors over the past 15 years. The estimates are consistent with the CMS 2000 data.

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 Balanced 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 responded 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 5% over the past three years.

**Figure 2.5
Delaware Personal Health Care Expenditures:
Home Health Services by Source of Estimate**

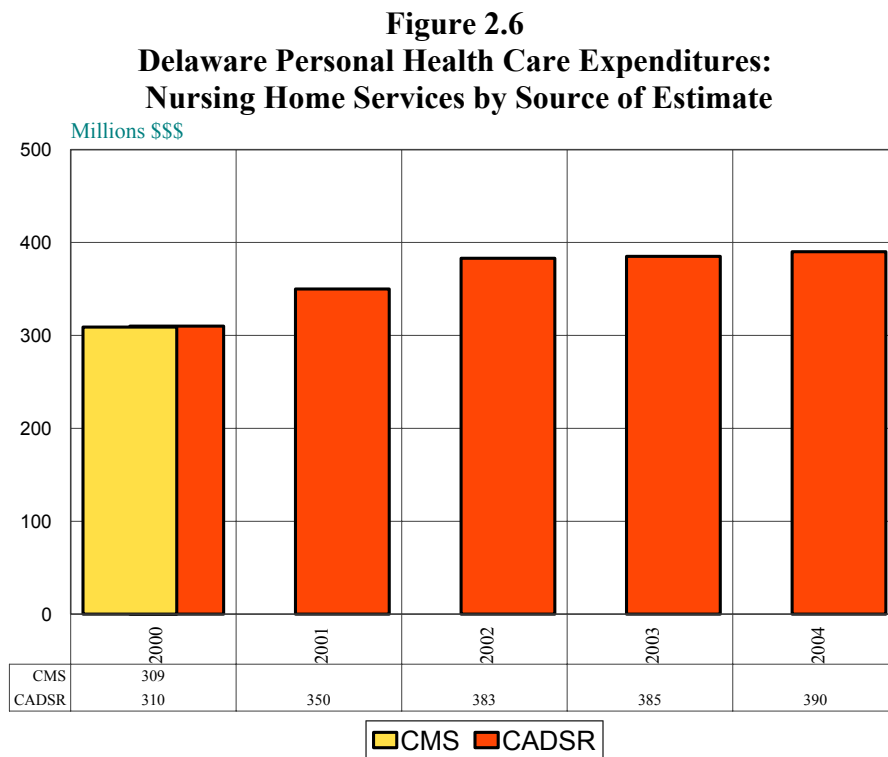


Source: Center for Applied Demography and Survey Research, University of Delaware
US Centers for Medicare and Medicaid Services

Nursing Home Services

Personal health care expenditures on nursing home services are covered by NAICS code 622 and 623. 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 2.6 below.

This account exhibits stable to strong growth over the period, with more muted growth emerging in 2003 and 2004. This rate of moderate growth may be temporary, or statistical artifice. This will be discerned as further data become available.



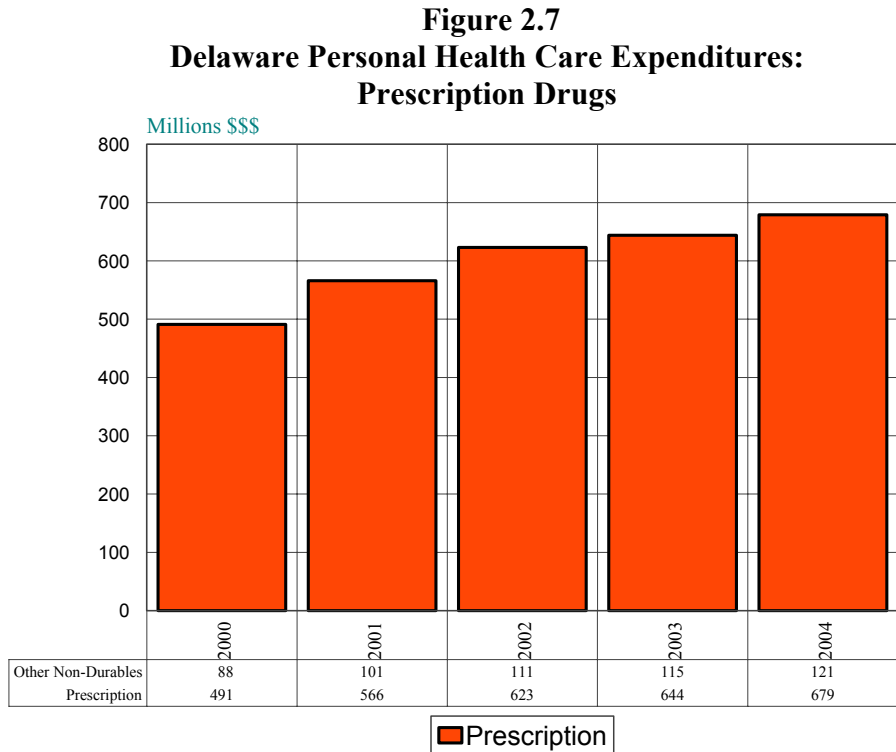
Source: Center for Applied Demography and Survey Research, University of Delaware
US Centers for Medicare and Medicaid Services

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 2.7, below, shows the estimates for the entire sector along with an estimate for prescription drugs. Prescription drugs are expected to account for 70% of the prescription drugs and other medical non-durables account, while its share of the entire sector increases from 10% to 12%.



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 ranged between 17-22% annually for the nation for the period 1996-2000. 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 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. Direct to consumer marketing is also a catalyst for increased drug expenditures. Recent data suggest continued strong growth (6%), but lower than the 17-22% range.

The passage of the Medicare Prescription Drug Improvement and Modernization Act of 2003 is designed to provide assistance with prescription drug costs. Medicare recipients will pay the first \$250 for prescriptions. After the first \$250, they pay 25% of the cost up to \$2,250. There is a 'gap' over the next \$2,850, where seniors are expected to pay the total cost. After \$5,100 of drug costs in one year, Medicare will cover 95% of the additional costs.

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

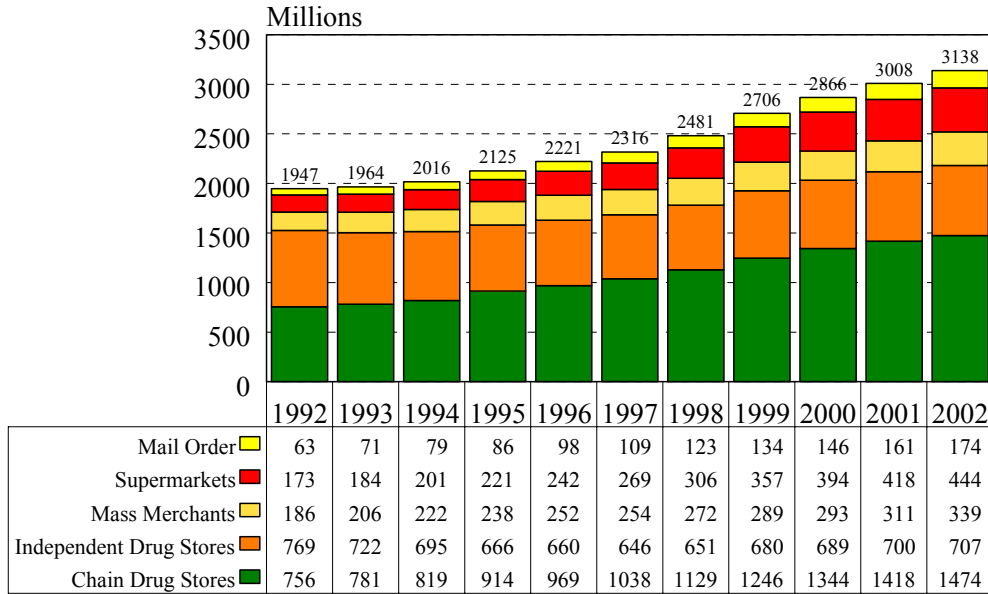
are expected to remain among the faster growing health accounts as consumers switch from older drugs to newer, more costly drugs.

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.

Although mail order prescription drugs are growing in popularity, they still comprise just 5% of total prescription sales volume (see Figure 2.8 below).

Figure 2.8
U.S. Prescriptions, by Type of Store, 1992-2002



Source: Center for Applied Demography and Survey Research, University of Delaware, National Association of Chain Drug Stores.

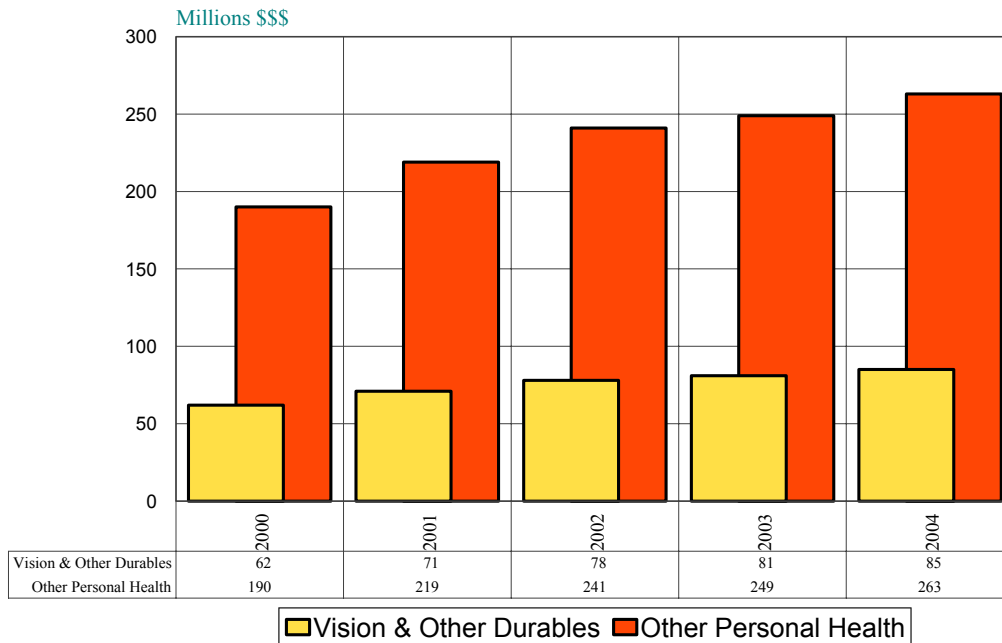
Nevertheless, demand for prescription drugs will only be enhanced further by the emergence of prescriptions-by-mail. Therefore, the trend of rising drug expenditures – the fastest growing component of health care expenditures – is expected to continue unabated. The prescriptions-by-mail program does 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 2.9 reports the estimates for the last two accounts. Vision products are allowed to grow sufficiently to keep the share around 1.6% of total cost. 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 2.9
Delaware Personal Health Care Expenditures:
Vision Products and Other Medical Durables, and
Other Personal Health Care

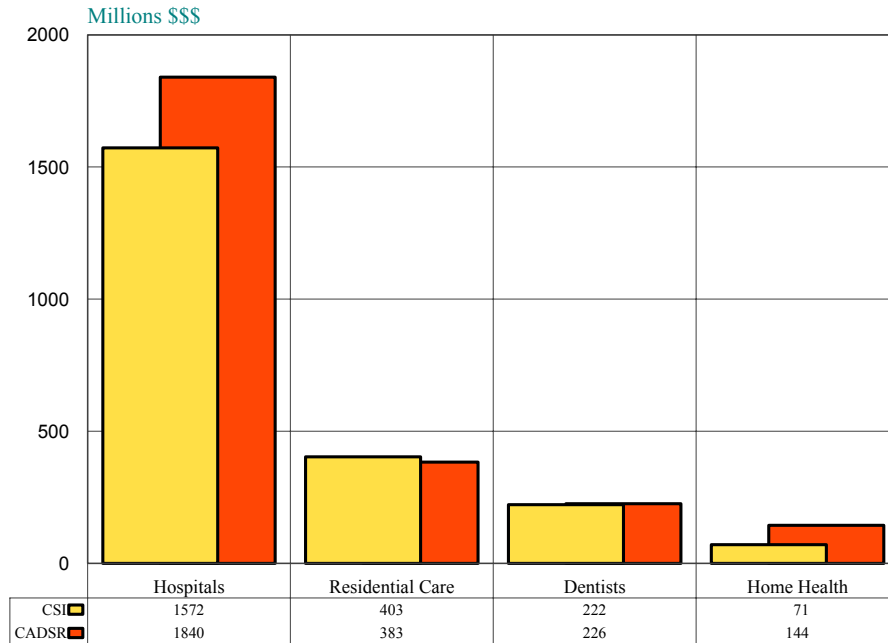


**Source: Center for Applied Demography and Survey Research, University of Delaware
 US Centers for Medicare and Medicaid Services**

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 2002 as a benchmark tool, the accuracy of the CADSR estimates for 2002 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 2.10). The CADSR estimate for home health is consistent with the latest CMS estimate. However, for home health there exists a relatively large difference between the CSI and the CADSR/CMS estimate. Future updates will provide an opportunity to assess the data further.

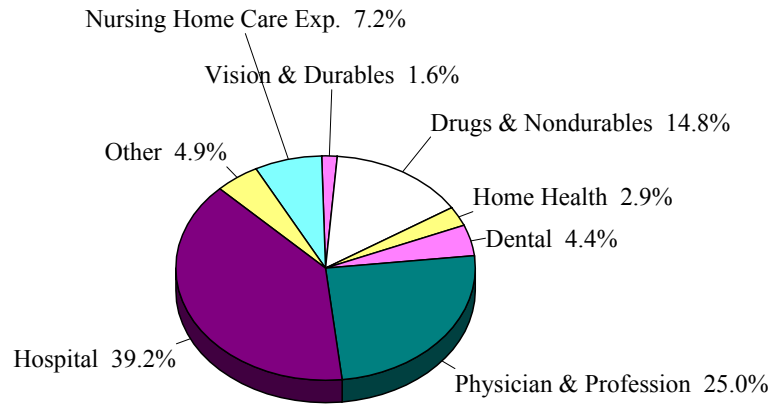
Figure 2.10
Delaware Personal Health Care Expenditures:
CSI versus CADSR, 2002



Source: Center for Applied Demography and Survey Research, University of Delaware
 Census of Service Industries, 2002

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 2004, although hospital expenditures will remain the single largest destination for expenditures, they will account for a smaller 39% of total expenditures (see Figure 2.11). All other accounts save hospitals are increasing their share of 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 2.11
Delaware Personal Health Care Expenditures:
Share of Total Expenditures in 2004 by Category



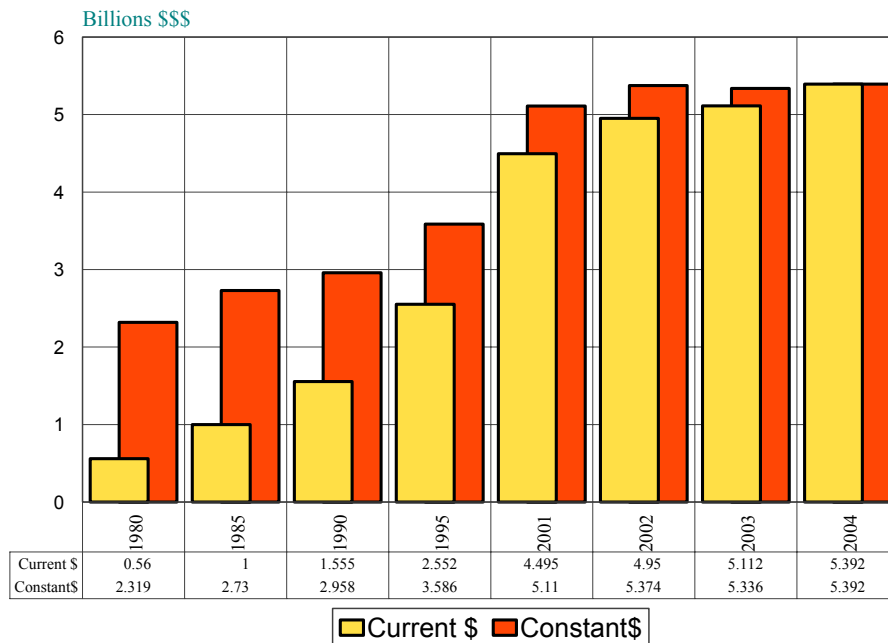
Source: Center for Applied Demography and Survey Research, University of Delaware
US Centers for Medicare and Medicaid Services

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. Figure 3.1 presents that estimate.

Figure 3.1
Delaware Personal Health Care Expenditures
In Current and Constant Dollars



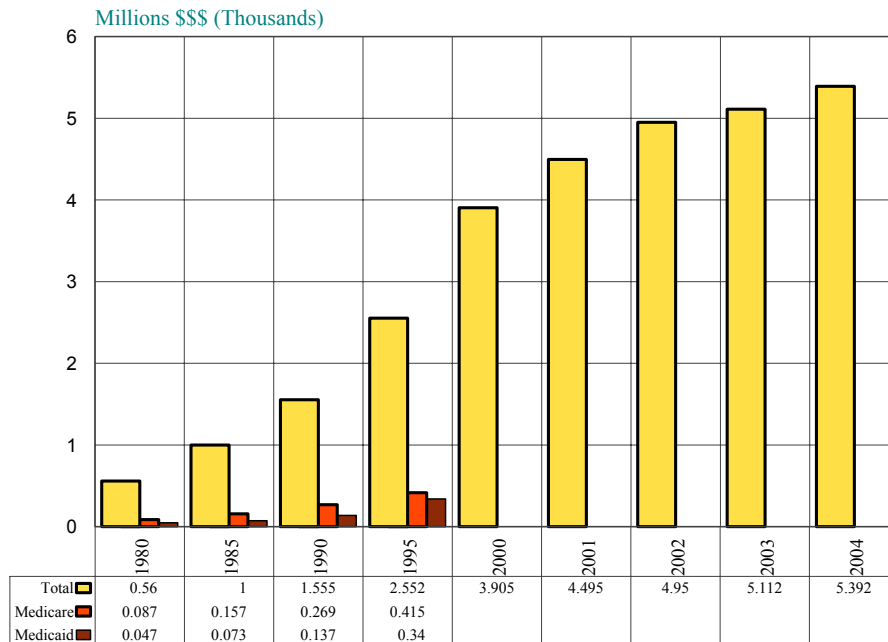
**Source: Center for Applied Demography and Survey Research, University of Delaware
US Centers for Medicare and Medicaid Services**

In 2004, the estimated total cost of personal health care in Delaware is approximately 5.3 billion dollars. The figure shows estimates both in *Current* dollars and in *Constant* 2004 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. Between 1991 and 1995, the rate of growth slowed to 8.7%. Between 1996-2000, growth slowed again, this time to 5.8%. Rising wages of health care providers augurs increased expenditures

on health care services and, hence, an expanding industry. The Census of Service Industries 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 3.2
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.

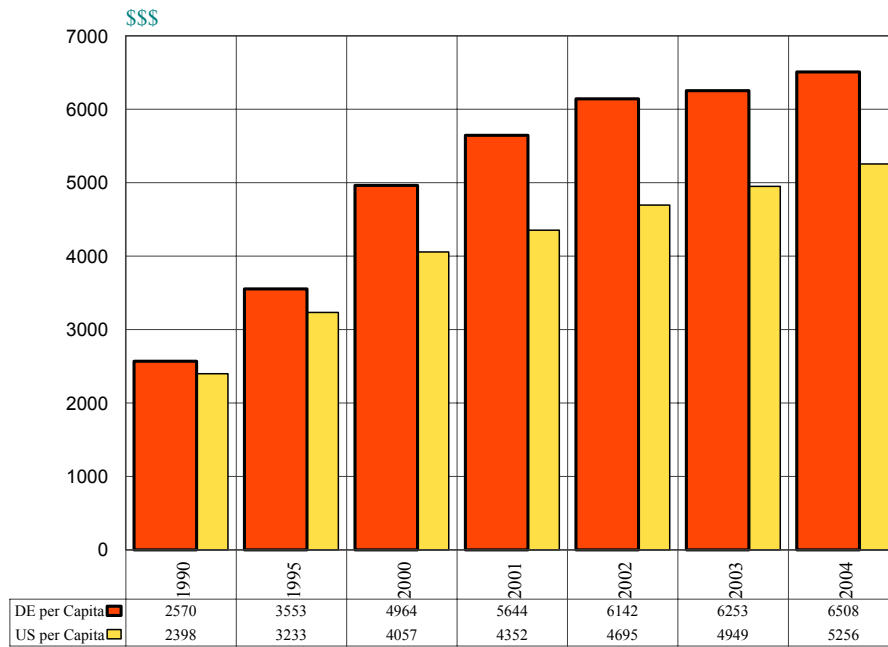
Medicaid costs grew 9% per year over the past decade and increased from 8.4% of total personal health care expenditures to 13% since 1980. This increase, however, is predominantly due to policy change. There have been significant efforts to increase access to health care for the poor, and in particular, 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 3.3, 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 3.3
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. US figure estimates using 2003 growth in National Health Expenditures applied to Personal Health Expenditures for 2002.

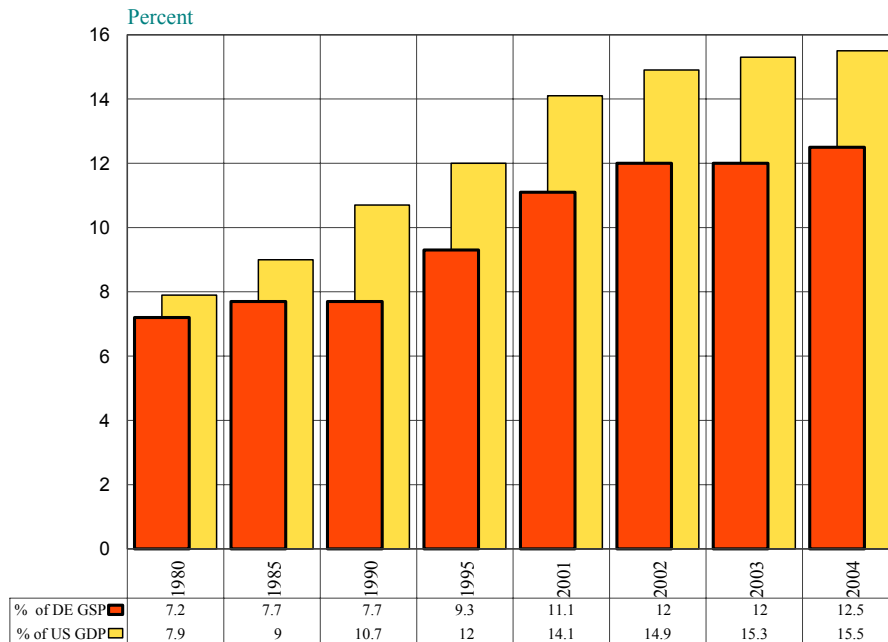
Economic Importance

Two provided measures of economic impact show the importance of personal health care expenditures in the Delaware economy. First, Figure 3.4 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 less than the US as a whole on health care; 12% compared to 15.5%. 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 below average in poverty⁷. However, Delaware lies slightly above average in age, which tends to increase the share of GSP devoted to health care.

Figure 3.4
Personal Health Care Expenditures:
Share of US GDP and Delaware GSP

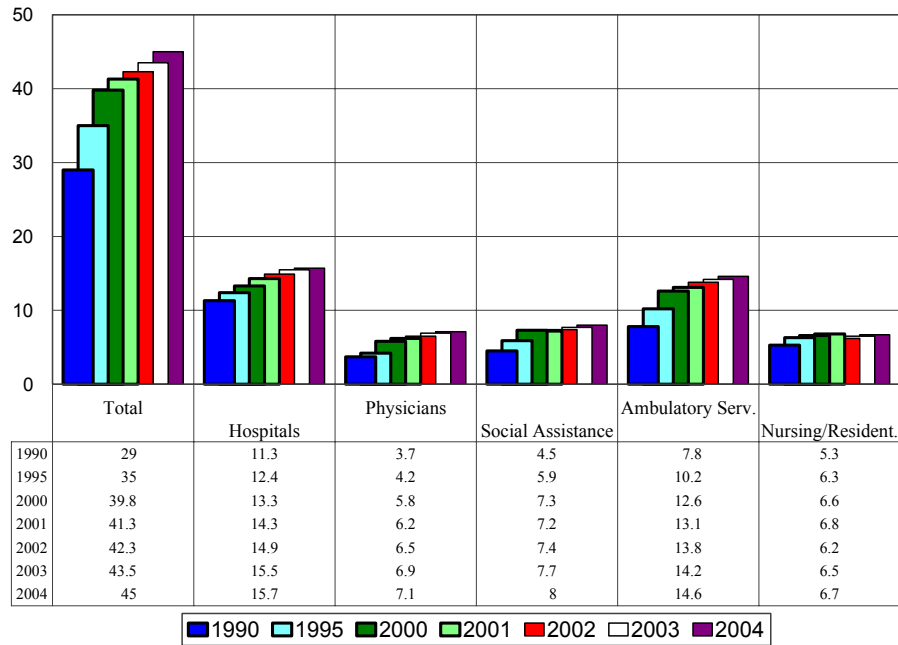


Source: Center for Applied Demography and Survey Research, University of Delaware
 US Centers for Medicare and Medicaid Services. Delaware 2004 GSP estimated.

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 11% of the labor force of 415,000. Those workers earn 11% of the reportable wages. In Figure 3.5 below, employment by sector over time is shown.

⁷ According to the Kaiser Family Foundation, poverty among Delaware adults is 11% versus 15% for the nation in 2002. Among children, the Delaware poverty rate is 18% versus 22% for the nation. Among the elderly, the Delaware poverty rate is 7% versus 14% for the nation.

**Figure 3.5
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 2004, 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. The number of physicians grew by three percent during 2003-2004.

There is evidence that hospital employment growth reached its nadir, however. After stalling in 1996, hospital employment growth turned positive again, and added 2,400 jobs between 2000 and 2004.

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 2002*⁸ 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.

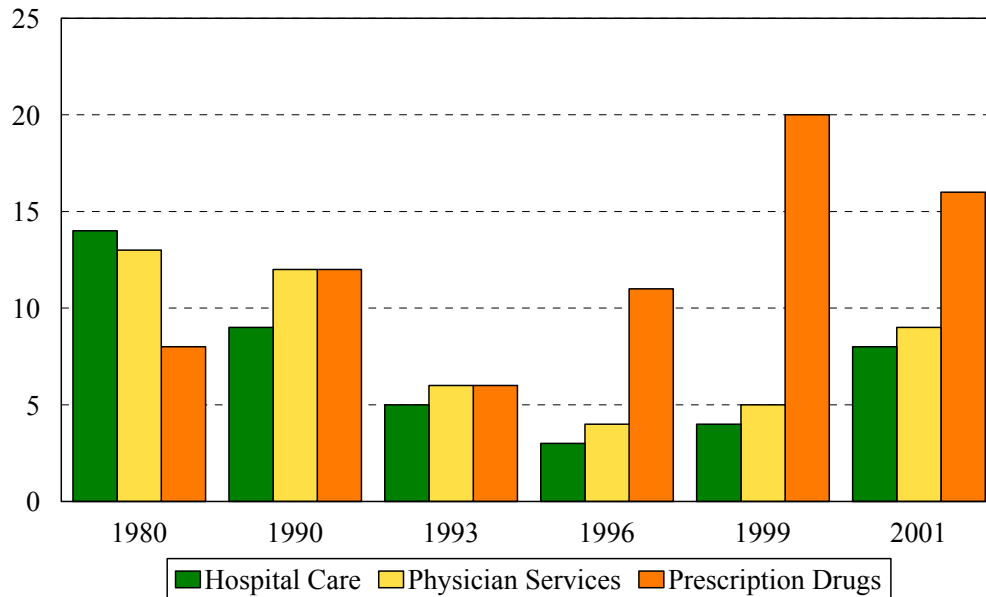
Historically, Delaware's uninsured population figures followed closely with those of the region and nation. With this in mind, national research on the subject of prescription drugs will not only offer insight into this industry in aggregate, but will be highly applicable to the State.

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

⁸ See <http://www.cadsr.udel.edu/DOWNLOADABLE/DOCUMENTS/hi0206b.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



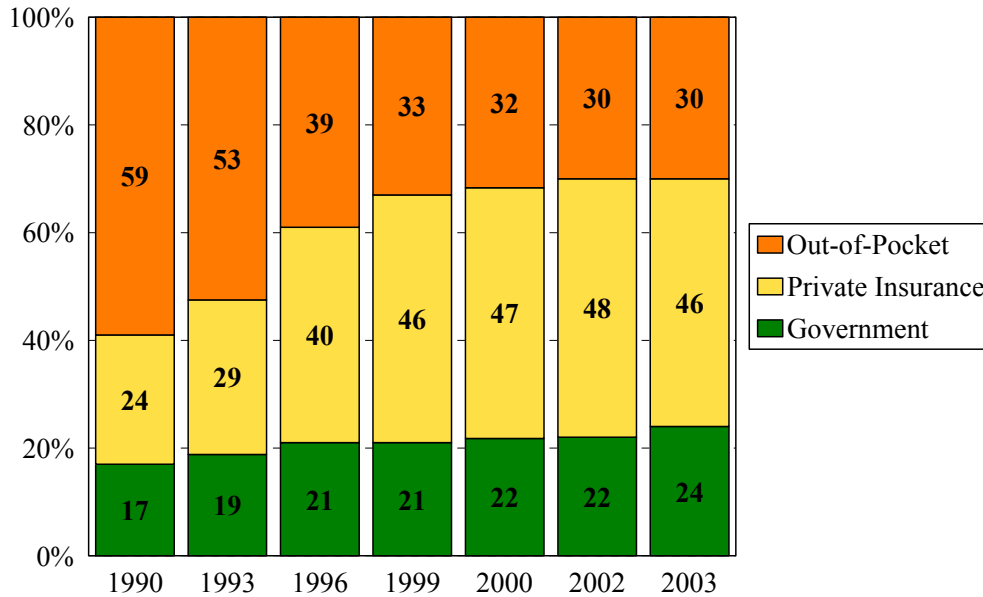
Source: Kaiser Family Foundation.

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, 1990-2003



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 4.3 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 US 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 (which reflect only price increases for existing drugs) grew less rapidly, at an 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 US 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.

Figure 4.3
U.S. Prescription Drug Prices and Brand/Generic Mix, 1990-2003

Year	Brand	All Rx's	Generic	Percent Brand	Percent Generic
1990	\$ 27.16	\$ 22.06	\$ 10.29	69.8%	30.2%
1991	\$ 30.11	\$ 23.87	\$ 10.85	67.6%	32.4%
1992	\$ 33.68	\$ 26.33	\$ 11.78	66.4%	33.6%
1993	\$ 35.28	\$ 26.99	\$ 12.82	63.1%	36.9%
1994	\$ 37.37	\$ 28.37	\$ 14.18	61.2%	38.8%
1995	\$ 40.22	\$ 30.01	\$ 14.84	59.8%	40.2%
1996	\$ 45.11	\$ 32.86	\$ 15.71	58.3%	41.7%
1997	\$ 49.55	\$ 35.72	\$ 16.95	57.6%	42.4%
1998	\$ 53.51	\$ 38.43	\$ 17.33	58.3%	41.7%
1999	\$ 57.17	\$ 40.94	\$ 18.74	57.8%	42.2%
2000	\$ 62.25	\$ 45.19	\$ 20.90	58.8%	41.3%
2001	\$ 68.03	\$ 49.61	\$ 23.50	58.6%	41.4%
2002	\$ 75.82	\$ 54.73	\$ 27.16	56.7%	43.3%
2003	\$ 84.21	\$ 59.30	\$ 30.56	53.6%	46.4%

NACDS, Table 25 "The Chain Pharmacy Industry Profile 2003".

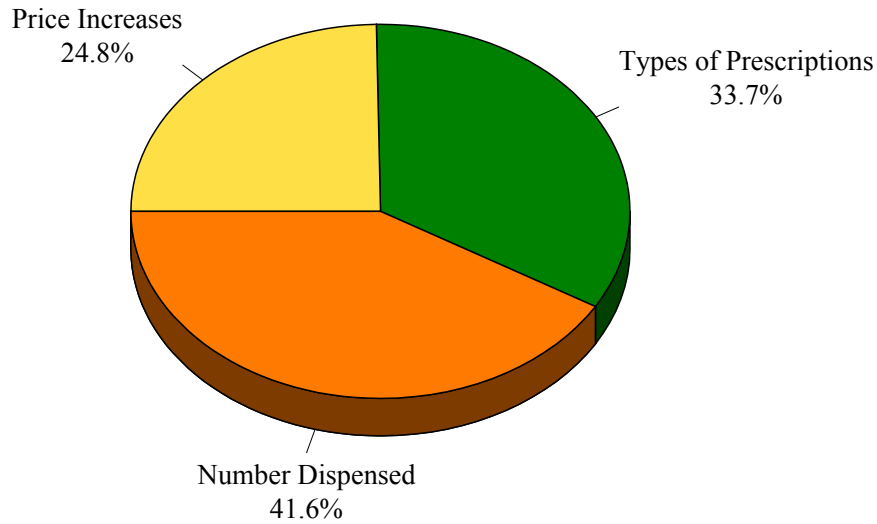
The rate of inflation in prescription drug prices at the manufacturers' level continues at its lowest level since the mid-1970's. However, pharmaceutical manufacturer prices still outpace general inflation, and the retail market continues to observe price increases greater than reported at the manufacturer level. Expenditure growth is much larger than price growth - as consumers continue to increase their utilization and new, more expensive products are marketed. In 2002, "new" drugs (introduced since 1993) accounted for about 35 percent of retail drug expenditures. From 1999 to 2000, only 50 drugs contributed 40 percent of total sales growth and 30 percent of prescription growth.

The average sale price per prescription continues to climb. Differences in average prices for third party and cash prescriptions are due in part to the higher rate of generic substitution by cash patients. Figure 4.3 shows average prices for brand and generic prescriptions over time.

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 4.4
The Relative Contributions of Price, Utilization, and Types of Prescription Drugs Used to Rising Prescription Drug Expenditures, 1997-2002



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 2002, for example, the average consumer spent \$884 on prescription drugs, compared with \$415 for alcohol, \$2,167 for entertainment, and \$2,395 on dining out⁹. However, subjecting the national averages to closer scrutiny reveals that some households do face exorbitant costs.

Studies by Express Scripts and Kaiser Family Foundation find 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 4.5 below).

⁹ Consumer Expenditure Survey, Bureau of Labor Statistics, 2000

Figure 4.5
Concentration of Health Expenditures in the U.S. Population,
Selected Years 1987-1999

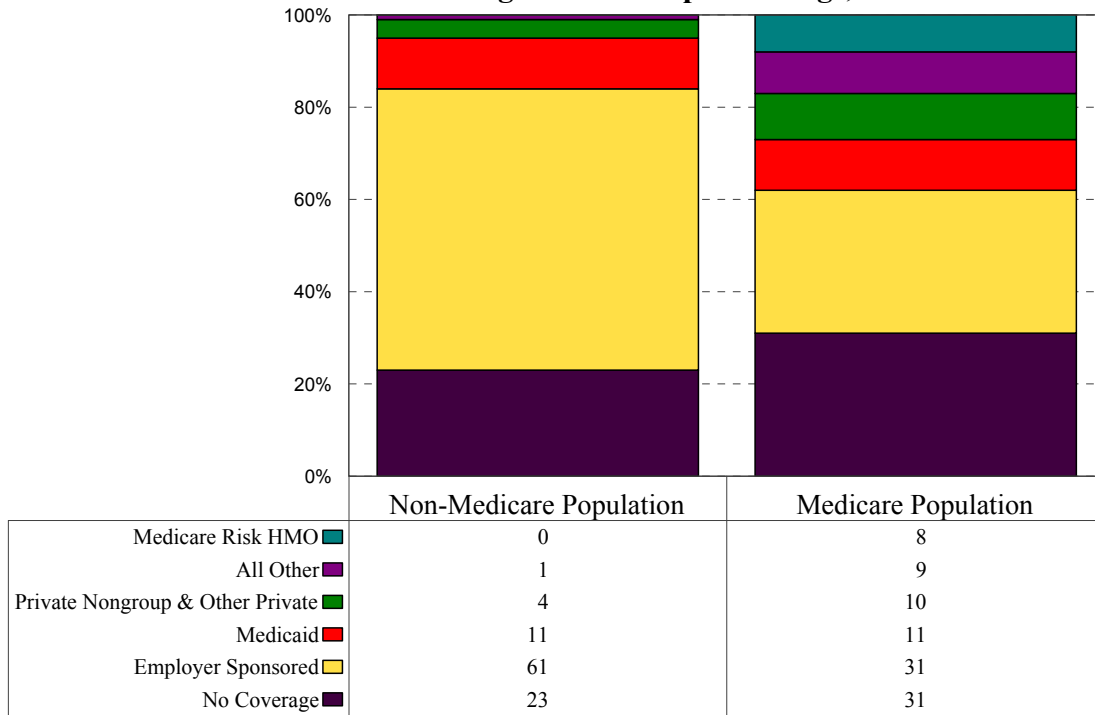
Percent of U.S. population ranked by expenditures	1987	1996	1999
Top 5 percent	56	55	52
Top 10 percent	70	69	67
Top 50 percent	97	97	97
Bottom 50 percent	3	3	3

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

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 4.6
U.S. Insurance Coverage for Prescription Drugs, 1996



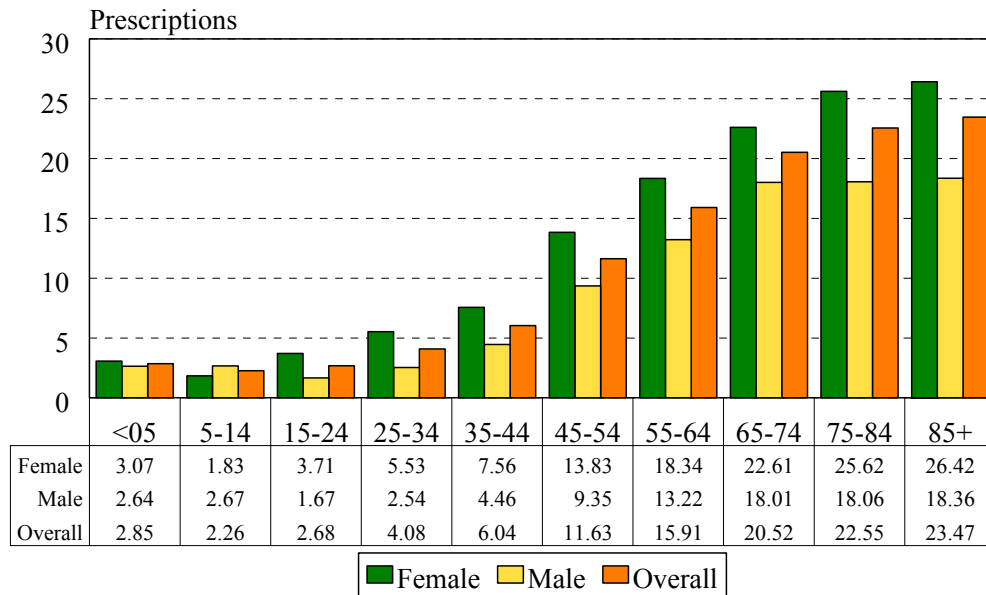
Source: Kaiser Family Foundation, Prescription Drug Trends – A Chartbook, July 2000.

Almost a quarter of Americans under the age of 65 and almost a third of Medicare beneficiaries had no prescription drug coverage in 1996¹⁰. It is this statistic that has brought the federal government to pass the prescription drug plan.

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.

¹⁰ The passage of The Medicare Prescription Drug Improvement and Modernization Act of 2003 will affect Medicare recipient’s coverage. See page 45.

Figure 4.7
National Prescription Drug Utilization by Age and Gender, 2002



Source: Center for Applied Demography and Survey Research, University of Delaware, Medical Expenditure Panel Survey 2000, NACDS Economics Department. Prescriptions filled at retail pharmacies.

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 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 analysis¹¹ 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.

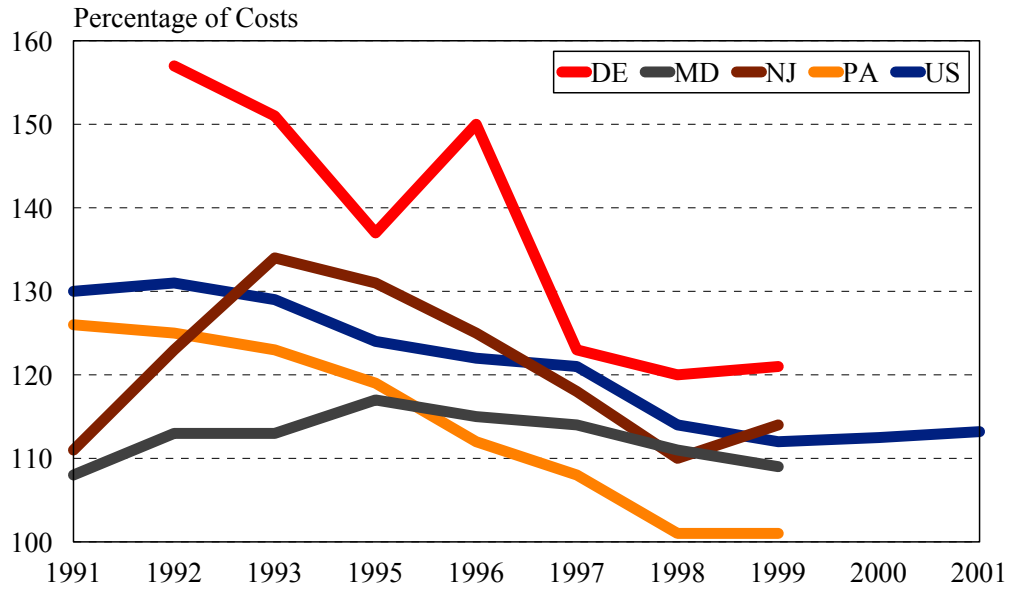
¹¹ The original analysis covered the period 1991 to 1996. This analysis will, where possible, update the analysis to 1999. MedPAC and AHA have ceased publication of state level hospital financial data. Where available, U.S. data for 2000 and 2001 are included to provide the nation trend.

Above-Cost Payers

From 1991 to 1999, Delaware exhibited a consistently higher level of private payer cost shift relative to surrounding states. In Figure 5.1 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 margin¹². 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, US hospital total patient margins have averaged five percent. Therefore, private payer payments as a percent of costs that are 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 US data for 2000 and 2001 imply that cost shifting remains low relative to earlier levels.

¹² Patient Margin is defined as the profit margin achieved per patient.

Figure 5.1
Total Private Payers' Hospital Payments as a Percentage of Costs

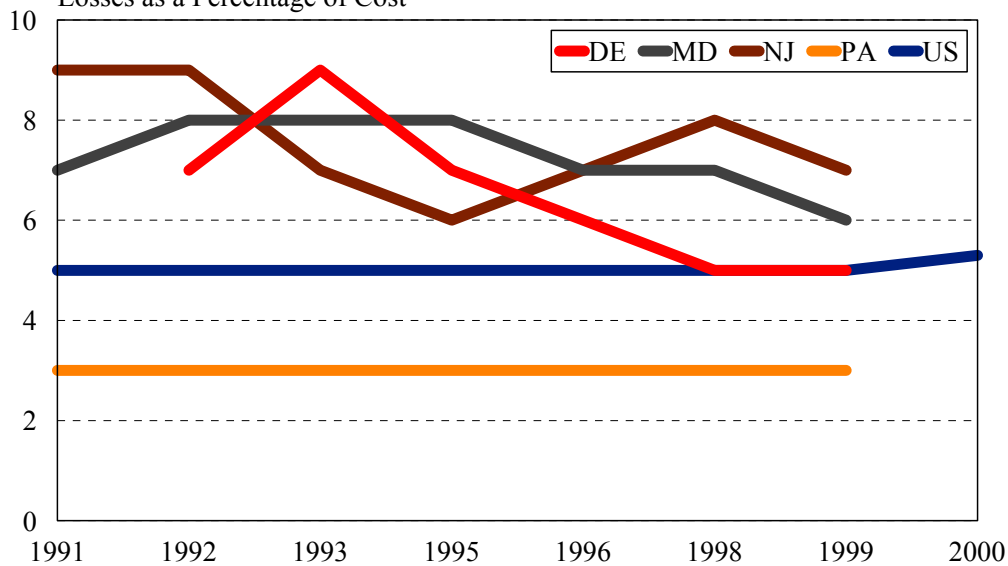


Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable. The level of cost shift is measured as total private payers' hospital payments in relation to the costs of their hospital treatment. The volatility in the DE data may be due to a different mix of 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 reports a cost shift comparable to these states' net of public subsidy (see Figure 5.2). 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 5.2
Hospital Uncompensated Care Losses as a Percentage of Total Cost
 Losses as a Percentage of Cost

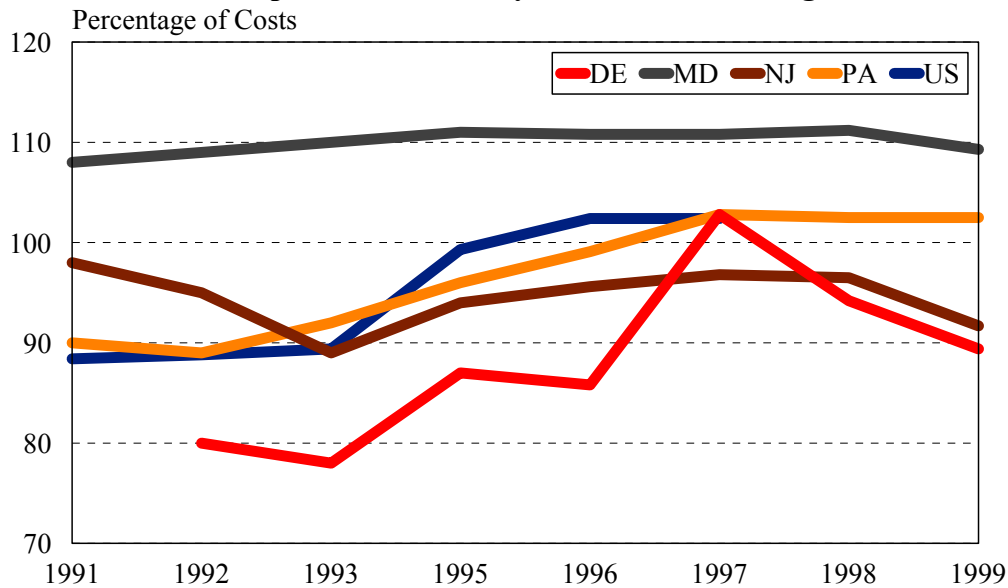


Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable. The figures are net of local subsidies and DSH payments.

Below-Cost Payers: Medicare

Delaware’s Medicare payments as a percentage of costs are 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, US 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 5.3
Hospital Medicare Payments as a Percentage of Costs

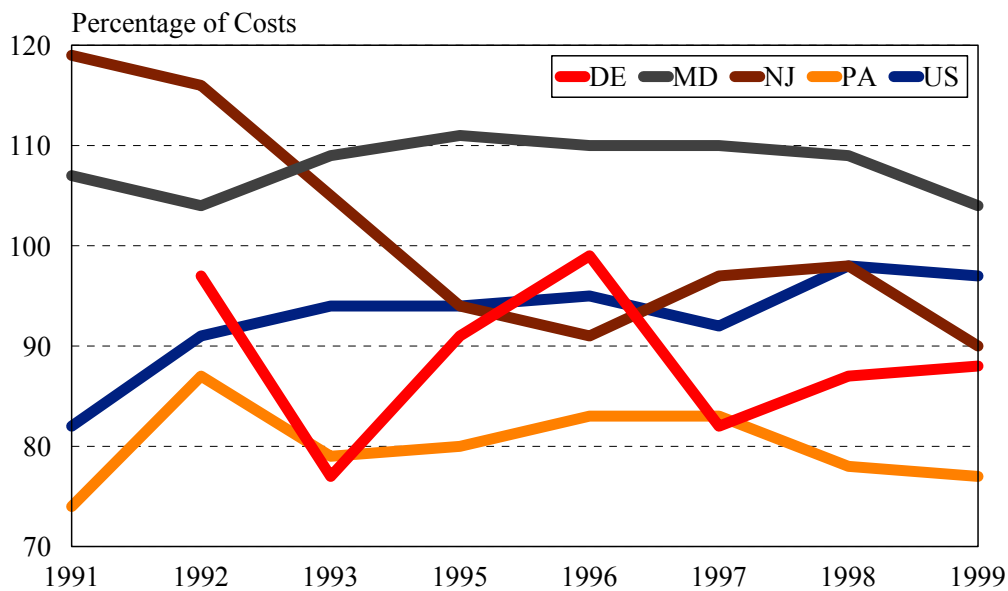


Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable.

Below-Cost Payers: Medicaid

Medicaid is a further source of revenue shortfall for the state, see Figure 5.4 below. The measure of Medicaid revenue-to-costs improved over the past decade, averaging 90% in 1999 versus 80% in 1992.

**Figure 5.4
Hospital Medicaid Payments as a Percentage of Costs**

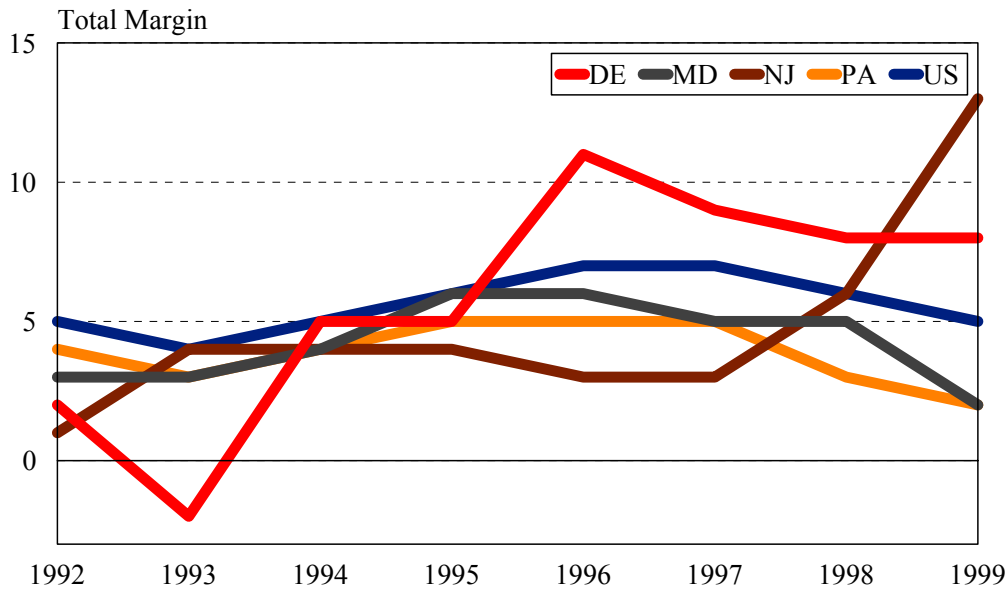


Source: MedPAC analysis of data from the AHA Annual Survey of Hospitals. Data for 1994 were unavailable.

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 artifice.

**Figure 5.5
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 5.1. 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.

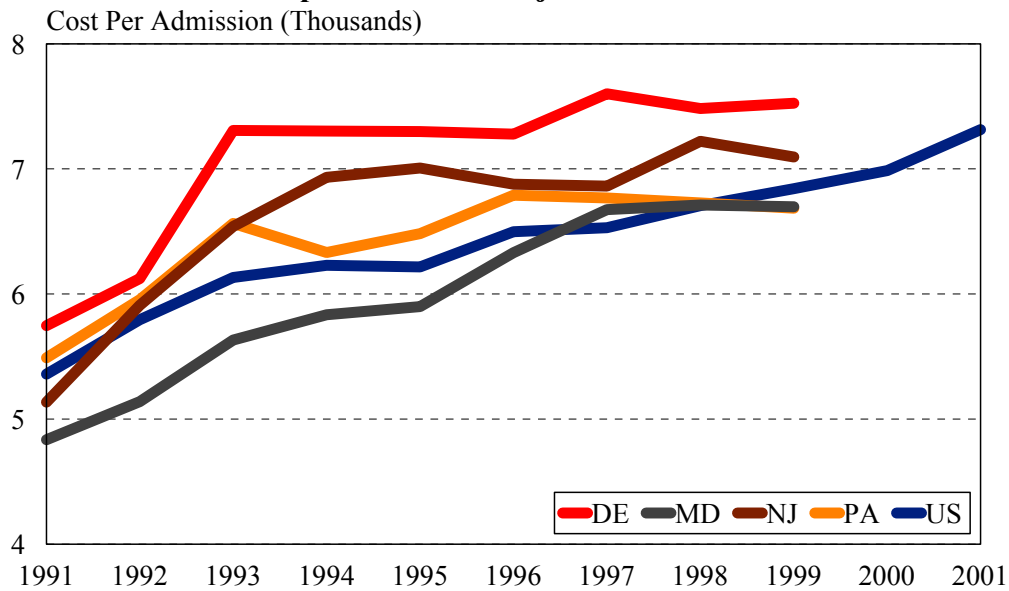
Summary of Above and Below-Cost Payers and Margin

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 5.1.

**Figure 5.6
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, policymakers 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.
- 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.

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- 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 \$5.3 billion annually is spent on personal health care in Delaware. The average rate of increase is 11% per year.
 - Delawareans spend less of Gross State Product (12%) when compared to the US in general (15%).
 - The health care sector of the Delaware economy is an important source of employment with 11% of the total workforce and 11% 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.

Annex

Share of Total Personal Health Care Expenditures

	DE	Mid Atlantic	US
Hospital Care (Millions of Dollars)	34.42%	36.36%	36.36%
Physician & Other Professional Services (Millions of Dollars)	26.56%	25.63%	28.96%
Dental Services (Millions of Dollars)	5.30%	4.53%	5.35%
Home Health Care (Millions of Dollars)	3.51%	3.59%	2.78%
Prescription Drugs (Millions of Dollars)	12.59%	10.78%	10.70%
Other Non-Durable Medical Products (Millions of Dollars)	2.25%	2.29%	2.67%
Durable Medical Products (Millions of Dollars)	1.58%	1.50%	1.56%
Nursing Home Care (Millions of Dollars)	8.90%	11.08%	8.39%
Other Personal Health Care (Millions of Dollars)	4.87%	4.24%	3.23%

Source: 2000 CMS.