

**REPORT BY THE
AUDITOR GENERAL
OF CALIFORNIA**

**A STUDY OF HEALTH CARE COST
ESCALATION IN CALIFORNIA**



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June 20, 1991

C-057


Honorable Robert J. Campbell, Chairman
Members, Joint Legislative
Audit Committee
State Capitol, Room 2163
Sacramento, California 95814

Dear Mr. Chairman and Members:

The Office of the Auditor General presents a report prepared under contract by Price Waterhouse concerning health care cost escalation.

This audit was conducted to comply with Senate Concurrent Resolution No. 87 (Chapter 88, Statutes of 1990).

Respectfully submitted,


KURT R. SJOBERG
Auditor General (acting)



STATE OF CALIFORNIA
OFFICE OF THE AUDITOR GENERAL

C-057

**A Study of Health Care
Cost Escalation in California**

JUNE 1991

PRICE WATERHOUSE



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EXECUTIVE SUMMARY

A. RESULTS IN BRIEF

The California Office of the Auditor General contracted with Price Waterhouse to conduct a study to identify the major causes of health care cost increases and define the extent to which each component contributes to overall medical cost inflation. The purpose of this report is to document our study findings and conclusions, and to supply several concluding observations about the collection and analysis of health care expenditure data.

Health care expenditures at the national level are increasing at a much faster rate than the general rate of inflation. Population growth, general and medical inflation, demographics, technology, the practice of defensive medicine, and the economic incentives within the health care industry are the primary factors which have influenced health care cost escalation during the 10-year study period. While health care expenditure and utilization data collected and reported at the national level is quite comprehensive, the State of California lacks comparable comprehensive data on the overall health care system and its finances.

B. BACKGROUND

During recent years, health care expenditures have increased dramatically at both the national and state levels. In response to growing concerns about these increases, in 1990 the California Legislature enacted Senate Concurrent Resolution (SCR) No. 87 authored by Senator Maddy. This legislation requested the Office of the Auditor General to define and measure the extent of health care cost escalation in California. The intent of SCR 87 was to provide the Legislature with information which may assist it in development of a comprehensive solution to the perceived problems of rapidly increasing health care costs and of limitations on access to affordable basic health care for all Californians.

The Office of the Auditor General contracted with Price Waterhouse to assist it in collecting and analyzing the information which it was required to develop under SCR 87. The study objectives for Price Waterhouse were to:

- Identify the various components of health care expenditures.
- Identify the underlying factors thought to generate changes in the cost of health care.
- Collect and organize data about both the components of the cost of health care and the underlying factors impacting health care costs.

Principle activities conducted during the study included:

- Reviewing statistical data about health care expenditures, demographic information, service utilization, and other pertinent facets of the health care industry.
- Conducting several in-person and telephone interviews with agencies that collect health care cost data and are familiar with health care cost issues.
- Conducting a literature search to identify studies and articles concerning health care expenditures.
- Summarizing and organizing relevant information for inclusion in this report.

Collection or development of new data on health care costs was not within the scope of the project, given the limited time and resources available.

C. SUMMARY OF FINDINGS

As a result of this study, Price Waterhouse has found that:

- Health care is consuming an increased share of the nation's Gross National Product, with the share devoted to health care rising from 8.6% in 1979 to 11.1% in 1988.
- Based on available information, it appears health care expenditures in California are rising at a rate comparable with the rest of the nation.

- Four key factors are most responsible for the rapid growth in health care expenditures in recent years. These factors include: 1) aggregate population growth; 2) general price inflation; 3) medical inflation (the excess rate of health care price increases over and above the general level of inflation); and 4) certain other factors that trigger changes in utilization and intensity of services.
- General inflation and medical inflation combined to account for 77% of the overall growth in health care expenditures between 1980 and 1988.
- Population growth and "other factors" accounted for the remaining 23% of overall health care expenditure growth.
- Four specific components in the "other factors" category have had a significant impact of health care expenditure growth during the study period. They include: 1) demographic changes; 2) changes in health care technology; 3) malpractice liability and the resulting practice of "defensive medicine;" and 4) economic incentives within the health care industry.

D. OBSERVATIONS AND RECOMMENDATIONS

During the conduct of this study, a significant amount of time and effort was devoted to reviewing available health care expenditure data at both the national and California levels. Based upon this experience, Price Waterhouse made a number of observations, and developed associated recommendations which may be helpful to policy makers in addressing health care public policy issues in the future. These observations and recommendations are as follows:

EXECUTIVE SUMMARY

- California lacks comprehensive data on the overall health care system and its finances. It lacks a means of collecting or even estimating expenditure and utilization data for large segments of the health care system.
- California has developed a very comprehensive data collection system for selected portions of the health care system, primarily for hospitals and long term care facilities. Detailed information is also collected regarding Medi-Cal utilization and expenditures, and regarding the AIDS epidemic.
- Major areas of health care services and expenditures are not covered by any comprehensive state level data collection and reporting systems. These areas include non-hospital physician services, drug expenditures, ambulatory care in non-hospital settings, and health insurance coverage.
- The State may wish to consider developing more comprehensive data covering the full range of health care delivery and finance issues. Additional reporting requirements or the use of sampling techniques may provide the means to obtain this additional data.

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CHAPTER I: STUDY OVERVIEW

A. ORIGIN AND PURPOSE OF THE STUDY

Resolution Chapter 88, Statutes of 1990 (SCR 87 – Maddy) directed the Office of the Auditor General to conduct a study to identify the major causes of health care cost increases in California and to examine the extent to which individual factors contribute to overall medical cost escalation. The study was intended to consolidate and analyze relevant information to assist the Legislature in responding to the overall issue of health care cost escalation.

As a result of a competitive procurement, the Office of the Auditor General contracted with Price Waterhouse to assist it in collecting and analyzing information related to this subject. Specific tasks were to include data gathering, compilation, and analysis services. The work of Price Waterhouse is intended for use by Auditor General staff to prepare a report to the Legislature as requested in SCR 87.

The study objectives for Price Waterhouse during this project were as follows;

1. Identify the various components of health care expenditures.

2. Identify the underlying factors thought to generate changes in the cost of health care. (Included in this objective was consideration of a specific list of factors included in SCR 87.)
3. Collect and organize data about both the components of the cost of health care and the underlying factors "driving" health care costs.
4. Prepare a report to the Auditor General summarizing the information developed during the project and deliver supporting data referenced in the report.

B. STUDY APPROACH AND LIMITATIONS

As was noted in SCR 87, the nature, extent, and causes of the rapid growth in aggregate health care expenditures in the United States is a complex and often controversial subject. It is a subject that continues to absorb the talents of numerous health care economists, researchers, and analysts. It has produced a voluminous literature and enormous amounts of statistical information. This study is a limited attempt to extract from this mass of existing information a meaningful overview of the nature, extent, and causes of the rapid growth in aggregate health care expenditures in the United States in general and California in particular.

As a result of the resources and time schedule contained in the contract with the Auditor General, this study was governed by the following constraints:

1. Study data collection and analysis were conducted during the period from January 10 to April 4, 1991, a period of 13 weeks.

2. No original data collection was conducted. All materials reviewed during the study and included in this report are drawn from existing data sources or published literature.
3. Several of the topics mentioned in SCR 87 represent recently emerging trends in the industry and as such have not yet been the subject of independent research that was available during this study. This limited our ability to comment on such topics.
4. While comprehensive, detailed, and comparable historical statistics concerning health care expenditures are maintained at the national level, similar comprehensive data is not available for California. While extensive statistical data does exist for certain segments of the industry in California (for example, comprehensive data on all hospitals is collected by OSHPD), there is not a similar comprehensive base of detailed historical cost data covering all portions of the health care industry for California. This limited our ability to comment in detail about many specific California features of national trends. However, given the similarity of the trend in overall health care expenditures in California and the U.S. as a whole, we believe this limitation does not negate the usefulness of understanding national expenditure trends and factors for California policy makers concerned with these issues.

The study was performed by Price Waterhouse staff with the assistance of two subcontractors, Ms. Carol Goodman and JSF Associates (represented by Susan Fox). The principle activities conducted during the study were:

- Reviewing statistical data about health care expenditures, demographic information, service utilization and other pertinent facets of the health care industry. Statistical data was drawn from a variety of federal and state government sources as well as from various professional and trade associations that publish such information.
- Conducting a limited number of in-person and telephone interviews with federal, state, and private agencies that collect health care cost data and that are conversant with health care cost issues.
- Conducting a literature search and review of relevant studies and articles concerning health care expenditure trends and the factors contributing to changes in health care expenditures.
- Summarizing and organizing the relevant information identified during the study to prepare an overview report outlining salient trends in health care expenditures in recent years and the role various underlying factors play in shaping health care expenditure trends in the U.S. and California.

C. FOCUS OF THIS REPORT: TRENDS IN HEALTH CARE EXPENDITURES AND THE FACTORS THAT CONTRIBUTE TO CHANGES IN SUCH EXPENDITURES

As noted earlier, the nature, extent, and causes of the rapid growth in health care expenditures in the United States and California is a complex topic. Given such complexity, it was important to clearly define the focus of this study. A clear focus

would make best use of limited study resources and help organize the results of the study into a useful overview of the issues for policy makers.

Based on the tasks assigned to Price Waterhouse in our contract with the Auditor General and the themes raised in SCR 87, we have defined the focus of this study as an examination of the trends in health care expenditures and the factors that contribute to changes in such expenditures. We examine this topic with reference both to the United States as a whole and California in particular. As will become apparent later in this report, while the health care industry in California does exhibit many unique features, it generally tracks with overall national trends. An understanding of those national trends will help illuminate how such trends work in California and key ways in which this state differs.

Central to this study is a definition of the components of health care expenditures. For purposes of this study, we have chosen to use the definition of health care expenditures developed by the Federal Health Care Financing Administration (HCFA). This definition of National Health Care Expenditures is summarized in Exhibit I-1. A detailed description of the components is presented in Chapter 3. It is a comprehensive definition, with meaningful subcategories, and one for which extensive historical data is readily available. Exhibit I-1 also presents the HCFA classification of the major sources of funding for the categories of spending included in the definition of National Health Care Expenditures. We use this definition of health care expenditures and funding sources to describe national and California trends.

This report is designed to address the questions of how much society is expending on the various components of health care

(as defined by HCFA) and what forces or factors are responsible for changes in health care expenditures. The reader should note our deliberate focus on the term “health care *expenditures*” rather than the term “health care *costs*.” The term expenditures is chosen since it is a measure of the resources expended by society on the provision of health care, regardless of who pays for those resources. This helps focus attention of what are the underlying factors (expenditure drivers) that contribute to the rapid growth in the share of Gross National Product devoted to the provision of health care. In the context of the health care focus of this study, we have chosen to avoid using the term “cost” because of potential confusion as to whether “cost” refers to: (1) the expenses incurred by the supplier in producing a medical service or supply item; (2) the “charge” that a provider or supplier requests the consumer pay; or (3) the actual amount of the reimbursement that a consumer or third party payer provides to a provider for a given service (regardless of the amount “charged”). This approach is consistent with the approach used by the Federal Health Care Financing Administration (HCFA) when it reports national health care expenditure data, the source of many of the statistics used in this report.

These underlying factors (expenditure drivers) include both forces external to the health care industry (such as general rates of inflation and population growth) and forces internal to the industry (such as changing technology and the payment system). The study attempts to describe these factors, quantify them where possible, and indicate which factors the literature points to as particularly significant contributors to the growth in health care expenditures.

This report also considers issues related to how health care expenditures are paid, again using the framework developed by

Exhibit I-1

TWO VIEWS OF HEALTH CARE EXPENDITURES

BASED ON HEALTH CARE FINANCING ADMINISTRATION
1988 ESTIMATES AND DEFINITION OF NATIONAL HEALTH CARE EXPENDITURES

1. For What Purposes are Expenditures Made?	2. Who Pays for Health Care?
National Health Care Expenditures (NHE) Consist of:	National Health Care Expenditures (NHE) Are Paid By:
<div style="border: 1px solid black; padding: 5px;"> 1. Personal Health Care • Hospital Care • Physician Services • Dental Services • Other Professional Services • Home Health Care • Drugs and Other Non-Durables • Eyeglasses and Appliances • Nursing Home Care • Other Personal Health Care </div> (88%)	<div style="border: 1px solid black; padding: 5px;"> 1. Private Insurance • Employer Paid Premiums • Employee Paid Premiums </div> (32%)
+	+
<div style="border: 1px solid black; padding: 5px;"> 2. Net Cost of Administering Private Insurance, Federally Financed Programs, and Overhead of Health Care Philanthropic Organizations </div> (5%)	<div style="border: 1px solid black; padding: 5px;"> 2. Out-of-Pocket Consumer Paid Expenses Such As: • Deductibles • Items not Covered by Insurance </div> (21%)
+	+
<div style="border: 1px solid black; padding: 5px;"> 3. Federal, State, and Local Public Health Functions </div> (3%)	<div style="border: 1px solid black; padding: 5px;"> 3. Other Private Sources (Such As Philanthropy) </div> (5%)
+	+
<div style="border: 1px solid black; padding: 5px;"> 4. Investment In Future Health Care • Non-Profit and Government Supported Research • Construction/Renovation Of Medical Care Facilities </div> (4%)	<div style="border: 1px solid black; padding: 5px;"> 4. Federal Programs Such As: • Medicare • Medicaid </div> (29%)
+	+
<div style="border: 1px solid black; padding: 5px;"> 5. State and Local Government Funded Programs </div> (13%)	<div style="border: 1px solid black; padding: 5px;"> 5. State and Local Government Funded Programs </div> (13%)
=	=
\$539.9 Billion (100%)	\$539.9 Billion (100%)

HCFA for describing how national health care expenditures are financed. Given the complex nature of this topic, the focus is on the broad features and trends of the payment system rather than on specific payment practices that characterize the rapidly evolving payment system.

D. ORGANIZATION OF THIS REPORT

In order to summarize and present the large amount of data reviewed during this study in a useful and concise form intended for policy makers, this report is organized around the answers to a series of key questions. The key questions are:

- Are health care expenditures rising faster than the growth of the economy as a whole? (Chapter 2)
- What has been the pattern of expenditures for health care broken down into its component parts? (Chapter 3)
- What has been the pattern of funding for health care expenditures broken down by major payer? (Chapter 4)
- What broad forces (expenditure drivers) cause health care expenditures to change? (Chapter 5)
- In what ways do specific forces (expenditure drivers) affect health care expenditures and which forces seem to play a major role in changing expenditures? (Chapter 6)
- What are the most important findings from this study for California policy makers concerned with rapidly increasing health care expenditures? (Chapter 7)

These questions and the answers to these questions make up the remaining chapters of this report.

CHAPTER II: ARE HEALTH CARE EXPENDITURES GROWING FASTER THAN THE OVERALL ECONOMY?

This section describes the national and California trends in aggregate health care costs and provides support for the view that health care expenditures are increasing faster than the economy as a whole.

A. NATIONAL TRENDS

Numerous sources have confirmed that national health care expenditures are increasing faster than the overall economy.^{1,2,3,4,5} One study argues that this trend has been occurring not only for the last ten years, but for at least the last 43 years.⁶ Exhibit II-1 provides data from 1979 to 1988 on the National Health Care Expenditures (NHE), a national benchmark developed by the U.S. Department of Health and Human Services, and the Gross National Product (GNP), the most widely used measurement of the Nation's output. Gross National Product is the total national output of goods and services valued at market prices. This exhibit also depicts the annual rate of growth for the NHE and GNP. Additionally, the exhibit provides national health expenditures as a percentage of the gross national product.

Exhibit II-1

National Health Care Expenditures and Gross National Product

YEAR	NATIONAL HEALTH EXPENDITURES		GROSS NATIONAL PRODUCT		National Health Expenditures as a Percent of GNP
	Amount (Billions)	Annual Rate of Growth	Amount (Billions)	Annual Rate of Growth	
1979	\$215	12.0%	\$2,508	11.5%	8.6%
1980	\$249	14.9%	\$2,732	8.9%	9.1%
1981	\$287	15.9%	\$3,053	11.7%	9.5%
1982	\$324	12.2%	\$3,166	3.7%	10.2%
1983	\$357	9.9%	\$3,406	7.6%	10.5%
1984	\$389	8.7%	\$3,772	10.7%	10.3%
1985	\$420	8.1%	\$4,015	6.4%	10.5%
1986	\$451	7.3%	\$4,232	5.4%	10.6%
1987	\$489	8.5%	\$4,516	6.7%	10.8%
1988	\$540	10.5%	\$4,874	7.9%	11.1%
% Change 1979-1988	—	151.1%	—	94.3%	—

Source: Health Care Financing Administration, Health Care Financing Review, Spring 1990, p. 131, and the U.S. Department of Commerce, Survey of Current Business, Monthly Report for January 1979 to September 1989.

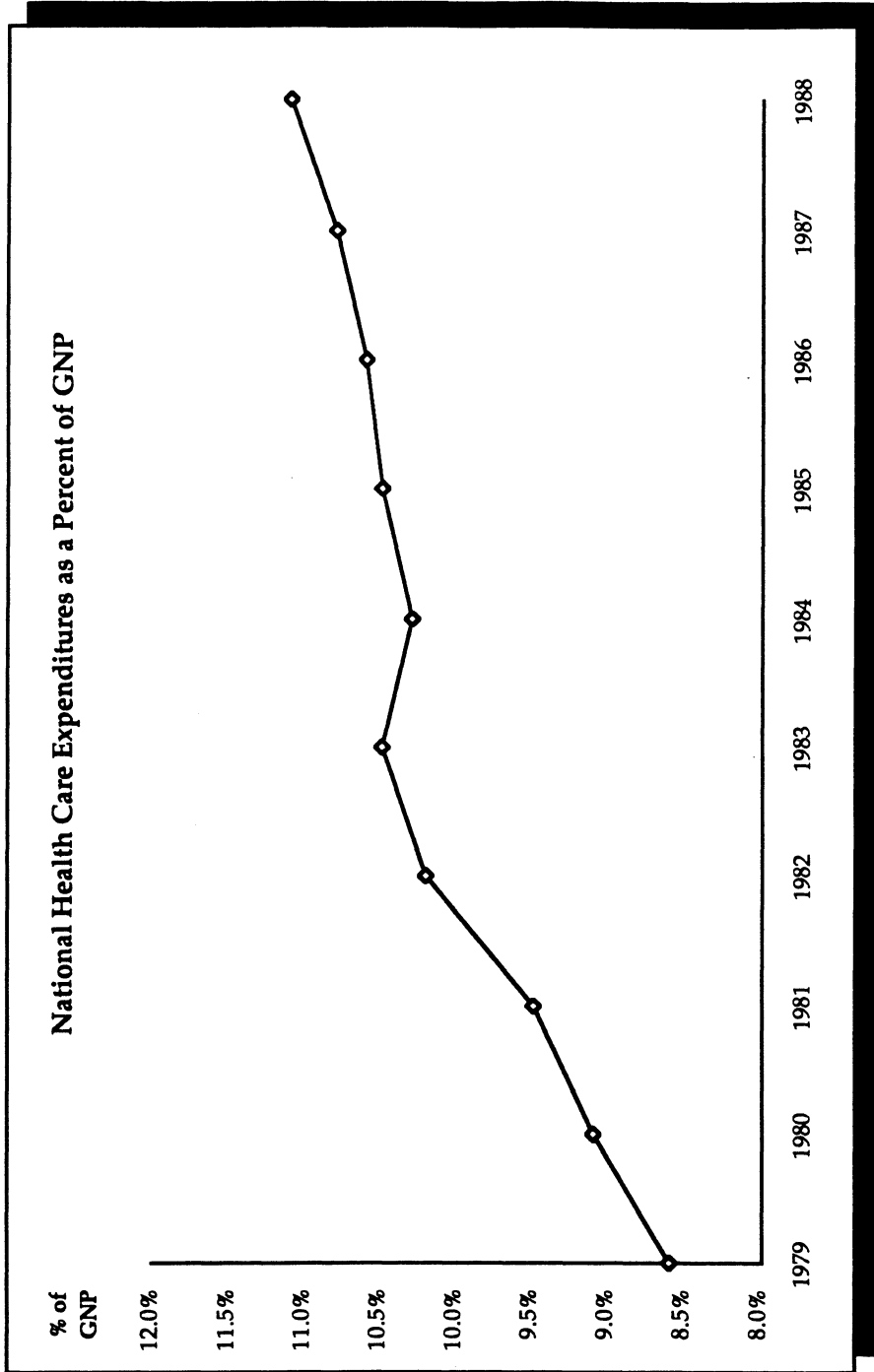
Notably:

- National aggregate health care expenditures have been increasing at a higher rate than the GNP for nine years out of the ten year study period.
- In 1980 the NHE was \$249 billion or \$1,059 in per capita spending. In 1988, the NHE reached \$540 billion or \$2,124 in per capita spending.⁷ HCFA computed per capita spending on health care by dividing total national health care expenditures by the total population of the United States as of July 1 of each year.
- Over the ten year period, the NHE steadily increased as a percentage of the GNP, from 8.6% in 1979 to 11.1% in 1988, as shown in Exhibit II-2. Because overall health expenditures are so large in absolute terms, a rapidly expanding health care market can slow the growth of

other segments in the economy, such as housing and transportation, that compete with it for public and private spending.⁸

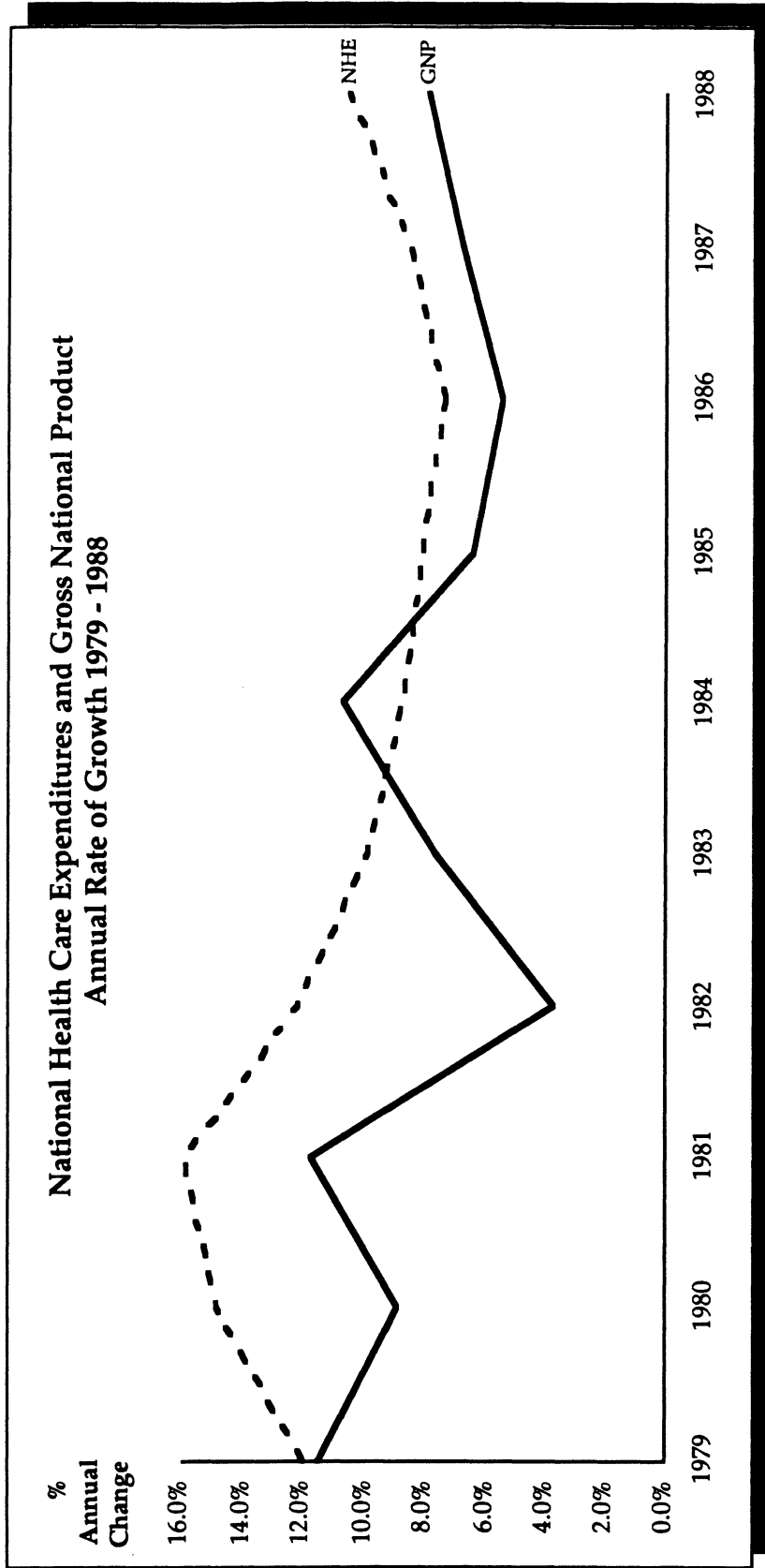
- Over the ten year period, the average annual increase for the GNP was 8.1%. The NHE average annual increase was 10.8%.
- Over the ten year period, the annual growth rate of the NHE peaked at 15.9% in 1981 and dipped to 7.3% in 1986. There appears to be no correlation between the annual growth rates of NHE and GNP until 1985. Since that time, while the NHE percent rate of growth continues to be higher than GNP, the two lines have been in parallel with each other, as shown in Exhibit II-3.
- In 1989, a year outside of the study period, NHE reached an estimated \$604 billion, an 11.0% increase over the previous year and the second consecutive year of a double-digit increase.⁹

Exhibit II-2



Source: Health Care Financing Administration, Health Care Financing Review, Spring 1990, p. 131, and the U.S. Department of Commerce, Survey of Current Business, Monthly Report for January 1979 to September 1989.

Exhibit II-3



Source: Health Care Financing Administration, Health Care Financing Review, Spring 1990, p. 131, and the U.S. Department of Commerce, Survey of Current Business, Monthly Report for January 1979 to September 1990.

B. CALIFORNIA TRENDS

Comparable California health care data is currently not reported in the same manner as the national data presented above. (A state-by-state breakdown of national data has not been reported by the Health Care Financing Administration (HCFA) since 1982.)¹⁰ These current reporting practices by HCFA preclude any direct comparison at the aggregate level for California.

One study, however, produced for a consumer advocacy group, provides estimates of U.S. and California aggregate and per capita personal health care spending for the years 1980, 1987, and 1990. Exhibit II-4 provides estimates for the total and per capita spending in U.S. and California personal health care expenditures, as well as the percentage change since the previous reporting year. The study, conducted by Lewin/ICF, provides data on personal health care expenditures, a subset of the national health expenditures reported by HCFA. The subset consists of expenditures for personal health care plus program administration and the net cost of private insurance. Excluded from the Lewin/ICF data are expenditures for research, construction, and government public health programs. These differences account for why the totals discussed below do not exactly match the national health expenditure data discussed earlier in this chapter.¹¹ However, we believe this source does provide a useful set of data that consistently and directly compares California with the rest of the U.S. at an aggregate level.

**Estimates of United States and California
Personal Health Care Expenditures
(Total and Per Capita Spending)**

Year	United States			
	Total (in 000s)	% Change Since 1980	Per Capita	% Change Since 1980
1980	\$230,166,741	--	\$1,016	--
1987	\$465,096,247	102%	\$1,912	88%
1990*	\$605,978,347	163%	\$2,425	139%

Year	California			
	Total (in 000s)	% Change Since 1980	Per Capita	% Change Since 1980
1980	\$28,080,581	--	\$1,186	--
1987	\$60,932,858	117%	\$2,213	87%
1990*	\$84,754,469	202%	\$2,894	144%

Note: * Projected estimates.

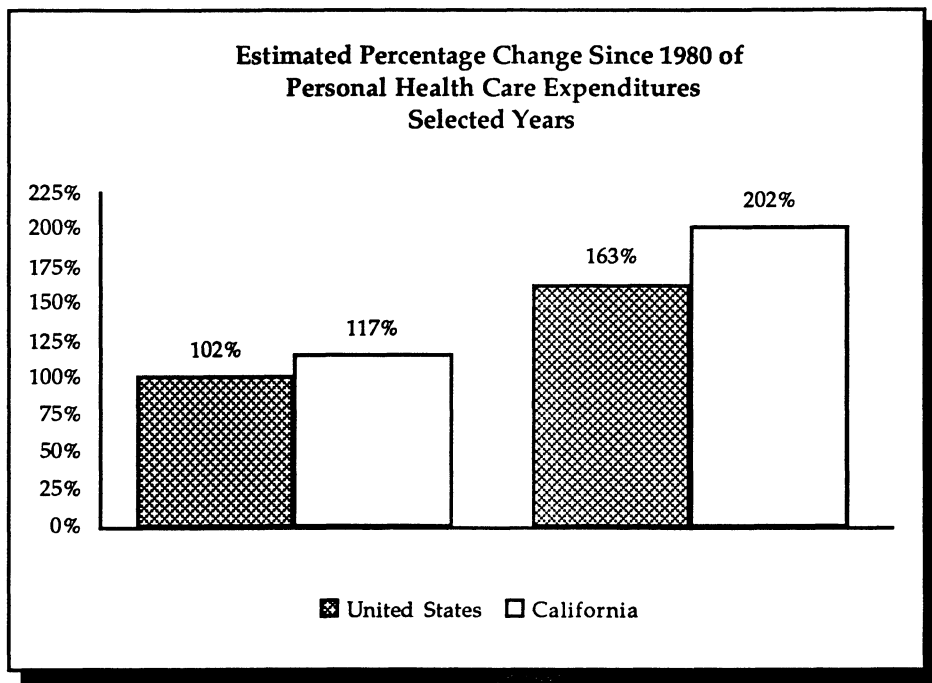
Source: Families USA Foundation, *Emergency! Rising Health Care Costs in America*, Washington, D.C., October 1990.

Notably: ¹²

- From 1980 to 1987, aggregate personal health care spending in California grew 117%. In the U.S., aggregate health care spending grew 102%. The difference between California and the U.S. becomes even larger in the estimates for 1990. In that year, California has a projected growth of 202% and the U.S. has a projected growth of 163% since 1980, as shown in Exhibit II-5. As will be noted in Chapter V, California experienced much more rapid population growth than the nation as a whole during the 1980's. This contributed to the more rapid growth in total health care expenditures.

- On a per capita basis, the gap between California and the U.S. in personal health care expenditure growth closes. From 1980 to 1987, the increase in per capita spending was less in California than in the U.S., at 87% and 88%, respectively. The 1987 to 1990 projections show an increased rate of growth in California, with a ten-year growth projected at 144%, compared with 139% in the U.S. as a whole.
- In 1980, per capita spending for personal health care in California was 16.7% above the national average at \$1,186 per person. In 1990, the estimated per capita spending in California was 19.7% above the national average at \$2,894 per person, as shown in Exhibit II-6.

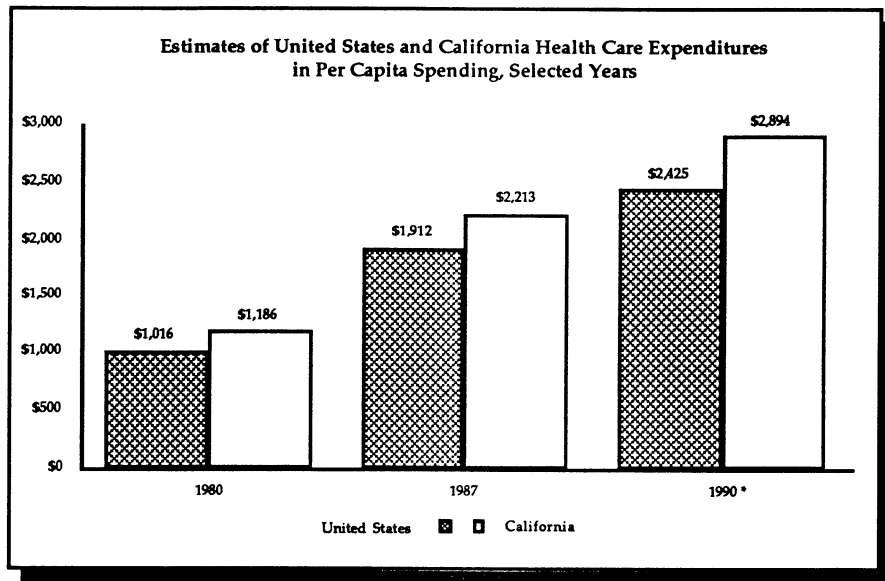
Exhibit II-5



Source: Families USA Foundation, *Emergency! Rising Health Costs in America*, Washington, D.C., October 1990.

- When the growing population of the state is taken into account (discussed in more detail in Chapter V), California does not appear to be significantly different from the rest of the nation in terms of the rate of growth in per capita health care spending. Nevertheless, on a per capita basis, California has consistently spent more than the national average on health care and in 1990, California is predicted to be outranked only by Massachusetts in spending more per capita on health care.¹³

Exhibit II-6



Note: * Estimates

Source: Families USA Foundation, *Emergency! Rising Health Costs in America*, Washington, D.C., October 1990.

C. SUMMARY

Nationally, health care expenditures have continued to take an increasing larger share of the U.S. economy when measured against the GNP. Health care expenditures have also been expanding faster than the GNP for nine out of the ten years in the study period.

While state-level data that is exactly comparable to HCFA data on aggregate national health care expenditures is not available, sources discussed in this chapter appear to indicate that California's rate of growth in personal health care expenditures is generally comparable to the national rate of growth between 1980 and 1988.¹⁴

The next section discusses the patterns of expenditures for health care broken down into its component parts at the national level and in California.

ENDNOTES

SECTION II

¹ United States Department of Health and Human Services, Health Care Financing Administration (HCFA), *Health Care Financing Review*. Washington D.C.: United States Government Printing Office, Summer 1990, p. 1.

² United States Department of Commerce, Bureau of the Census. *Statistical Abstract of the United States*. Washington, D.C., 1990, pp. 92-126.

³ U.S. Department of Health and Human Services, Health Care Financing Administration (HCFA). *Health - United States*. Washington, D.C.: United States Government Printing Office, 1989, p. 4.

⁴ Health Insurance Association of America (HIAA). *Source Book of Health Insurance Data*. Washington, D.C., 1990, p. 58.

⁵ Fuchs, Victor R. "The Health Sector's Share of the Gross National Product." *Science*, Vol. 247, February 1990, pp. 534 - 538.

⁶ Ibid.

⁷ United States Department of Health and Human Services, Health Care Financing Administration (HCFA). *Health Care Financing Review*. Washington D.C.: United States Government Printing Office, Summer 1990, p. 24.

⁸ Fuchs, Victor R. "The Health Sector's Share of the Gross National Product." *Science*, Vol. 247, February 1990, p. 534.

⁹ U.S. Department of Health and Human Services, "HHS News," News Release. December 20, 1990, p. 1.

¹⁰ Families USA Foundation, *Emergency! Rising Health Costs in America 1980 - 1990 - 2000*. Washington, D.C., October 1990, p.1.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid, p. 2.

¹⁴ Data problems made it impossible to prepare a comparison of total health care expenditures in California to Gross State Product (GSP). There are no state-level data measuring total health care expenditures similar to the HCFA data on National Health Expenditures. As a result, we could not compute the health care share of Gross State Product in order to compare it with the the national data on the health care share of GNP. (The Commission on State Finance publishes estimates of Real Gross State Product in its Quarterly General Fund Forecast. We were unable to locate any source that publishes state-level data on the health care share of GSP in California.)

**CHAPTER III: WHAT HAS BEEN THE PATTERN OF
EXPENDITURES FOR HEALTH CARE BROKEN DOWN INTO ITS
COMPONENT PARTS?**

A. INTRODUCTION

This chapter presents trends and patterns of health care expenditures at both the national and state levels. This chapter describes the components of health care expenditures and quantifies expenditures on each of these components where possible.

B. NATIONAL TRENDS

The U.S. Department of Health and Human Services, Health Care Financing Administration (HCFA), the Office of National Cost Estimates provides a comprehensive annual estimate of the nation's health expenditures. This estimate draws upon numerous data sources in order to provide a measure of how much is spent on the health of U.S. citizens. Unless otherwise stated, all data presented on national trends in this section were developed or reported by the Office of National Cost Estimates.^{1,2} Furthermore, at the time of this study, HCFA had recently revised its methodology and published figures were available for the 1980-1988 time period only. As a result, throughout the remainder of this report, national data as estimated by HCFA is

presented for 1980 through 1988. However, when other data sources are utilized, 1989 information is reported where available.

HCFA segregates national health expenditures into four major categories: (1) personal health care; (2) program administration and the net cost of private health insurance; (3) government public health activities; and (4) investment in future health care. Exhibit III-1 provides the total amount spent nationally on health care in 1980 and 1988 and for the major categories of services. Total health expenditures increased by 116.8% over this time from \$249.0 billion in 1980 to \$539.9 billion in 1988. This section focuses on the trends in national expenditures in each of the major categories.

Exhibit III-1

NATIONAL HEALTH CARE EXPENDITURES BY
TYPE OF SERVICE IN 1980 AND 1988

	1980		1988		1980-1988
	Expenditures (Billions)	% of Total	Expenditures (Billions)	% of Total	% Change
<i>Personal Health Care</i>					
Hospital Care	102.4	41.1%	211.8	39.2%	106.8%
Physician Services	41.9	16.8%	105.1	19.5%	150.8%
Dental Services	14.4	5.8%	29.4	5.4%	104.2%
Other Professional Services	10.0	4.0%	22.5	4.2%	*
Home Health Care	*	*	4.4	0.8%	*
Drugs and Other Medical Non-Durables	20.1	8.1%	41.9	7.8%	108.5%
Vision Products and Medical Durables	5.0	2.0%	10.8	2.0%	116.0%
Nursing Home Care	20.0	8.0%	43.1	8.0%	115.5%
Other Personal Health Care	4.6	1.8%	9.3	1.7%	102.2%
<i>Program Administration</i>	12.2	4.9%	26.3	4.9%	115.6%
<i>Government Public Health Activities</i>	7.2	2.9%	15.9	2.9%	120.8%
<i>Investment in Future Health Care **</i>					
Research	5.4	2.2%	9.9	1.8%	83.3%
Construction	5.8	2.3%	9.5	1.8%	63.8%
Total	\$249.0	100.0%	\$539.9	100.0%	116.8%

Note: * Home Health Care included in Other Professional Services Category until 1984.

** Detail annual data available for 1980, 1985, 1986, 1987, 1988.

Source: Health Care Financing Administration, Office of National Cost Estimates, "National Health Expenditures, 1988." *Health Care Financing Review*, Vol. II, No. 4 (Summer 1990), pp. 28-30, 52.

Personal Health Care

Personal health care expenditures are measured in terms of the purchase of medical care services and supplies by individuals. In 1988, personal health care comprised 88.6% of all national health expenditures. HCFA defines the specific components of personal health care as: hospital care, physician services, dental services, other professional services, home health care, drugs (including non-durables), durable products, nursing home care and other personal health care. Exhibit III-2 provides estimates of the total amount spent on personal health care and estimates of the associated components for the time period 1980 through 1988. As shown, personal health care expenditures increased by 119% from \$218.4 billion to \$478.3 billion. The following discussion summarizes the trends in the specific components of personal health care over the time period.

Hospital Care

HCFA measures hospital expenditures by total net revenue the hospitals expect to receive including gross patient revenues (charges) less contractual adjustments, bad debts, and charity care; plus government tax appropriations, nonpatient operating revenue (i.e., gift shop, parking, etc.); and non-operating revenues, such as interest income, contributions, and grants.

All hospitals in the United States are included in the estimates. HCFA defines hospital care as services provided by hospitals to both inpatients and outpatients. Specific expenditures include room and board charges, ancillary charges such as operating room fees, physician services billed through the hospital; drugs dispensed during hospitalization; services rendered by hospital-based home health care agencies, and hospital based nursing home care.

Exhibit III-2

**Expenditures for Personal Health Care by Type of Service
1980 through 1988
(In Billions)**

Type of Service	1980	1981	1982	1983	1984	1985	1986	1987	1988
Hospital Care	102.4	119.6	135.9	147.2	157.2	167.9	179.3	193.7	211.8
Physician Services	41.9	48.8	53.8	60.6	67.1	74.0	82.1	93.0	105.1
Dental Services	14.4	17.0	18.4	19.8	21.4	23.3	24.7	27.1	29.4
Other Professional Services*	10.0	11.9	14.0	16.2	18.5	16.6	18.3	20.2	22.5
Home Health Care*	N/A	N/A	N/A	N/A	N/A	3.8	4.0	4.2	4.4
Drugs and Other Medical Non-Durables	20.1	22.3	24.5	27.5	29.8	32.3	35.6	38.6	41.9
Vision Products and Medical Durables	5.0	5.3	5.9	6.3	7.2	8.4	9.5	9.8	10.8
Nursing Home Care	20.0	23.3	26.1	28.9	31.2	34.1	36.7	39.7	43.1
Other Personal Health Care	4.6	5.1	5.6	6.0	6.3	6.8	7.6	8.4	9.3
Total	\$218.4	\$253.3	\$284.2	\$312.5	\$338.7	\$367.2	\$397.8	\$434.7	\$478.3

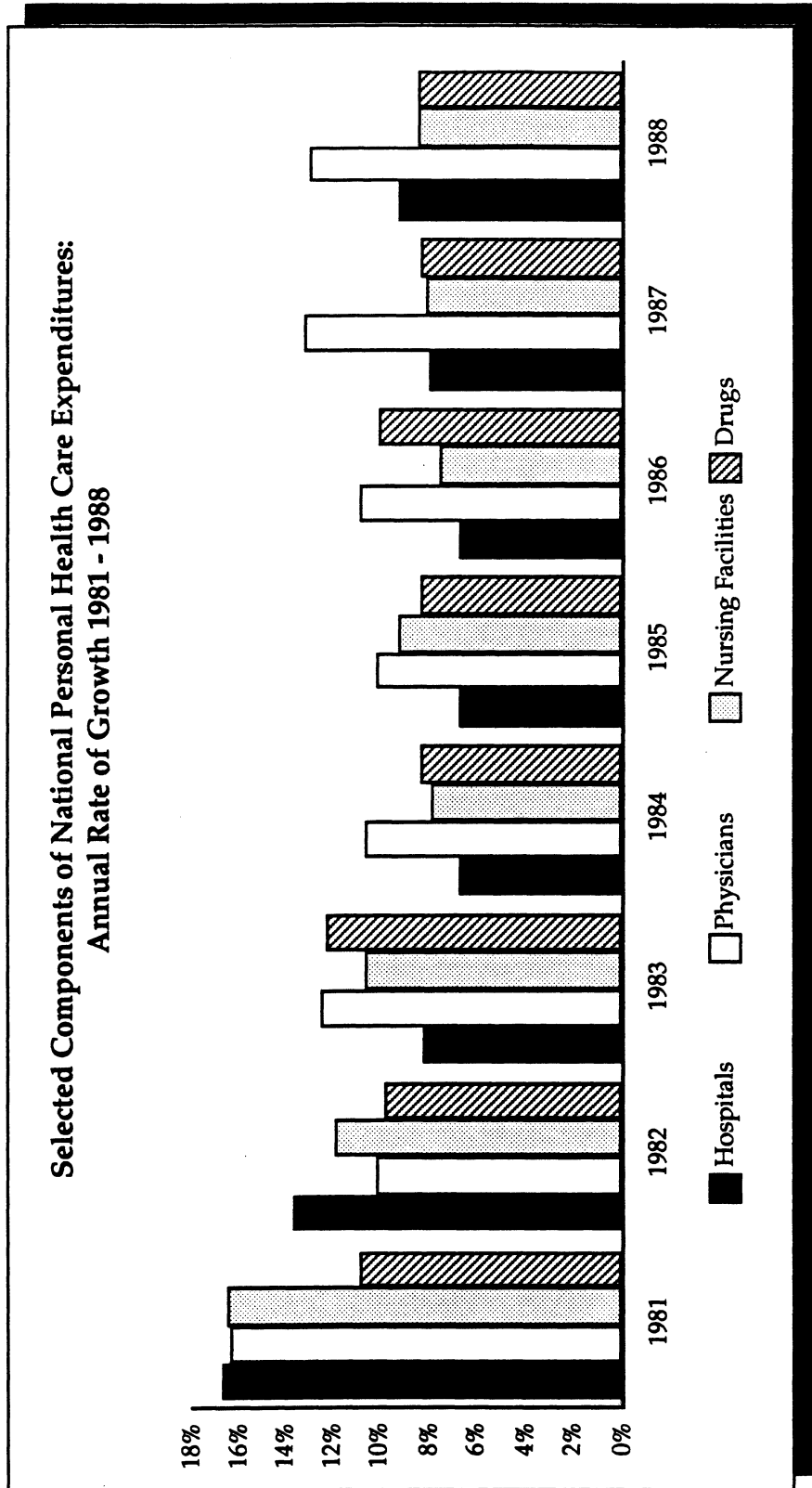
Note: * Home Health Care included in Other Professional Services Category until 1984.

Source: Office of National Cost Estimates, "National Health Expenditures, 1988." *Health Care Financing Review*, Vol. II, No. 4 (Summer 1990), pp. 28-30, 52.

As Exhibit III-1 indicates, in 1980, hospital spending amounted to \$102.4 billion or 41.1% of the total national health expenditures. By 1988, hospital care totaled \$211.8 billion and decreased to 39.2% of the total national health expenditures. Overall, expenditures for hospital care experienced a 106.8% increase over the 1980-88 time period.

Exhibit III-3 illustrates the annual growth rate in hospital expenditures from 1981 through 1988. The rate of growth peaked in 1981 when expenditures increased by 16.8. Then, there was a downward trend until 1984 when the increase in expenditures stabilized at 6.8% for each of the years 1984 through 1986. From 1987, an upward trend occurred as hospital expenditures crept upward to an 8.0% increase in 1987 and a 9.3% increase in 1988.

Exhibit III-3



Source: Health Care Financing Administration, Office of National Cost Estimates, "National Health Expenditures, 1988." *Health Care Financing Review*, Vol. II, No. 4, (Summer 1990) pp. 23-30, 52.

Inpatient Expenditures. HCFA does not collect inpatient-specific data from hospitals nationwide, relying instead on estimates developed by the American Hospital Association (AHA). (Inpatients are persons who receive care in a hospital after being admitted as an inpatient. This is in contrast to outpatients who receive services from a health facility (e.g., emergency room or clinic) and are treated and released the same day without being admitted.) The AHA surveys community hospitals for its *National Hospital Panel Survey*. (Non-Federal, non-community hospitals (e.g., psychiatric hospitals, prison hospitals) and Federal hospitals are excluded from the survey.) Exhibit III-4 provides selected indicators for community hospitals nationwide based on AHA data.

Exhibit III-4

**SELECTED INDICATORS OF COMMUNITY HOSPITALS
IN THE U.S. 1980 AND 1988**

<i>Selected Indicators</i>	<i>1980</i>	<i>1988</i>	<i>Percent Change</i>
<i>Inpatient Statistics</i>			
Number of Beds (In Thousands)	970.5	942.3	-2.9%
Occupancy Rate	75.9	64.5	-15.0%
Total Admissions (In Millions)	37.6	33.5	-10.9%
Age 65 and Older Admissions (In Millions)	10.5	11.1	5.7%
Under Age 65 Admissions (In Millions)	27.0	22.4	-17.0%
All Ages Average Length of Stay (Days)	7.2	6.6	-8.3%
Age 65 or Over Average Length of Stay (Days)	10.4	8.8	-15.4%
Under Age 65 Average Length of Stay (Days)	5.9	5.6	-5.1%
Inpatient Net Revenues (In Millions)*	\$74,530	\$146,729	96.9%
<i>Outpatient Statistics</i>			
Outpatient Visits (In Millions)	217.8	296.1	36.0%
Outpatient Net Revenues (In Millions)*	\$11,071	\$35,600	221.6%

Note: Estimates are based on the American Hospital Association's "National Hospital Panel Survey Reports."

Source: Health Care Financing Administration, Office of National Cost Estimates, "National Health Expenditures 1988." *Health Care Financing Review*, Vol. II, No. 4 (Summer 1990), pp. 7 and 9. Detailed annual data available for all years 1980-1988, except where indicated by (*) data available for 1980 and 1985-88 only.

According to HCFA, it appears Medicare's Prospective Payment System, implemented in October 1983, has impacted hospital occupancy rates and operations. From 1984 on, under the PPS reimbursement systems, hospitals had the incentive to discharge patients more quickly because they were no longer reimbursed for each day of a hospital stay. Instead, reimbursement was based on the average length of stay and resources consumed for the particular diagnosis that precipitated the hospital stay. For instance, as shown in Exhibit III-4, from 1980 to 1988, community hospitals (defined as non-Federal acute care hospitals with an average length of stay of 30 days or less) experienced a decrease in the number of beds (-2.9%), the occupancy rate (-15.0), and the total inpatient admissions (-10.9). However, the number of admissions of those aged 65 and older increased by 5.7%. The average length of stay for all inpatients decreased from 7.2 days in 1980 to 6.6 days in 1988 (-8.3%). The subset of inpatients aged 65 and older stayed in the hospital a shorter period of time in 1988, an average of 8.8 days, a decrease of 15.4% when compared to 10.4 days in 1980. The subset of those under age 65 showed a change in the number of admissions (-17%) and the average length of stay (-5.1%) as well. Over the same time period, inpatient net revenues in community hospitals increased 96.9% from \$74,530 million in 1980 to \$146,729 million in 1988.

Outpatient Expenditures. HCFA also relies on AHA estimates for outpatient data in community hospitals. Exhibit III-4 provides information on outpatient net revenues and visits. The number of outpatient visits in community hospitals increased by 36% from 217.8 million in 1980 to 296.1 million in 1988. In addition, outpatient net revenues increased by 221.6% during the same time period from \$11,071 million to \$35,600 million.

Physician Services

The physician services component of national health expenditures includes physician services received through offices of physicians or osteopathic physicians, spending for independent medical laboratories, and benefits provided by salaried physicians in health maintenance organizations. Over the 1980-1988 time period, expenditures for physician services increased at the highest rate of all the components included in the national health expenditure estimate. Overall, as shown in Exhibit III-1, expenditures in this category increased by 150.8% from \$41.9 billion to \$105.1 billion.

As shown in Exhibit III-1, physician services comprised 16.8% of total national health expenditures in 1980, and the proportion increased to 19.5% in 1988. Exhibit III-3 illustrates the annual growth rate of expenditures for physician services compared with other selected components of personal health care. The physician services category has had double-digit increases for every year of the study period. Most recently, expenditures have experienced a more pronounced upward trend, increasing by 13.3% in 1987 and 13.0% in 1988. One reason for this may be that it appears that physicians are now providing in outpatient settings services which were previously rendered in inpatient settings. For instance, HCFA reports that physician contacts in non-hospital settings increased 10.7% from 1983 to 1987. This growth rate has concerned policy makers and has resulted in physician payment reform legislation. For example, beginning in 1992, Medicare will restructure its reimbursement system to physicians utilizing a fee schedule based on a resource-based relative value scale. It should be noted that in California, Medi-Cal has paid physicians based on a relative value scale since 1976 (see California Code of Regulations, Title 22, Division III, Section 51503).

Dental Services

According to HCFA, the dental component of personal care expenditures comprises services provided by offices of doctors of dental surgery or dental medicine. As Exhibit III-1 illustrates, dental services comprised 5.8% of total national health expenditures in 1980 and decreased slightly to 5.4% of the total in 1988. Overall, the amount spent increased by 104.2% from \$14.4 billion in 1980 to \$22.5 billion in 1988.

Other Professional Services

Other professional services covers spending for services of licensed health practitioners other than physicians and dentists, and expenditures for services rendered in outpatient clinics. It is difficult to analyze the true growth rate in this category as expenditures for home health agencies were included until 1984. Thus, the expenditures shown in Exhibit III-2 include home health agencies until 1984 and then break out the two categories for the years 1985 through 1988.

Of the \$22.5 billion spent in this category in 1988, \$12.2 billion (54%) was spent for care in outpatient clinics, such as, kidney dialysis centers, rehabilitation centers, alcohol treatment centers, and drug treatment centers. HCFA reports this amount increased 12.8% over the 1987 amount. The remainder of the 1988 expenditures, \$10.3 billion (46%), covers services provided by other licensed practitioners, such as chiropractors, optometrists, podiatrists, psychologists, and private duty nurses. This amount increased 10.3% over the 1987 level.

Home Health Care

As noted above, Home Health Care was not listed as a separate category in HCFA's estimates of national health care expenditures until 1985. Home health care involves the provision of skilled nursing or medical care in the home, under supervision of a physician. Since the estimates are based on Medicare data, the home health care expenditure estimate is very sensitive to changes in the Medicare program. Furthermore, the home health care category measures only a portion of home health expenditures and includes medical care provided in the home by Medicare-certified non-facility-based home health agencies or services financed through Medicaid.

Exhibit III-2 provides information on non-facility-based home health care from 1985 through 1988. These estimates indicate that expenditures for this portion of the industry have increased about 5% each year.

In 1988, non-facility based-expenditures amounted to \$4.43 billion. These estimates do not include facility-based home health care; these costs are reported under the category of hospital care and amounted to another \$1.01 billion in 1988. Furthermore, the estimates do not include the broader industry definition of home health care services which includes supportive social services, respite care and adult day care. When these services are taken into account, total expenditures for industry-wide home health care were estimated at \$8.7 billion in 1988.

Drugs and Other Non-Durables

This category includes prescription drugs, over-the-counter medicines, and other nondurable medical sundries. As shown in Exhibit III-1, in 1980, drugs and medical non-durable products

accounted for 8.1% of total national health expenditures and decreased slightly to 7.8% in 1988. Overall, spending increased 108.5% from \$20.1 billion to \$41.9 billion during the same time period. HCFA further estimates that of the amount spent in 1988, \$27.1 billion (65%), was for prescription drugs. The remaining \$14.8 billion was spent on nonprescription drugs and other medical non-durables by consumers as an out-of-pocket expense. Exhibit III-2 illustrates the annual rate of growth for drugs and non-durable products from 1981 through 1988. The rate of growth peaked in 1983 at 12.2% and again in 1986 at 10.2%. For the intervening years from 1984-85 and 1987-88, the rate of growth was about 8.5% each year.

Each year, Eli Lilly and Company surveys independent community pharmacies to obtain pharmacy operating data. It should be noted that Eli Lilly makes no attempt to define or structure the sample; data averages are reported without editorial comment. Exhibit III-5 presents the average prescription charge for all pharmacies reporting data and the subset of pharmacies located in the Pacific region of the United States (including California). The Lilly Digest (1990) suggests that sales and expenses are altered by the cost of living, population diversity, competition, pharmacy manpower, and third-party prescription activity.³ As Exhibit II-5 indicates, prescription charges were consistently higher in the Pacific Region as compared to all pharmacies reporting nationwide over the ten-year period. The Pacific States pharmacies' average prescription charge increased 115.7% from \$9.04 in 1980 to \$19.50 in 1989. However, while the average charge was higher for the Pacific region than the charge reported by all pharmacies, the total percent change (134%) from 1980 to 1989 was higher for all pharmacies which submitted information.

Exhibit III-5

Year	Average Prescription Charges All States	Average Prescription Charges Pacific States (AK, CA, HI, OR, WA)
1980	\$7.85	\$9.04
1981	\$8.80	\$10.30
1982	\$9.91	\$11.25
1983	\$10.89	\$12.50
1984	\$12.00	\$13.43
1985	N/A	N/A
1986	N/A	N/A
1987	\$15.37	\$17.50
1988	\$16.60	\$18.73
1989	\$18.37	\$19.50
1980-89 Percent Change	134.0%	115.7%

Source: Eli Lilly and Company, *Lilly Digest* 1980 - 1984 and 1987 - 1989, (1985 and 1986 data was unavailable).

Vision Products and Durables

HCFA defines this category as the retail purchase or rental of items such as eyeglasses, other durable medical equipment and hearing aids. As shown in Exhibit III-1, the expenditures in this category comprised 2% of national health expenditures both in 1980 and 1988. The overall rate of growth was 116%, increasing from \$5 billion in 1980 to \$10.8 billion in 1988.

Nursing Home Care

This category incorporates inpatient nursing care provided in the following facilities: skilled nursing facilities, intermediate care facilities, nursing facilities operated by the Department of Veteran's Affairs, and intermediate facilities for the mentally

retarded financed through Medicaid. Nursing home care comprised 8% of national health care expenditures in both 1980 and 1988 as shown in Exhibit III-1 and has exhibited an overall growth rate of 115.5%, from \$20 billion in expenditures in 1980 to \$43.1 billion in 1988.

Based on data from the National Center for Health Statistics, HCFA reports that the national nursing home bed supply has grown at an average annual rate of 2.3% from 1971 through 1988 with national occupancy rates hovering at 90%. Furthermore, the population of the elderly aged (aged 85 and over) has grown 4.2% per year over the same time period which has resulted in an annual decline of about 1.9% in beds per 1,000 elderly aged.

Other Personal Health Care

This category includes two components. The first component is industrial in-plant services and includes facilities or supplies provided by employers (either on-site or off-site) for the health care needs of their employees. The second component consists of government expenditures in which the object of expenditure is unknown or not classified elsewhere. This category comprised a small portion of national health expenditures, approximately 1.8% in 1988. Overall, expenditures in this category have increased 102.2%, from \$4.6 billion in 1980 to \$9.3 billion in 1988.

Program Administration

Three components comprise this category as defined by HCFA: the difference between earned premiums and incurred benefits of private health insurers (which may also be thought of as overhead and profit for insurance operations); the administrative expenses of government programs; and the administrative expenses associated with health activities of

philanthropic organizations. As shown in Exhibit III-1, this category amounted to 4.9% of national health expenditures both in 1980 and 1988. Program administration experienced a 115.6% growth rate, increasing from \$12.2 billion in 1980 to \$26.3 billion in 1988.

Government Public Health Activity

Public health activity includes all functions provided by federal, state, and local governments in the prevention and control of clinical health problems. These expenditures accounted for 2.9% of national health expenditures in both 1980 and 1988. The amount increased 120.8% from \$7.2 billion to \$15.9 billion during this time period. This increase is 4% more than the increase of all national expenditures for this same time period. Of the total spent on public health in 1988, the federal government's share was \$1.9 billion. Almost 40% of this went to the Centers for Disease Control for infectious disease prevention including acquired immune deficiency syndrome (AIDS) and AIDS-related conditions. State and local governments spent the remaining \$14 billion on community health services.

Investment in Future Health Care

Investment in future health care includes research conducted by nonprofit or government activities and the construction of hospitals, nursing homes, medical clinics, and medical research facilities. As shown in Exhibit III-1, research activities accounted for 2.2% of national health expenditures in 1980, dipping to 1.8% in 1988. Overall, expenditures for noncommercial research increased 83.3%, from \$5.4 billion in 1980 to \$9.9 billion in 1988. According to HCFA, in 1988 the Federal government accounted for 80% for the amount spent, state and local governments funded 12% and philanthropic organizations financed the remaining 8%. Research conducted by drug and medical supply

companies, which is commercial in nature, is excluded from these estimates. As shown in Exhibit III-6, HCFA estimates that the pharmaceutical industry spent an additional \$5 billion in 1988 on the development of new drugs. Such spending is included in the drug and other medical non-durable category.

Exhibit III-6

**TOTAL MEDICAL RESEARCH EXPENDITURES, INCLUDING
COMMERCIAL RESEARCH BY DRUG COMPANIES:
SELECTED CALENDAR YEARS 1980-88**

Calendar Year	Research Expenditures (Amount in Billions)		
	Total	Noncommercial	Commercial
1980	\$7.0	\$5.4	\$1.5
1985	\$11.0	\$7.8	\$3.2
1986	\$12.3	\$8.5	\$3.7
1987	\$13.3	\$9.0	\$4.3
1988	\$14.9	\$9.9	\$5.0
Percent Change	112.9%	83.3%	233.3%

Note: Numbers may not add to totals because of rounding.

Source: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of National Cost Estimates. "National Health Expenditures, 1988," *Health Care Financing Review*, Volume 11, Number 4, Summer 1990, p. 17

Facility construction accounted for 2.3% of national health expenditures in 1980 and declined to 1.8% in 1988. As shown in Exhibit III-1, this category exhibited the lowest rate of growth, increasing from \$5.8 billion to \$9.9 billion over the same period to exhibit a rate of only 63.8%.

C. CALIFORNIA TRENDS

The project team was unable to identify any comprehensive compilation of data pertaining to state health care expenditures to the level of detail of the national estimates prepared by HCFA. Therefore, we are unable to provide a strictly comparable analysis of national and state health care expenditures over the study period. Detailed data of this nature which compares California trends to other states or to the national average would be extremely useful to policymakers. It is interesting to note that the Omnibus Budget Reconciliation Act of 1987 established the National Uniform Reporting Demonstration Program which requires hospitals in California and Colorado, as of 1989, to report on utilization, charges, costs and payments.⁴

The Office of Statewide Health Planning and Development (OSHPD) collects data from hospitals, long term care facilities, and some clinics and home health agencies. During the course of this study, other state agencies and industry associations were contacted to obtain information on the other components of health care expenditures. The project team found that no comprehensive uniform, California-specific data are available related to physician services, dental services, drugs, vision products, other durable and non-durable products, the costs of program administration; and the investment in future health care in California. However, it should be noted Medi-Cal compiles data on some of these components, but the cost information and utilization data are not generalizable to the entire state's health care expenditures. Therefore, unless otherwise noted, data presented in this section was provided by OSHPD in its annual reports or unpublished data.^{5, 6, 7, 8, 9} The remainder of this chapter presents a discussion of the identifiable patterns of service-specific health care expenditures in California.

Hospital Expenditures

In 1982 and 1983, policy changes occurred at both the state and national levels which affected the reimbursement structure and operating costs of hospitals. For instance, the Medi-Cal program began negotiating daily rates for hospital services replacing the previous reimbursement system which was based on reasonable costs. In addition, statutory changes allowed Medi-Cal and other payers to selectively contract with health care providers. Also, at approximately the same time, the requirements for certificate of need to add institutional beds (hospitals and nursing facilities) were eliminated in California. The objective of these changes was to promote price competition among health care providers. In 1983, the payment system under Medicare was restructured to reimburse inpatient costs based on a patient's diagnosis. All of these measures were designed to provide hospital with incentives to reduce their operating costs. Based on their study which examined hospital costs in California from 1980 to 1985, Melnick and Zwanziger concluded that for that time period, these policy changes dramatically reduced the rate of increase in total hospital costs and revenues and caused a shift from inpatient to outpatient services.¹⁰ Furthermore, representatives from the Office of Statewide Health Planning and Development, which collects financial and operational data from hospital and nursing facilities, and the Public Employees' Retirement System, which coordinates health benefits for state employees, also indicated in interviews that it is their perception this shift appears to be occurring in California.^{11, 12}

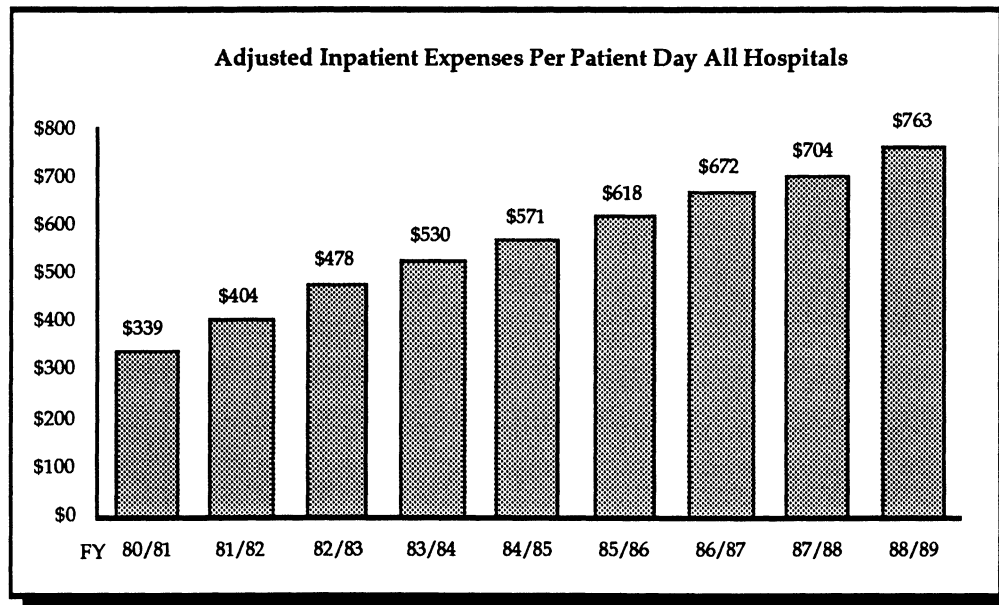
Inpatient Expenditures

OSHPD collects inpatient cost and utilization data from hospitals in California. However, in reporting this information the agency excludes several groups of hospitals due to limited

and/or non-comparable data, such as the state-owned hospitals for the mentally disordered and developmentally disabled, Shriner's hospitals, and prepaid health plan hospitals which receive their revenues through membership fees.

Exhibit III-7 presents the growth in adjusted expenses per patient day for each fiscal year from 1980/81 through 1988/89. OSHPD defines the adjusted inpatient expenses amount as a subset of adjusted operating expenses. Adjusted rather than gross expenses are used to calculate cost per day because the adjusted figure eliminates physician professional services component expense, other operating revenue and overhead allocation to non-operating cost centers. According to OSHPD, elimination of these three items makes the expenses comparable among hospitals. The adjusted expense per patient day increased by 125% from \$339 to \$763 during the time period.

Exhibit III-7



Source: Office of Statewide Health Planning and Development. *Aggregate Hospital Financial Data for California* (Table 3), Fiscal years 1980/81 to 1988/89.

Exhibit III-8 provides selected inpatient utilization data for all hospitals and by type of ownership. From 1980/81 through 1988/89, the change in the number of licensed beds and available beds was negligible. However, occupancy rates declined by 9.2% and 8.0% respectively. The average length of stay decreased from 7 days to 6.7 days and the total number of discharges decreased by 5.8%. OSHPD segregates hospitals by type of control or ownership. OSHPD defines the four types of legal ownership (type of control) for California hospitals including: county/city; district; investor-owned; and non-profit. Exhibit III-9 presents the adjusted expenses per patient day, by type of ownership, during the period 1980/81 through 1988/89 and Exhibit III-10 presents percentage change each year.

County/city hospitals per patient per day expenses have increased by 116.4% over the study period from \$304 to \$658. In 1984/85, the rate of growth dipped to its lowest point of 2%. However, between 1985/86 and 1986/87, county/city hospitals experienced a 22 percent jump in per patient per day costs, as compared to between 6-7% increases in the other three type of control categories. As shown in Exhibit III-8, county/city hospitals experienced significant declines in the number of licensed (-27.5%) and available (-24.2%) beds while the occupancy rates increased by 13.8% and 9% respectively. The occupancy rates for this group of hospitals stood at 75% of available beds in 1989/89. Also, the average length of stay in county/city hospitals decreased from 8.6 days to 7.2 days.

District hospitals have experienced a relatively steady rate of increase in per patient per day costs over the 1980/81-1988/89 time period. Between 1980/81 and 1983/84, annual increases ranged from 15 to 20%. However from 1984/85 forward, the annual rate of increase slowed to 10% or less. The per patient

CALIFORNIA HOSPITAL INDICATORS

	County/City Hospitals			District Hospitals			Investor-Owned Hospitals			Non-Profit Hospitals			All Hospitals		
	1980/81	1988/89	Percent Change	1980/81	1988/89	Percent Change	1980/81	1988/89	Percent Change	1980/81	1988/89	Percent Change	1980/81	1988/89	Percent Change
Inpatient Statistics															
Licensed Beds	13,934	10,108	-27.5%	7,257	6,900	-4.9%	20,901	21,856	4.6%	49,135	53,232	8.3%	91,227	92,097	1.0%
Occupancy Rate (Licensed)	53.5	60.9	13.8%	62.8	58.2	-7.3%	54.4	46.3	-14.9%	66.9	58.8	-12.1%	61.7	56	-9.2%
Available Beds	10,787	8,178	-24.2%	6,839	6,447	-5.7%	20,167	21,087	4.6%	45,890	47,614	3.8%	83,683	83,326	-0.4%
Occupancy Rate (Available)	69.1	75.3	9.0%	66.7	62.3	-6.6%	56.5	48.0	-15.0%	71.6	65.8	-8.1%	67.4	62	-8.0%
Average Length of Stay	8.6	7.2	-16.3%	6.1	5.9	-3.3%	6.8	6.9	1.5%	6.9	6.7	-2.9%	7	6.7	-4.3%
Number of Discharges	315,675	315,191	-0.2%	274,773	247,994	-9.7%	577,602	516,707	-10.5%	1,728,304	1,648,917	-4.6%	2,896,354	2,728,809	-5.8%
Adjusted Inpatient Expenses (Millions)	829,396	\$1,483	78.8%	\$486	\$1,037	113.2%	\$1,357	\$2,664	96.3%	\$4,190	\$8,765	109.2%	\$6,863	\$13,949	103.2%
Outpatient Statistics															
Total Visits (Millions)	4.7	4.2	-10.0%	1.7	2.3	31.4%	2.5	3.2	28.9%	12.2	16.3	34.1%	21.1	26.0	23.4%
Adjusted Outpatient Expenses (Millions)	\$387	\$570	47.1%	\$93	\$281	203.5%	\$166	\$552	232.1%	\$727	\$2,141	194.3%	\$1,373	\$3,543	158.0%

Note:

- 1.) Outpatient statistics pertain only to outpatient activities conducted by and reported by hospitals filling with OSHPD.
- 2.) Adjusted inpatient expenses - all expenses of operating a hospital less physicians professional expense, other operating revenue and overhead allocation to non-operating cost centers. Elimination of these three items makes expenses comparable among hospitals. (OSHPD Glossary of Terms)
- 3.) Adjusted outpatient expenses - a proportion of each ancillary service's adjusted expense (see above) based on the ratio of each ancillary service's outpatient revenue to that ancillary service's total patient revenue. (OSHPD Glossary of Terms)

Source: Office of Statewide Health Planning and Development, *Aggregate Hospital Financial Data* (Table 2 and 3), fiscal years 1980/81 to 1988/1989.

Exhibit III-9

**Adjusted Inpatient Expenses Per Patient Day
By Type of Hospital, FY 1980/81 – 1988/89**

Fiscal Year	County/City Hospitals	District Hospitals	Investor-Owned Hospitals	Non-Profit Hospitals	All
1980/81	\$304	\$292	\$343	\$353	\$339
1981/82	\$366	\$346	\$409	\$419	\$404
1982/83	\$411	\$414	\$478	\$501	\$478
1983/84	\$452	\$476	\$527	\$556	\$530
1984/85	\$461	\$522	\$565	\$604	\$571
1985/86	\$489	\$575	\$601	\$659	\$618
1986/87	\$596	\$615	\$635	\$706	\$672
1987/88	\$608	\$653	\$675	\$740	\$704
1988/89	\$658	\$707	\$742	\$799	\$763
% Change 1980-89	116.4%	142.0%	116.3%	126.3%	125.1%

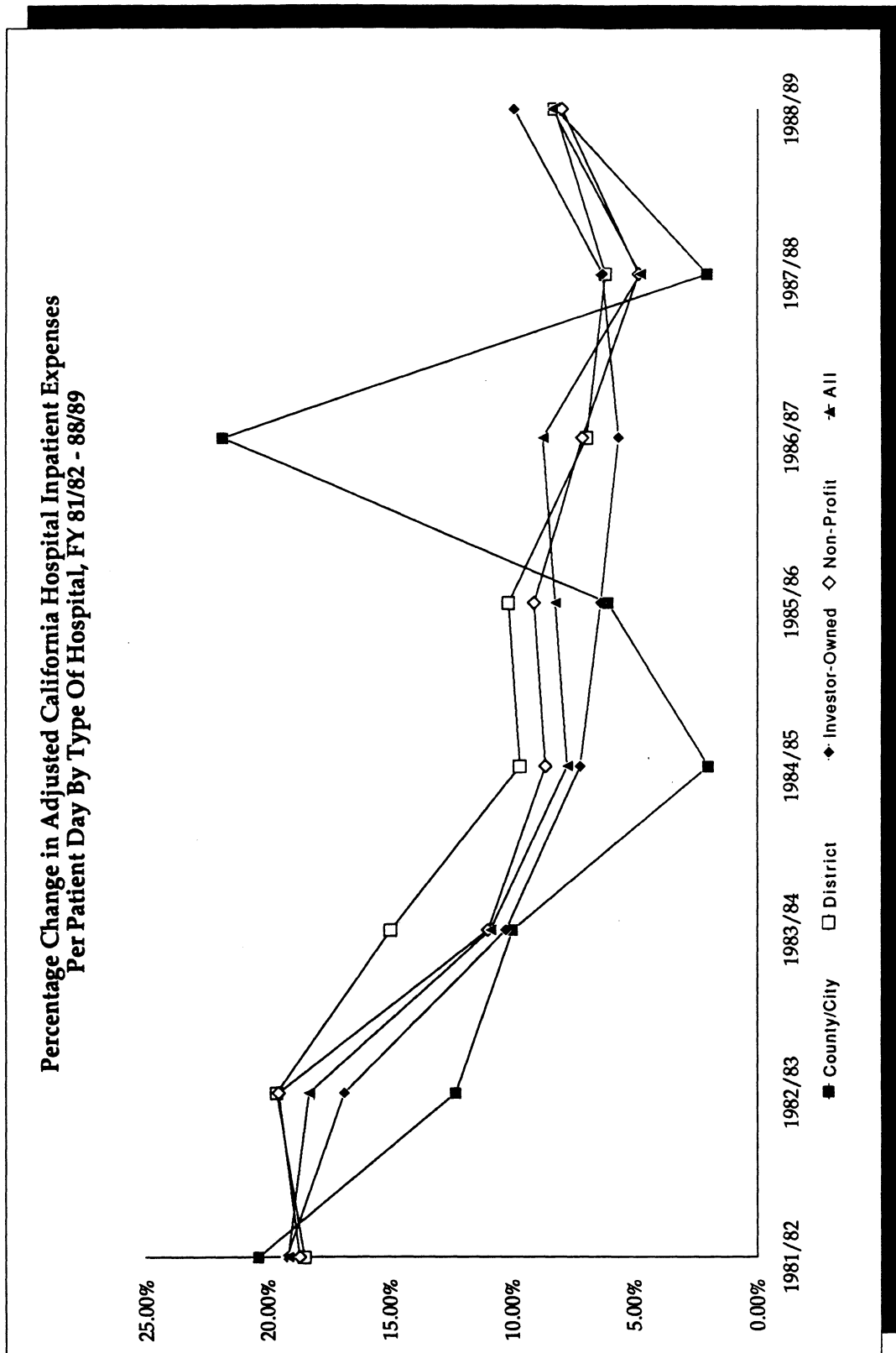
Source: Office of Statewide Health Planning and Development, *Aggregate Hospital Financial Data* (Table 3), Fiscal Years 1980/81 to 1988/89.

day cost for this category of hospital increased by 142% over the study period from \$292 to \$707 per day, which was a higher rate of increase than for any other category.

Exhibit III-8 indicates that the number of licensed and available beds decreased as did the occupancy rates, down to 62.3% of available beds in 1988/89. The average length of stay decreased from 6.1 days to 5.9.

Investor-Owned Hospitals showed an increase in per patient per day expenses, between 1980/81 and 1981/82, by 19 percent; these costs increased by 17% in the following year. For all subsequent study years, annual per patient per day expense increases were 10 percent or less. The per patient per day cost for this category of hospital increased by 116.3% over the study period from \$343 to \$742, which was a lower rate of increase than for district hospitals and non-profit hospitals, but comparable to the increase for county/city hospitals. As seen in Exhibit III-8, over the 1980/81-1988/89 time period, the number of licensed and

Exhibit III-10



available beds increased by 4.6%. However occupancy rates decreased by 15%, to only 48% of available beds in 1988/89. The average length of stay increased from 6.8 days to 6.9 days.

Non-profit hospitals experienced per patient per day expense increases during the study period at rates similar to the other three categories. During the first two years of the study period, this expense increased at about 19% annually. Between 1982/83 and 1983/84, the rate of increase slowed to 11%, and has hovered between 5% and 9% for all subsequent study years. It should be noted, however, that the actual expense per patient per day is higher for this category of hospital than for any of the other three categories. The per patient per day expense for this category of hospital increased by 126.3% over the study period from \$353 to \$799. As shown in Exhibit III-8, licensed beds increased by 8.3% and available beds increased by 3.8%. However, the occupancy rates decreased, down to 65.8% in 1988/89. The average length of stay decreased from 6.9 days to 6.7 days.

OSPHD excludes *prepaid health hospitals* from its aggregation of data because the information is not comparable to reports filed by the majority of hospitals. However, Kaiser Foundation Health Plan, Inc. supplied utilization data on its hospitals in which revenue is received through membership fees. As shown in Exhibit III-11, the number of doctor office visits increased from 3,254 per 1000 members in 1980 to 3,499 per 1000 members in 1989. Furthermore, the average length of stay decreased somewhat from 5.4 days in 1980 to 5.0 days in 1989.¹³

Exhibit III-11

**Kaiser-Permanente Medical Care Program
Doctor Office Visits, Hospital Days, and Discharges**

	(Figures are per 1000 members)										Compound Growth Rate
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	
Doctor Office Visits	3,254	3,188	3,262	3,312	3,291	3,352	3,496	3,565	3,559	3,499	0.81%
Hospital Days	379	389	392	401	397	381	387	389	383	382	0.10%
Discharges	70	72	73	75	75	74	78	78	76	77	1.07%
Average Length of Stay	5.4	5.4	5.4	5.4	5.3	5.1	5.0	5.0	5.1	5.0	-0.85%

Source: Kaiser-Permanente Foundation Health Plan Inc., Unpublished data.
(Northern and Southern California regions combined.)

Outpatient Expenditures

OSHPD also maintains data on hospital outpatient utilization and expenses. OSHPD defines outpatient services as ancillary services which are diagnostic or therapeutic in nature and performed by specific departments as distinguished from general or routine inpatient care. Outpatient visits include visits to the emergency room, outpatient clinic visits, referred ancillary service visits, home health contacts, and day care days where the outpatient is treated and released the same day. As shown in Exhibit III-8, all hospital outpatient visits increased by 23.4% from 21.1 million visits in 1980/81 to 26 million visits in 1988/89. While the number of visits to county/city hospitals actually decreased by 10%, the number of visits in district (31.4%), investor-owned (28.9%), and non-profit (34.1%) hospitals increased.

Along with increased utilization, adjusted outpatient expenses per visit increased as well. OSHPD bases adjusted outpatient expenses on the ratio of each ancillary service's outpatient revenue to that ancillary service's total patient revenue. Exhibit III-12 presents adjusted outpatient expenses per visit percentage change per year. For all hospitals, adjusted outpatient expenses per visit increased overall by 109% from fiscal year 1980/81 to 1988/89. However, when outpatient expenses are examined by type of ownership, there is a large difference in the rate of change

Insert Exhibit 12

**CALIFORNIA HOSPITALS ADJUSTED OUTPATIENT EXPENSES PER VISIT
BY TYPE OF HOSPITAL**

Year	County/City Expenses Per Visit	% Change	District Expenses Per Visit	% Change	Investor-Owned Expenses Per Visit	% Change	Non-Profit Expenses Per Visit	% Change	All Expenses Per Visit	% Change
1980 - 81	\$82.57	-	\$53.09	-	\$67.30	-	\$59.68	-	\$65.12	-
1981 - 82	\$93.03	12.67%	\$51.47	-3.06%	\$86.20	28.08%	\$68.08	14.08%	\$73.18	12.38%
1982 - 83	\$92.90	-0.15%	\$65.83	27.92%	\$95.18	10.43%	\$75.25	10.53%	\$79.45	8.58%
1983 - 84	\$94.90	2.16%	\$84.63	28.54%	\$113.63	19.37%	\$89.95	19.54%	\$93.03	17.09%
1984 - 85	\$101.67	7.13%	\$90.50	6.94%	\$117.73	3.61%	\$99.51	10.63%	\$101.44	9.04%
1985 - 86	\$110.13	8.32%	\$105.76	16.86%	\$135.04	14.70%	\$107.85	8.38%	\$111.67	10.08%
1986 - 87	\$110.62	0.45%	\$105.51	-0.23%	\$155.70	15.30%	\$116.51	8.02%	\$119.31	6.85%
1987 - 88	\$119.74	8.24%	\$116.83	10.73%	\$166.09	6.67%	\$125.12	7.39%	\$128.42	7.63%
1988 - 89	\$134.97	12.73%	\$122.97	5.25%	\$173.24	4.31%	\$130.98	4.69%	\$136.10	5.98%
Overall Increase	-	63.5%	-	131.6%	-	157.4%	-	119.5%	-	109.00%

Source: Office of Statewide Health Planning and Development, Aggregate Hospital Financial Data (Table 3), Fiscal Years 1980/81 to 1988/89.

experienced. For example, expenses per visit for county/city hospitals only increased 63.5%, from \$82.57 in 1980/81 to 134.97 in 1988/89. District hospitals outpatient expenses per visit increased 131.6%, and non-profits showed a 119.5% change. Investor-owned hospitals experienced the largest increase of 157.4%, from \$67.30 to \$173.24.

The increase in costs for all types of hospitals may be a reflection of more complicated procedures being performed on an outpatient basis.¹⁴ For instance, Exhibit III-13 shows that outpatient surgeries performed in hospitals increased from 19.9% of the total hospital surgeries in 1981 to 46.3% of the total surgeries performed in 1989.

Exhibit III-13

**California Community Hospitals' Outpatient
Surgeries and Total Surgeries 1981 - 1989
(In Thousands)**

Year	Outpatient Surgeries	Total Surgeries	Outpatient Surgeries as a Percentage of All Surgeries
1981	347	1747	19.9 %
1982	390	1748	22.3 %
1983	443	1723	25.7 %
1984	544	1773	30.7 %
1985	700	1838	38.1 %
1986	765	1842	41.5 %
1987	815	1876	43.5 %
1988	826	1856	44.5 %
1989	859	1857	46.3 %

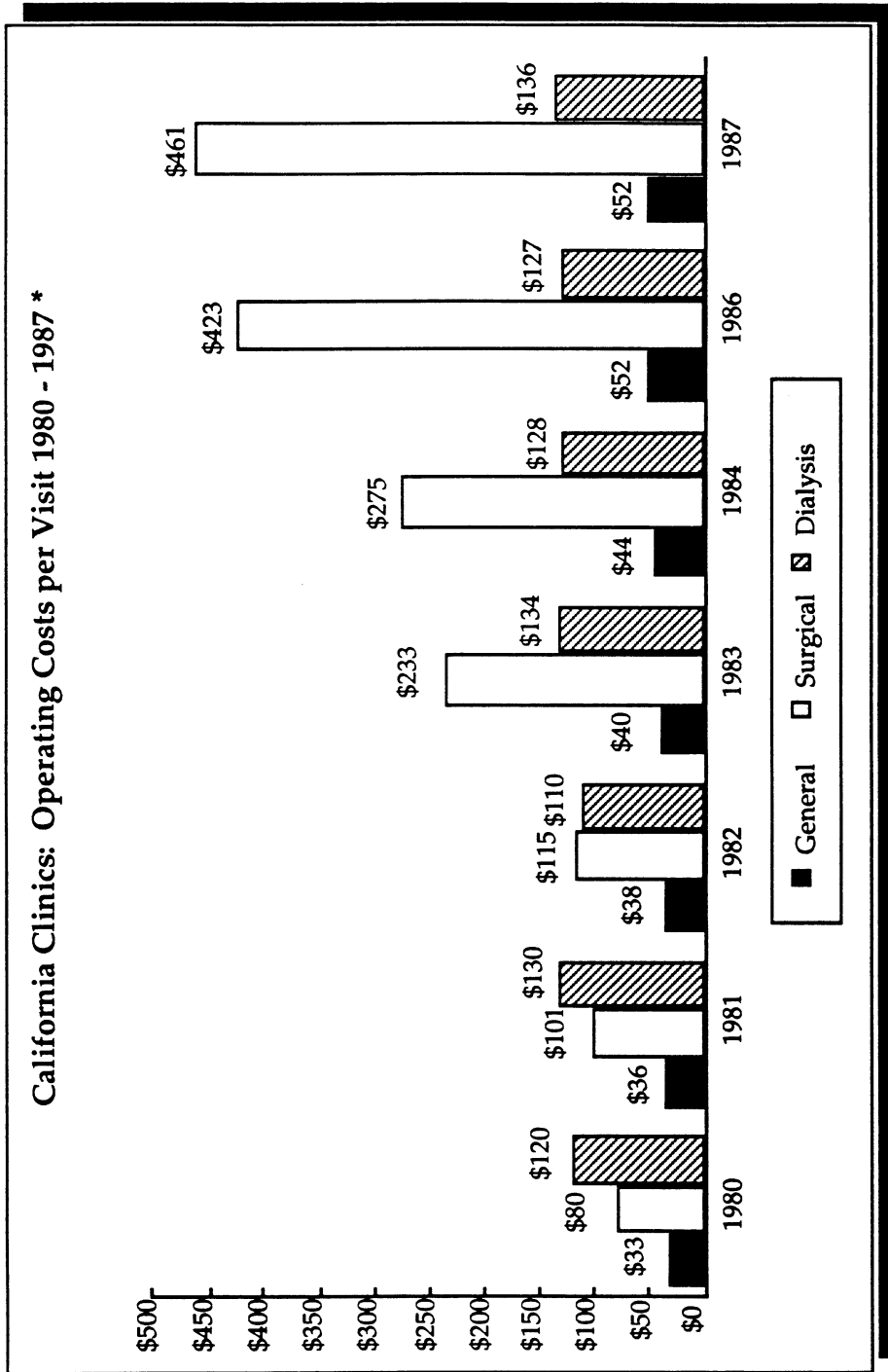
Source: Office of Statewide Health Planning and Development, *Licensed Services and Utilization Profiles, Annual Report of Hospitals, 1987 and 1989.*

Clinics

OSHPD provided data on non-hospital based clinics licensed by the Department of Health Services. Not included in the following data are those clinics which were exempt from licensure at the time of reporting, such as county-owned, physician group practice, Indian-operated clinics, general clinics, surgical clinics, and dialysis clinics. Exhibit III-14 provides the operating costs per visit for three types of clinics. General clinics include community, free, psychology and rehabilitation clinics. The operating costs for these types of clinics increased 58%, from \$33 per visit in 1980 to \$52 per visit in 1987.

The reader should be cautioned in interpreting the surgical and dialysis clinic data. For surgical clinics, only 15 clinics reported information in 1980, and 37 clinics reported in 1987. Furthermore, early in the reporting years, one clinic skewed the results by reporting a large number of nonsurgical visits and operating costs not related to surgery. The most useful information is in the last two years of available data. Operating costs per visit increased 8.9%, from \$423 per visit in 1986 to \$461 in 1987. For dialysis clinics, operating costs per visit increased 13%, from \$120 per visit in 1980 to \$136 per visit in 1987. However, according to OSHPD the data reported in 1984 may be inaccurate as a chain of six clinics overestimated the number of patients seen that year.

Exhibit III-14



*Note: Data for 1985, 1988 were unavailable

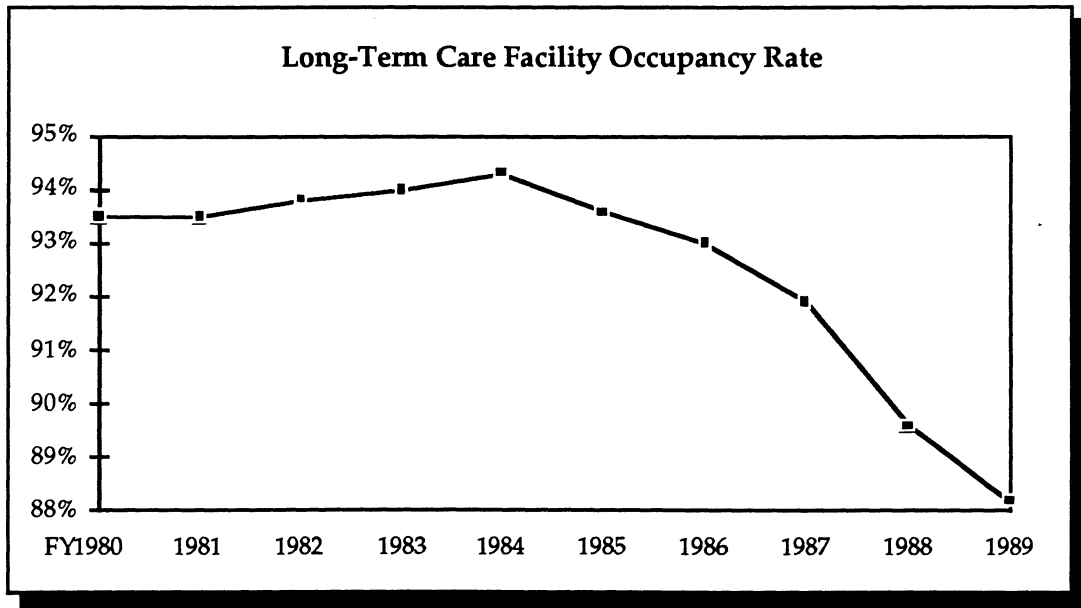
Source: Office of Statewide Health Planning and Development, Annual Report of Clinics, 1984, and Unpublished Data.

Long-Term Care Expenditures

Long-Term Care Facilities

In California, OSPHD collects utilization and cost data on skilled nursing and intermediate care facilities which are called long term care facilities under the Health Data and Advisory Council Consolidation Act. Types of care provided include skilled nursing, intermediate care, care for the mentally disordered and developmentally disabled, subacute care, and residential care. Over the period 1980 through 1989, the occupancy rate (defined as the number of patient days divided by the number of licensed bed days) has declined. As shown in Exhibit III-15, through 1980-1981 the occupancy rate was 93.5% and rose to 94.3% in 1984. Since that time the rate has steadily declined to 88.2% in 1989. This reflects the increase of 9.3% in the number of licensed beds from 106,345 in 1980 to 116,252 in 1989. During the same time period the number of patient days increased by only 2.5%.

Exhibit III-15



Source: Office of Statewide Health Planning and Development, *Annual Report of Long-Term Care Facilities* (Table 1), 1989.

Of the 1,231 facilities reporting data to OSPHD in 1989, 1,020 (83%) were investor-owned, 197 (16%) were non-profit and the remaining 14 (1%) government owned or de-licensed. OSHPD reports that of the total direct expenses reported in 1989, 45.6% was for salaries and wages, 13% for employee benefits and 41.4% for other expenses such as supplies, purchased services, depreciation and amortization, leases and rentals, and interest.

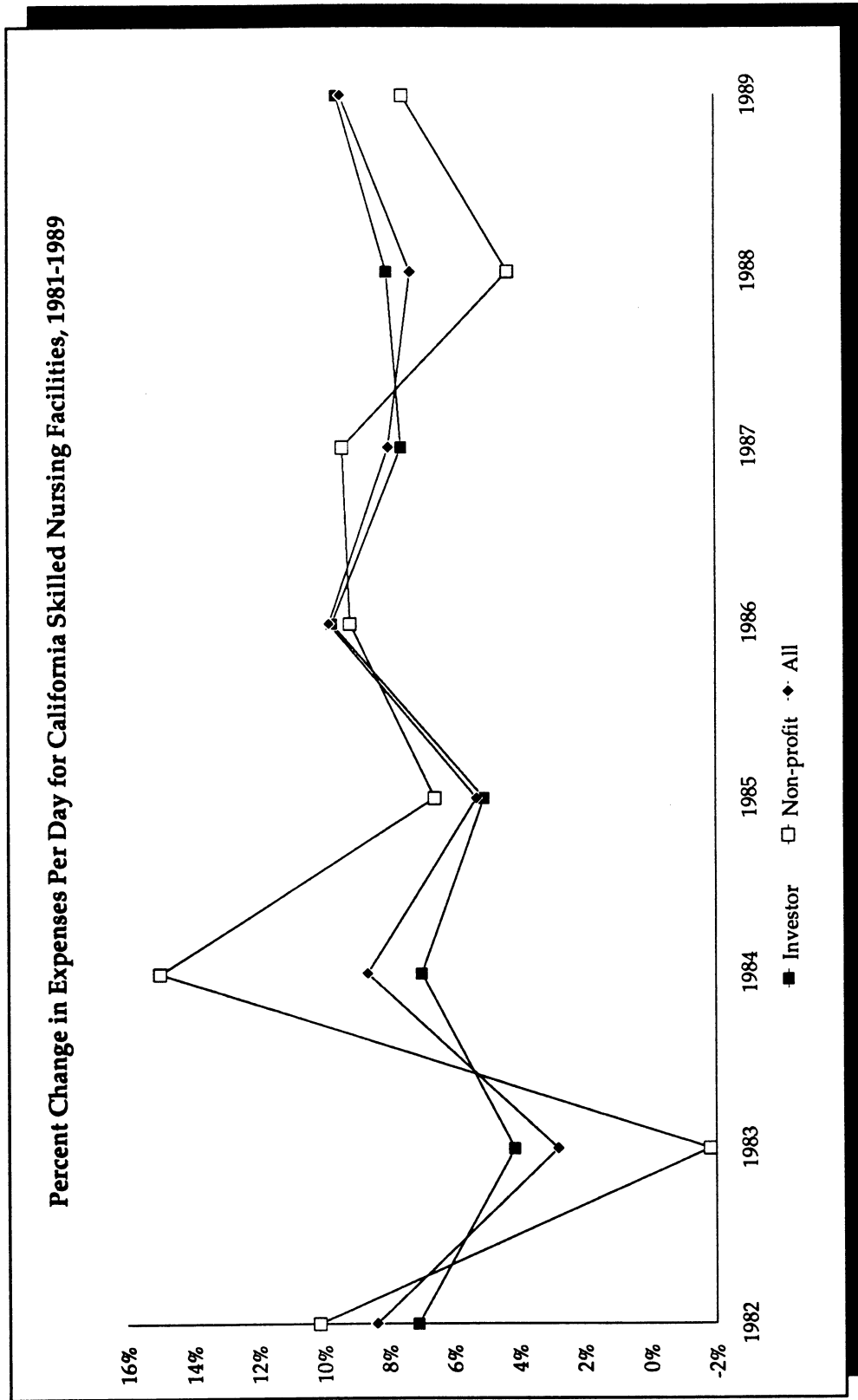
Skilled nursing facilities comprised 93% of the total number of long-term care facilities. Exhibit III-16 presents data on the direct and indirect expenses per day for all skilled nursing facilities and the subsets of investor-owned and non-profit facilities. OSHPD defines direct expenses as directly related to nursing services. Indirect expenses include overhead expenses allocated to each nursing services cost center, e.g., for administration, housekeeping, laundry and linen, and dietary. Overall, nursing facilities' expenses per day increased 77.4%, from \$35.48 per day in calendar year 1981 to \$62.94 per day in calendar year 1989. The trend in the subset of investor-owned facilities closely parallels all facilities because the subset comprises the majority. Expenses per day for these types of facilities increased 75.1%, from \$34.81 per day in 1981 to \$60.95 in 1989. Non-profit facilities had higher expenses per day and experienced an overall increase of 77.4%, from \$42.76 to \$75.87 per day. As shown in Exhibit III-17, it should be noted that non-profit facilities experienced a decrease in expenses in 1983 but had an almost 15% increase the next year.

**Skilled Nursing Facilities In California
Direct and Indirect Expenses Per Day**

Reporting Period	Investor Owned	Percent Change	Not For Profit	Percent Change	All	Percent Change
12/31/80 - 12/30/81	\$34.81	--	\$42.76	--	\$35.48	--
12/31/81 - 12/30/82	\$37.28	7.10%	\$47.09	10.13%	\$38.45	8.37%
12/31/82 - 12/30/83	\$38.82	4.13%	\$46.23	-1.83%	\$39.53	2.81%
12/31/83 - 12/30/84	\$41.53	6.98%	\$53.16	14.99%	\$42.94	8.63%
12/31/84 - 12/30/85	\$43.63	5.06%	\$56.65	6.57%	\$45.21	5.29%
12/31/85 - 12/30/86	\$47.87	9.72%	\$61.83	9.14%	\$49.64	9.80%
12/31/86 - 12/30/87	\$51.50	7.58%	\$67.63	9.38%	\$53.60	7.98%
12/31/87 - 12/30/88	\$55.63	8.02%	\$70.55	4.32%	\$57.51	7.29%
12/31/88 - 12/31/89	\$60.95	9.56%	\$75.87	7.54%	\$62.94	9.44%

Source: Office of Statewide Health Planning and Development, *Aggregate Long-Term Care Facility Financial Data* (Table 4), repeating periods ending 1981 through 1989.

Exhibit III-17



Home Health Care

OSHPD collects utilization information on home health agencies licensed in the state. Home health care is defined as "providing skilled nursing and other therapeutic services on a part time or intermittent basis in the residence of a home-bound patient under a written plan of treatment." As of 1988, nurse registries were not required to be licensed nor were organizations providing services falling outside the scope of licensure. However, state law changed licensure requirements and beginning in 1990 all organizations providing nursing care in the home must be licensed and thus submit an annual report to OSHPD.

Home health agencies are not required to report expense or revenue data, although utilization information is maintained. The number of licensed agencies in the state reporting visits increased 65%, from 232 agencies in 1980 to 382 in 1989. Furthermore, the number of home health visits increased 87%, from 2.3 million to 4.3 million. In 1989, agencies reported an average of 13.1 visits per patient.

State Public Health Activities

Exhibit III-18 indicates the amount of state government expenditures on public health activities in this state. For purposes of this analysis, to provide consistency with the HCFA definition of public health as described in Section B, the project team excluded those activities related to environmental functions. Only those activities which lead to the prevention and control of clinical health problems in the population are included in the exhibit.

Overall public health spending increased 62%, from \$188 million in fiscal year 1985/86 to \$305 million in 1988/89. Those programs which incurred the largest increase include AIDS-related public health activities and Primary Health Care Services. Expenditures on AIDS public health functions increased 664%, from \$7.6 million in 1985/86 to \$58.2 million in 1988/89. Primary Health Care Services includes assistance to clinics to provide public health services to persons living in rural areas. Funding to this program increased 116% from \$12.8 million in 1985/86 to \$27.6 million in 1988/89.

Other Components of California Health Care Expenditures

OSHPD is the only entity that collects and maintains uniform and comprehensive California specific health care cost and utilization information. However, this information is limited to hospitals, long term care facilities, some clinics and home health agencies. The project team contacted numerous state agencies and industry associations and found that no organization (public or private) maintains any uniform and/or long term collection effort on the following types of services or products:

- Physician Services
- Dental Services
- Drugs and Other Non-Durables
- Vision and Other Durable Products
- Program Administration
- Investment in Future Health Care

Exhibit III-18

STATE PUBLIC HEALTH EXPENDITURES IN CALIFORNIA

	FY 1985/86 (\$ in 000s)	FY1988/89 (\$ in 000s)	Percent Change 1985 to 1988
Infectious Diseases	\$7,681	\$14,605	90%
• Disease Control			
• Sexually Transmitted Diseases			
Chronic Diseases	\$8,947	\$16,633	86%
• Health Promotion			
• Special Projects			
• Adult Health			
• Dental Disease and Prevention			
• Chronic Disease Epidemiology			
• Cancer Surveillance			
AIDS	\$7,621	\$58,233	664%
Family Planning	\$35,619	\$36,814	3%
• Contraception Education			
• Sterilization Education			
• Infertility Education			
(No money is spent on abortions.)			
Maternal Child Health	\$35,208	\$33,052	-6%
• Perinatal Services			
• Administration of Women, Infants, and Children Supplemental Food Program			
California Children's Services	\$54,385	\$79,263	46%
• Regional Operations			
• Medical Policy and Standards			
• Genetically Handicapped Persons Program			
Child Health and Disability Prevention	\$16,585	\$23,691	43%
• State Administrative			
• Locally Provided Direct Activities			
• Early Periodic Screening Diagnosis and Treatment Program			
Genetic Disease	\$9,343	\$15,615	67%
• Newborn Screening			
• Prenatal Genetic Services			
• Carrier Screening for Tay Sachs			
Primary Health Care Services	\$12,794	\$27,578	116%
• Technical and Financial Assistance to Rural Health Medical Service Providers			
TOTAL	\$188,183	\$305,484	62%

Source: State of California, *Governor's Budget*, Fiscal Years 1987/88 and 1990/91.

Three bills have been introduced in the current legislative session which, if passed, would impact the reporting requirements or information collected on health care costs in this state. The following summarizes the major components contained in each of the three proposed pieces of legislation:

- *AB 502 (Margolin)* Would require the Insurance Commissioner to study the extent of private health insurance or health coverage purchased by employers, employees, and individuals, and report to the Legislature by July 1, 1992.
- *AB 755 (Hansen)* Would require ambulatory service facilities, physicians and surgeons to report specific patient discharge data to the Office of Statewide Health Planning and Development.
- *SB 1048 (Torres)* Would require ambulatory surgery sites, carriers, and professional health care service providers to file certain information with the Office of Statewide Health Planning and Development.

D. SUMMARY

In this chapter, data have been presented pertaining to the patterns of health expenditures at both the national and state level. Key findings from our analysis include the following:

- The Health Care Financing Administration draws upon numerous data sources to prepare annual detailed estimates of national health care expenditures. HCFA's estimates indicate that national health care expenditures grew 116.8% between 1980 and 1988.

- Based on HCFA's estimates, hospital care comprises approximately 40% of national health expenditures and has experienced an increase of 106.8% over the 1980-88 time period. Survey data from the American Hospital Association indicate community hospital inpatient net revenues increased 96.9% while outpatient net revenues increased by 221.6%. At the same time, inpatient occupancy rates, total admissions, and average lengths of stay decreased while the number of hospital outpatient visits increased.
- At the national level, physician services (which also includes independent medical laboratories), increased at the highest rate (150.8%) of all the components included in the HCFA estimates. While only comprising 3% of total health expenditures, public health activities experienced the second highest rate of growth at 120.8%.
- In California, no entity collects data or develops estimates of statewide health care expenditures to the level of detail of the Health Care Financing Administration. However, the Office of Statewide Health Planning and Development does collect and report detailed data on hospitals and long term care facilities; and it collects some limited information on clinics and home health agencies.
- For hospitals in California, adjusted inpatient expenses per patient day increased by 125% from fiscal year 1980/81 through 1988/89, while adjusted outpatient expenses per visit increased by 109%.
- Skilled nursing facilities in California experienced a 77.4% increase in expenses per day.

- Public health expenditures increased 62% from fiscal year 1985/86 to 1988/89. Those activities related to AIDS showed the largest increase of 664%.
- California specific data are unavailable to report on the following type of expenditures: physician services, dental services, drugs, vision products, other durable and non-durable products, program administration, and investment in future health care.

The next chapter will discuss the trends in the funding of health care expenditures. It will describe the major payers for health care at both the national and state level.

ENDNOTES

SECTION III

¹ United States Department of Health and Human Services, Health Care Financing Administration, Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Volume 11, No. 4 (Summer 1990), pp. 1-41.

² United States Department of Health and Human Services, Health Care Financing Administration, Office of National Cost Estimates, "Revision to the National Health Accounts and Methodology," *Health Care Financing Review*, Volume 11, No. 4 (Summer 1990), pp. 42-53.

³ Eli Lilly and Company. *Lilly Digest*. Indianapolis, Indiana, 1990.

⁴ California Association of Hospitals and Health Systems, *1989 Hospital Fact Book*, 14th edition, December 1989, p. 23.

⁵ Office of Statewide Health Planning and Development, *Aggregate Hospital Financial Data for California*, reporting periods fiscal year 1980/81 through 1988/89.

⁶ Office of Statewide Health Planning and Development, *Annual Report of Hospitals*, 1987 and 1989.

⁷ Office of Statewide Health Planning and Development, *1984 Annual Report of Clinics* and unpublished data.

⁸ Office of Statewide Health Planning and Development, *Aggregate Long-Term Care Facility Financial Data*, reporting periods 1979/80 through 1988/89.

⁹ Office of Statewide Health Planning and Development, *Annual Report of Skilled Nursing/Intermediate Care Facilities*, 1989.

¹⁰ Glenn A. Melnick and Jack Zwanziger, "Hospital Behavior Under Competition and Cost-Containment Policies: The California Experience, 1980 to 1985." *Journal of the American Medical Association*, V260, No. 18, November 11, 1988, pp. 2669-2675.

¹¹ Greg Roth, Office of Statewide Health Planning and Development, personal interview, January 24, 1991.

¹² Dan Schroepfer, Public Employees' Retirement System, personal interview, January 24, 1991.

¹³ Kaiser Permanente Foundation Health Plan, Inc., letter to Price Waterhouse, March 12, 1991.

¹⁴ Office of Statewide Health Planning and Development, *California State Health Plan*, 1989, p. 4.

**CHAPTER IV: WHAT HAS BEEN THE PATTERN OF FUNDING FOR
HEALTH CARE EXPENDITURES BROKEN DOWN BY MAJOR
PAYER?**

A. INTRODUCTION

Health care expenditure trends and patterns are most often presented in terms of the amounts spent on direct services rendered to patients, in total and by service type. However, patterns of health care service provision are influenced in large part by the manner in which each service is reimbursed. Who pays for which services has a major impact on the conditions under which a service is provided as well as how frequently it is provided. Thus, in order to develop a clear picture of the trends in health care spending, it is important to understand who the major payers are and in what ways their patterns of funding have changed over the course of the study period.

This chapter will describe the major payers for health care services in the United States. It will then present national and California payment trends by source of payment for the study period.

B. DESCRIPTION OF MAJOR PAYERS

The major payers of health care services in the United States fall into three major categories — public programs, insurance and other private sources, and patient out-of-pocket payments.

Public programs, as they will be discussed in this chapter, include:

- *Medicaid (Medi-Cal)* — Medicaid is a federally supported and state-administered program that funds medical care for certain low income individuals and families. Both the state and federal funding shares are included in this definition.
- *Medicare* — Medicare is a federal insurance program for individuals age 65 and over. Part A provides coverage for hospital services and is available to all eligible individuals at no charge. Part B provides coverage for certain outpatient services and is available to eligible individuals, but a premium is charged. The program is funded through trust funds (one for each Part) and does not depend solely upon general revenue.
- *Other Public* — This element includes the Federal Indian Health Service, the Alcohol, Drug Abuse, and Mental Health Administration, the health care payment portion of state-administered income maintenance programs for work-related disability and death¹, and other state and federally funded health care programs not including Medicaid and Medicare.

Insurance and other private sources, as they will be discussed in this chapter, include:

- *Private Insurance* — This element includes all health insurance premiums and spending for the provision of health services, in whole or in part, by employers on behalf of their employees and dependents, where applicable. This category also includes non-group insurance programs for self-employed and other individuals. This category includes the employee share of health care insurance premiums paid. Health Maintenance Organizations (HMO), prepaid health plans, and employer self-insurance plans are included in this category.
- *Other Private* — This element includes non-patient revenues, including philanthropy and revenues derived from other operations, e.g. cafeteria, gift shop, parking, etc.²

Patient out-of-pocket payments, as they will be discussed in this chapter, include all spending for co-insurance and deductibles required by third-party insurers, payment for services not covered by insurers, and payment for charges in excess of “reasonable and customary charges” permitted by third-party insurers.³ This category does not include the employee share of health insurance premiums paid

While there is a considerable amount of public information available on payments made by public programs, insurance carrier information and information on patient out-of-pocket payments is sparse. The Price Waterhouse project team was able to identify only three sources from which to obtain comprehensive payer data — the Health Care Financing Administration (HCFA)⁴, Lewin/ICF⁵, and the California Office of Statewide Health Planning and Development (OSHPD)⁶.

However, only one of these sources, Lewin/ICF, has developed both national and California data using a comparable methodology.

Further, what information is available on payer sources is not reported using consistent payer categories. For example, the Lewin/ICF report describes payment sources as including the following categories:

- Out-of-Pocket;
- Employer Sponsored;
- Non-Group;
- Other Private;
- Medicaid — State;
- Medicaid — Federal;
- Medicare; and
- Other Public.

The Health Care Financing Administration, which reports only national data, uses the following payment source categories for its data collection and reporting purposes:

- Consumer Out-of-Pocket;
- Private Insurance;
- Other Private Funds;
- Federal;
- State and Local;
- Medicare; and
- Medicaid.

OSHPD, which reports California hospital and long term care facility data (and a minimal amount of clinic and home health agency data), uses the following payment source categories for its data collection and reporting purposes:

- Blue Cross/Blue Shield;
- HMO/PHP;
- Insurance;
- Medi-Cal;
- Medically Indigent;
- Medicare;
- Other; and
- Self-Pay.

Because the Lewin/ICF study is the only source that provides estimates at both the national and California level, this chapter will discuss payer data using the categories developed by Lewin/ICF. However, some Health Care Financing Administration data will be used to provide national information by service type, since no other data source provides this information. In addition, where OSHPD information appears to be useful in developing a clearer understanding of the California payer environment, data will be presented using OSHPD categories, although these data will not be strictly comparable to either the Lewin/ICF estimates or the HCFA data.

C. NATIONAL TRENDS

Expenditures By Funding Source

As noted in the previous section, Lewin/ICF payer categories will be used to report national payer trends. The first chart in Exhibit IV-1 presents a comparison of national health care expenditures for 1980, 1987 and 1990 by funding source. The data in this exhibit was developed by Lewin/ICF using a health benefits simulation model to estimate per capita health spending. The estimates were then adjusted to take into account historical spending information in public health care programs, as well as national health spending by source of payment.

Estimates were developed in this manner for 1980 and 1987. Projections of health spending at the state level were then developed for later years (including 1990) based on the assumption that current policy would continue.

The data in the first chart of Exhibit IV-1 indicates that:

- There has been very little change in the percentage of health care expenditures paid for by patients out-of-pocket during the 10-year study period. In fact, if the Lewin/ICF projections are correct, there may have been a slight decrease.
- Employer-sponsored health insurance expenditures have remained virtually unchanged as a percentage of the total amount expended by payers during the study period. However, expenditures covered by non-group insurance during the study period have decreased.
- Medicaid funding nationwide has remained at about the same percentage of the total during the study period. However, Medicare payments as a percentage of total health care expenditures has been increasing during the study period, while the percentage of expenditures covered by other public programs has decreased slightly.
- On a national level, the percentage of funding for health care paid for by the public sector has increased slightly, while the percentage of funding paid by insurance and consumers has decreased.

Exhibit IV-1

Estimated Percentage of Total

National	1980	1987	1990
Out of Pocket	27.4%	27.4%	26.7%
Employer Sponsored	28.5%	29.3%	28.7%
Non-Group	5.6%	4.6%	4.5%
Other Private	1.4%	1.4%	1.4%
Medicaid - State	4.6%	4.8%	4.5%
Medicaid - Federal	5.7%	6.0%	5.7%
Medicare	16.2%	17.5%	19.2%
Other Public	<u>10.5%</u>	<u>9.1%</u>	<u>9.4%</u>
Total:	100.0%	100.0%	100.0%
Total in \$ (000s):	230,166,743	465,096,248	605,978,347
Total Public:	37.1%	37.4%	38.7%
Insurance and Other:	35.5%	35.2%	34.6%
Out of Pocket:	27.4%	27.4%	26.7%

California	1980	1987	1990
Out of Pocket	21.8%	24.7%	24.0%
Employer Sponsored	25.9%	30.9%	30.3%
Non-Group	2.5%	2.8%	2.8%
Other Private	1.3%	1.7%	1.7%
Medicaid - State	5.0%	4.4%	4.2%
Medicaid - Federal	5.0%	4.4%	4.2%
Medicare	14.8%	16.0%	17.5%
Other Public	<u>23.6%</u>	<u>15.1%</u>	<u>15.3%</u>
Total:	100.0%	100.0%	100.0%
Total in \$ (000s):	28,080,581	60,932,858	84,754,468
Total Public:	48.5%	39.9%	41.2%
Insurance and Other:	29.8%	35.4%	34.7%
Out of Pocket:	21.8%	24.7%	24.0%

Source: Families USA Foundation, *Emergency! Rising Health Costs in America*, October 1990.

Expenditures By Service and Payer Source

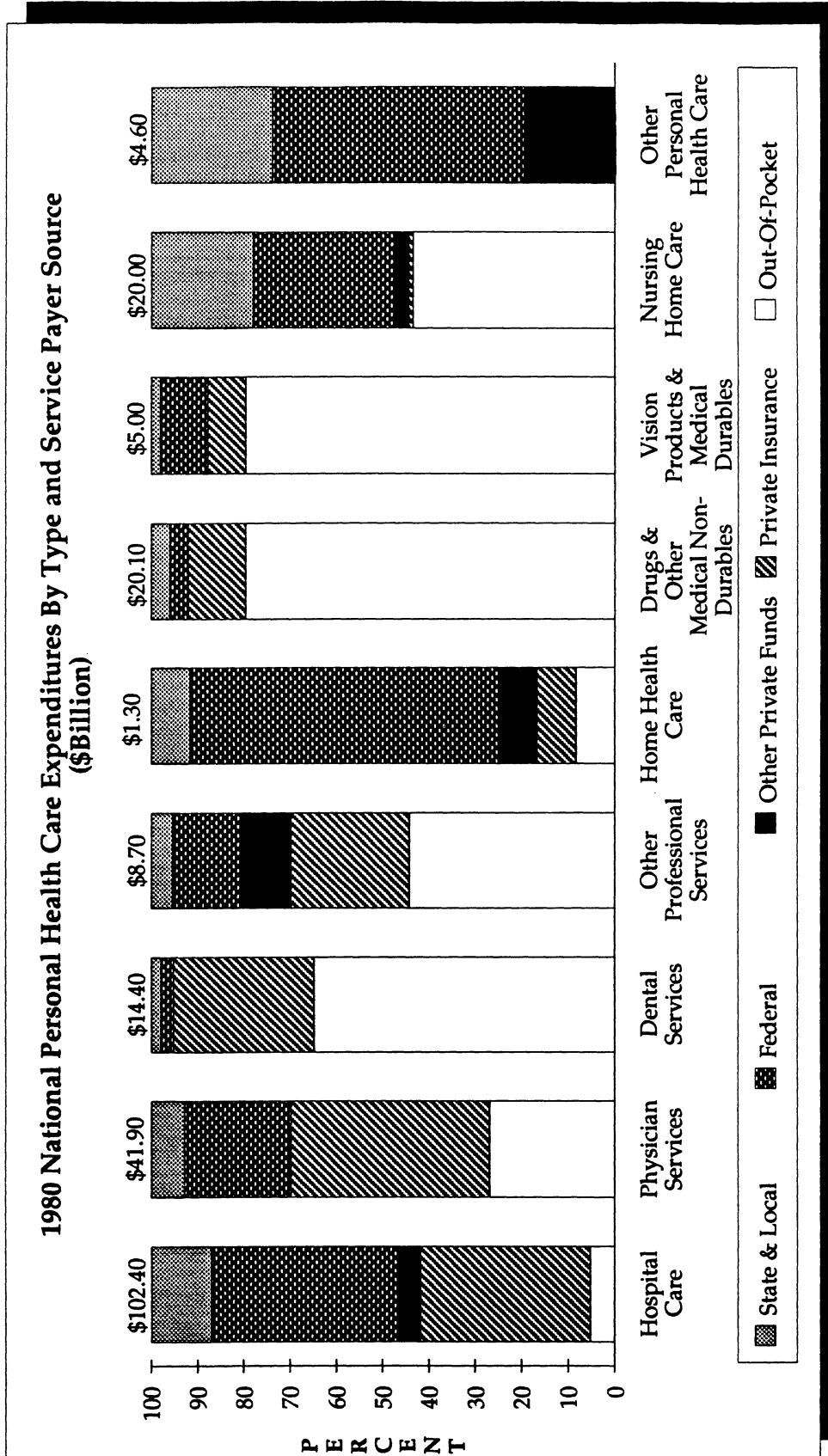
As noted above, national-level data on health care expenditures by service type and by payer type is available from HCFA. While no comparable state-level data is available, the national data will provide some insight as to which payers provide funding by the various health care service categories. Exhibits IV-2.1 and 2.3 present in graphic form the trend in national health care expenditures by type of service and payer source from 1980 to 1988. Exhibits IV-2.2 and 2.4 present the estimated expenditures by payer source.

A comparison of these two years indicate the following trends:

- The percentage of physician and dental services charges that were paid for by private insurance increased during the study period. Private insurance paid for 43 percent of physician services in 1980 and 47.6 percent in 1988. Payment increases for dental services were even more dramatic, up to 42.2 percent in 1988 from 30.5 percent in 1980.
- Private insurance payments for other professional services increased substantially from 1980 to 1988. In 1980, private insurance paid about 25 percent of the total amount expended in this category. By 1988, this figure had increased to about 37 percent of the total.
- In 1980, 36.6 percent of hospital care was paid through private insurance. By 1988, this percentage had increased to 47.6 percent of the total, an increase of about 30 percent for the period.

- Consumer out-of-pocket payments provide the majority of funding for vision products, drugs and dental services on a national level.
- Public funds provide the majority of funding for home health, hospital and nursing home care on a national level.

Exhibit IV-2.1



Source: Health Care Financing Administration, "National Health Expenditures, 1988," *Health Care Financing Review*, Volume 11, No. 4, Summer 1990, pp. 28-30.

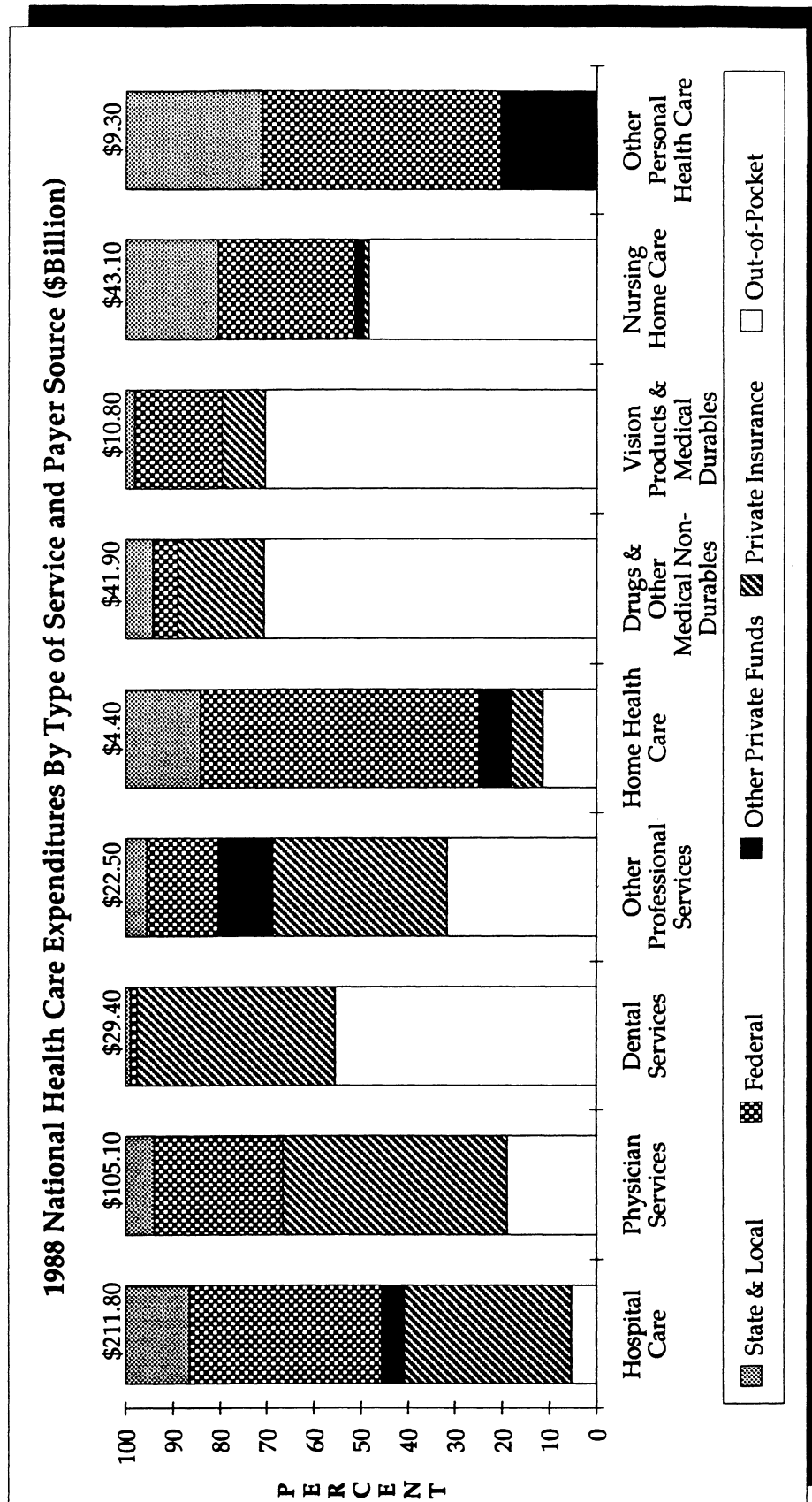
Exhibit IV-2.2

NATIONAL HEALTH CARE EXPENDITURES (SERVICES BY PAYER)
(Billions)

1980	TOTAL	Consumer Out of Pocket	Private Insurance	Other Private Funds	Federal	State and Local
CURRENT EXPENDITURES						
Hospital Care	102.4	5.3	37.5	5	41.3	13.3
Physician Services	41.9	11.3	18	0	9.7	3
Dental Services	14.4	9.4	4.4	0	0.4	0.3
Other Professional Services	8.7	3.8	2.2	0.9	1.3	0.4
Home Health Care	1.3	0.1	0.1	0.1	0.8	0.1
Drugs & Other Medical Non-Durables	20.1	16	2.5	0	0.8	0.8
Vision Products & Medical Durables	5	3.9	0.4	0	0.5	0.1
Nursing Home Care	20	8.7	0.2	0.6	6.1	4.4
Other Personal Health Care	4.6	0	0	0.9	2.5	1.2
PERSONAL HEALTH CARE TOTAL:	218.4	58.5	65.3	7.5	63.4	23.6
Program Administration & Net Cost of Private Health Insurance	12.2	0	8.1	0.2	2.1	1.8
Government Public Health Activities	7.2	0	0	0	1.2	6
TOTAL CURRENT EXPENDITURE:	237.8	58.5	73.4	7.7	66.7	31.4
Research	5.4	0	0	0.3	4.7	0.5
Construction	5.8	0	0	4.4	0.6	1.3
TOTAL:	249.0	58.5	73.4	12.4	72.0	33.2

Source: Health Care Financing Administration, "National Health Expenditures, 1988," Health Care Financing Review, Volume 11, No. 4, Summer 1990, pp. 28-30.

Exhibit IV-2.3



Source: Health Care Financing Administration, "National Health Expenditures, 1988," *Health Care Financing Review*, Volume 11, No. 4, Summer 1990, pp. 28-30.

Exhibit IV-2.4

NATIONAL HEALTH CARE EXPENDITURES (SERVICES BY PAYER)
(Billions)

1988	TOTAL	Consumer Out of Pocket	Private Insurance	Other Private Funds	Federal	State and Local
EXPENDITURES						
Hospital Care	211.8	11.3	75.0	10.3	86.7	28.5
Physician Services	105.1	19.9	50.0	0.0	28.7	6.4
Dental Services	29.4	16.3	12.4	—	0.4	0.3
Other Professional Services	22.5	7.1	8.3	2.6	3.4	1.0
Home Health Care	4.4	0.5	0.3	0.3	2.6	0.7
Drugs & Other Medical Non-Durables	41.9	29.6	7.7	—	2.2	2.4
Vision Products & Medical Durables	10.8	7.6	1.0	—	2.0	0.2
Nursing Home Care	43.1	20.8	0.5	0.8	12.5	8.4
Other Personal Health Care	9.3	—	—	1.9	4.7	2.7
PERSONAL HEALTH CARE TOTAL:	478.3	113.1	155.2	15.9	143.2	50.6
Program Administration & Net Cost of Private Health Insurance	26.3	—	19.7	0.5	3.9	2.2
Government Public Health Activities	15.9	—	—	—	1.9	14.0
TOTAL EXPENDITURES:	520.5	113.1	174.9	16.4	149.0	66.8
Research	9.9	—	—	0.7	7.9	1.2
Construction	9.5	—	—	7.1	0.9	1.5
TOTAL:	539.9	113.1	174.9	24.2	157.8	69.5

Source: Health Care Financing Administration, "National Health Expenditures, 1988," *Health Care Financing Review*, Volume 11, No. 4, Summer 1990, pp. 28-30.

D. CALIFORNIA TRENDS

Because the Lewin/ICF estimates were developed in a comparable manner at both national and state levels, most of the information presented in this section will be based on that source. However, some OSHPD data will also be presented. It should be noted that the OSHPD data is of limited value for two primary reasons. First, only data on hospitals and nursing homes is collected by payer source. Second, the hospital data was not collected using consistent time periods and data definitions until calendar year 1986.

Overall Expenditures By Funding Source

The second chart in Exhibit IV-1 presents a comparison of California health care expenditures for 1980, 1987 and 1990 by funding source. As noted in the previous section, the data in this exhibit was developed by Lewin/ICF using a health benefits simulation model. The Lewin/ICF study notes that state-level health expenditures data similar to the national data published by HCFA is not available. They developed their estimates of state-level expenditures using a three-step process. First, using a proprietary Health Benefits Simulation Model they estimated state-level per capita spending based on detailed census data concerning the age, income, and insurance status of the population. These first stage estimates were adjusted to reflect known control totals for Medicare and Medicaid spending by the state. Finally, the second stage estimates were adjusted so that the aggregate total spending of all states replicated HCFA estimates of national health care expenditures.⁵ The data in the second chart of Exhibit IV-1 indicates that:

- There has been an increase in the percentage of health care expenditures financed by consumers in California on

an out-of-pocket basis during the 10-year study period. This trend is the opposite of the trend at the national level, where out-of-pocket expenses as a percent of total expenditures has decreased.

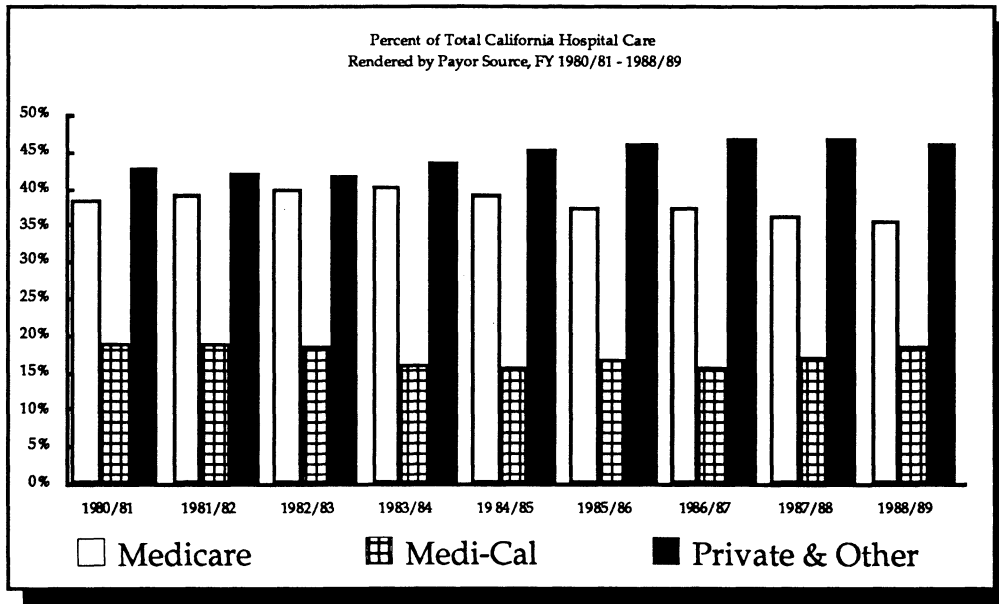
- Insurance payments, both employer sponsored and non-group, have increased as a percent of total health care expenditures in California during the study period, whereas at the national level, the percentage for these categories remained approximately the same during the study period.
- Both Federal and state Medicaid (Medi-Cal) expenditures decreased as a percent of total health care expenditures in California over the study period. At the national level, federal and state Medicaid percentages remained about the same or decreased slightly during the same time period.
- Medicare expenditures as a percentage of total California health care expenditures increased during the study period as it did at the national level. However, the share of total funding from other public health expenditures decreased by one-third during the study period, a much more substantial drop than at the national level during the same period.
- Public funding of California health care expenditures decreased as a percentage of the total during the study period, while insurance and out-of-pocket percentages increased. These trends are in direct contrast to the trends at the national level during the same time period.

Hospital Days By Payer Source

All Hospitals

As noted above, OSHPD has also collected some data which may prove to be helpful in understanding California health care payer trends. Exhibit IV-3 presents trends in total California hospital days by payer source over the 10-year study period. The exhibit shows the trend in the percentage of total patient days covered by Medicare, Medi-Cal, and all other payers.

Exhibit IV-3



The data in this exhibit were extracted from hospital cost data provided by OSHPD. Specifically, the data were obtained from Table 4 of the OSHPD publication entitled "Aggregate Hospital Financial Data for California" for each of the fiscal years included in the study.

The OSHPD data does not include information for certain hospitals specified in each of the 10 annual OSHPD reports from which the data was collected, including, for example, prepaid

health plan hospitals which receive revenue through membership fees and State hospitals for the mentally disordered and developmentally disabled.

Overall, both the Medicare and Medi-Cal percentage amounts have decreased from the beginning to the end of the 10-year study period, while the percentage of patient days covered by other payers has increased. However, the trend has not been a steady decline. Both the Medicare and Medi-Cal percentages have gone up in some years and down in others. Indeed, the Medicare percentage of patient days did not decline below the level recorded in the first year of the study period until 1985/86, and the Medi-Cal percentage has been on the increase during the last three years of the study period.

It should also be noted that total inpatient hospital days have been declining at a relatively steady pace, dropping from 20.4 million days at the beginning of the study period to about 18.4 million days at the end of the period. This represents a 10 percent drop in total inpatient days over the study period during which California experienced rapid population growth.

By Ownership Type

Exhibits IV-4.1-4.3 present trends in hospital days as a percent of total patient days, by payer source and type of ownership, during the 10-year study period. These exhibits indicate the percentage of hospital days paid for by Medicare, Medi-Cal, and other payers.

OSHPD defines four types of ownership and control for California hospitals, including:

- County/city;
- District;
- Investor-owned; and
- Non-profit.

Exhibits IV-4.1-4.3 show, for each of these four groups of hospitals, the trend in hospital days as a percent of total patient days for Medicare, Medi-Cal, and all other payers. This information provides trend data as to which payers are paying for most of the hospital days provided in California over the study period.

Exhibit IV-4.1

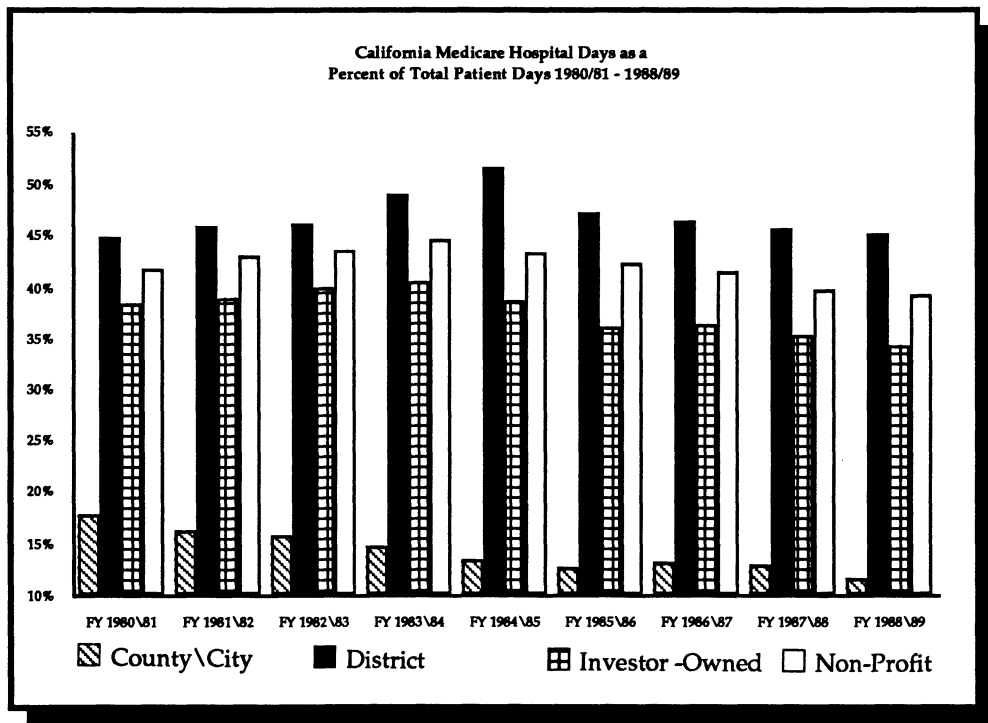


Exhibit IV-4.2

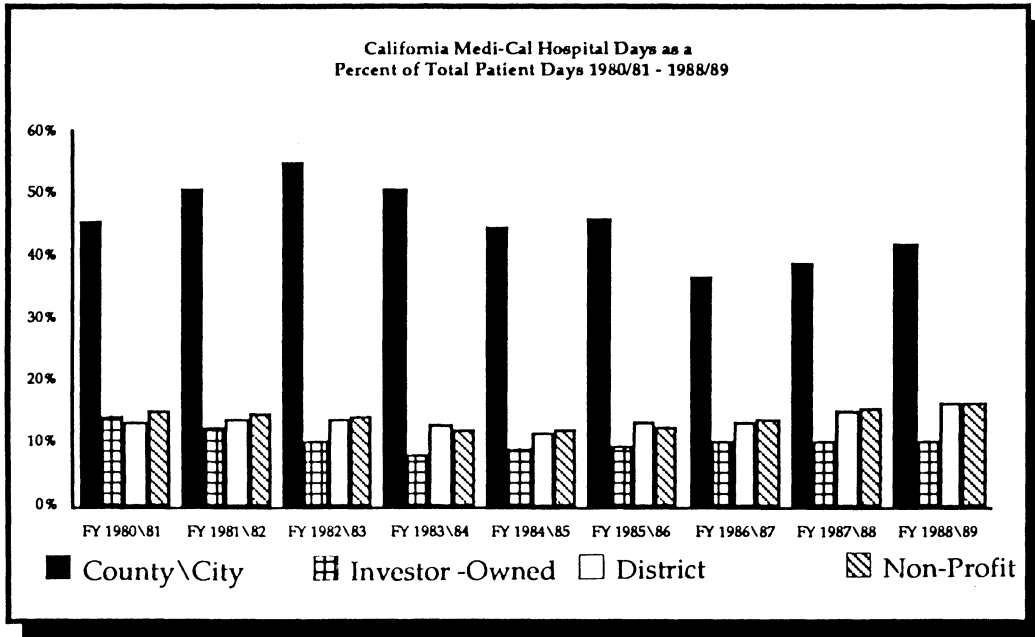
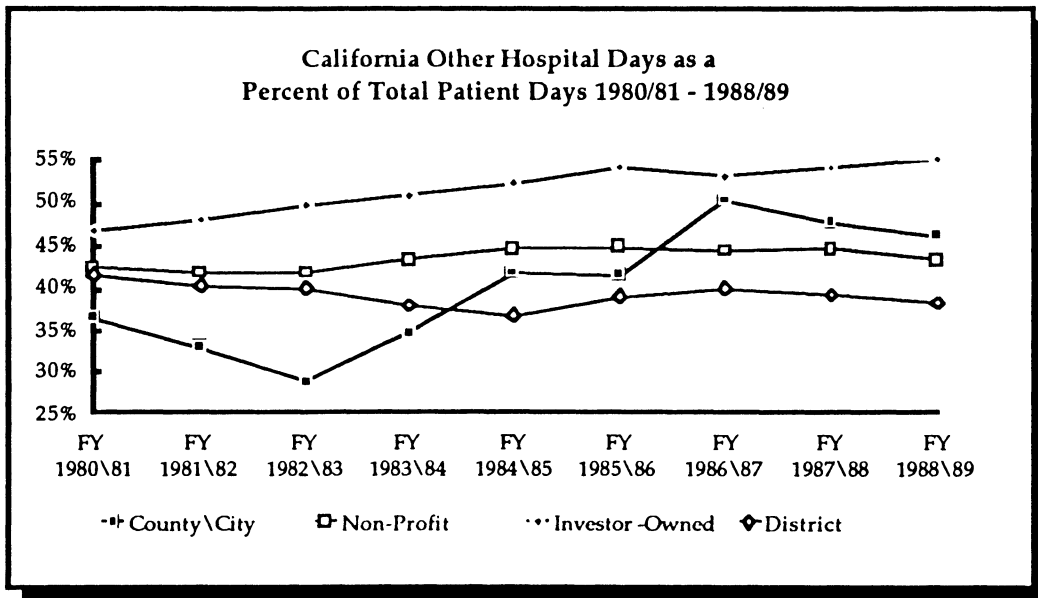


Exhibit IV-4.3



The data in these exhibits were developed based upon data extracted from Table 2 and Table 4 of the California OSHPD

Total patient days for each type of ownership category were obtained from Table 2, and total patient days, by payer source, for each type of ownership category were obtained from Table 4. A percent of total patient days by payer source for each ownership type was derived by dividing total days for each payer source by total patient days, by ownership type. These percentage amounts were utilized to plot the data included in the exhibits. The following subsections present findings for each ownership type.

County/city hospitals have the lowest Medicare patient day usage and the highest Medi-Cal patient day usage of any of the four categories of hospitals. This pattern has remained constant over the 10-year study period, although Medicare patient day percentages have dropped even further during that time period. Medi-Cal percentages have remained fairly constant, going up in some years and down in others. Other payer percentages have also varied from year to year but, in general, have been on an upward trend in this hospital category.

In *district hospitals*, Medicare and Medi-Cal percentages of total patient days have remained fairly constant over the 10-year period. During the intervening years, the Medicare percentage increased, but has dropped back to 1980/81 levels. The Medi-Cal percentage remained constant for most of the study period, but increased slightly in the last two years of the study period. Other payer percentages have remained fairly constant as well, but are slightly lower than at the outset of the study period.

In *investor-owned hospitals*, the percentage of hospital days covered by Medicare and Medi-Cal has decreased during the 10-year study period, while the percentage of days covered by other payers has been on the increase. The combined rate of decrease in the percentage of days covered by Medicare and Medi-Cal, and increase in the percentage of days covered by other payers is quite

similar to the pattern experienced by county/city hospitals during the study period. However, Medi-Cal patient day usage is quite low in these hospitals, lower, in fact, by the end of the study than any of the four hospital categories. Medicare usage is also lower than in any of the other categories except county/city hospitals.

In *non-profit hospitals*, the percentages of hospital days covered by Medicare, Medi-Cal, and other payers have changed very little over the 10-year study period. Medicare percentages have decreased slightly, while Medi-Cal and other payer percentages have increased slightly. It should be noted that the percentages by payer type for non-profit hospitals are very similar to district and investor-owned hospitals — that is, high Medicare and other payer percentages, and low Medi-Cal percentages.

Hospital Charges By Payer Source

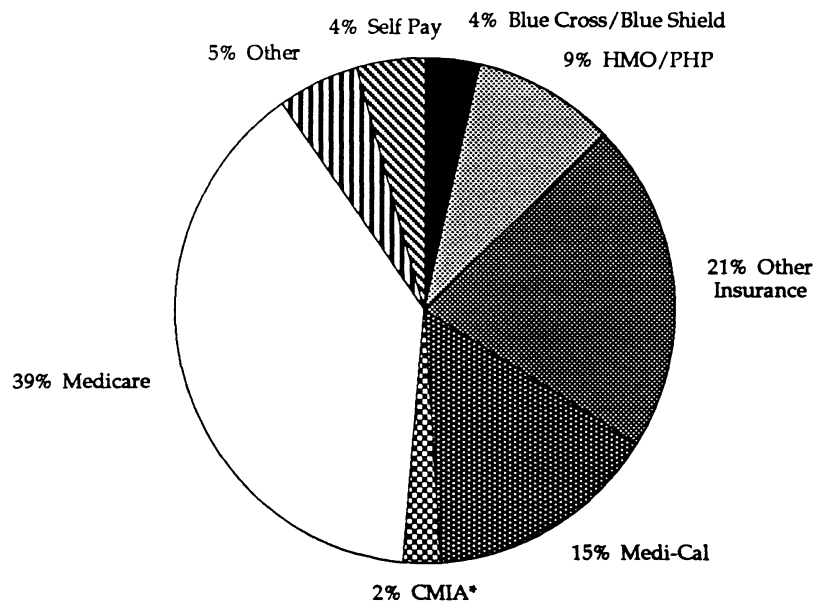
Exhibit IV-5 provides information on California hospital charges by payer source, using OSHPD hospital charge data as an indication of sources of payment for acute case hospital services. As noted at the beginning of this section on California trends, OSHPD hospital data was not collected in a consistent manner until 1986, making it impossible to develop trend information on hospital charges by payer source during the entire study period. Nevertheless, the project team determined it useful to present at least one year of recent data showing the relative amounts charged for hospital care in California to the various payers in the hospital marketplace.

Data for Exhibit IV-5 was extracted from the OSHPD California Aggregate Hospital Discharge Data Summary for 1988.

Exhibit IV-5

1988 California Hospital Charges by Principal Payer Source

(Based on acute care discharges)



Note: * California Medically Indigent Adults

Source: OSHPD. California Aggregate Hospital Discharge Data Summary, 1988, Table 8.8.

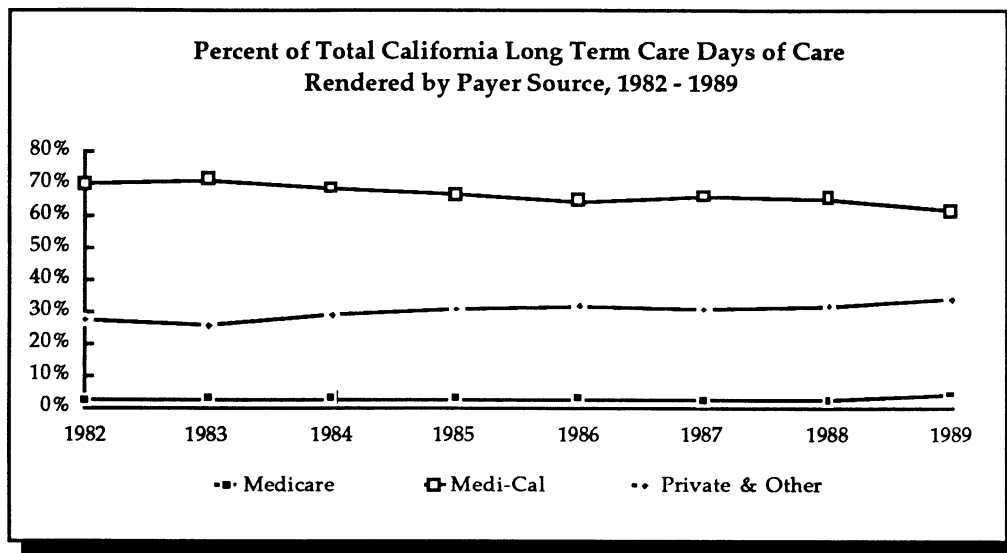
Using the OSHPD categories of payers described in the Introduction to this chapter, the pie chart indicates that in 1988, the largest payer of hospital care, using charges as a proxy for payment, was the Medicare program. During that year, Medicare charges were some 39 percent of total hospital charges, other insurance accounted for 21 percent of charges, and Medi-Cal accounted for only 15 percent of charges, less than half of the Medicare charges. If the Blue Cross/Blue Shield and HMO/PHP amounts were added to the other insurance category, total private insurance would be approximately 34 percent of total hospital charges for the year, nearly as much as the Medicare amount.

Long Term Care Days By Payer Source

Exhibit IV-6 presents trends in total California long term care facility days by payer source over most of the study period. The exhibit shows the eight-year trend in the percentage of total patient days covered by Medicare, Medi-Cal, and all other payers. The data in this exhibit were extracted from the long term care facility data provided by OSHPD.

The data presented in this exhibit indicate that there has been a fairly steady decrease in the percentage of days of long term care covered by Medi-Cal, down from 70 percent of total days in 1982 to 61 percent of total days in 1989. As the percentage of Medi-Cal covered days has dropped, the percentage of Medicare and private and other patient days has increased. Medicare days increased from 2 percent of total days in 1982 to 4.5 percent of total days in 1989. The percentage of patient days covered by private and other payers increased during that same time period from 28 percent of total long term care days to 34 percent of long term care days.

Exhibit IV-6



Source: OSHPD Aggregate Long-Term Care Facility Financial Data Reports for 1982-1989, Table 4-1.

It should be noted that these data do not reflect *expenditures* by payer type. The year 1988 can be used to illustrate this point. For purposes of this discussion, we have used long term care facility revenue as a proxy for total health care expenditures for long term care services in California.

OSHPD data show that, in 1988, long term care facility revenue per patient per day for Medicare patient days was \$83.76. For private and other patient days, revenue was \$71.23 per patient per day. However, for Medi-Cal, per patient per day revenue was \$48.32. As a result of these variations in revenue per patient per day by payer source, the percentage of total long term care facility revenue received from Medicare in 1988 was approximately 4 percent, while Medicare funded days represented only 3 percent of total days. Medi-Cal provided 54 percent of facility revenue during that year, but Medi-Cal funded days represented 64 percent of total days. Revenue from private and other sources

accounted for 42 percent of total revenue to long term care facilities during 1988; however, private and other funded patient days represented 33 percent of total facility days.

E. SUMMARY OF CHAPTER

In this chapter, we have presented data indicating the pattern of funding for health care expenditures by payer source, at both the national and state level. Key findings resulting from our analysis of these data are as follows:

- In the early years of the study period, the percentage of health care expenditures paid for by public funds was much larger in California in relation to private and out-of-pocket funding than at the national level. However, during the intervening 10-year period, California's percentage amounts have moved progressively closer to national percentages. California's public versus private expenditure patterns look much more like national patterns today than they did 10 years ago.
- During the study period, Medi-Cal patient days and patient revenues in hospitals and long term care facilities have been decreasing steadily as a percentage of total days and revenues in these facilities. At the same time, Medicare and private and other payers have taken on an increasing share of the payment load, as reflected in their percentages of patient days and patient revenues.
- We were unable to obtain state-level data regarding which payers provide funding for non-institutional services. There is some national data which indicates that public funds provide the majority of funding for home health, hospital and long term care services, while consumer out-of-pocket payments provide the majority of funding for

vision products, drugs and dental services. However, there is currently no way, given the absence of any requirements for data collection and reporting for non-institutional services, to determine which payers are paying for these services within California. Only the Medi-Cal program collects such detailed expenditure data, and Medi-Cal accounts for less than 10 percent of total California health care expenditures.

ENDNOTES
SECTION IV

¹ United States Department of Health and Human Services, Health Care Financing Administration, Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Volume 11, No. 4 (Summer 1990), p. 24.

² *Ibid.*, p. 18.

³ *Ibid.*, p. 18.

⁴ *Ibid.*, pp. 1-42.

⁵ Families USA Foundation, *Emergency! Rising Health Costs in America 1980-1990-2000*, Washington, D.C., October 1990.

⁶ Office of Statewide Health Planning and Development, *Aggregate Hospital Data, 1980 to 1988*.

CHAPTER V: WHAT BROAD FORCES CAUSE HEALTH CARE EXPENDITURES TO CHANGE?

A. INTRODUCTION

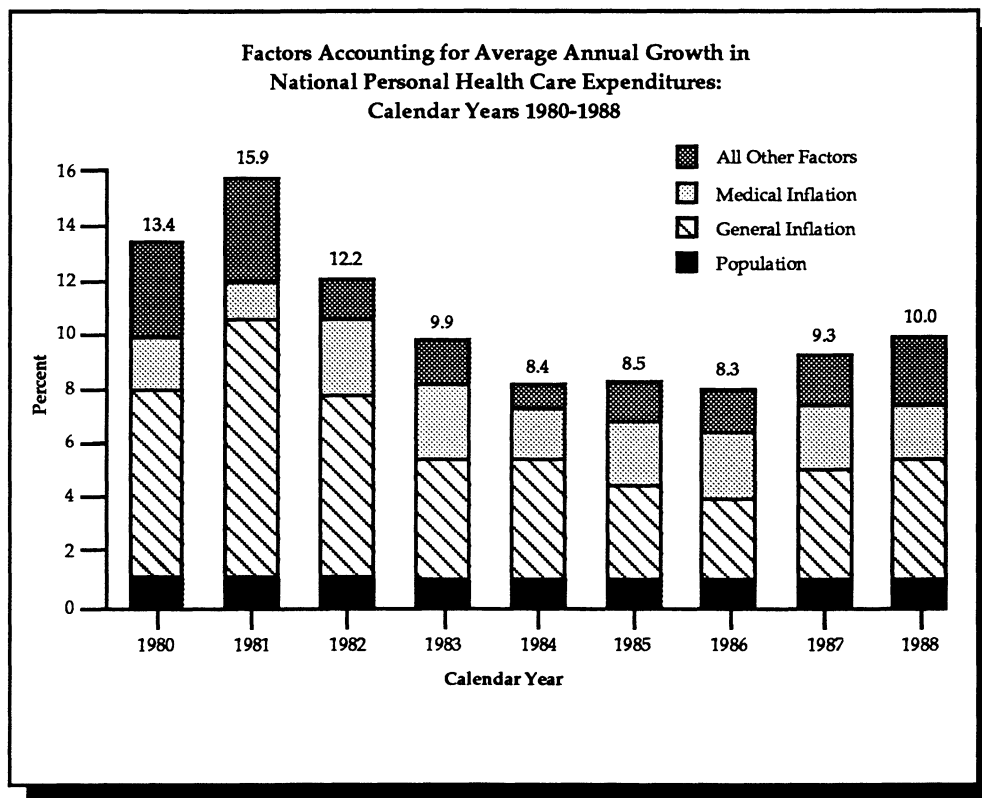
Due to the complex structure of the health care industry and the many internal and external forces acting on the industry, it is extremely difficult to identify and quantify the specific causes of changes in health care spending. HCFA has identified four broad forces and estimated the impact of these forces on aggregate personal health care spending in the U.S.¹ These major forces are:

1. *Population Growth* — is the general increase in the total number of people, which by definition causes an increase in demand for services. Because all people of all ages need health care services, an increase in the population directly affects the quantity of services needed.
2. *General Inflation* — is an increase in the nominal (current dollar) costs of goods and services for the economy as a whole over time.
3. *Medical Inflation* — is the rate of inflation for medical goods and services over and above that of the general inflation rate in the United States.

4. *Other Forces* — include all other forces that cause a change in the use and intensity of health care services per capita, such as the effects of new technology, changes in the population mix, and changes in practice patterns due to “defensive medicine.”

Exhibit V-1 provides an overview of these four major forces affecting the growth of personal health care expenditures in the U.S. (The reader should note that personal health care expenditures constituted 88% of national health care expenditures in 1988. The HCFA analysis did not include net

Exhibit V-1



Source: Health Care Financing Administration, Office of the Actuary: Data from the Office of National Cost Estimates. *Health Care Financing Review*, Volume 11, No. 4, page 6. (See Endnote 17 for further discussion of this exhibit.)

cost of administration, public health, or investment in research and construction.) Changes caused by population growth and general inflation are external to the health care industry and not typically subject to state level policy direction or control. However, as Exhibit V-1 indicates, both population growth and general inflation have been responsible for a significant percentage of health care expenditure growth in recent years.

This chapter focuses on identifying the components of these forces and assessing their impact on trends in health care spending and utilization of services. Population growth, general inflation, and medical inflation are described below. The other forces are identified at the end of this chapter and described in more detail in Chapter VI of this report.

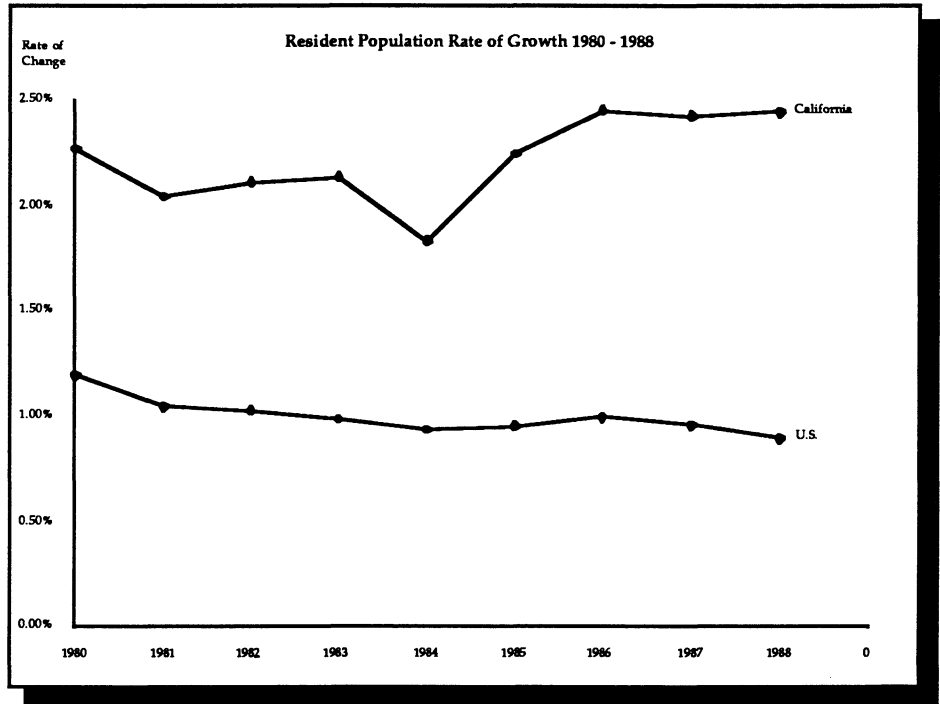
B. POPULATION

The overall population is increasing, both in California and in the U.S. Further, as shown in Exhibits V-2 and V-3, resident population growth in California has been more than twice that of the U.S. from 1980 to 1988, at 19.1% and 8.1% respectively. During this period, the resident population in California has grown from 10.3% to 11.5% of the total U.S. population.² In California, this is a result of:

- Net migration, which accounted for about 56% of the population growth in the state; and
- The number of births (over deaths) in the state, which accounted for about 44% of the population growth in the state.³

The simple increase in numbers has caused expansion in the health care industry as a result of increased demand. Based on the statistics, this factor may be expected to have about twice the

Exhibit V-2



Source: Current Population Reports, U.S. Population Estimates and Projections, U.S. Bureau of the Census, July Estimates, Series P-25, No. 1047, September 1989.

Exhibit V-3

United States and California Population, 1979 – 1988

Year	Resident Population* (In thousands)		Rate of Change	
	U.S.	California	U.S.	California
1979	224,567	22,988	--	--
1980	227,255	23,510	1.20%	2.27%
1981	229,637	23,991	1.05%	2.05%
1982	231,996	24,498	1.03%	2.11%
1983	234,284	25,022	0.99%	2.14%
1984	236,477	25,482	0.94%	1.84%
1985	238,736	26,055	0.96%	2.25%
1986	241,107	26,695	0.99%	2.46%
1987	243,419	27,343	0.96%	2.43%
1988	245,602	28,013	0.90%	2.45%
Avg. Annual Change	2,104	503	0.90%	2.00%
Tot. Chg. 1980 to 1988	18,347	4,503	8.07%	19.15%

Note: * Excludes members of the Armed Forces living abroad.

Source: Current Population reports, U.S. Population Estimates and Projections, U.S. Bureau of the Census, July Estimates, Series P-25, No. 1047, September 1989.

impact on personal health care spending in California than in the U.S. as a whole. About 2 percentage points of the annual health care expenditure growth rate can be attributed to population growth in California, compared to a one percentage point annual increase in the U.S.

C. GENERAL INFLATION

General inflation is the overall increase in prices of goods and services in the U.S. In the health care industry, general inflation has contributed to a substantial portion of the increases during the 1980s. For example, in 1981, almost 60% of the increase in health care expenditures could be attributed to the effects of general inflation. ⁴

It can be inferred that inflation was a significant factor contributing to the increase in health care expenditures during the 1980s. General inflation is based on a number of broad factors that are external to the health care industry, such as the level of Federal spending, exchange rates, and monetary policy.

There are a variety of measures of general inflation. Perhaps the most familiar are the various versions of the Consumer Price Index (CPI). The CPI is a measure of the average change in prices over time in a fixed "market basket" of goods and services purchased at the retail level by all urban consumers. The CPI data also includes measures of inflation of component parts of the overall CPI market basket of goods and services. One of these components is the medical care portion of CPI. Data on both of these measures is included in Exhibits V-4 and V-5.

Broad as it is, the CPI is not the most comprehensive price index available. That distinction belongs to the Gross National Product (GNP) deflator. The GNP deflator is calculated by the U.S. Bureau of Economic Analysis. It is used to measure the difference between current dollar GNP and constant dollar GNP. Current dollar GNP is the value of all goods and services produced by the economy valued at current market prices. Constant dollar GNP is the value of all goods and services produced by the economy valued at a constant set of prices fixed in a particular base year (1982). The movement of the deflator usually closely parallels the movement of overall CPI but is rarely identical to it. The GNP deflator, in theory, reflects price trends throughout the economy, while CPI represents price trends at the retail level only.⁵

This section presents data on the rate of general inflation during the study period using the overall CPI and the GNP Implicit Price Deflator. Exhibits V-4 and V-5 present data on the index values and percentage changes in the two indices. As the

exhibits indicate, during the period 1980 to 1988, general prices increased 41.5% as measured by the overall GNP deflator, and 43.6% as measured by the CPI for all urban consumers. Exhibit V-5 illustrates that annual inflation rates were relatively high early in the study period (9.7% for GNP deflator in 1981) and moderated later in the decade (3.3% for GNP deflator in 1988). (The tables also present data on implicit price deflators for various components of personal health care expenditures. This later data will be discussed in the next portion of this chapter.)

Exhibit V-4

NATIONAL PERSONAL HEALTH CARE PRICE INDICES 1980 - 1988

Type of Service [1]	1980	1981	1982	1983	1984	1985	1986	1987	1988	% Change 1980-88
Hospital Care	81.70	91.10	100.00	106.60	112.50	118.00	122.30	128.40	136.80	67.4%
Physician Services	82.33	91.41	100.00	107.70	115.19	121.92	130.76	140.43	150.54	82.8%
Dental Services	84.70	92.84	100.00	106.73	115.41	122.67	129.51	138.19	147.59	74.3%
Other Professional Services	83.58	92.17	100.00	107.20	114.81	121.93	129.73	138.30	147.56	76.5%
Drugs and Other										
Medical Non-durables	81.72	90.67	100.00	108.56	116.53	124.79	133.01	141.86	151.65	85.6%
Vision Products and Other										
Medical Durables	86.67	94.23	100.00	105.44	109.82	116.56	122.25	126.55	133.00	53.5%
Nursing Home Care	83.91	92.41	100.00	105.86	111.20	115.57	119.05	123.42	130.37	55.4%
Other Personal Health Care	80.89	89.60	100.00	108.70	115.45	122.63	131.88	140.61	149.75	85.1%
Implicit Price Deflator for Personal Health Care [1]	82.40	91.40	100.00	107.00	113.50	119.70	125.60	132.80	141.60	71.8%
Gross National Product Implicit Price Deflator [2]	85.70	94.00	100.00	103.90	107.70	110.90	113.80	117.40	121.30	41.5%
National CPI All Urban Consumers (1982-84 average = 100) [2]	82.40	90.90	96.50	99.60	103.90	107.60	109.60	113.60	118.30	43.6%
CPI All Urban Consumers Medical Care Component [2]	74.90	82.90	92.50	100.60	106.80	113.50	122.00	130.10	138.60	85.0%
CPI All Urban Consumers California [3]	82.40	91.40	97.30	98.90	103.80	108.60	112.00	116.60	121.90	47.9%

[1] HCFA, Office of the Actuary: Data from the Office of National Cost Estimates. Health Care Financing Review, Summer 1990, pg. 52.

[2] U. S. Bureau of Economic Analysis, The National Income and Product Accounts of the U.S. 1929-82 and Survey of Current Business as published in the Statistical Abstract of the U.S. 1990, page 480, Table 775 and page 471, Table 762.

[3] California CPI as published in California Almanac, 4th Edition 1990 page 260.

ANNUAL PERCENTAGE CHANGE IN PRICE INDICES 1980 to 1988

Type of Service	1980	1981	1982	1983	1984	1985	1986	1987	1988
Hospital Care	na	11.5%	9.8%	6.6%	5.5%	4.9%	3.6%	5.0%	6.5%
Physician Services	na	11.0%	9.4%	7.7%	7.0%	5.8%	7.3%	7.4%	7.2%
Dental Services	na	9.6%	7.7%	6.7%	8.1%	6.3%	5.6%	6.7%	6.8%
Other Professional Services	na	10.3%	8.5%	7.2%	7.1%	6.2%	6.4%	6.6%	6.7%
Drugs and Other									
Medical Non-durables		11.0%	10.3%	8.6%	7.3%	7.1%	6.6%	6.7%	6.9%
Vision Products and Other									
Medical Durables	na	8.7%	6.1%	5.4%	4.2%	6.1%	4.9%	3.5%	5.1%
Nursing Home Care	na	10.1%	8.2%	5.9%	5.0%	3.9%	3.0%	3.7%	5.6%
Other Personal Health Care	na	10.8%	11.6%	8.7%	6.2%	6.2%	7.5%	6.6%	6.5%
Implicit Price Deflator for Personal Health Care	na	10.9%	9.4%	7.0%	6.1%	5.5%	4.9%	5.7%	6.6%
Calif. Weighted Hospital Input Price Index (4 Qtr.)	na	11.4%	10.3%	6.5%	4.4%	4.6%	3.1%	3.5%	5.3%
Gross National Product Implicit Price Deflator	na	9.7%	6.4%	3.9%	3.7%	3.0%	2.6%	3.2%	3.3%
National CPI All Urban Consumers (1982-84 average = 100)	na	10.3%	6.2%	3.2%	4.3%	3.6%	1.9%	3.6%	4.1%
CPI All Urban Consumers Medical Care Component	na	10.7%	11.6%	8.8%	6.2%	6.3%	7.5%	6.6%	6.5%
CPI All Urban Consumers California	na	10.9%	6.5%	1.6%	5.0%	4.6%	3.1%	4.1%	4.5%
Difference between: Implicit Price Deflator for Personal Health Care and GNP Implicit Price Deflator	na	1.2%	3.0%	3.1%	2.4%	2.5%	2.3%	2.5%	3.3%

Note: Price Waterhouse calculations based on published data presented in Exhibit V-4.

D. MEDICAL INFLATION**1. Overall Medical Inflation and Measurement of "Excess" Inflation**

HCFA publishes data that measures the average change in prices for all personal health care expenditures as well as for the various components of personal health care expenditures. This index (Implicit Price Deflator for Personal Health Care in Exhibits V-4, 5) has been chosen to illustrate trends in medical inflation because it provides the most specific information available about the behavior of prices for the various components of personal health care expenditures. The index uses a fixed market basket of health care goods and services based in 1982 to calculate the changes in prices in any given year. Exhibits V-4 and V-5 present data on the changes in prices as measured by the index developed and published by HCFA. The reader should note that the inflation measured by this index reflects the combined impact of both general inflation (as it affects the health care industry and all other industries) and the "excess" rate of inflation in the health care industry over and above general inflation. It is the *difference* between the rate of inflation measured by the HCFA index and the rate of general inflation (measured by GNP deflator) that defines the "excess" medical inflation. A measure of this excess inflation is presented in the last row of Exhibit V-5. It shows the difference between inflation as measured by the Implicit Price Deflator for Personal Health Care and the GNP Implicit Price Deflator.

Exhibits V-4 and V-5 present the index values and annual rates of change in prices for overall personal health care expenditures and its components. Exhibit V-4 indicates that between 1980 and 1988 there was a 71.8% increase in prices for the overall category of personal health care expenditures. This compares with a general inflation rate of 41.5% as measured by the GNP Implicit

Price Deflator or 43.6% for the CPI. Stated in another fashion, the rate of inflation in personal health care expenditures category was 73.0% higher than the rate of inflation for personal consumption expenditures as a whole during the 1980 to 1988 period (71.8% medical inflation versus 41.5% general inflation).

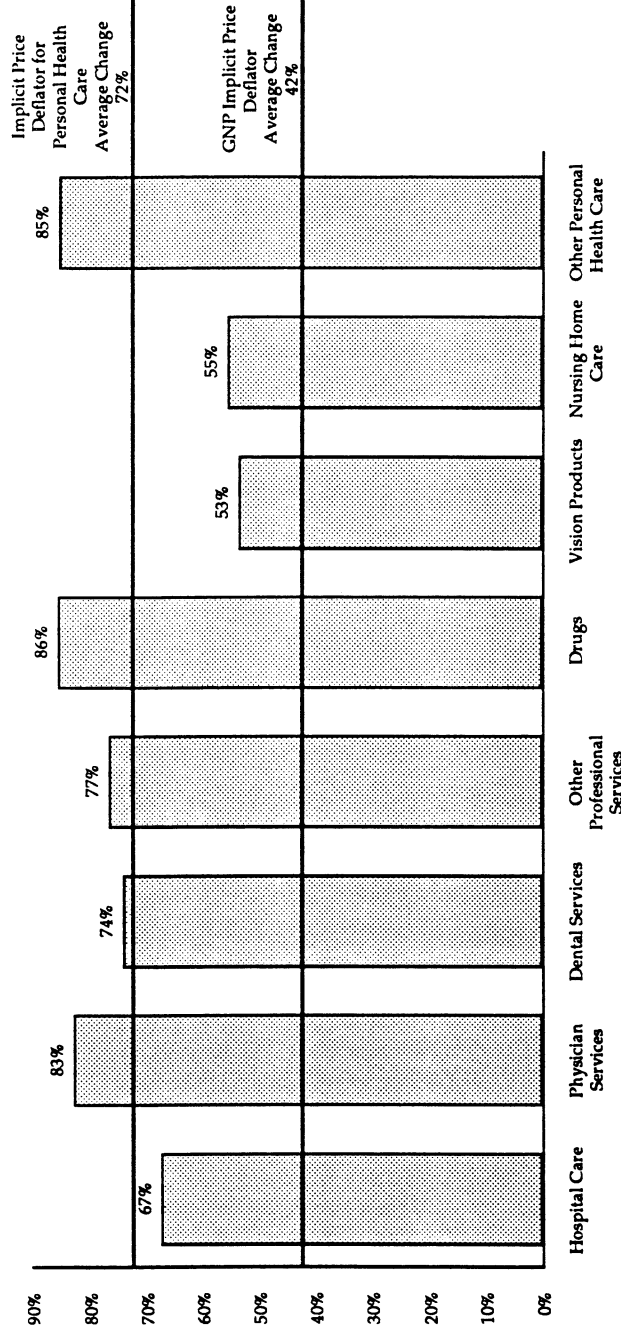
Exhibits V-4 and V-5 also illustrate how the rate of increase in prices for the various components of personal health care expenditures varied across major categories during the study period. Exhibit V-6 presents these trends in bar chart format. As the exhibits illustrate, hospital care, nursing home care, and vision products experienced below average rates of change in prices during the period. Even so, the change in these categories was greater than the general inflation rate (as measured by the personal consumption expenditure deflator) during the study period.

During this study, we were unable to identify a comprehensive price index that measured health care inflation specifically in California. This prevented a direct comparison of overall health care inflation trends in California with national trends. Exhibits V-4 and V-5 present data on the change in the CPI for All Urban Consumers in California during the period from 1980 to 1988. As the exhibits illustrate, general inflation in California, as measured by the CPI was slightly higher than in the U.S. as a whole during this period. In both cases, however, the rate of general inflation was significantly lower than that reported by the various indices used to measure inflation in the health care industry.

Exhibit V-5 does present data on California specific price changes in one component of the health care industry, hospitals. The information, prepared by OSHPD, illustrates the annual change in hospital input prices from 1981 to 1988. Input prices are the

ExhibitV-6

**PERCENTAGE CHANGE IN NATIONAL PRICE INDICES OF PERSONAL HEALTH CARE BY TYPE OF SERVICE
1980-1988**



Source: Health Care Financing Administration, Office of National Cost Estimates. "Revisions to the National Health Accounts and Methodology," *Health Care Financing Review*, Summer 1990, p. 52. Statistical Abstract of the U.S. 1990 Table 775, page 480.

prices hospitals pay for labor, supplies, and other materials and services used to operate a hospital. Hospital input price inflation ranged from a high of 11.4% in 1981 to a low of 3.1% in 1986. As illustrated in Exhibit V-5, the annual change in California hospital input prices was generally *below* the overall national change in personal health care prices but above the general rate of inflation experienced in the national economy as measured by GNP deflator or the CPI. Hospital input prices also outpaced the annual change in the California CPI in six of the eight years studied.

Exhibits V-4 and V-5 also present data on the rate of inflation as measured by the medical care component of the CPI. This index showed prices increased by 85.0% during the 1980-88 period. This was a rate of change substantially in excess of the rate of general inflation or the rate of personal health care expenditures as presented in the exhibit. From the point of view of *society as a whole*, the CPI medical care index may not be the most appropriate measure of price changes. This is because the medical care component of CPI is weighted based on consumer out-of-pocket expenditures. Because a large portion of health care is paid by third parties, certain health care services are assigned weights in calculating CPI that under-represent their shares if all payers are considered. For example, hospital services, only 5% of which come from out-of-pocket, are undervalued when computing the index. ⁶

Other analysts suggest that while the CPI medical care component index may not be the best measure for society as a whole, it may be a better proxy for price changes faced by private individuals and businesses. This view argues that the broader measures (such as the Personal Health Care Price Deflator) of medical care inflation reflect slower price inflation (in all but two years of the 1980-88 period) because they reflect the stringent

medical cost limiting measures instituted by federal and state government in recent years. This may have inspired “cost shifting” to the private sector, causing prices measured by the CPI to rise even faster.⁷ (These broader indices reflect such cost containment effects because they include a larger proportion of health care expenditures financed by government than does the CPI.)

2. *Constant Dollar Health Care Expenditures*

Once a price index has been developed for measuring inflation affecting the various component parts of personal health care expenditures, it is possible to measure expenditures using “constant dollars.” Use of constant dollars removes the effect of price changes over time and allows one to create a proxy measure for the overall growth in the quantity of services purchased. This information can help illustrate the relative growth in demand for various types of personal health care services over the study period. Exhibit V-7 presents national constant dollar expenditure data published by HCFA. Exhibit V-8 presents in bar chart format information on the rate of growth in constant dollar expenditures for the 1980-88 period.

As the two exhibits illustrate, measured in *constant* dollars, personal health care expenditures increased 27.5% during the period from 1980 to 1988. This is in contrast to the 119.0% increase measured in *current* dollars over the same period. As noted in Chapter III, over this period, expenditures measured in current dollars increased from \$218.4 billion in 1980 to \$478.3 billion in 1988, an increase of \$259.9 billion. Of this \$259.9 billion increase, 77% (\$200.1 billion) was due to the effects of inflation (general and “excess” medical inflation) and 23% (\$59.8 billion) was due to increased quantities of good and services consumed. This increase in quantity consumed reflects the effects of

Exhibit V-7

NATIONAL PERSONAL HEALTH CARE IN CONSTANT 1982 DOLLARS 1980 – 1988
(IN BILLIONS)

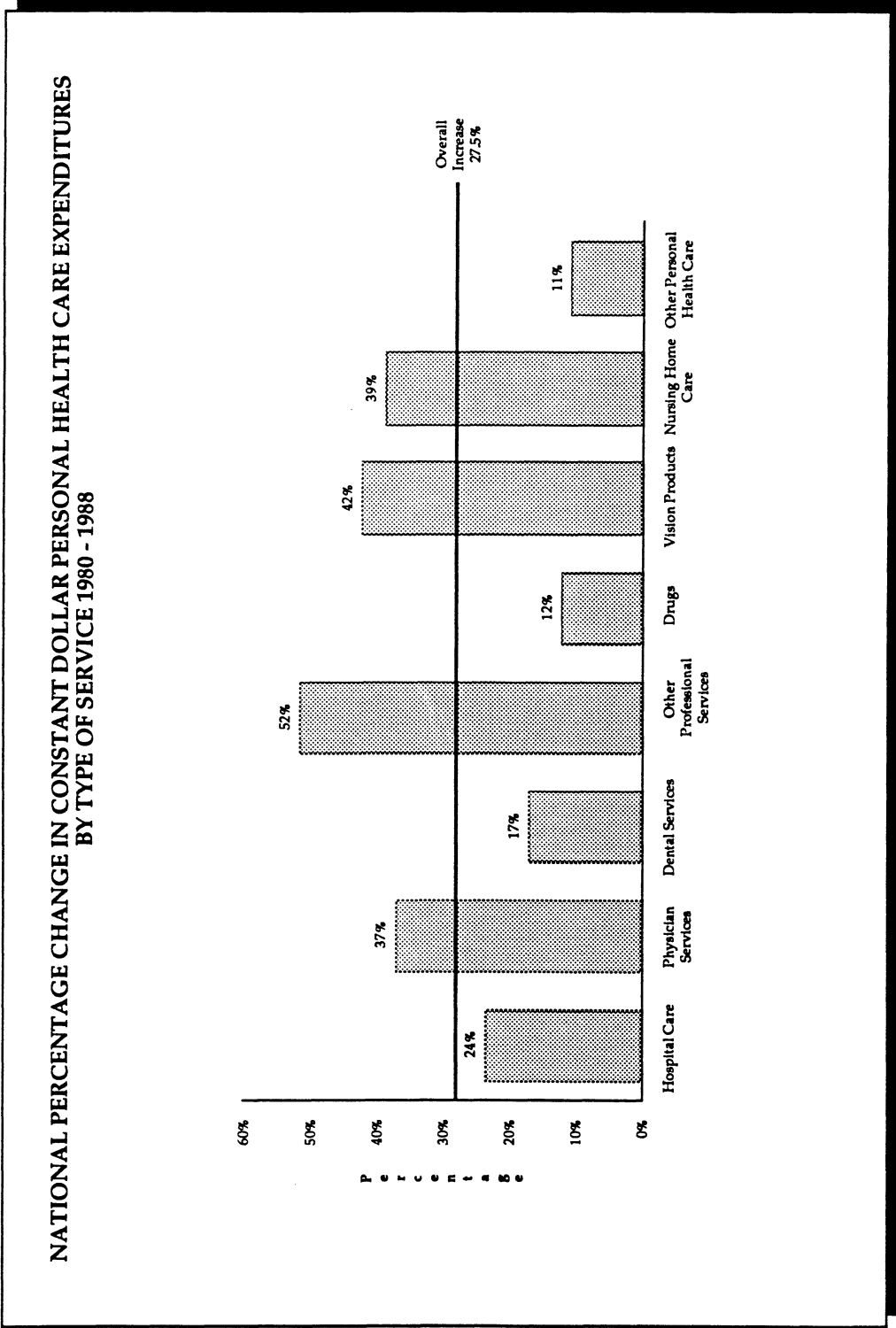
Type of Service	1980	1981	1982	1983	1984	1985	1986	1987	1988	% Change 1980-1988
Hospital Care	125.3	131.2	135.9	138.1	139.7	142.3	146.6	150.9	154.8	23.5%
Physician Services	50.9	53.3	53.8	56.3	58.3	60.7	62.7	66.2	69.8	37.1%
Dental Services	17.0	18.3	18.4	18.5	18.5	19.0	19.1	19.6	19.9	17.1%
Other Professional Services	12.0	13.0	14.0	15.1	16.1	16.8	17.2	17.6	18.2	51.7%
Drugs and Other										
Medical Non-durables	24.6	24.6	24.5	25.3	25.6	25.8	26.7	27.2	27.6	12.2%
Vision Products and Other										
Medical Durables	5.7	5.6	5.9	6.0	6.5	7.2	7.8	7.8	8.1	42.1%
Nursing Home Care	23.8	25.2	26.1	27.3	28.0	29.5	30.8	32.2	33.0	38.7%
Other Personal Health Care	5.6	5.7	5.6	5.5	5.4	5.6	5.8	6.0	6.2	10.7%
Total Personal Health Care	265.0	276.9	284.1	292.1	298.2	306.8	316.7	327.5	337.8	27.5%

Source: Health Care Financing Administration, Office of the Actuary: "Revisions to the National Health Accounts and Revisions. *Health Care Financing Review*, Summer 1990, pg. 52. Detail by type of service may not add to total due to rounding.

population growth and all other factors which lead to increased utilization of health care services, such as changes in the age mix of the population or new medical technology.

As Exhibit V-8 shows, after eliminating the effects of price increases, four categories showed above average growth in the quantity of services consumed. These were the physician services, nursing home care, vision care products, and other professional services categories. Categories reflecting lower than average growth included hospital care, dental services, drugs, and other personal health care. These differing trends in the quantity of health care consumed reflect the differing impact of a variety of factors that influence demand for service including changes in reimbursement practices, changing patterns of medical practice in response to new technology or "defensive medicine" concerns, and changes in population characteristics.

Exhibit V-8



Source: Health Care Financing Administration, Office of National Cost Estimates. "Revisions to the National Health Accounts and Methodology," *Health Care Financing Review*, Summer 1990, p. 52.

With respect to the lower than average growth in the hospital category (44% of all personal health care expenditures), two researchers (Melnick, Zwanziger) argue that (based on research in California) the effects of selective contracting and the Medicare Prospective Payment System (PPS) have resulted in significant pressures to hold down hospital utilization and costs since the early 1980s. Statutorily authorized in 1982, selective contracting is the process whereby Medi-Cal and private third party payers are allowed by law to negotiate discounts with specific hospitals for services rendered to covered individuals. Payers can legally exclude from their list of participating providers those who do not negotiate such discounting agreements. This forces greater competition in pricing among hospitals. The federal Medicare PPS System was enacted in 1984. Under PPS, Medicare reimburses hospitals for inpatient services on a fixed price basis according to the diagnosis-related group into which a patient's illness is classified. Hospitals are at financial risk under such fixed price arrangements if costs exceed reimbursement. This is in direct contrast to the former system of retrospective payment based on reasonable or actual costs. The PPS System creates an incentive for hospitals to lower costs either through reduced lengths of stay (lower utilization) or lower costs per day. The combination of these forces appears to have played a significant role in holding down the rate of growth in expenditures for hospital services.⁸

While the hospital category showed a below average increase in constant dollar spending between 1980 and 1988, the physician services category (22% of all personal health care expenditures) showed an above average growth in constant dollar expenditures (a 37% increase). The growth in this category (which includes services rendered through physicians offices and independent laboratory services billed directly to the consumer) may in part be a reflection of the slower growth in

the hospital category. More and more services that formerly were performed in the hospital can now be performed on an outpatient basis in non-hospital settings (e.g., doctors' offices, non-hospital clinics). As evidence of this trend, HCFA reports that physician contacts with patients in non-hospital settings increased 10.7% from 1983 to 1987, in contrast to a 0.3% decline in the period from 1976 to 1981.⁹ This shift may reflect both changes in the hospital reimbursement system (such as Medicare PPS) and changes in technology which make it possible both to reduce hospital stays and perform surgical procedures outside of the hospital setting.¹⁰

The nursing home care category (9% of total personal health care expenditures) exhibited above average growth in constant dollar expenditures during the 1980-88 period (39%). This may be a reflection of the shifting national population mix towards an older population, one more likely to consume nursing home care. (This question is discussed further in Chapter VI.) The reader should note, however, that as discussed in Chapter III, California did not experience a similar increase in the consumption of nursing home services, at least as measured by the total number of patient days of service provided in California facilities (only a 3% increase in patient days between 1980 and 1988).

We were unable to identify sources providing specific explanations for the changes in constant dollar spending for the other categories listed in Exhibit V-8.

Finally, it is interesting to note that growth in the GNP, measured in constant 1982 dollars, has been relatively similar to constant dollar growth in personal health care expenditures. Constant dollar GNP grew 26.3% between 1980 and 1988 while constant dollar personal health care expenditures grew 27.5%.¹¹

This would suggest that overall, the growth in the quantity of health care services consumed paralleled quantity growth in the economy as a whole. It also suggests that the higher rates of inflation in the health care industry (compared to the rest of the economy) played the key role in driving up the aggregate share of GNP devoted to health care (see Chapter II for details) during the study period. Researchers, such as Fuchs, indicate that in earlier periods, especially 1957 to 1977, growth in relative quantities of health care services consumed played a more important role in explaining growth in the share of GNP devoted to health care.¹²

3. What Factors Contribute to this More Rapid Inflation in Prices?

According to Fuchs (1990), prices have increased more rapidly in the health care industry than in the general economy for two major reasons. First, the prices of inputs (e.g., labor, supplies, equipment) used by the industry have increased. Health care is a labor-intensive industry and wages in the health care industry increased more rapidly than for employees in the rest of the economy (by an estimated 1.3% per year from 1977 to 1987). The net income of physicians, (adjusted for changes in specialty mix) grew even faster, rising 8.1% per year compared to 5.5% per year for all private nonagricultural workers. This above average growth of the price of labor in health care was a significant factor in the rapid rise in relative prices during the period from 1977 to 1987.¹³

Second, productivity in the health care industry has increased more slowly than in other sectors of the economy. As is true with most service-based industries, productivity in health care services increased more slowly than in agriculture or product-based industries. Service industries such as health care and education depend heavily on individualized contact and have

not been able to achieve productivity gains realized in other industries by substituting equipment for labor or by standardizing and routinizing production. This may result from the fact that, in health care, most of the industry's technological advancements have focused on increased effectiveness of treatment rather than increased productivity per se (that is, increasing the level of output or reducing the level of input).¹⁴

Fuchs suggests that productivity growth may also be negatively affected by the malpractice claim problem and the need to practice "defensive medicine." (Defensive medicine refers to changes in health care practices designed to reduce the malpractice litigation risks of the service provider. It is discussed at length in Chapter VI.) This can affect productivity to the extent that it requires physicians and other professionals to devote more time to each contact and more time to record keeping functions. Neither of these uses of resources result in additional output and thus hold down productivity growth. This reduced productivity growth (relative to the rest of the economy) contributes to upward pressure on prices. A final factor that contributes to lower productivity growth and upward pressure on prices is the growth in clerical and support workers needed to deal with increasingly complex reimbursement system requirements and increased competition and marketing requirements. These added workers do not contribute directly to provision of health care and thus retard overall productivity growth for the industry.¹⁵

E. ALL OTHER FORCES

The other forces that drive expenditures for and utilization of health care services and functions include a variety of influences that are difficult to disaggregate and quantify. The contribution of "all other factors" to the growth in personal health care expenditures was greatest in the period from 1965 to 1970 when

they caused more than one half of the growth in expenditures. As will be discussed in the next chapter, these other forces include factors such as technological change and changes in population characteristics. In 1982, these other factors accounted for only 13% of overall expenditure growth. In 1988, these other factors accounted for 23% of growth in personal health care expenditures.¹⁶ These forces are the subject of Chapter VI of this report.

F. SUMMARY

This chapter has presented an overview of the broad forces that have contributed to the rapid growth in health care expenditures during the period from 1980 to 1988. Four broad forces have been identified as:

1. General population growth.
2. General price inflation experienced across the economy.
3. The more rapid rate of inflation experienced in the health care industry as compared to the economy as a whole.
4. A variety of "other factors" such as technology, defensive medicine, and changes in the reimbursement system that trigger changes in the utilization of health care resources.

Other significant findings presented in this chapter include:

- The overall amount of price inflation experienced in the personal health care area was 73.0% higher than the amount of price inflation in the economy as a whole during the period from 1980 to 1988 (71.8% vs 41.5%).
- The more rapid rate of inflation measured by the CPI medical care cost component index compared to inflation measured by the personal health care expenditure implicit

price deflator may provide some evidence that cost shifting behavior is increasing the prices consumers and businesses pay for health care at a rate faster than that experienced by the health care sector as a whole.

- Among the components of personal health care expenditures that account for the largest share of total expenditures, price inflation was greatest in the drug (86%) and physician services (83%) categories while it was lowest in the hospital (67%) and nursing home care (55%) categories. In every category, however, price inflation exceeded the general economy-wide rate of inflation by a substantial margin.
- In the aggregate, price inflation (both general and medical inflation) accounted for 77% of the overall growth in personal health care expenditures. The remaining 23% growth reflected increased consumption of goods and services due to increased population and a variety of other factors that result in increased utilization or intensity of health care services.
- Measured in constant 1982 dollars, the quantity of personal health care services consumed increased 27.5% during the study period. This was generally similar to the 26.3% increase in constant dollar GNP during the same period. This implies that the increasing share of GNP devoted to health care during the study period was principally driven by increased prices for health care goods and services.
- Two principal reasons are suggested for the rapid price inflation in the health care sector. The first is the more rapid growth in wages and salaries in the health care industry than in the economy as a whole. Since health

care is a very labor intensive industry, this puts strong upward pressure on prices. The second reason is the relatively low growth in labor productivity in the health care industry compared to the economy as whole. This reflects patterns of investment in treatment quality than in labor saving methods and the effects of “defensive medicine” and increased competitive pressures.

ENDNOTES
SECTION V

1. Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Summer 1990, Volume 11, No. 4, pp. 5-7.
2. California Association of Hospitals and Health Systems, *1989 Hospital Fact Book: A Comparison of California and United States Hospital and Health Data*, 14th edition, 1989, p. 62.
3. Ibid.
4. Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Summer 1990, Volume 11, No. 4, pp. 5, 6.
5. U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1990, pp. 465-466.
6. Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Summer 1990, Volume 11, No. 4, pp. 51-53.
7. Gene Koretz, "Medical Costs are in Orbit, Right?," *Business Week*, April 1, 1991, p. 18.
8. Glenn A. Melnick, Jack Zwanziger, "Hospital Behavior Under Competition and Cost-Containment Policies: The California Experience, 1980 to 1985" *Journal of the American Medical Association*, November 11, 1988, Volume 260, No. 18, pp. 2669-2675. (See also HCFA, note 1 above, page 9)

9. Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Summer 1990, Volume 11, No. 4, page 10.
10. Steven C. Renn, "The Structure and Financing of Health Care Delivery in the 1980s," pp. 18-19, in *Health Care and Its Cost: Can the U.S. Afford Adequate Health Care?*, edited by Carl J. Schramm, Ann Arbor, Michigan: Health Administration Press Perspectives, 1987.
11. Constant dollar GNP was \$3,187.1 billion in 1980 and \$4,024.4 billion in 1988. This is a 24.27% increase. Data drawn from *Statistical Abstract of the United States, 1990*. Table 690, p. 425.
12. Victor R. Fuchs, "The Health Sector's Share of the Gross National Product," *Science* Volume 247, February 1990, p. 535.
13. Ibid.
14. Ibid.
15. Ibid.
16. Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Summer 1990 Volume 11, No. 4, p. 5.
17. The chart presented in Exhibit V-1 was taken from "National Health Expenditures, 1988," *Health Care Financing Review*, Summer 1990 Volume 11, No. 4, p. 6. There was no accompanying data table. As a result, the chart was scanned electronically for inclusion in this report. However, we have been able to estimate the data points used to prepare the chart and present them in the table shown below. The data points presented below are generally consistent with the data on population growth, general inflation, and medical inflation presented elsewhere in Chapter V.

Components of Annual Percentage Change in National Personal Health Care Expenditures Calendar Years 1980 to 1988					
Year	Pop. Chg.	Gen. Infl.	Med. Infl.	All Other	Total % Chg.
1980	1.2	7.1	1.9	3.2	13.4
1981	1.1	9.7	1.2	3.9	15.9
1982	1.0	6.5	3.1	1.6	12.2
1983	1.0	3.9	3.1	1.9	9.9
1984	0.9	3.7	2.4	1.4	8.4
1985	1.0	3.0	2.5	2.0	8.5
1986	1.0	2.6	2.3	2.4	8.3
1987	1.0	3.2	2.5	2.6	9.3
1988	1.0	4.3	2.4	2.3	10.0

CHAPTER VI
OTHER FACTORS THAT DRIVE HEALTH CARE EXPENDITURES

A. INTRODUCTION

In the previous chapter we discussed the four broad forces that are contributing to the rapid increase in health care expenditures. We concluded the chapter by referring to a group of “other factors,” factors other than population growth, general inflation, and medical inflation, that are believed to play a significant part in explaining rapid growth in personal health care expenditures. In this chapter we examine in greater detail each of four principal components of the “other factors” category and how they affect expenditures for health care:

- *Changes in the Population Mix (Demography)* includes the impact of changes in the age, race, and income characteristics of the population and the influences of sociobiological epidemics and lifestyle related problems.
- *Technology* refers to the application of new equipment, drugs, supplies, and treatments (including surgical procedures) to the provision of health care.
- *Medical Malpractice Liability* impacts medical practice patterns of health care providers in order to minimize the risk of loss due to malpractice litigation.

- *The Economic Structure of the Health Care Delivery System* includes the institutional structure of the industry and the payment system, how those features affect the behavior of the various participants in the health care system, and the influence those participants' behavior has on the amount of overall health care expenditures.

For each of these four components of the "other factors" category we define the component, explore how health care researchers believe it influences health care expenditures, and discuss the available quantitative data about the component and its influence. These four components are thought to play an important role in explaining that portion of the growth in health care expenditures which is not explained by population growth, general inflation, or medical inflation. As such, this "all other factors" category is a "residual" category that contains not only the influence of the four major components of the "other factors" category discussed in this chapter, but all other forces (however minor) that influence health care expenditures.

In such a residual category, it is difficult to separately isolate and quantify the specific impact on expenditures of any of the components in this "all other factors" category. This is true at both the national and the state level. As a result, we were unable to find in the literature any meaningful quantitative estimates of the specific expenditure impact of each of the four components discussed in the chapter. We focus instead, therefore, on explaining what each of these four components is, and how researchers believe each component contributes to changes in health care expenditures, and we provide quantitative information (when available) which will help the reader understand the nature and scope of each component.

As was noted in Chapter V, price inflation (the combination of both general inflation and medical inflation) is thought to account for approximately 77% of the increase in health care expenditures between 1980 and 1988. The remaining 23% of the increase reflects the increase in expenditures due to the increase in the quantity of health care services consumed. In part, this increase in the quantity of services consumed reflects the effects of a larger population, as was discussed in Chapter V (more people implies a larger quantity of health care services consumed, all other factors being held constant). The other portion of the growth in the quantity of health care services consumed is due to the combined effects of the "other forces." The four components of the "other forces" category discussed in this chapter have all contributed to the increase in the quantity of services consumed, over and above the increase due to a larger population. This chapter seeks primarily to explore how these four components contribute to the increased quantity of health care services consumed.

B. CHANGES IN THE POPULATION MIX

1. Introduction

The demographic composition of the population has been cited as a driver in the quality of health care services consumed. The literature provides useful insights on the effects of individual aspects of the demographic composition of the population on health care expenditures. The literature points to several factors, such as, age distribution, ethnic diversity, the type of health care insurance coverage and characteristics of the population affected by sociobiological epidemics or lifestyle-related health problems. Specifically, this section presents information on the influence of age, race/ethnicity, the type of health care insurance coverage, and sociobiological epidemics and lifestyle on health care

expenditures. This discussion focuses on the elements of the demographic composition of the nation and where data were available of the California population as well.

2. Age Distribution of the Population

The use of health care services has been shown to vary with the age distribution of the population. The literature indicates that among adults health care utilization increases with age. Fuchs reports that the change in the age distribution of the national population between 1946 and 1986 is estimated to have resulted in an increase in the use of health care of approximately 0.3% per annum. It is further estimated that between 1986 and 2006 the quantity of health care services and supplies consumed nationwide is expected to increase at 0.5% per annum as a function of the projected change in the age distribution of the population.¹

Fuchs offers three explanations for the increased utilization by the aged. First, increased competition may have led physicians to focus their practice increasingly on older men and women patients. Second, new technology may have more applicability to the health concerns of the aged. Finally, a healthier elderly population may have led to more costly interventions not previously justifiable for patients in poor health. Fuchs acknowledges these diverse speculations make it difficult to determine the course of trends in increased utilization.²

Exhibit VI-1 presents the age distribution of the population in the United States and California in 1980 and 1988. These estimates were developed by the U. S. Department of Commerce, Bureau of the Census. As shown in the exhibit, from 1980 to 1988, California experienced more than twice the growth in population as compared to the nation as a whole. The most dramatic increase was seen in the under age 5 and the 35-44 age

groups at 39.8% and 52.4% respectively. Other noteworthy increases in California occurred in all age groups over the age of 65, which ranged from 22.4% (65-74 years) to 26.2% (75-84 years) to 30.7% (85 years and over). Furthermore, the age group of all aged 65 and over totalled 2.41 million people in 1980 and comprised 10.2% of California's population and was estimated to have increased to 3 million people, or 10.6% of the state population in 1988.

Exhibit VI-1 also illustrates the increase in the median age over the 1980-1988 time period. The median age increased by more than two years both nationally and in California, although, in 1988, the median age in California, at 31.8 years, was slightly less than the national median age of 32.4 years. The California Department of Health Services developed life expectancy estimates and concluded that in California the average man who reaches the age of 65 can expect to live to age 79.9 and the average woman can expect to live to age 84.³

The literature indicates that health care utilization patterns among adults increase with increasing age. For example, Exhibits VI-2 and VI-3 present data obtained from the National Medical Care Utilization and Expenditure Survey (NMCUES) pertaining to ambulatory and physician visits per person by age group.⁴ Survey results reflect the health care experience of the civilian non-institutionalized population of the United States during 1980. As these exhibits indicate, in 1980, the number of visits per patient from the age of 5 and above increased for each subsequent age group. For the purpose of the NMCUES study, ambulatory medical visits includes personal visits for health care (excluding dentistry) received from any kind of provider at any kind of facility (including visits in the home) that did not occur during an inpatient hospital stay. Physician visits are

defined as a subset of ambulatory visits that were with a doctor of medicine or osteopathy or a person supervised by one of these types of doctors.

Exhibit VI-1

Population Estimates for the United States and California
and Percent Changes in Growth: 1980-1988

Age	United States			California		
	Population (b)		Percent Change 1980-1988	Population (b)		Percent Change 1980-1988
	April 1, 1980 (Census)	July 1, 1988		April 1, 1980 (Census)	July 1, 1988	
Under 5 years	16,348	18,432	12.7%	1,708	2,387	39.8%
5 to 14 years	34,942	34,653	-0.8%	3,446	3,987	15.7%
15 to 24 years	42,487	37,396	-12.0%	4,486	4,127	-8.0%
25 to 34 years	37,082	43,669	17.8%	4,243	5,419	27.7%
35 to 44 years	25,635	35,265	37.6%	2,815	4,291	52.4%
45 to 54 years	22,800	24,164	6.0%	2,360	2,752	16.6%
55 to 64 years	21,703	21,832	0.6%	2,195	2,357	7.4%
65 to 74 years	15,581	17,906	14.9%	1,471	1,801	22.4%
75 to 84 years	7,729	9,526	23.3%	725	915	26.2%
85 years and over	2,240	2,942	31.3%	218	285	30.7%
All Age 65 and over	25,550	30,374	18.9%	2,414	3,001	24.3%
TOTAL	226,546 (a)	245,785 (a)	8.5%	23,668 (a)	28,323 (a)	19.7%
Median Age	30.0 years	32.4 years	8.0%	29.9 years	31.8 years	6.4%

Note: (a) Sum of columns may not equal totals due to rounding.
(b) In thousands.

Source: United States Department of Commerce, Bureau of the Census.
State Population and Household Estimates: July 1, 1989

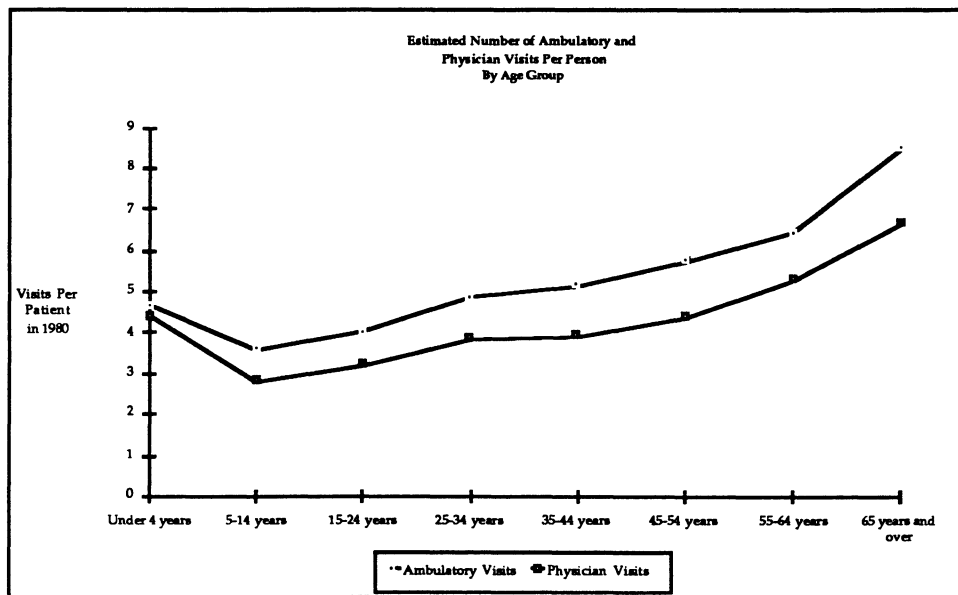
Exhibit VI-2

**Estimated Number of Ambulatory and
Physician Visits Per Person: 1980
By Age Group**

Age Group	Ambulatory Visits	Physician Visits
Under 4 years	4.66	4.41
5-14 years	3.58	2.81
15-24 years	4.02	3.21
25-34 years	4.86	3.85
35-44 years	5.14	3.92
45-54 years	5.75	4.37
55-64 years	6.43	5.28
65 years and over	8.46	6.65

Source: Health Care Financing Administration, Health Service Utilization in the U.S. Population by Health Insurance Coverage, Series B, Descriptive Report No. 13, December 1986.

Exhibit VI-3



Source: Health Care Financing Administration, Office of Research, Demonstrations, and Statistics, *Health Services Utilization in the U.S. by Health Insurance Coverage*, December 1986.

Further information from the NMCUES study is presented in the next section on the impacts of insurance coverage by age group. Exhibits VI-5 and VI-7 in that section present hospital inpatient utilization by age group. In 1980, persons aged 65 and over experienced more hospital discharges per 1,000 persons (381), more hospital days of care per 1,000 persons (4,047), and a longer average length of stay (8.46 days) as compared to those under the age of 65. For comparison purposes, the under age 65 group had 150 hospital discharges per 1,000 persons, 942 hospital days of care per 1,000 persons, and an average length of stay of 6.28 days.

However, with increasing age the association between age and health care resource consumption is exponential, not linear. The health care resource requirements of an aging population are extremely different from those of a younger population.⁵ Garfinkel, et. al., found in a study comparing a sample of persons under age 65 with a sample of those age 65 and older the following characteristics:

- Persons 65 years or over were more likely than persons under 65 to be high-cost users of medical care, reflecting the higher likelihood of intensive service use among older persons.
- High-cost users (defined as a group of persons who account for a disproportionately large share of medical charges) age 65 or over consume far more resources than high-cost users under age 65, and they devote more of their income to paying for care (exclusive of insurance premiums).⁶

On a per capita basis, people 65 years of age or older averaged \$3,594 of personal health care expenditures in 1983, while those under age 65 incurred costs of \$995.⁷ Janeway asserts that quoting

per capita expense distorts the actual cost figures for health care for the majority of working Americans because expenditures are unevenly distributed among age groups. For example, within the elderly population, expenditures are unevenly distributed between survivors and decedents due to a disproportionate utilization of medical resources.^{8,9} Studies of high-cost hospital patients show that a large portion of the costs were incurred by patients who die either during their hospitalization or shortly after discharge from the hospital.¹⁰

Roos, Shapiro and Tate conducted research in Manitoba, Canada to track usage of hospitals and nursing homes by a representative sample of elderly persons over a 16-year period beginning in 1970.¹¹ Based on their research efforts, the authors offer the following observations relating to the elderly and health care expenditures:

- One-half the elderly make minimal demands on the system, while 45% incur large expenditures and five percent very large expenditures; and
- Expenditures in the year of death are substantially higher than average expenditures in prior years.

According to Schneider and Guralnik, the “aging of the aged” will have a substantial impact on health care costs. This group which is referred to as the “oldest old” and defined as those aged 85 years and over is expected to rapidly increase. The authors suggest that previous U.S. Census Bureau projections did not anticipate the marked decline in mortality of older age groups that occurred in the last two decades. For example, elimination or reduction in the incidence of certain diseases may have resulted in more individuals surviving to older ages and developing other diseases. Declines in mortality from heart disease in the 65-74 year and/or 75-84 year age groups could lead

to the survival of a larger population at risk for developing Alzheimer's Disease or other diseases that disable the oldest old such as Parkinson's disease, osteoarthritis, hip fractures, and peripheral vascular diseases.¹²

The increase in the oldest old also influences the increase in expenditures for nursing home care. Exhibit VI-4 presents estimates developed by University of California San Francisco, Institute of Health and Aging, of the number of nursing home patients in California in 1980 and 1990 by age group. The total number of elderly patients is estimated to have increased by 43.4%, from 125,479 patients in 1980 to 179,911 patients in 1990. The greatest change is seen in the age group age 85 and over. In 1980, this age group comprised 40% of the total nursing home population and increased to 44.5% of the total in 1990. Furthermore, the absolute number of patients age 85 and over increased by 59.3% from 50,219 patients in 1980 to 80,013 patients in 1990.

Exhibit VI-4

CALIFORNIA NURSING HOME PATIENTS

Age	1980		1990		1980-1990 Percent Change
	Number of Patients	Percent of Total	Number of Patients	Percent of Total	
65-74 years	24,044	19.2%	29,498	16.4%	22.7%
75-84 years	51,216	40.8%	70,399	39.1%	37.5%
85 and over	50,219	40.0%	80,013	44.5%	59.3%
All Ages 65 and Over	125,479	100.0%	179,911	100.0%	43.4%

Source: *California's Elderly: Changing Demographics and Their Impact on Policies and Services*, Institute of Health and Aging, UCSF, 1985, as reported in *California 2000: A People in Transition*, Assembly Office of Research, June 1986.

3. *Insurance Coverage*

The type of health care coverage (private health insurance or governmental program, such as Medicare and Medicaid) appears to influence the use of inpatient and ambulatory services. The NMCUES data provides selected health service utilization information by type of health insurance coverage in 1980 and is the most recent comprehensive data available. The NMCUES reports the information separately for the population under age 65 and those aged 65 and over. These two populations are presented separately because they have different patterns of insurance coverage and because utilization is heavily influenced by age.¹³

NMCUES estimates that 194 million persons or 89.1% of the national population were under 65 years of age in 1980.¹⁴ As Exhibit VI-5 indicates, the majority of Americans under the age of 65 (73.1%) possessed private health care insurance in 1980. This group includes persons covered by commercial insurance, Blue Cross and Blue Shield, health maintenance organizations, other prepaid health plans, and other reimbursement programs operated by private industry, government, or schools, and excludes those covered by Medicare or Medicaid. The privately insured group accounted for 141 discharges and 894 days of care per 1,000 persons and an average hospital stay of 6.3 days. Ambulatory and physician visits averaged 4.81 visits and 3.8 visits per person respectively.

The Medicare and Medicaid (with no supplemental private insurance) groups under the age of 65 comprised 8.7% of the population and used a greater proportion of inpatient services than the proportion of the population they represented. According to the NMCUES report, this difference can be attributed to the eligibility criteria of Medicare and Medicaid. For example, Medicare beneficiaries under the age of 65 are disabled

Exhibit VI-5

SELECTED HEALTH SERVICE UTILIZATION STATISTICS FOR PERSONS UNDER 65 YEARS OF AGE
By Health Insurance Coverage in U.S. for 1980

	All Person Under 65	Health Insurance Coverage						No Insurance
		All Medicare	Medicaid, No Private	Private, No Medicaid	Medicaid and Private	Other Coverage		
Number of Persons in Millions	194.0	3.1	13.8	141.8	3.6	5.9	25.8	
Percent of Persons	100%	1.6%	7.1%	73.1%	1.9%	3.0%	13.3%	
Hospital discharges per 1,000 persons	150	489	278	141	196	235	63	
Hospital days of care per 1,000 persons	942	5,295	1,510	894	1,038	1,158	317	
Average length of stay in days	6.28	10.83	5.43	6.34	5.29	4.93	5.02	
Ambulatory visits per person	4.76	13.40	5.74	4.81	5.99	5.72	2.50	
Physician visits per person	3.81	11.23	4.82	3.80	4.71	4.98	2.03	

Source: Health Care Financing Administration, Office of Research, Demonstrations, and Statistics, *Health Services Utilization in the U.S. Population by Health Insurance Coverage*, December 1986, Table 7, page 15.

or suffer from end stage renal disease. In addition the Medicaid population includes a high proportion of women in their childbearing years as well as disabled persons eligible for Supplemental Security Income (SSI).

Particularly noteworthy is that 13.3% of the national population under 65 years of age had no insurance coverage in 1980. This group had the lowest utilization rates of any of the insured categories. It is unclear whether the uninsured group is relatively healthier than those with private insurance or that factors other than health status may account for differences in the use of health services. The NMCUES study found that the probability of being uninsured was greatest for persons who are 15-24 years of age. Historically, this group has the highest unemployment rate and the highest proportion of students and unmarried adults.¹⁵

Exhibit VI-6 presents data from the NMCUES study which shows that in 1980 the proportion of uninsured persons peaked at 15-24 years of age and then declined consistently as age increased. Furthermore, a more recent study conducted by Lewin/ICF estimated the proportion of the uninsured population by state. Although utilization rates were not tracked by type of health care coverage, results indicate that California's uninsured population constituted 12.7% of the state population in 1980 and 17.2% in 1988. California's uninsured population was higher than the nation as a whole. For comparison purposes, the Lewin/ICF study also reports that the nation's uninsured population was 10.8% of the total in 1980 and 13.1% in 1988.¹⁶

Exhibit VI-6

**AGE DISTRIBUTION OF PERSONS UNDER 65 YEARS OF AGE WHO REPORTED
NO HEALTH INSURANCE COVERAGE: UNITED STATES 1980**

Age Groupings	Percent Distribution
Under 4 Years	8.75%
5 to 14 Years	15.37%
15 to 24 Years	27.69%
25 to 34 Years	21.14%
35 to 44 Years	10.59%
45 to 54 Years	9.19%
55 to 64 Years	7.26%
1980: Total Persons in Millions	25.8

Source: Health Care Financing Administration, Office of Research, Demonstrations, and Statistics, *Health Services Utilization in the U.S. Population by Health Insurance Coverage*, December 1986, Table 6, page 15.

Exhibit VI-7 presents data from the NMCUES study on health service utilization by persons aged 65 or over by type of health insurance coverage. The group covered by both Medicare and Medicaid simultaneously had more hospital discharges per 1,000 persons (706), hospital days of care per 1,000 person (8,044), and more ambulatory and physician visits per persons than the other categories. According to the NMCUES report, the group covered by both Medicare and Medicaid tends to be poorer and less healthy and to use more services than other persons in their age group.¹⁷

Exhibit VI-7 also illustrates that, of those aged 65 and over, 63.5% possessed supplemental health care insurance or coverage under other public programs other than Medicaid (such as CHAMPUS or Veteran's Administration) in addition to Medicare. This group had more hospital discharges per 1,000 persons, hospitals days of care per 1,000, and more ambulatory and physician visits than the group with Medicare coverage only.

Exhibit VI-7

**SELECTED HEALTH SERVICE UTILIZATION STATISTICS
FOR PERSONS 65 YEARS OR AGE OR OVER**

By Health Insurance Coverage in U.S. for 1980

	All Persons Under 65	Health Insurance Coverage			
		Medicare Only	Medicare and Medicaid	Medicare and Private or Other	No Medicare
Number of Persons in Millions	23.8	4.9	2.9	15.1	0.9
Percent of Persons	100.00%	20.48%	12.24%	63.51%	3.77%
Hospital discharges per 1,000 persons	381	248	706	370	220
Hospital days of care per 1,000 persons	4,047	2,968	8,044	3,734	2,202
Average length of stay in days	10.63	11.99	11.39	10.08	10.01
Ambulatory visits per person	8.46	5.64	11.05	9.12	4.41
Physician visits per person	6.65	4.39	9.15	7.05	4.09

Notes: "Medicare Only" refers to persons reporting Medicare as their only source of coverage.

"Medicare and Medicaid" refers to persons covered by both major Federal reimbursement programs simultaneously.

"Medicare and Private or Other" includes persons with a private insurance plan or one of the other public programs (except Medicaid) in addition to Medicare.

"No Medicare" include persons with some form of coverage other than Medicare and persons with no third-party coverage of any kind. NMCUES combined the two groups into this category because their small samples precluded reliable estimates.

Source: Health Care Financing Administration, Office of Research, Demonstrations, and Statistics, *Health Services Utilization in the U.S. Population by Health Insurance Coverage*, December 1986, Table 12, page 20.

4. Race/Ethnicity

Race refers to the concept that physical, intellectual and behavioral characteristics are inherited and ethnicity refers to the sharing of a culture of such things as language and customs.¹⁸ There are some diseases which are more prevalent in some racial groups than others. In addition, health and illness, attitudes to medicine and health professionals, and the use of health services differ between cultures.¹⁹ Furthermore, ethnicity

and race are related to socioeconomic status. For example, in the United Kingdom, traditional diseases associated with poverty such as vitamin D deficiency and tuberculosis have a relatively high prevalence in groups of Asian origin. Also, differences have been found in infant and child health between white and black populations.²⁰

In the United States, there have been a limited number of studies which have linked illness behavior to race or ethnicity.²¹ One difficulty is separating the effects of socioeconomic status from the effects of race and ethnicity. Snowden and Cheung assert that further research is needed to determine the impact of race and ethnicity but that controls should be included for sociodemographic factors such as income, education, gender, age, and living arrangements which may confound results.²²

For example, Munoz, et. al. examined all adult and pediatric admissions to a New York academic medical center over the 1985-87 time period. The authors were interested in the effects of a payment system in which Medicaid and private insurance pay for all hospitalized patients on a per case per diagnosis basis similar to Medicare's prospective payment system based on diagnosis-related groups (DRG). The study found that Blacks and Hispanics on average had a greater hospital length of stay and total hospital cost per patient, greater severity of illness, more financial risk under the hospital prospective payment system, a greater percentage of emergency admissions, and higher diagnostic costs compared to white patients. The authors concluded that if all-payer systems do follow this pattern of paying hospitals for patients on a per case per diagnosis basis, black and Hispanic patients may present substantial financial risk to hospitals in the future.²³ It should be noted that this study did not control for socioeconomic status and how it affects

overall use of health care services and therefore, the results could be masking the effects of different income levels or insurance coverage.

As noted in the previous section, the literature indicates that the type of insurance coverage impacts health care utilization. There appears to be a difference in the distribution of health care insurance coverage by race. The NMCUES study reported distribution of persons nationally under 65 years of age by health insurance coverage and race in 1980. For the purposes of the study, race was defined by three categories: "white," "black," and "others." A notable difference was found in the proportion of persons with Medicaid. The proportion of black people with Medicaid coverage (22.2%) was much greater than of white people (4.9%) and all other persons (11.5%). Three-fourths of the white population under 65 years of age (76.3%) had private insurance, compared with only one-half of the black population (53.4%). However, the proportion of black people who were uninsured (15.1%) was more similar to the proportion of uninsured white people (13%).²⁴

California is experiencing a tremendous change in the ethnic diversity of its population. This change is occurring at such a rapid rate that policy makers should be concerned about and track the effects of these changing demographics in order to address the population's specific requirements for health care services and financing. Exhibit VI-8 illustrates the change in the state's ethnic population from 1980 through 1988.

- While the total population increased by 17.1%, the White population only increased by 4.6% yet comprised 59.4% of the population in 1988;

- The Hispanic population increased 44.4%, numbering 6.6 million in 1988 or 23.8% of the state's total population.
- The overall Black population increased by 16.9%; however, this group's share of the total state population actually decreased from 8% in 1980 to 7.5%.
- The population of all "Others" increased dramatically by 62.9%, constituting 9.3% of the state population in 1988.

Exhibit VI-8

Ethnicity by Age Group	Population in 1980	Population in 1988	Percent Change 1980-1988
<i>0-21 Years</i>			
Whites	4,715,036	4,336,601	-8.0%
Blacks	750,858	815,145	8.6%
Hispanics	2,198,907	3,036,898	38.1%
Other	591,118	948,469	60.5%
<i>22-64 Years</i>			
Whites	9,087,436	9,705,599	6.8%
Blacks	926,729	1,143,558	23.4%
Hispanics	2,185,875	3,292,370	50.6%
Other	894,560	1,461,133	63.3%
<i>65 and Over</i>			
Whites	1,880,793	2,360,583	25.5%
Blacks	104,051	123,344	18.5%
Hispanics	165,278	240,294	45.4%
Other	89,087	156,064	75.2%
<i>All Ages</i>			
Whites	15,683,265	16,402,783	4.6%
Blacks	1,781,638	2,082,047	16.9%
Hispanics	4,550,060	6,569,562	44.4%
Other	1,574,765	2,565,666	62.9%
TOTAL POPULATION	23,589,728	27,620,058	17.1%

Source: California Department of Finance, Demographic Research Unit.
Report 88 P-4, *Projected Population for California by Race/Ethnicity*.

5. *Sociobiological Epidemics and Lifestyle-Related Problems*

This section presents the results of the project team's literature review of the effects of sociobiological epidemics and lifestyle on health care expenditures. Sociobiological epidemics and lifestyle-related problems are major causes of widespread illness, disability, and premature death and they drive the increased use of medical resources. In this section information is presented on several sociobiological epidemics, such as acquired immune deficiency syndrome (AIDS), mental illness, and hypertension and lifestyle-related problems attributed to alcohol abuse, drug abuse, homelessness, and cigarette smoking.

AIDS

Pascal, et. al., reports that the distribution of the costs of treating people with AIDS across states will vary from other catastrophic illnesses because of two factors. First, the nature of the disease causes shorter survival periods and a different mix of required services. Second demographic and socioeconomic characteristics of the affected population differ from state to state. According to the authors, California reported the largest Medicaid expenditure for AIDS through 1987, approximately \$58 million, which was more than any other state in the nation. New York ranked second, spending almost \$40 million.²⁵

As Exhibit VI-9 indicates, the number of AIDS cases in California totaled 14,880 of which 3,397 (22.8%) were covered by Medi-Cal and 11,483 (77.2%) were non-Medi-Cal. Furthermore, California's AIDS population comprised 25.8% of the total 57,765 AIDS cases nationwide.

Exhibit VI-9

Number and Percent of AIDS Cases By Age
California (Medi-Cal and Non Medi-Cal)
and United States, 1981-1988

Age	California				United States	
	Medi-Cal		Non Medi-Cal		Number	Percent
	Number	Percent	Number	Percent		
Total	3,397	100.0%	11,483	100.0%	57,765	100.0%
Under 13	24	0.7%	63	0.5%	1,067	1.8%
13-19	11	0.3%	18	0.2%	262	0.5%
20-29	795	23.4%	1,723	15.0%	12,486	21.6%
30-39	1,667	49.1%	5,118	44.6%	26,839	46.5%
40-49	685	20.2%	2,949	25.7%	11,500	19.9%
Over 49	215	6.3%	1,612	14.0%	5,611	9.7%

Source: Centers for Disease Control, AIDS Weekly Surveillance Report – United States, *Medi-Cal AIDS Special Research File, 1981-1988* as reported in Department of Health Services, *AIDS in California: Expenditures, Demographics and Mortality for Persons with AIDS on Medi-Cal*, December 1988, page 64.

In California, there has been a downward trend in monthly and lifetime expenditures for persons with AIDS as shown in Exhibit VI-10. For example, in fiscal year 1984/85 the Medi-Cal per person per month expenditure was \$2,498 and decreased to \$1,757 in 1988/89. Hospital inpatient expenditures decreased from \$2,241 per person per month to \$1,230 over the same time period. Inpatient services as a percentage of total expenditures decreased from 90% to 70% as well. According to a report by the Department of Health Services, this trend reflects California's policies of promoting hospice care, outpatient and other out-of-hospital treatment. It also reflects medical expertise in treating AIDS and more effective treatment.²⁶

It is estimated that in 1989/90, \$583 million (for Medi-Cal and non-Medi-Cal patients) was spent in California for the treatment of AIDS, which is the first time charges have exceeded one percent of the estimated California total personal health

Exhibit VI-10

**Medi-Cal AIDS Expenditures
Per Person Per Month**

Fiscal Year of Service	Expenditures Per Person Per Month	Hospital Inpatient Services	Inpatient Services as a Percent of Total Expenditures
1984-1985	\$2,498	\$2,241	90%
1985-1986	\$2,040	\$1,747	86%
1986-1987	\$2,037	\$1,686	83%
1987-1988	\$1,783	\$1,306	73%
1988-1989 *	\$1,757	\$1,230	70%

Note: * Year of payment data are used here.

Source: Medi-Cal AIDS Special Research File as reported in Department of Health Services, *Demographics and Expenditures for Persons with AIDS 1980-1989*, March 1990, page 21.

expenditures.²⁷ Furthermore, it was estimated that in 1989, Medi-Cal would cover 46.4% of the number of AIDS patients. A new statute (Welfare and Institutions Code, Section 14142.91) which became effective in August 1989, may limit some of the associated increases in Medi-Cal AIDS expenditures. This statute allows the Department of Health Services to pay the private insurance premiums of Medi-Cal eligibles, using Medi-Cal funds, to keep their policies in force. This should reduce reliance on Medi-Cal among AIDS patients who have private insurance at the time of diagnosis.²⁸

Mental Illness

The UCSF Institute of Health and Aging conducted a study of the economic costs of mental illness. The authors used a selected list of diagnoses identified in the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*, which included such disorders as psychosis, schizophrenia, neurosis, personality disorders, depression,

mental retardation, sleep disturbances, senility, and suicide, and found that the direct costs amounted to \$42.5 billion in 1985. The authors also found that the prevalence of mental disorder is high and they cite one study which indicates that one-third of the population 18 years of age and over have a mental disorder during their lifetime.²⁹

Nationally, the estimated direct costs of mental illness amounted to \$42.5 billion in 1985. About 30% of these costs were expenditures for care in state, county, and psychiatric hospitals, residential treatment centers for emotionally disturbed children, freestanding mental health care centers and correctional facilities; and care given by federal providers such as the Veteran's Administration, Army, Navy, Air Force, and Indian Health Affairs. Another 20% of direct costs, or \$8.8 billion, was spent for short-stay hospital care. Nursing home expenditures amounted to \$10.6 billion or 25% of direct costs. Finally prescription drugs for the mentally ill were estimated at \$1.5 billion or 3% of direct costs. The remaining 22% was spent on office-based physician visits, other professional services, other health services, volunteer services and support costs.³⁰

Hypertension

Hebel, McCarter, and Sexton reviewed health care insurance claims to track the costs associated with hypertension (high blood pressure) for an employed population. The study found that health care costs for hypertensives were estimated to be about 80% more than those for non-hypertensives. Hospital, physicians, and nursing care accounted for 50 percentage points of the incremental costs while drug costs comprised the remaining 30 percentage points.³¹

Alcohol Abuse

The UCSF Institute for Health and Aging also examined the economic costs of alcohol and drug abuse. For purposes of the study alcohol abuse was defined as any of the diagnoses listed for alcohol abuse in the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*. The authors found that in 1985 direct health-related costs of alcohol abuse amounted to \$6.8 billion nationwide. A related problem, fetal alcohol syndrome which causes physical and mental deficiencies in newborns, impacts rehabilitation and long-term care services. The study found that in 1985, costs of fetal alcohol syndrome totalled \$1.6 billion. Of this total, neonatal intensive care costs amounted to \$118 million. Also, a large portion (80%) of the total was spent on residential care and support services for those adult mentally retarded persons afflicted by fetal alcohol syndrome at birth.³²

Drug Abuse

The UCSF Institute for Health and Aging study reported the results of the 1985 National Household Survey on Drug Abuse conducted by the National Institute on Drug Abuse. Survey results indicated that 62 million persons (32.4% of the population) used marijuana and hashish during their lifetime and 22.2 million (11.6%) used cocaine. Marijuana and hashish users during the 1985 year amounted to 29.4 million (15.3%) and 12.2 million (6.3%) used cocaine.³³

The study conducted by the USCF Institute for Health and Aging found that total direct health care costs for drug abuse amounted to \$2.1 billion nationally in 1985. For the purposes of the study, drug abuse was defined as any of the diagnoses listed in the *International Classification of Diseases, Ninth Revision, Clinical*

Modification (ICD-9-CM). (Crack cocaine addiction is not included in these estimates because it did not become a major public health problem until after 1985.)³⁴

Homeless Population

Based on its literature review, the Institute for Health and Aging report that alcohol and drug abuse and mental illness are major health problems of the homeless population. The average rate of alcohol abuse is 38%. Estimates of the extent of mental illness range from 17% to 50%. The authors found that information was not available on the time spent by homeless alcoholics and mentally ill persons in public and private institutions and hospitals. Since it is difficult to define and estimate the homeless population, reliable data on the impact of this factor on health care costs is unavailable.³⁵

Cigarette Smoking

The literature indicates the health consequences of smoking include: Changes in medical costs, shortened life, reduced quality of life, productivity losses, and complications of pregnancy.³⁶

The relationship between smoking and aggregate national health care expenditures is difficult to assess as there is a tradeoff between higher than average annual medical care use and expenditures of smokers compared to longer life expectancy and additional years of medical care for nonsmokers.³⁷ Vogt in his analysis cautions the reader that most estimates of the medical costs of smoking assume that the morbidity differences between smokers and non-smokers are applied to forecast the use of medical care services. This may not be an accurate assumption; since smokers do not live as long as nonsmokers, they may be less liable to many of the expensive and chronic diseases of old

age. For example, Vogt points out that three years in a nursing home after a stroke is considerably more expensive than death from lung cancer.³⁸

The California Department of Health Services utilized 1985 hospital discharge data to estimate the number of smoking attributable to hospitalizations and their cost in California.³⁹ Exhibit VI-11 illustrates the results of the amount of health care costs attributable to smoking in 1985 in California. Overall, \$4.1 billion was spent for hospital care, professional services, nursing home care and drugs. A little over \$3 billion was spent on care of those age 65 and over. In addition, more was spent on the care of males (\$2.4 billion) as compared to females (\$1.7 billion).

Exhibit VI-11

**Health Care Costs Attributable to Smoking
By Type of Health Care and Sex
California, 1985**

(Amount in Millions)

Type of Care	Both Sexes			Males			Females		
	All Ages	20-64 Years	65 + Years	All Ages	20-64 Years	65 + Years	All Ages	20-64 Years	65 + Years
Hospital Care	\$2,336	\$824	\$1,512	\$1,388	\$528	\$860	\$948	\$296	\$652
Professional Services	691	98	593	537	60	478	153	38	115
Nursing Home Care	833	33	800	314	22	292	519	11	508
Drugs	215	44	172	167	25	142	48	18	30
TOTAL	\$4,074	\$998	\$3,076	\$2,404	\$635	\$1,770	\$1,670	\$363	\$1,307

Source: California Department of Health Services, Chronic Disease Branch, *Health and Economic Impact of Smoking, California, 1985*, November 1988, Table 4.

In the United States, the estimated per capita consumption of cigarettes per year has decreased from 4,141 cigarettes in 1974 to 3,274 cigarettes in 1986.⁴⁰ While consumption has been decreasing, a substantial portion of the California population still smokes. As the following exhibit indicates, adults in

California with a high school education or less are one-and-one-half times more likely to smoke than adults with education beyond high school.

Exhibit VI-12

**Smoking Prevalence in California
by Gender, Age, and Education**

Age Group	Males		Females	
	High School Graduate or Less	At Least Some College	High School Graduate or Less	At Least Some College
18-24 years	29.3%	8.0%	28.2%	12.5%
25-34 years	37.7%	20.6%	29.5%	16.9%
35-44 years	41.1%	26.3%	29.5%	19.5%
45-54 years	46.9%	24.8%	35.4%	21.2%
55-64 years	30.4%	20.7%	26.2%	23.1%
65 + years	17.7%	9.8%	16.9%	13.9%

Source: Behavioral Risk Factor Survey, 8,252 phone surveys of adults over 18 from 1984-88, age/race/sex adjusted to 1986 California population, California Department of Health Services, Chronic Disease Branch, December 1989, as reported in Tobacco Education Oversight Committee, *Toward a Tobacco-free California: A Master Plan to Reduce Californians' Use of Tobacco*, a report submitted to the California Legislature, January 1, 1991.

6. Summary

Based on our literature review, it appears demographics are related to health care expenditures. However, we found no studies to date which allow us to determine the exact extent to which each variable, i.e., age distribution, race/ethnicity, insurance coverage, sociobiological epidemics or lifestyle-related problems, accounts for the overall change in health care expenditures. However, policy makers must be watchful of such factors as the size of the aging population, the change in the distribution of the population by race/ethnicity, and the impact of AIDS and other sociobiological epidemics, because of the ongoing effect these factors are likely to have on the size and distribution of health care expenditures in California.

C TECHNOLOGY

1. Description

Eli Ginzberg defines technology, or high-tech medicine, as the sum of all the advances in medical knowledge and technique that have been translated into improved diagnostic, therapeutic, and rehabilitative procedures during the past several decades.⁴¹ According to economist Victor Fuchs, most new health care technology involves a change in product, such as new operations or new drugs, rather than process (e.g. such as automated blood tests), which would allow for increased productivity and lower costs.⁴²

The technology for delivering health care has changed rapidly, particularly since the end of World War II. Changes in technology include new drugs, new diagnostic equipment, as well as new procedures such as open heart surgery and organ transplants. While technology is often thought of as consisting of expensive "big ticket" capital equipment items such as Magnetic Resonance Imaging (MRI) scanners, it also includes "small ticket" items such as autoanalyzers in clinical laboratories or new drugs that make possible simpler treatment of some health problems (such as ulcer medications introduced in the late 1970s).⁴³

As Ginzberg has noted, since World War II, and especially in recent decades, high technology medicine has become synonymous with American medicine. Furthermore, it is commonly thought that technology has played a large part in fueling the rapid growth in personal health care expenditures. Technology not only has increased the number and sophistication of the tools with which illness is diagnosed and treated (the "how" health care is delivered) but has made

possible the treatment of whole categories of illness, such as kidney failure, (the “what” problems health care can address) that were formerly impossible to treat and thus not contributing significantly to health care expenditures in the past.⁴⁴ While this latter category undoubtedly represents a significant source of increased expenditures, it also represents a significant benefit to the patients suffering from formerly untreatable conditions.

2. Influence on Health Care Expenditures

Technological advances have had an impact on both price and service utilization. As technological advances occur, more effective and often more costly alternatives become available to patients which did not exist in the past. New treatments can also cause an increase in the number of patients eligible for a certain procedure, thus increasing overall utilization of health care services and expenditures. Furthermore, technology cannot be considered as a purely exogenous factor (a factor independent of forces within the industry) in the health care industry. As Fuchs points out, the traditional third party payment system present in California and the United States has tended to encourage almost any innovation that promises to improve the quality of care, irrespective of cost.⁴⁵

Changes in technology can alter how health care is delivered in a variety of ways. As a result, its impact on health care expenditures can be either to increase or decrease expenditures from the levels that would have occurred using earlier technology. For example, the application of new technology, such as polio vaccines, that prevents a disease can significantly lower health care expenditures because it virtually eliminates a disease and the need to provide expensive treatment to thousands of patients. Other applications of technology, such as organ transplants, have an opposite effect. In this case

technology makes possible the treatment of conditions that formerly were untreatable or subject only to relatively low levels of medical intervention. The effect of this new technology is to not only increase the intensity of treatment (amount of resources or expenditures per case) but to greatly increase utilization of resources as large numbers of patients seek treatment for formerly untreatable conditions.

Further examples of how new technology can affect expenditures can be seen with new drugs. Recently introduced drugs such as t-PA, used in treating heart disease, and AZT, used in treating AIDS, have had unprecedented high prices *and* represent substantial medical advances. Often, it is not a new drug itself that causes an increase in health care expenditures, but rather the expanded market the new drug helps create. For example, Cyclosporin, an anti-rejection drug, is relatively inexpensive yet its indirect costs are huge because the drug has made the heart and liver transplant industry possible.⁴⁶

As noted, new technology can lead to both increases in expenditures and decreases. As presented in Exhibit VI-13, research conducted on the Medicare program illustrates the size and variety of impacts that rapidly changing technology can have on health care expenditures.

In an instance where both service utilization and the cost of treatment for the same diagnosis have increased as a result of a specific technological advance, Richard Greene points out that hemophiliacs had for some time been desperate for a new treatment that does not expose them to the AIDS virus. A clotting factor drug has now been developed that will protect these patients, but it will cost some \$60,000 annually to maintain a patient on the new drug, six times the cost of the conventional treatment.⁴⁷

The rapid increase in expenditures spawned by technology has also led to some efforts to control the introduction of technology. Greene also mentions that hospitals are finding it more difficult to afford the newest innovations in equipment that once filled their diagnostic rooms. This changing attitude has begun to affect such medical equipment suppliers as General Electric, which has diverted research money towards the goal of supplying existing technologies at a cheaper cost, rather than developing new technologies.⁴⁸ Howard Anderson reports that hospitals are looking with greater intensity than in the past at cost-benefit ratios when determining whether it makes economic sense to acquire new high technology capital assets.⁴⁹ While most health care technology causes the cost of care to increase, laboratory innovations were singled out in this same 1990 report as a case where Exhibit VI-13 technology can actually reduce costs. Both government and private health insurance programs also play a role in influencing the adoption and spread of new technology by virtue of their decisions about when to allow what were formerly "experimental" treatment technologies (not eligible for regular coverage by insurance) to become eligible for regular coverage.

A study conducted by researchers at the University of Pennsylvania, showed that physicians continue to use old diagnostic tests after new ones become available. Indeed, the study indicated that physicians use both old and new tests on the same patients in hopes that one test will catch problems that the other test misses. The result has been that technology tends to "accrete" (as layer upon layer of tests are added and few are discarded) in hospitals, increasing the cost of medical care.⁵⁰

The Cost of High-Tech Medicine

Examples of how technological innovations have raised and lowered national Medicare expenditures during the fiscal year ended September 30, 1989.

Raising the Bill	Cost of Procedure per Patient	Total Operating Cost to Medicare (In Millions)	Cost of Procedure per Patient	Operating Cost to Medicare (In Millions)	Total
Cardiovascular					
Thrombolytic agents (blood clot dissolvers)	\$ 8,000	\$ 81.0			\$ 14.3
PTCA (coronary angioplasty)	4,000	48.0	\$ 500		
Pacemaker (advances)	7,000	15.7	500		10.4
Implantable defibrillator	25,000	12.5	850		9.5
Orthopedics					
Bone growth devices for spinal surgery	6,000	1.0	75		3.3
Bone growth stimulator	2,000	0.6	160		1.9
Ear, Nose, Throat					
Cochlear implants (hearing)	4,000	2.8	700		0.7
Urological					
Penile prosthesis	4,000	9.3		†	7.0
Artificial urinary sphincter (to control incontinence)	N/A	0.9		†	3.2
				†	1.8
Diagnostic Imaging					
SPECT (single photon emission computer tomography)					
PET (positron emission tomography)					
MRI (magnetic resonance image)					
Doppler ultrasound (images of moving tissue)					
EEG brain mapping system					
High speed Cine-CT					
Image Enhancing Drugs					
Monoclonal antibody imaging agents				†	
Low osmolality contrast agents				†	
Tests for tumor markers				†	

The Cost of High-Tech Medicine

Examples of how technological innovations have raised and lowered national Medicare expenditures during the fiscal year ended September 30, 1989.

Raising the Bill	Cost of Procedure per Patient	Total Operating Cost to Medicare (In Millions)	Cost of Procedure per Patient	Operating Cost to Medicare (In Millions)	Total Cost to Medicare (In Millions)
Monitoring Systems					
Pulse oximetry (monitors oxygen in the blood)	*	7.3	50-60/week	84.0	3.5
End tidal CO2 monitors (surgical monitor)	*	5.0	2,400	0.8	
Mass spectrometry (monitors anesthesia)	*	2.6			
Cardiac output	*	0.9			
Cancer Therapy					
Hyperthermia system (heat)	250-600 per treatment	3.6			
Drug Delivery					
Implantable drug infusion pumps	1,800*	4.0			
Patient controlled analgesics		2.0			
Other Technologies					
Infection control for AIDS					
Liver transplants					
Gastroesophageal anti-reflex device (esophagus control)					
Lowering the Bill					
Peripheral vascular angioplasty	\$ 4,000	\$ 20.5			
ESWL (lithotripsy)	10,000	11.3			
Endoscopic lasers (upper GI)	700	10.8			
Valvuloplasty (opening blocked aorta valve)	6,000	9.0			
Muromonab-CDS, OKTS (drug to prevent transplant rejection)	680 per day	5.3			
Automated clinical chemistry analyzers	lab fee varies	2.0			

* Usually included in the cost of a hospital stay.
 † Image enhancing drugs are included in cost of diagnostic test.

Reprinted in the Wall Street Journal, November 13, 1989, p. R19
 Sources: *The Wilkerson Group, Project Hope 1989*

3. The Aggregate Expenditure Impact of Technology is Thought to be Large, But Has been Difficult to Quantify.

Fuchs has noted that expansion in the character and scope of interventions a physician can undertake has been a major factor in the growth of the quantity of health care delivered in recent decades.⁵¹ Health care economist Joseph Newhouse, in a paper examining a number of explanations for the rapid increase in health care expenditures in the post-war era, argues that technological change may be the primary explanation for both the overall growth of health care expenditures and the higher rate of inflation in prices in the health care sector of the economy. While noting that the health care payment system and its incentives may also have contributed to this rapid growth, he argues that technological change may be the principal factor at work in explaining growth in inflation-adjusted health care expenditures. He reaches this conclusion not only based on his review of U.S. experience but also by reference to the rapid growth in health care expenditures in many other developed nations. He notes that other nations, with much different health care payment systems, have also experienced rapid growth in health care expenditures during the same time period.⁵²

The evidence on the aggregate contribution the introduction of new technology makes to rising health care expenditures does not appear to be very precise, at least in terms of providing aggregate quantitative estimates. Partly this reflects the problems with defining "technology" precisely and isolating the effects of the introduction of new technology from other concurrent changes in the health care system, such as changes in the payment system that expand eligibility and utilization or "defensive medicine" driven changes in practice patterns that lead to additional use of technology for reasons that may not be

driven strictly by medical necessity.⁵³ National estimates we reviewed during this study ranged from one assigning technology responsibility for 60% of all increases in real health care expenditures (after removing the effects of general and medical inflation) between 1950 and 1985.⁵⁴ , to one assigning technology responsibility for 24% of the increases in per capita hospital expenditures between 1977 and 1982.⁵⁵ We were unable to locate studies that estimated the aggregate quantitative impact of technological change on health care expenditures in California. Absent other information, we believe it would be reasonable to assume that the contribution technology makes to increased expenditures is similar in California to the experience of the nation as a whole.

An alternate view was presented by Eli Ginzberg. Ginzberg postulates that high-tech medicine is not the cause of severe cost escalation because there are not always low-tech, low-cost medical care alternatives available. He states that unless society elects to ration expensive medical procedures, high-tech medicine will continue to dominate the health care field.⁵⁶

D. MEDICAL MALPRACTICE LIABILITY

1. *Introduction*

Medical malpractice liability refers to a health care provider's risk of incurring a medical malpractice claim. It influences both the price and quantity of health care services. The factors cited as significant in affecting the supply and utilization of health care services and in turn, the total cost of medical malpractice include:

- Higher professional liability insurance premiums;

- Changes in practice patterns designed to reduce liability risks but which ultimately also affect fees and utilization levels for physicians' services; and
- "Hidden" costs associated with settling claims not included in liability premiums such as those related to time lost from work or hiring an attorney in addition to the one provided by an insurance company.⁵⁷

According to a study conducted by the AMA Center for Health Policy Research, the estimated cost impact of professional liability in 1984 was about \$12 to \$14 billion, or 15% of total spending on physicians' services. This is one of the few studies that has attempted to include both direct (professional liability insurance premiums) and indirect costs of malpractice (e.g., changes in physician practice patterns and unreported costs of settling claims not covered by liability insurance).⁵⁸

Although data on malpractice premiums and claims awards are accessible through a variety of sources, there is very little quantitative information on how changing patterns of practice due to the effects of medical malpractice liability affect aggregate health care expenditures.

2. Trends in Medical Malpractice Liability

Malpractice Premiums

Research indicates that although medical malpractice premiums do not contribute a substantial amount to aggregate health care spending, the risks associated with malpractice have substantively influenced physician practice patterns. The trend in premiums is considered significant as a quantifiable indicator of defensive medicine. Nationally, medical malpractice

premiums are calculated as part of the HCFA Hospital Market Basket Index for National Hospital Inpatient Operating Costs and comprise a very small component, at an estimated 0.7% of the total inputs required to produce hospital care.⁵⁹ However, there is evidence to indicate that the impact of premiums on physician services is more significant. A study by the AMA Center for Health Policy Research estimated that, after adjustments for inflation, about 10% of increased revenues of the average self-employed physician were used to pay higher premiums, from 1982 to 1989.⁶⁰

According to a study conducted by the General Accounting Office, from 1983 to 1985 malpractice costs increased 100% for physicians, from \$1.7 to \$3.4 billion; and 57 percent for hospitals, from \$849 to \$1.3 billion. Regionally, malpractice costs were highest in the Pacific region (which includes California) and lowest in the West South Central region. The report also found that neurosurgeons had the highest malpractice insurance premium costs while internists had the lowest, and that smaller hospitals, less than 50 beds, had the lowest insurance costs while larger hospitals, more than 500 beds, had the highest.⁶¹

As noted below, the literature indicates California appears to have effectively addressed the causes of increased malpractice premium by enacting model tort reforms. The Medical Injury Compensation Reform Act (MICRA), although passed in 1975, has faced over 10 years of legal challenges, delaying its full effectiveness until 1986. MICRA contains four primary cost-reducing measures:

- A \$250,000 cap on non-economic damages (such as pain and suffering).

- A sliding scale for attorneys' contingency fees. The higher the award, the lower the percentage of the total award the attorney is entitled to;
- A provision that allows juries to be informed of payments that a plaintiff is already receiving for an injury. If an insurance company has already given the plaintiff an award, a jury's damage amount may be lower.
- Periodic payments of the damage award are allowed instead of payment in one lump sum.⁶²

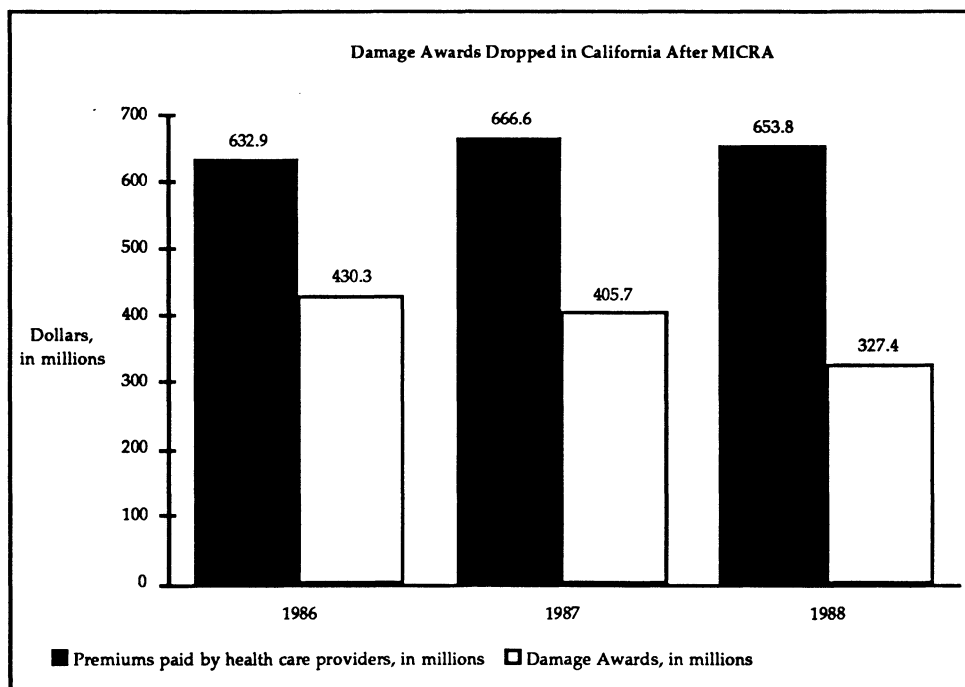
One study cited that "although California companies benefit somewhat from experienced management, sophisticated claims handling and risk management/loss prevention techniques, the most striking difference between California and the rest of the country is MICRA."⁶³ As shown in Exhibit VI-15, from 1986 to 1988 the amount of total malpractice premiums has remained relatively constant, while the total amount of awards has actually decreased. "Losses have definitely come down," states Richard Roth, California Department of Insurance Assistant Commissioner. According to Mr. Roth, the savings can be attributed, in part, to the \$250,000 cap on non-economic awards.⁶⁴

Exhibit VI-16 provides available comparative premium data for states and specialties, compiled in California after enactment of MICRA. The available data in California indicates that, in 1986 and 1987, physicians in California paid relatively lower premiums compared to other states. While California physician's premiums were consistently lower than other states, premiums varied drastically across specialties. For example:

- In 1987, California's physicians paid between 23% and 34% of the premiums paid by Florida's physicians;

- For the selected specialties reported (internal medicine, general surgery, and obstetrics and gynecology), premiums increased about 6% from 1986 to 1987 for the physicians in California; and
- In 1987, physicians practicing internal medicine California paid premiums equal to only 15% of those of obstetricians in the state (at \$5,908 and \$40,156, respectively).⁶⁵

Exhibit VI-15



Source: Terese Hudson, "Tort Reform Legislation: Can it Help Hospitals," *Hospitals*, May 20, 1990.

Recent court decisions may indicate that exposure to medical malpractice liability is expanding to hospitals and health maintenance organizations. Traditionally, physicians have had

sole responsibility for malpractice. However, a hospital or HMO can be held liable if it is negligent in selecting or monitoring the physician's activity. This expansion of medical liability also is occurring outside of the immediate health care industry. As increasing numbers of businesses are becoming more actively involved in managing employee health care in order to reduce costs, to the point of opening their own health care facilities and pharmacies, their exposure to malpractice liability increases.⁶⁶

Malpractice Claims

A 1987 study conducted by the General Accounting Office (GAO) examined 1984 malpractice claims data from a comprehensive nationwide sample of insurers. This study was one of a series of five conducted by the GAO on medical malpractice, which attempted to assess the need for federal malpractice legislation.⁶⁷ It should be noted that 80% of all claims resulted from occurrences in a hospital. This study identified the following national trends in medical malpractice claims:

- Seventy percent of claims which closed with payment involved amounts equal to or greater than the plaintiff's actual economic loss;
- Sixty-one percent of total claims awards were paid to nine percent of the cases;
- About 75 percent of all claims were for surgical, diagnostic and obstetrical injuries;
- The aggregate cost of investigating and defending all claims was estimated at \$807 million, with 83 percent of this amount (\$668 million) paid for defense counsel costs; and

Exhibit VI-16

MICRA Moderated Insurance Premiums for California Physicians		
Physician Group	Annual Premium Rates	
	1986	1987
Internal Medicine		
Florida	\$ 14,034	\$ 17,402
Michigan	10,477	10,845
New York	15,168	16,533
Alaska	6,760	11,256
Arizona	6,108	8,248
Georgia	4,370	5,825
Hawaii	5,792	7,628
California	5,572	5,908
General Surgery		
Florida	70,736	91,730
Michigan	36,176	41,603
New York	45,255	49,328
Alaska	24,324	40,520
Arizona	25,388	34,272
Georgia	21,473	28,623
Hawaii	20,847	27,456
California	20,048	21,260
Obstetrics and Gynecology		
Florida	117,891	152,881
Michigan	55,443	70,135
New York	77,025	83,957
Alaska	45,948	76,536
Arizona	40,272	57,068
Georgia	35,434	47,233
Hawaii	39,377	51,860
California	37,868	40,156

Note: These premium rates are for insurance with \$1 million per occurrence, \$3 million annual aggregate coverage.

Source: Medical Insurance Exchange of California Survey, 1989, as reported in *Hospitals*, May 20, 1990.

- The amount of time elapsed from date of injury and the filing of a claim was 16 months, and the average time from filing to disposition was 25 months.⁶⁸

In California, the number of malpractice actions steadily increased during the 1980s, which is not unexpected given the increase in population and increase in units of service over the period. Exhibit VI-17 presents data on health facility malpractice actions including hospitals, skilled nursing facilities, and psychiatric facilities. However, as shown on the exhibit, the median dollar value of claims awards has consistently been between approximately 20% and 30% of the average dollar value, indicating that a small number of cases are receiving extremely high awards.⁶⁹ It should be noted that the average dollar value of malpractice actions began to decline in 1984, about the same time that the Medical Injury Compensation Reform Act was implemented in California.⁷⁰

Patterns of Practice

When physicians order tests or other services in order to protect against charges of malpractice, rather than because they believe those services are to be of value to their patients, they are practicing "defensive medicine."⁷¹ Defensive medicine is a concept used to describe the effect of medical malpractice insurance and litigation on the behavior of health care industry providers, such as the patterns of practice of physicians. The issues primarily pertain to risks perceived by physicians and providers as a result of increased malpractice litigation as well as the large claims awards resulting from litigation.

Exhibit VI-17

**Health Facilities Malpractice Actions and
Value of Actions, California 1979-1988**

Year	Number of Facilities Reporting Actions *	Number of Actions Reported	Total Dollar Value of Actions	Average Dollar Value of Actions	Median Dollar Value of Actions
1979	222	466	\$24,555,980	\$52,695	\$10,000
1980	277	610	35,246,033	57,780	10,000
1981	299	698	30,833,425	44,174	10,000
1982	302	802	52,745,583	64,324	16,000
1983	313	861	54,320,305	63,090	20,000
1984	310	761	79,047,666	103,873	25,000
1985	343	980	99,622,160	101,655	25,000
1986	337	1,130	108,533,790	98,399	24,000
1987	361	1,186	71,038,066	59,897	20,000
1988	372	1,254	89,038,923	71,004	20,000

* Includes Hospitals, Nursing Homes and Psychiatric Facilities in California

Source: *Medical Malpractice and Health Facility, 1988 California Department of Health Services, Medical Care Statistics Section, as reported in California Association of Hospitals and Health Systems, 1989 Hospital Fact Book, December 1989.*

As mentioned above, the literature provides very little quantitative data on the cost of defensive medicine. Because of the "hidden" nature of these costs, they are difficult to identify and quantify from existing data. One study noted that, although malpractice premiums themselves comprise a small percentage of overall costs of health care, "practice changes prompted by the risk of claims accounts for a large share of total medical liability costs."⁷² The "threat" of litigation, in the form of potential damage to reputation, time and cost expended in litigating a case, and the potential loss of patients as a result of litigation, may be a significant cost driver of health practice and costs. This has caused physicians to increase the use of diagnostic procedures and lab tests and increase the level of documentation for each case.

One of the difficulties in assessing the effect of malpractice on physician practice patterns is that the changes may include those deemed to be medically beneficial as well as those that were

made primarily for providing additional validation or for subsequent evaluation of medical judgments.⁷³ Additionally, the impact of each of the changes on the cost of health care services may differ in direction and degree. For example:

- A representative of the American Hospital Association, in addressing the implications of malpractice, stated that malpractice costs can cause a discontinuation of services by a hospital or cause physicians to avoid treating high-risk (cases which have a greater probability of filing medical malpractice claims such as obstetrics and surgery) patients, and that the costs of malpractice are reflected in the charges to patients. The elimination of a particular service, such as obstetrics, may significantly affect services offered in a local market.⁷⁴
- Total health care expenditures for the patients may increase if services require long commutes outside the community or regular care is not obtained because of lack of availability — resulting in complications or other problems.
- Increases in diagnostic tests result in direct increases in costs because of redundancies in the tests or treatments and indirect increases because of the need for additional staff to perform and document the procedures.
- Although statistics on patterns of practice in California were not available, a representative from the California Association of Hospitals and Health Systems asserts that MICRA has encouraged treating high-risk cases.⁷⁵

3. *Summary*

From a policy perspective, the malpractice problem is considered a significant cost driver of health care services. However, the actual practices of defensive medicine have not been well defined and quantified. Therefore, further research in this area appears warranted. Issues that remain unclear regarding the impact of defensive medicine on the costs of health care include the fact that there are wide variations in malpractice claims and awards across states and regions as compared with the more uniform growth of health care across these areas.⁷⁶

E. THE ECONOMIC STRUCTURE OF THE HEALTH CARE DELIVERY SYSTEM

1. *Introduction*

The economic structure of the health care delivery system is often cited as a key explanatory factor for the rapid growth in health care expenditures in the United States since 1950.⁷⁷ The economic structure of the health care delivery system differs in many important ways from that of other large segments of the U.S. economy such as the housing, consumer goods, or capital equipment markets. The health care industry involves numerous participants, each facing a different set of economic incentives, interacting with each other through complex and diverse payment systems. In this section we present a high level overview of the economic structure of the health care industry with a particular focus on the multi-faceted payment system and how different researchers argue that it influences the growth in expenditures for health care services. We also discuss recent changes in the health care financing system that are intended to control the future growth of expenditures for health care.

2. The Traditional Payment System and Its Economic Consequences

Prior to the 1930s, private health insurance was virtually non-existent.⁷⁸ Medicare, Medicaid, and other large government funded health programs did not exist. Health care was largely paid for on an “out of pocket” basis by private individuals as services were utilized. Given the limited capabilities of medical science in that earlier age (and similarly limited costs), this system may have been adequate. Beginning with the rapid advances in medical science in the 1920s and concurrent increases in hospital costs, the first insurance programs covering hospital costs and later physician services began to appear.⁷⁹

Once begun, the health insurance industry grew rapidly. (This growth occurred in the same time period that saw a rapid increase in the ability of medical science to successfully prevent, treat, or cure many forms of illness.) In the 1940s labor unions won the right to bargain for health insurance as one of the conditions of employment subject to collective bargaining. Federal and state tax law helped accommodate this growth by making employer contributions to health insurance plans tax deductible business expenses and a non-taxable form of compensation for employees. This tax treatment provided an incentive to employers and employees to provide employee compensation in the form of health insurance benefits rather than through taxable wages and salaries.⁸⁰ By 1987, 75.7% of the U.S. population had some form of private health insurance coverage.⁸¹ In 1988, employers sponsored 89% of all private health insurance policies.⁸²

With the passage in 1966 of Federal legislation creating the Medicare program for persons over age 65 and the Medicaid (called Medi-Cal in California) program for low income persons

(primarily, but not entirely those on public assistance), the federal and state governments also assumed a large role in providing health care financing. By 1988, federal, state, and local government health programs provided over 40% of the financing for personal health care expenditures nationally (\$194 billion of a total \$478 billion).⁸³ The combination of wide-spread private health insurance and large government health programs resulted in a very large proportion of the population having some form of health insurance coverage. While estimates vary, according to HCFA, 86.7% of the U.S. population under age 65 and 96.2% of the population over age 65 had some form of public and/or private coverage in 1980.⁸⁴ In 1988, one study reported that 86.9% of the U.S. population (all ages) had some form of government or private health insurance. The same study reported that in California the percentage with coverage was lower, at 82.8%.⁸⁵

This widespread use of private insurance or public programs to pay for health expenditures is often referred to as the "third party payer" system. It is described this way because a "third party" (government or the private insurance program) pays all or a large portion of health care expenditures incurred by the individual consumer in his or her dealings with the providers of health care. (Consumers and providers being the first two parties.) It is the broad sweep of this "third party payer" system that is one of the key features that distinguishes the health care industry from most other segments of the U.S. economy.

Reflective of the large role of third party payment for health care expenditures is the fact that nationally, consumer "out of pocket expenditures" (the amount consumers paid directly to providers and excluding their share of insurance premiums paid through their employer) amounted to only 24% of all personal health

care expenditures in 1988 (\$113.2 billion of \$478.3 billion). This is a sharp decline from the 56% share of all personal health care expenditures financed out of pocket by consumers in 1960.⁸⁶

The widespread use of a third party payment system distinguishes health care from other major sectors of the U.S. economy such as the housing, consumer goods, or capital equipment markets. The crucial difference is that the final consumer of health care services (the patient) very likely will pay little or none of the cost of the particular good or service. As noted in Chapter IV, this is particularly true for hospital care and physician services, the two largest components of personal health care expenditures. It is this separation of the consumption and payment decisions that is a crucial factor cited by many economists as part of the explanation for the rapid growth in the consumption of health care services and expenditures. Its effects can be found in both the demand for health care services and in the supply and price behavior of health care providers and suppliers. Economist Alain Enthoven constructed an analogy which illustrates the effects of a third party payer system of health care finance on consumers and other participants in the health care system:

“Imagine that you and nineteen friends belong to a lunch club. You agree that you will each pay 5 percent of the total lunch bill for the group. Each member is free to choose whatever he or she wants. Consider the incentives. Suppose you go to lunch one day, feeling that a \$2 salad would satisfy your desires and be just fine for your health. You watch your friends order. One orders filet mignon; another, lobster. You calculate that if you order the \$12 filet instead of the \$2 salad, it will cost you only \$.50 more. There is little economic incentive for you to choose the less costly meal. If the

waiter expects a tip equal to 10 or 15 percent of the bill, imagine which dishes he will recommend. And if everybody in town is a member of this or a similar club, there is not much incentive for anybody to open an economical restaurant that specializes in healthy \$2 salads!"⁸⁷

While this example greatly simplifies the complex and serious problems connected with the provision of health care and its finance, it does illustrate how a third party reimbursement system can influence the incentives of both consumers and providers and create pressures for greater expenditures.

Further compounding the effect of the third party payment system is the manner in which third party payers reimburse providers who submit claims for services rendered. This is also a significant aspect of the economic structure of the health care industry. Until the mid-1970s, virtually all third party payers paid health care claims on a retrospective (after the service was rendered), charge or price based reimbursement system. This system is also referred to as the "fee for service" system. It uses as the basis of payment the charges the provider establishes through the process of submitting claims.

Over time, certain payers such as Medicare invoked guidelines to check the rise in charges by capturing historical data on the amounts charged for specific procedures on physicians' bills, building historical profiles of these charges, and checking to see that physician bills were consistent with their "usual and customary" charges of the past or with their peer group's charges. In the 1970s, as the providers' fees increased, the third party payers increased the premiums charged to employer groups, continuing to separate the direct consumer from the direct payment for service and the consequences of increased

utilization and prices. This retrospective fee for service reimbursement system distinguishes health care from most other areas of the economy where prices are known and agreed upon by the payer and supplier in advance of the transaction.

These factors have had a significant impact on health care expenditure growth in the past. This retrospective reimbursement system (also referred to as the fee for service system) rewarded providers (such as hospitals or physicians) who supplied larger quantities and more costly services. It created economic incentives to adopt new diagnostic and therapeutic procedures and techniques, rather than new processes to more efficiently produce existing procedures and techniques.⁸⁸

The problems created by this approach (increased utilization and expenditures) have given rise to many “cost containment” strategies by both government and private payers that are designed to change how providers are paid and thus alter the incentives providers and consumers face. The rise of Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), selective contracting by Medi-Cal, and the Prospective Payment System (PPS) of Medicare (discussed in Chapter V) are examples of how the third party payers are attempting to alter the economic incentives of the payment system. These trends will be discussed later in the section.

3. Change in the Payment System — Major Participants in the Health Care Industry and How Their Roles Affect Economic Behavior within the Payment System

In order to more fully understand the economic structure of the health care delivery system and the contribution that system makes to changing levels of health care expenditures, it is useful

to review the roles of the major participants in the system. This review focuses on the key characteristics and incentives facing each participant and how those characteristics and incentives can contribute to altering health care expenditures.

Consumers

Many observers point out that consumers of health care services suffer from a fundamental lack of information, not only about their own medical care needs, but of the value, quality, and effectiveness of the services provided by or recommended by providers.⁸⁹ This puts the patient in a poor position to exercise judgements about the effectiveness of proposed treatments. This lack of awareness, coupled with the fact that most consumers are insured and pay a relatively small portion of all costs, creates little incentive for consumers to be concerned about the cost or quantity of services received.

Data developed by HCFA based on a 1980 survey of U.S. households (*National Medical Care Utilization and Expenditure Survey*) confirms that persons with insurance coverage (private or government) consume more health services than do uninsured persons, even after controlling for differences in age. (Since the uninsured group is disproportionately younger than the entire population, it is important to control for age since utilization tends to rise with age.)⁹⁰

Additional evidence of the effects of the third party payment system on consumer decisions about the utilization of health care is provided by research conducted by Willard Manning. Manning was able to demonstrate that, holding technological change constant, a change from approximately a \$1,000 family deductible to free care increased demand for services by about 45%. In his review of this research, Joseph Newhouse points to

this as evidence that changes in insurance coverage can explain some portion of the increase in utilization of health care services between 1950 and 1984. He points out, however, that increased insurance coverage (and a lower relative share of costs coming from consumer out of pocket sources) can only account for about 10% of the total increase in real (inflation adjusted) health care expenditures since 1950.⁹¹

The recent trend towards increasing the share of employer insurance program premiums paid by employees (one strategy adopted by employers in the face of rising health insurance costs) does not overcome this lack of incentives for consumer cost control. National data published by HCFA indicates that during the period from 1980 to 1988, employers in medium and large sized firms required a greater proportion of employees to share the cost of health insurance premiums. In 1980, 72% of all employees with single person policies and 51% of all employees with family policies were covered by policies that were completely paid by employers. By 1989, these percentages had fallen to 48% and 31% respectively.⁹² The reader should note, however, that despite the higher share of employee contribution to the insurance premium, there still remains the gap in time and personal involvement between the payment of insurance premiums (with or without an employee share) and direct payment by the consumer of the price charged for the services. The use of insurance to cover all or a large portion of the costs of specific health care services lessens or eliminates the consumer's sensitivity to the cost of the service utilized relative to the benefit derived.

On the other hand, changes in insurance programs that lead to employees paying higher deductibles and sharing a percentage of hospital and other costs are designed to make the consumer more conscious of the cost and value of services and thus alter

incentives in this regard. The same HCFA data noted above reported moderate increases in the use of policy deductibles during the 1980 to 1989 period based on a survey of medium and large size businesses. (Policy deductibles refer to the requirement that insured parties pay a set proportion of the cost of certain services, pay the first costs of health care up to a maximum amount before insurance benefits begin, or some combination of these methods.) In 1980, 85% of all medical insurance plans in medium and large sized firms had deductibles of \$100 or less. By 1989, deductibles for more than half the participants had risen to more than \$100, with 15% of the participants facing deductibles over \$200.⁹³

Health Care Providers — Key Decision Makers

The health care provider, particularly the physician, occupies a critical place in the health care delivery and payment system. Not only does the provider supply services, but in the case of the physician, is a principal decision maker concerning the type and quantity of care that is provided. Given the consumer's lack of information (see above) the normal practice is to place much of the decision making power in the hands of the physician. The key role of the physician includes determining when to admit a patient to a hospital or perform services on an outpatient basis, determining what lab tests and other diagnostic procedures to order, prescribing medications, and determining the need for surgical or other interventions. One researcher estimates that physicians influence up to 70% of personal health care expenditures, given their role as key decision makers concerning patient care.⁹⁴

As was noted above, the retrospective payment, fee for service, third party payment system does not provide incentives for the providers, especially physicians and hospitals, to focus on cost

control in making decisions about patient care. As will be discussed below, third party payers have begun to alter these features of the payment system to change the incentives faced by providers. One key issue connected with such new incentives is the question of quality of care. Concerns have been expressed that economic constraints on providers may adversely affect patient care. Evidence to date on this subject is not conclusive and the issue continues to be the subject of much study and discussion.

Suppliers

Suppliers include drug manufacturers and manufacturers of durable and non-durable medical equipment and supplies. While their products are consumed by patients, a substantial portion of sales are made not to the final consumer but rather to providers, especially physicians and hospitals. These providers, in their role as key decision makers on behalf of the patient, make many of the decisions concerning which drugs or supplies will be used in patient care. Once again, the third party payment system and the separation of the decision to consume from the duty to pay create incentives for additional utilization and a lessening of sensitivity to price. This distinguishes the health care market from other parts of the economy (such as private housing, transportation, or consumer products) and contributes to pressures for additional expenditures. (See McPhee, et.al for a discussion of the key role the physician plays in selecting technologies for treatment and the role the reimbursement system plays in that process.⁹⁵)

Employers — From Passive Payers to Active Participants

Until the mid-1970s, employers were not normally thought of as a key participant in the health care delivery and finance system.

While employer based health insurance played a very important role in financing personal health care expenditures, businesses in general were not an active part of the health care market and decision making process. The rapid growth of the cost of health care and the concomitant increase in insurance premiums caused businesses to become very much involved in the health care financing process. By 1988, spending by business on health care (health insurance and the direct provision of health care to employees) had grown to an amount equal to 6.6% of total labor compensation paid to all employees in private industry, up from only 2.0% in 1965 and 5.1% in 1980. The amount businesses spent on health care in 1988 was equal to 85.5% of the total amount of after-tax corporate profits earned in the U.S. in that year. HCFA reported that employers in private industry spent \$115.4 billion on employee health insurance premiums in 1988.⁹⁶ Health insurance is no longer a "small" fringe benefit but a significant item of business expense - an item now subject to aggressive management.

This increased business interest in controlling health care costs has given rise to the rapid growth of businesses providing employees with health care through "self-insurance" programs. Begun first among large employers, but now spreading to many middle size firms as well, self-insurance involves the employer assuming all or a substantial part of the financial risk of providing employee health insurance. (Part of the risk for catastrophic health care problems can be placed with an outside insurance company through purchase of reinsurance policies in order to limit the financial risk to the employer.) The self-insured employer can administer the plan itself or retain a traditional insurance company, Blue Cross/Blue Shield plan, or third party administrator to manage and pay claims. Businesses have turned to self-insurance because they believe such plans can be less expensive than purchased insurance and offer employers greater

employers greater control over plan design, benefit levels, and costs.⁹⁷ Evidence is mixed, however, as to whether self-insurance plans actually have produced lower premiums than conventional insurance or HMOs. Despite this experience, however, by 1987 more conventional health insurance (as opposed to HMO coverage) was supplied by self-insured employers than by commercial insurance companies or Blue Cross/Blue Shield plans.⁹⁸

A final reason for considering businesses as key participants in the health care financing system is the fact that employment based insurance is the principal gateway to health care coverage for persons not eligible for Medicare or Medi-Cal. To the extent that businesses find it economically impossible to offer employees health insurance or do so with relatively high levels of employee premium payments, access to health insurance and health care is limited. This mechanism is suggested as one cause of the rise in the uninsured population both in the U.S. as a whole and California in particular.⁹⁹

Private Third Party Payers and Efforts to Control Expenditure Growth

Until the mid-1970s virtually all private insurance was provided by traditional commercial insurance companies and the Blue Cross/Blue Shield companies. They assumed financial risk for paying claims and handled all administrative duties including actuarial estimation of costs and claims processing. Their insurance plans are often referred to as "conventional insurance" — distinguished by paying claims on a "fee for service" retrospective basis rather than providing prepaid, negotiated, or discounted payment of health care expenses.¹⁰⁰ While they were responsible for paying claims and assuming financial risk, they had little direct control over decision making

about patient care or provider fees. This rested with the providers (hospitals and physicians), who had no direct financial incentives to control utilization or prices charged for services.

In response to rising costs and competition from self-insured plans and HMOs, conventional insurance plans have recently begun to widely implement "utilization review" (UR) programs. (Many insurance companies have also begun offering "triple option" programs to employers; a choice of conventional health insurance, an HMO plan, or a PPO plan.) UR can involve prospective, concurrent, or retrospective evaluation of the appropriateness of care provided to a patient as a tool for controlling utilization decisions made by providers and claims for payment against the insurer. A mandatory second opinion prior to surgery is a common prospective UR technique found in a majority of conventional insurance plans.¹⁰¹ As this trend illustrates, conventional insurers have taken action to change how their plans operate in order to change the incentives facing providers (and consumers) that can lead to excessive utilization of health services.

Beginning in the early 1970s and growing rapidly in the 1980s alternative health delivery systems such as Health Maintenance Organizations (HMO) and Preferred Provider Organizations (PPO) begin to play an important role. Employers began offering these types of health plans in order to slow the growth of their health care costs. Costs would be contained, it was thought, because utilization controls are inherent in these systems. HMOs and PPOs do not allow participants unrestricted access to health care providers. Payment to providers is not provided on a fee for service basis but on a fixed price per participant (capitation method) or on a negotiated, discount price basis for specific types of service in advance of service delivery. HMOs also exercise significant utilization controls over participant access to health care services.¹⁰²

Encouraged by federal law that required employers with more than 25 employees to offer an HMO option, national HMO enrollment has risen from 6 million persons in 1975 to 31 million in 1988. California has over 25% of total national HMO enrollment (over 7.7 million persons). The large role of the Kaiser Foundation health plans in California contributes significantly to this large HMO share of the health care market.¹⁰³

PPOs contract with particular providers who will provide services for a specified group of individuals for discounted or negotiated prices. PPOs differ from HMOs in that the consumer is allowed to secure services from providers outside the list of "preferred providers" supplied by the PPO. Reimbursement of such expenses, however, is usually at less than 100% of the provider's charges, thus discouraging consumers from using non-PPO providers. Many PPOs have been sponsored by Blue Cross/Blue Shield and commercial insurers. PPOs have likewise seen significant growth. From 1.3 million persons in 1984, national PPO enrollment has grown to an estimated 16.5 million in 1986. Based on 1986 data, California has 39% of national PPO enrollment (6.4 million persons).¹⁰⁴ In both PPOs and HMOs California has a disproportionate share of national enrollment. This is a key factor which distinguishes health care provision and finance in California from the rest of the nation.

All of these developments can be characterized as an increase in the role of third party managed care (as opposed to the former unrestricted, fee for service system) in the payment and delivery of health services, especially hospital and physician services. These managed care arrangements are all designed to change the incentives facing consumers and providers in order to control utilization and cost. One observer has characterized these developments as a "payers' revolution" which promises to

change the balance of power in the health care market in the direction of payers concerned with cost control away from providers who had other incentives. Concomitant with this shift towards buyer power is a reduction in consumer freedom to choose any provider. HMOs and PPOs both involve reductions (almost total in the case of HMOs) in the freedom of choice of consumers in an effort to control utilization and cost. Conventional insurance plans that offer complete freedom of choice among providers are typically the health insurance option with the highest premiums among the choice of plans available to employees, further constraining employee choice.¹⁰⁵

At the present time, however, the record is not entirely clear as to how successful these alternative delivery systems have been in controlling the growth in health care expenditures. This is due in part to the relatively recent emergence of these new delivery systems as major parts of the health care system.¹⁰⁶

Government as Payer and Regulator

As noted in Chapter IV and earlier in this chapter, government is a significant source of financing for health care expenditures. As a major payer, government has confronted the rapid escalation in health care expenditures, especially for Medicare and Medicaid, and the impact such escalation has had on tax and spending decisions. Both the federal government and California state government have taken actions to change the incentives in the payment system as a tool to control rapidly increasing expenditures.

Nationally, the most significant change was the initiation of the Prospective Payment System (PPS) by Medicare in October 1983. PPS provides fixed prospective payment for hospital treatment of each of 468 Diagnosis Related Groups (DRG) into which

patients are classified. It marked a major departure from the old retrospective charge based reimbursement system and a complete change in the incentive structure facing hospitals. As purchaser of 40% of all hospital services nationally, the federal government has used its buyer power to dictate prices and terms to hospitals. This is a significant departure from past behavior and a major change in the economic structure of the industry.¹⁰⁷

The State of California engaged in a similarly sweeping change in the Medi-Cal program in July of 1982. In response to a serious budget problem, the Medi-Cal program was authorized to engage in selective contracting with hospitals to provide services to Medi-Cal recipients. Fixed per day reimbursements for hospitals treating Medi-Cal patients were negotiated through a bidding process, sometimes at rates only 75% of the prior year per day charges to the program.¹⁰⁸ Not all hospitals won contracts. As with the PPS system in Medicare, this change marked a significant change in hospital incentives. With fixed, prospective payment levels set by Medi-Cal, hospitals had strong incentives to control costs and thus reduce their financial risk in treating such patients. The same legislation also gave private third party payers the same legal right to negotiate rate agreements with hospitals. This latter change injected additional price competition into the market place for hospital services. Hospitals were forced to compete for contracts to provide inpatient services to HMOs and PPOs. As was noted in Chapters III and V, these policies did appear to slow the growth of utilization of hospital services and expenditures, at least relative to other parts of the health care industry.¹⁰⁹

It appears that the cumulative effect of many years of rapid growth in government funded health expenditures coupled with the resulting budget difficulties has led both federal and state governments to begin to fundamentally restructure the

economic incentives, especially in the hospital portion of the industry. Medicare has also begun to reform the way physicians are compensated. Beginning in 1992, new methods for controlling physician costs will be implemented. The new system involves a resource-based relative value scale for determining how much Medicare will pay physicians in different specialties for different services. These methods represent another example of the government using its buying power to dictate new economic incentives to physicians. It remains to be seen how effective these changes will be in controlling growth in health care expenditures.¹¹⁰

A final aspect of government's role in the health care market place concerns its role as regulator. As regulator, government establishes many of the ground rules that govern the conduct of the health care delivery and financing system. These regulatory roles include (but are not limited to) federal approval of drugs and medical equipment, state licensing and quality assurance activities for health care professionals and facilities, regulation of the health insurance industry, and state statutory law governing the litigation and settlement of malpractice lawsuits. While its regulatory role does play a significant part in setting the terms of the health care market place, there is little comprehensive quantitative data that identifies the overall financial impact of this role on health care expenditures.¹¹¹

4. Summary

This section has attempted to show how the structure of the health care financing system and the incentives facing the different participants have influenced overall health care expenditures. The discussion has focused primarily on national trends and the general economic incentives of the system. While there is a considerable literature dealing with this topic

and general agreement that the financing system plays an important role in explaining long term growth in health care expenditures, we were unable to locate comprehensive quantitative data that specifically isolated and estimated the overall contribution of this factor to the growth in personal health care expenditures during the 1980 to 1988 period.

Despite this lack of overall quantitative data however, the importance of this factor as an explanation of expenditure growth does seem certain. Virtually the entire payer community (government and private) is trying to alter the former payment system (employer paid insurance, retrospective, fee for service, largely physician driven) in order to change the incentives facing consumers and providers and thus contain growth in utilization and costs.

F. SUMMARY

This chapter has presented a discussion of the impact of other forces contributing to the growth in health care expenditures other than general population growth, general price inflation and medical inflation. These other factors include changes in the demographic composition of the population, technology, defensive medicine and the structure of the payment system.

The *demographic composition* of the state influences the use and intensity of health care services as patterns of utilization increase with increasing age.

- In California, the elderly population aged 65 and over grew by 34.9% from 1980 to 1990. However, the state total population only increased by 21%. Several authors have warned this increase in the number of the elderly could have a substantial impact on health care costs.

- Insurance coverage appears to influence health care utilization. A national study found that the uninsured population has lower utilization rates than the population with health care coverage. It is unclear whether this group is relatively healthier or if factors other than health status impact this group's use of health services.
- The ethnic composition of California is changing. From 1980 to 1988 the Hispanic population in the state increased by 44.4% to comprise 23.7% of the state population.
- National data is available on the impacts of sociobiological and lifestyle-related problems, such as alcohol abuse, drug abuse, homelessness, and mental illness. However, except for the AIDS population, it is difficult to determine the specific impact of these factors on health care expenditures in California. The Department of Health Services tracks the incidence and expenditures related to AIDS. It appears that expenditures for the AIDS population on a per person basis have decreased which may be due to the State's focus on hospice care, outpatient and other out-of-hospital treatment.

Technology can have a dual effect on health care expenditures. For instance, the application of a new technology which prevents a disease can serve to lower costs. On the other hand, technology which makes possible the treatment options which were not formerly available can serve to increase expenditures. Information was not available to the project team which quantifies the impact of technological change on health care expenditures in California.

Medical Malpractice Liability can influence both price and quantity of health care services through the following means: change in the cost of malpractice insurance premiums; the amounts awarded in claim settlements; legal costs associated with defending claims; and changes in practice patterns resulting from trends in malpractice. In California, it appears doctors pay relatively lower premiums compared to other states.

The *structure of the payment system* is a factor which impacts health care expenditures. In fact, the literature cites this as the key factor in the rapid growth of expenditures. The retrospective reimbursement system, also known as fee-for-service system, provides incentives for an increased supply of and more costly health care services. Numerous cost containment strategies have been implemented, such as Medicare's Prospective Payment System, selective contracting by Medi-Cal, and the increase in the number of health maintenance organizations and preferred provider organizations. While the payment system has been a major focus of discussion in the literature, specific studies were not located which attempt to quantify the impact of these cost-containment strategies over the 1980 to 1988 period either nationally or in California.

The next section summarizes the key findings and conclusions resulting from this study.

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CHAPTER VI

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CHAPTER VII: SUMMARY AND CONCLUDING OBSERVATIONS

A. INTRODUCTION

As noted in Chapter I, this study was requested by Resolution Chapter 88, Statutes of 1988 (SCR 87 – Maddy). The resolution requested that a study be conducted to “... identify the major causes of health care cost increases and define the extent to which each component contributes to the overall medical cost inflation.” This study has been devoted to that objective and hopefully, has provided some insight into this important issue. This final chapter is intended to provide a summary of the principal findings of this project and to supply some concluding observations about the collection and analysis of data concerning health care expenditures.

B. SUMMARY OF FINDINGS CONCERNING CAUSES OF RISING HEALTH CARE EXPENDITURES

Chapters II, III, and IV of this report provided detailed information on the aggregate amount of health care expenditures, the composition of the expenditures by type of health care service, and the sources of payment that finance those expenditures. Ample evidence was found to indicate that health care is consuming an increasing share of the nation's Gross National Product, with the share devoted to health care

rising from 8.6% in 1979 to 11.1% in 1988. Health care expenditures in California were found to be rising at a rate comparable with the rest of the nation.

Chapter V addressed the question of what broad forces or factors were most responsible for the rapid growth in health care expenditures in recent years. Four key factors were identified: 1) aggregate population growth; 2) the general inflation in all prices throughout the economy; 3) the "excess" inflation in the health care sector due to prices in that area rising faster than the general rate of inflation; and, 4) a collection of "other factors" that trigger changes in the utilization and intensity of health care resources. General inflation and medical inflation combined to account for 77% of the overall growth in expenditures for personal health care during the period from 1980 to 1988. Population growth and "other factors" accounted for the remaining 23%.

Chapter VI addressed the question of what specific factors accounted for the growth in expenditures in the "other factors" category. While there are many factors included in this category, our review of the literature suggested that four specific factors are most noteworthy. These factors are: 1) changes in the demographic characteristics of the population, such as age and ethnic distribution, economic and insurance characteristics; 2) technological change that alters both the means by which health care is delivered and expands the range of health problems that can be diagnosed, treated, cured, or prevented; 3) the effects of malpractice liability and the resulting practice of "defensive medicine;" and, 4) the economic incentives inherent in the structure of the health care industry in general and the payment system in particular.

C. OBSERVATIONS CONCERNING DATA COLLECTION ON HEALTH CARE EXPENDITURES

During the conduct of this study we spent a significant amount of time and effort reviewing available data about health care expenditures at both the national and California levels. Based on this experience we have a number of observations about data resources that may be helpful to the Auditor General and others who will assist policy makers in addressing health care public policy issues in the future.

California lacks comprehensive data on the overall health care system and its finances. While the state has excellent data on portions of the health care system and its finances, it lacks a means of collecting or even estimating expenditure and utilization data about large segments of the health care system. There is no state level analog to the national data on health care finance and utilization published by HCFA.

Over the past 15 years, California has developed a very comprehensive data collection system for selected portions of the health care system. OSHPD, for example, collects extensive information about expenditures and utilization in hospitals and long term care facilities. Because all such facilities must file detailed annual reports (using standard reporting formats) with OSHPD, there is a wealth of historical statistical information on these portions of the health care industry in California. California's Medi-Cal program also collects large amounts of information about the costs and utilization of service by its hundreds of thousands of program beneficiaries. Concern about the AIDS epidemic has led the Department of Health Services to develop and publish some excellent statistical information about the affected population and the costs of the disease.

Unfortunately, as good as this information is, it only addresses a portion of the total health care system in California. While Medi-Cal collects data about all of the services utilized by its clients, the program still only represents approximately 10% of all health care spending in California (see chapter IV for details). While OSHPD collects extensive data on hospitals and long term care facilities, these facilities still account for less than half of all health care expenditures.

Whole areas of health care services and expenditures are not covered by any comprehensive state level data collection and reporting systems. Examples include non-hospital physician services and drug expenditures. HCFA does not publish estimates of state by state expenditures based on national totals, so it is not possible to use that data as a rough benchmark for purposes of monitoring state level trends in California.¹ We believe California policy makers and others concerned with the broad issues of health care access and finance could benefit from regular, comprehensive state level data on overall health care expenditures and utilization similar to that published annually by HCFA (discussed in Chapters III and IV).

Three examples of areas where the void in state level information is particularly apparent include:

- Data on the costs and utilization of ambulatory care in non-hospital settings (including free standing clinics and doctor's offices). This appears to be a rapidly growing area of expenditure. Controls on hospital utilization as well as advances in technology which make possible outpatient treatment of conditions formerly requiring hospitalization may be contributing to this trend. Persons we interviewed during this study (at OSHPD and with the health benefits unit at PERS) indicated that this is an

important emerging area where the available data has not kept pace with changes in the delivery system. (Several pieces of legislation have been introduced in the current session (AB 755 and SB 1048) to require reporting to OSHPD of selected data from ambulatory care settings.)

- Data on health insurance coverage in California. We were unable to obtain comprehensive data on the extent of private health insurance coverage (outside of persons covered by PERS sponsored health benefits), premium levels, claims experience, or utilization of services. Given the importance of private health insurance as the major means of financing health care for most Californians, it would seem that better data in this area would benefit policy makers. (Given the highly competitive nature of the health insurance industry, the collection, analysis, and publication of data of this type would have to be structured and managed in a fashion that would not place individual firms at a competitive disadvantage.)
- Comprehensive data on the incidence and costs of treatment by disease type are not generally available (AIDS is an exception). If collected, this sort of information might help analysts better monitor cost trends and develop strategies to control costs through public health policies.

The State may wish to consider developing more comprehensive data covering the range of health care delivery and finance issues. Such data would undoubtedly involve significant costs to collect, review, and publish. It could also impose a considerable reporting burden (adding to overall health care costs) on providers, insurance plans, PPOs, and HMOs. Alternatively, sampling methods might be developed to

estimate expenditure and utilization trends in California health care. Development and conduct of such samples would require significant resources, but might involve less reporting burden on providers and insurers than comprehensive reporting by all parties. In either case, more complete data on the entire range of health care services and all segments of the population would help policy makers better understand the rapidly changing health care industry and its impact on California.

APPENDIX A

RECONCILIATION OF STUDY RESULTS WITH REQUIREMENTS OF SCR 87

Included in SCR 87, the request for proposals, and our contract with the Office of the Auditor General for this project, were lists of factors thought to play some role in increasing health care costs. Before concluding this report, we believe it would be useful for us to review those factors and how each has been addressed during this project. The great majority of the factors have been dealt with in this report. For several factors, however, we were unable to provide useful information or insight because the factor reflects relatively new developments and has not been the subject of published literature indicating the factor's importance and documenting its impact in a quantitative fashion. Below, we discuss each of these factors and its final disposition for purposes of this project.

The factors listed in SCR 87 or our contract with the Auditor General are listed below and are followed by a reference to where they are discussed in the body of the report or an explanation of why we did not discuss it in the body of the report.

1. *Technology* — discussed in Chapter VI.

2. *Service utilization and treatment* — discussed in Chapter III in terms of cost and utilization trends and in Chapter VI in terms of causative factors.
3. *Population increases* — discussed in Chapter V.
4. *Population aging* — discussed in Chapter VI.
5. *Insurance costs* — discussed in Chapter III in terms of rate of increase in this category compared to other health care expenditures.
6. *Outpatient services* — discussed in Chapter III and in Chapter VI.
7. *Prescription drugs* — discussed in Chapter III and in relation to technology in Chapter VI.
8. *Provider/institutional reimbursement structure* — discussed in Chapter VI.
9. *Malpractice and defensive medicine* — discussed in Chapter VI.
10. *Supply of hospital beds* — discussed in Chapter III.
11. *Government regulation and funding/eligibility for government programs* — discussed in Chapter IV and Chapter VI.
12. *Sociobiological epidemics and lifestyle diseases* — discussed in Chapter VI.
13. *Uninsured populations* — discussed in Chapter VI.

14. *Cost shifting* — discussed in relation to prices faced by consumers as opposed to government and third party payers in Chapter III and with respect to changes in the payment system in Chapter VI. Time and resource constraints did not allow us to more fully explore the other dimensions of cost shifting mentioned in SCR 87, including quantifying the impact on total expenditures of individuals and non-government third party payers due to underfunded government programs (leading providers to seek to recover such costs from other payers) and uncompensated charity care.
15. *Selective Contracting* — discussed in Chapter V and Chapter VI.
16. *Inflation* — discussed both in relation to general inflation and inflation in health care specific price indices in Chapter V.
17. *Deinstitutionalization* — we did not discuss this factor in the report as we did not locate information indicating that this was a significant causative factor in California in the 1980s.
18. *Costs of Medical Education* — Medical education is not included in the HCFA definition of national health care expenditures; rather it is treated as part of post-secondary education expenditures. While undoubtedly of concern to health professionals, during our study we did not find published information indicating that medical education costs were rising more rapidly than other post-secondary education costs. For that reason we did not address this factor in our report.

19. *Certain practices in the health care industry* — below are a series of factors listed in SCR 87.
- a. Redundant capital equipment and related staffing — while mentioned in the literature as a possible contributing factor to rising expenditures for hospital services, we were unable to locate published data that estimated the aggregate impact of this factor or that listed it as a significant causative factor.
 - b. Income guarantees issued by hospitals to attract business — we were unable to locate published material that discussed this factor to any significant degree.
 - c. Referrals to medical businesses owned by referring professionals — we were unable to locate published material that discussed this factor to any significant degree.
 - d. Performance of inappropriate medical procedures — there is a considerable literature dealing with the appropriateness of medical procedures, particularly in the context of assessments of the quality of care. Given the time and budget constraints facing this project, we were unable to explore this area in depth and did not discuss it in this report because we could not locate studies that addressed the overall contribution this factor might make to rising expenditures. For more information, the reader might start with the book *The Appropriateness of Selected Medical and Surgical Procedures: Relationships to Geographic Variations*, published by the RAND Corporation in 1989.

- e. Inability of employers to maximize their purchasing power so as to facilitate prudent health care purchasing selections for employees and enrollees — employer involvement in health care finance is discussed in Chapter VI.

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