

Chapter 2

Physician Payment Under the Medicare Program: Problems and Changing Context

You would be surprised at the number of years it took me to see clearly what some of the problems were which had to be solved. Looking back, I think it was more difficult to see what the problems were than to solve them.

—Charles Darwin

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Physician Payment Under the Medicare Program: Problems and Changing Context

INTRODUCTION

The law establishing the Medicare program was enacted in 1965 as a means to enhance access of elderly people to hospital and physician services by providing insurance that would reduce the out-of-pocket costs of such care. In this regard, the program has largely succeeded. This success, however, has come at an increasing cost to the Medicare program. Furthermore, elderly people have not been immune to increases over time in out-of-pocket costs for Medicare premiums, deductibles, coinsurance, and “nonassigned” liability for covered services—not to mention the total costs for those health care services that are not covered by Medicare. Finally, there is some concern that the program does not provide equal financial protection to all beneficiaries. In particular, there are perceived imbalances by region, location within region, type of service, and other factors not related to eligibility.

The Medicare program represents a major part of U.S. health insurance coverage, which has increased greatly over the past generation. Although health insurance has improved people’s access to medical care, it has also fueled the use and cost of medical technology (129,137). The nature of insurance coverage and the specific payment methods that have been used by Medicare and other third-party payers have dulled the sensitivity of consumers, physicians, and other providers to cost considerations. The result has often been inappropriate technology use and higher expenditures than warranted for the health benefits received (483).

Until recently, increases in hospital expenditures under Part A of Medicare have attracted the most attention and concern because hospital expenditures have accounted for the largest share of total

Medicare expenditures and have been growing at a high rate. However, the increase in Medicare hospital expenditures has slowed since fiscal year 1983; and in October 1983, Medicare began paying for inpatient operating costs by diagnosis-related groups (DRGs). For fiscal year 1984, expenditures grew faster for physician and other services under Part B than under Part A or indeed for any other component of the Federal budget (401).

As attention has turned to expenditures for Part B services, Medicare’s method of paying for physician services according to customary, prevailing, and reasonable (CPR) charges has come under particular criticism. In fact, the inherent inflationary bias in the CPR approach has been demonstrated both theoretically (151) and empirically (189). This situation contrasts with the “financial” goals posed for the Medicare payment system of achieving at least predictable and preferably contained levels of beneficiary and program expenditures.

Other developments in the medical care sector also affect Medicare’s payment of physician services. Changes taking place in the supply of physicians and the organization of their practices may result in a more competitive market for physician services and a new environment for Medicare program payment policies.

This chapter reviews the increases in Medicare expenditures for physician services along with other current issues in physician reimbursement in the Medicare program. It also identifies current developments outside of Medicare that may affect physician payment. The discussion in this chapter reviews the context for addressing both Medicare’s physician reimbursement issues and the other general objectives of the Medicare program: promoting access of Medicare beneficiaries to health care services of an acceptably high quality delivered in a cost-effective manner.

¹In constant dollar terms, there has been a decline in premiums and the deductible over time, but total real out-of-pocket costs for beneficiaries have increased.

EXPENDITURES FOR PHYSICIAN SERVICES

In 1984, the Nation spent \$75.4 billion on physician services (507). This was an increase of 9.3 percent over the previous year, exceeding the rate of growth in expenditures on all health care services and supplies in general and the growth in hospital expenditures in particular. Medicare expenditures on physician services in 1984 were \$14.6 billion, or 19.3 percent of the total. All Federal expenditures for physicians services in 1984 were \$16.9 billion, compared to an estimated \$200 million in 1965. As a proportion of all expenditures for physician services since that time, Federal expenditures have increased from 1.8 to 22.4 percent (165,507),

Medicare Expenditures for Physician Services

Method of Physician Payment Under Medicare

The predominant method of physician payment under the Medicare program is fee for service. Although some Medicare funds for physician services are paid to hospitals and other institutions (e.g., health maintenance organizations (HMOs)) that may employ salaried physicians or retain physicians on other than a fee-for-service basis, such arrangements represent a very small fraction of the Medicare business. Of Part B incurred allowed charges for physician services in the year ending June 30, 1983, 96 percent originated with individual patient bills submitted on the standard physician claims forms for fee-for-service practice (553).²

Reasonable or approved charges for those claims are determined through the CPR charge determination process, which is described in appendix C. Medicare's "approved charges" for any service are limited to the lowest of the physician's billed charge, the customary charge for the service based on that physician's prior billings to the Medicare carrier, or the prevailing charge for that service based on comparable physicians' prior bill-

ings to the carrier for the same service as adjusted, if necessary, by the Medicare Economic Index (MEI). As a result, Medicare carriers (as most large private physician insurance programs) typically do not approve the full amount of a physician's charges for a service provided to a Medicare patient. In the first quarter of 1985, the average reduction due to the CPR process was 26.2 percent (535). For a bill with submitted charges of \$100, therefore, approved charges would average \$73.80. (The carrier would pay the physician 80 percent of the approved charges, or \$59.04, less any unpaid patient deductibles.) Contrary to the conventional wisdom, not all physician claims are submitted at amounts that exceed the CPR limits. Through the end of calendar year 1984, 18.3 percent of all claims were submitted at or below the CPR limits (535).

Physicians are paid for their services to Medicare beneficiaries either directly by the beneficiary or by a Medicare carrier, depending on whether the physician "accepts assignment." By statute, it is only the Medicare beneficiary who is entitled to be paid a reimbursement benefit. That benefit is equal to 80 percent of the approved charge for the service once the beneficiary has approved bills that exceed the annual deductible. Instead of being reimbursed directly, the beneficiary may elect to assign the benefit to the physician who provided the service. If the physician accepts assignment, he or she must accept the approved charge as payment in full (and may bill the beneficiary for the 20-percent coinsurance and any remaining deductible). If assignment is not accepted, the physician's expected full payment is not bound by the approved charge, and the beneficiary is liable for any difference between the physician's actual charge and the allowed charge, in addition to the coinsurance and deductible. Medicare's approved charge, however, is determined without regard to assignment.

Prior to October 1, 1984, each physician was free to make assignment decisions on a case-by-case basis.³ Passage of the Deficit Reduction Act

²Comparable statistics are not available with respect to the volume of Part A funds used for physician reimbursement. Although much of this Part A funding will be used to pay salaried physicians, hospitals may bill carriers for services performed by salaried physicians.

³In cases where a physician treated a patient who was eligible for both Medicare and Medicaid, accepting assignment was mandatory. And, in the case where a physician provided more than one service to a beneficiary on the same day, assignment would have to be ac-

of 1984 (Public Law 98-369), however, introduced the concept of Medicare “participating physicians” along with a 15-month freeze on customary and prevailing charges for all physicians and a freeze on submitted charges by “non-par” physicians (i.e., physicians who did not elect to become participating physicians). A physician who elected to become a participating physician agreed to accept assignment for all Medicare claims for the next 12 months. In return, that physician would be listed in a directory of participating physicians available to beneficiaries, and would be allowed to increase billed charges. According to the provisions of the Deficit Reduction Act, participating physicians would receive higher approved charges in fee screen year⁴ 1986, while the approved charges of the non-pars in fee screen year 1986 would not increase appreciably beyond the fee screen year 1984 levels.⁵ Although non-par physicians are not required to accept assignment on 100 percent of their claims, they may continue to accept assignment on a case-by-case basis.

Participating physicians represent 29.8 percent of all physicians who receive payment under the Medicare program (518). In the first quarter of 1985, participating physicians submitted 36.1 percent of all physician claims to Medicare and 56.5 percent of all assigned claims. Participating physicians accounted for 34.9 percent of covered charges for physician services (537).

Composition of and Growth in Medicare Expenditures for Physician Services

In fiscal year 1984, Medicare carriers processed 229 million Part B claims (527), approximately 7

cepted on all of those services or none of the services. The physician in that case could not accept assignment for only some of the services. Beginning in fiscal year 1985, however, assignment could be accepted for laboratory services only without the requirement that assignment be accepted on all services if it was accepted on any service.

⁴ fee screen year is the calendar period during which a particular year's CPR limits are in effect. Prior to the Deficit Reduction Act of 1984 (Public Law 98-369), fee screen years began on July 1 of a calendar year and continued through June 30 of the next year. As of Sept. 30, 1984, fee screen years run from Oct. 1 through Sept. 30 of the following year, with fee screen year 1985, for example, beginning on Oct. 1, 1984.

⁵ Because the freeze limits were based on the charges from the last 3 months of fee screen year 1984, it is conceivable that non-pars who had increased their fees between July 1, 1983, and Mar. 30, 1984, would receive increases in their customary charges in spite of the freeze.

claims per enrollee. The average claim included charges for covered services of \$128.74; average approved charges per claim were \$97.61. Total claims volume has grown at an average annual rate of 12.6 percent since 1968, while annual growth in claims per enrollee has averaged 9.4 percent (see table 2-1).

Eighty-five percent of Part B expenditures are for physician services, with the bulk of the remainder going to outpatient departments (553). As shown in figure 2-1, the expenditures are concentrated in the areas of medical care and surgery, at 37.3 and 33.7 percent, respectively, of total approved charges in 1983 (69). Diagnostic radiology and diagnostic laboratory services represented 8.4 and 8.0 percent, respectively, of total approved charges, with all other physician services combining to total 12.6 percent.

Most of the expenditures for physician services are for services provided in the hospital. In 1983, the most recent year for which estimates are available, 61.9 percent of all approved charges were

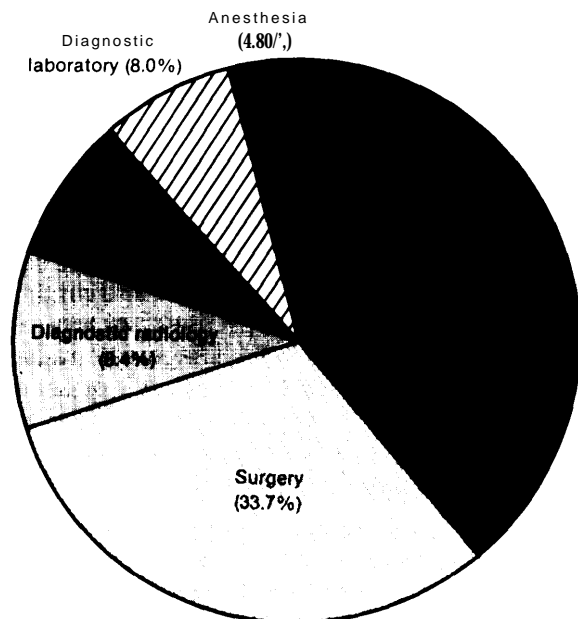
Table 2.1.—Medicare Part B Enrollment, Reimbursement Amounts, and Claims Volume, Fiscal Years 1967-84 (in millions)

Fiscal year	Number of beneficiaries	Total dollars	Number of claims	Claims per beneficiary
1967	17.8 ^a	\$ 664	19.7	1.1
1968	18.0	1,390	34.2	1.9
1969	18.8	1,645	39.3	2.1
1970	19.3	1,979	43.8	2.3
1971	19.7	2,035	49.1	2.5
1972	20.0	2,255	54.5	2.7
1973	20.4	2,391	58.5	2.9
1974	22.6	2,874	68.0	3.0
1975	23.3	3,765	81.4	3.5
1976	24.1	4,672	93.5	3.9
TQ ^b		1,269		
1977	24.8	5,867	110.0	4.4
1978	25.6	6,852	122.1	4.8
1979	26.3	8,259	136.2	5.2
1980	26.9	10,144	154.5	5.7
1981	27.5	12,345	171.7	6.2
1982	28.0	14,806	188.3	6.7
1983	28.5	17,487	208.4	7.3
1984	29.0	19,473	229.0	7.9

^aAfter 1977 enrollment is as of June 30, not the end of the fiscal year, Sept 30.
^bTransition quarter

SOURCES: Enrollment, years ending June 30 and Incurred reimbursement amounts: U S Federal Supplementary Medical Insurance Fund, Board of Trustees, “1985 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund,” Washington, DC, Mar. 28, 1985, Claims volume: U.S. Department of Health and Human Services, Health Care Financing Administration, Bureau of Data Management and Strategy, Division of Reports and Analysis, Complete Carrier Workload Reports, 1985.

Figure 2-1.—Percent Distribution of Medicare Approved Charges for Physician Services by Type of Service, 1983

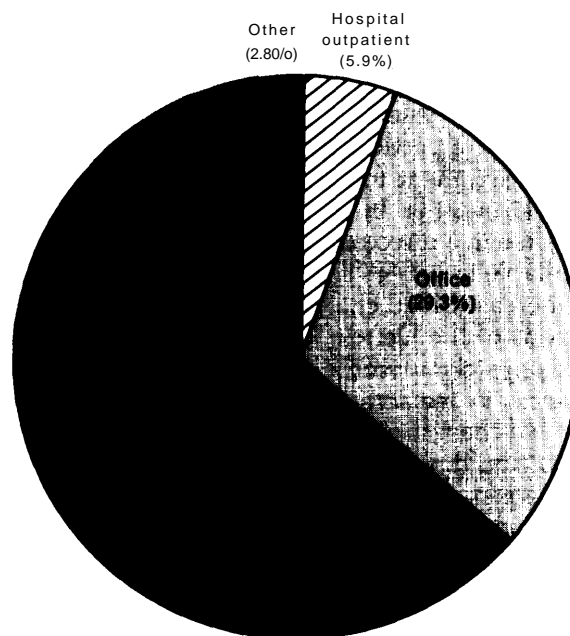


SOURCE: 1. Burney and G. Schieber, "Medicare Physicians' Services: The Composition of Spending and Assignment Rates," *Health Care Financing Review*, forthcoming.

provided in an inpatient setting. Physicians' offices and outpatient departments were the second and third ranked sites, with 29.2 and 5.9 percent, respectively, of approved charges (see figure 2-2). In terms of the most significant place of service/type of service combinations, 27.5 percent of total approved charges were for surgical services in a hospital, 18.8 percent were for medical services in a hospital, and 15.5 percent were for medical services in a physician's office (see table 2-2).

Internal medicine was the specialty that received the highest proportion of Medicare physician expenditures, accounting for 20.4 percent of total approved charges in 1981 (69). The medical specialties as a whole accounted for 28.5 percent of 1981 approved charges, and general and family practice combined accounted for an additional 11.5 percent. Surgical specialties accounted for 34.8 percent of total approved charges, with the services of general surgeons representing 9.6 percent of the total and those of ophthalmologists representing 8.2 percent. The distribution of specialists' charges by type of service is unremarkable, with general and family practice and most

Figure 2-2.—Percent Distribution of Medicare Approved Charges for Physician Services by Place of Service, 1983



SOURCE: 1. Burney and G. Schieber, "Medicare Physicians' Services: The Composition of Spending and Assignment Rates," *Health Care Financing Review*, forthcoming.

medical specialties billing most of their charges for medical care and most surgical specialties billing most for surgery. With few exceptions, most specialties have higher total billings for services provided in the hospital than in an office (69). Two specialties, however, received more than 50 percent of 1981 approved charges for services provided in their offices: otolaryngology (50.3 percent) and dermatology (91.1 percent).

In spite of the CPR limits or, as some would have it, because of them, approved charges for physician services per aged Medicare enrollee increased by 591 percent between fiscal year 1968 and fiscal year 1983. Medicare Part B benefit payments totaled \$1.4 billion during fiscal year 1968; 16 years later, benefit payments had increased to more than \$19.5 billion, an increase of 1,400 percent (553).

These increases were due to a variety of factors in addition to the changes in approved charges, including changes in enrollment, changes in physicians' billed prices, and changes in utilization. In order to explore these increases, one can ex-

Table 2-2.—Percent Distribution of Medicare Approved Charges for Physicians' Services, by Combinations of Place and Type of Service, 1983

Type of service	Place of service							
	All	Office	Inpatient	Home	OPD ^a	Lab	SNF ^b	Other
All types	100.0	29.2	61.9	0.6	5.9	0.3	1.3	0.6
Medical care	37.3	15.5	18.8	0.5	1.1	•	1.1	0.3
Surgery	33.7	3.8	27.5	•	2.4	•	•	•
Consultation	3.8	0.7	2.9	•	0.1	•	0.1	•
Diagnostic radiology . . .	8.4	3.4	3.7	•	1.3	•	0.1	•
Diagnostic laboratory . .	8.0	5.1	2.2	•	0.4	0.3	•	•
Radiation therapy	1.2	0.4	0.2	•	0.5	•	•	•
Anesthesia	4.8	•	4.7	•	0.1	•	•	•
Assistant-at-surgery . . .	1.8	•	1.8	•	0.1	•	•	•
Other medical	0.9	0.4	0.1	0.1	0.1	•	•	0.3

aOPD = Outpatient department

bSNF = Skilled nursing facility

• = Less than 0.05%

SOURCE: I. Burney and G. Schieber, "Medicare Physicians' Services: The Composition of Spending and Assignment Rates," *Health Care Financing Review*, forthcoming.

amine the changes in Medicare expenditures by partitioning expenditures as follows:

$$\text{Total Medicare expenditures} = \frac{\text{number of beneficiaries enrolled}}{\text{per capita use}} \times \text{average physician prices}$$

From this it also follows that:

$$\text{Change in total expenditures} = \text{change in enrollment} + \text{change in utilization} + \text{change in physician prices}^6$$

Since the beginning of the Medicare program, enrollment has grown at an average annualized rate of 2.4 percent for the aged population and 3.0 percent in aggregate (553). (The relatively small disabled Medicare population grew at an annualized rate of 7 percent per year from 1974 through calendar year 1981, after which enrollment declined.) The annual increase in the enrollment of the aged population has been so nearly constant—just in excess of 2 percent—that year-to-year fluctuations in reimbursements are almost entirely derived from changes in utilization or physician prices.

⁶Although conceptually accurate, in practice it is difficult to completely distinguish changes in utilization from changes in price. For example, the most common measure of physician fee inflation is the Professional Services Index of the Medical Care Component of the Consumer Price Index. This index is computed by pricing a fixed market basket of physician procedures from a fixed cohort of roughly 700 physician practices. As a result, the index reflects neither changes in the mix of physician services available in the market nor changes in the mix of physician practices active in the market. Therefore, simply "deflating" physician expenditures with the index may not yield an entirely accurate estimate of changes in utilization.

From June 30, 1967, to June 30, 1983, approved charges per aged enrollee increased 591 percent, or 11.5 percent per year. The increase in approved charges per disabled enrollee from June 30, 1974, to June 30, 1983 was 390 percent, or 18.3 percent per year. Further, as shown in table 2-3, through fiscal year 1983, the aggregate increases in allowed charges per enrollee had been accelerating. With only two exceptions, the year-to-year total increase in recognized charges per aged enrollee increased in every year between 1970 and 1983 (553). Through June 30, 1970, the increase was 4.0 percent; by 1974, it was 8.9 percent; in 1978, 13.3 percent; in 1980, 16.0 percent; and in 1983, charges per enrollee increased 20.6 percent.⁷ From 1978 onward, Medicare's approved charges per enrollee have consistently increased faster than total per capita expenditures for physician services in the United States (see figure 2-3).

Of the 1968 to 1983 annualized increase of 11.5 percent per year, 6.9 percent was due to price increases and 4.6 percent was due to residual factors that include changes in utilization. Although there are no consistent trends in either price changes or the residual factors analogous to the accelerating change in approved charges per enrollee, the rate of price increase rose substantially

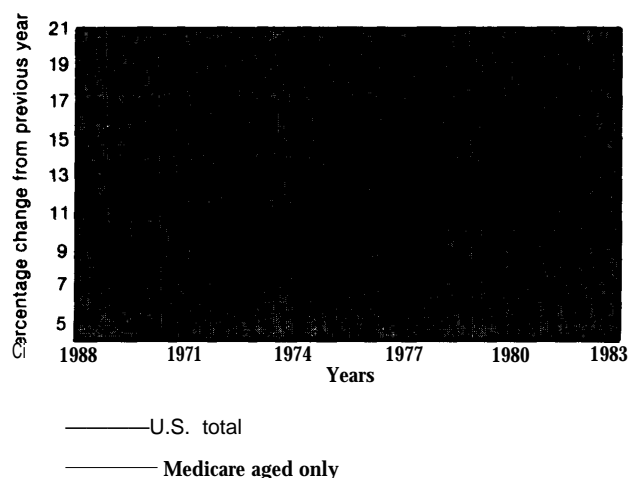
⁷Comparable fiscal year 1984 estimates will not be available until the preparation of the Federal Supplementary Medical Insurance Trustees report for 1986. In fiscal year 1984, the aggregate reimbursements for aged Medicare beneficiaries increased 12 percent over the previous fiscal year, compared to increases in excess of 19 percent in each of the 5 preceding fiscal years (533).

Table 2-3.—Components of Increases in Total Medicare Approved Charges for Physician Services per Aged Enrollee, 1967-83 (in percent)

Year (ending June 30)	Price change factors				Residual factors			Total increase
	CPI*	CPR fee screens			Gross	Denials	Net	
		Cumulative	Annual	Net				
1967	7.6	-2.6						
1968	5.9	-3.6	-0.6	5.3	10.8	-1.4	9.4	14.7
1969	6.2	-5.0	-1.5	4.7	2.9	-0.4	2.5	7.2
1970	6.7	-7.5	-2.8	3.9	3.2	-3.1	0.1	4.0
1971	7.5	-10.1	-3.0	4.5	3.6	-3.2	0.4	4.9
1972	5.2	-11.2	-1.2	4.0	2.3	0.4	2.7	6.7
1973	2.6	-11.7	-0.5	2.1	5.7	-0.6	5.1	7.2
1974	5.0	-13.2	-1.6	3.4	6.1	-0.6	5.5	8.9
1975	12.8	-16.2	-3.6	9.2	3.8	-0.3	3.5	12.7
1976	11.4	-18.6	-2.9	8.5	2.9	0.1	3.0	11.5
1977	10.2	-19.5	-1.0	9.2	3.3	0.1	3.4	12.6
1978	8.9	-19.4	0.5	9.4	3.8	0.1	3.9	13.3
1979	8.6	-20.0	-0.5	8.1	3.9	-0.3	3.6	11.7
1980	11.5	-22.1	-2.4	9.1	6.8	0.1	6.9	16.0
1981	11.1	-24.5	-2.8	8.3		0.7	7.8	16.1
1982	9.9	-23.9	1.5	11.4	5.9	0.5	6.4	17.8
1983	8.2	-23.4	1.6	9.8	10.9	-0.1	10.8	20.6

*CPI=Medical Care Component of the Consumer Price Index.

SOURCE: U.S. Federal Supplementary Medical Insurance Trust Fund. Board of Trustees. "1985 Annual Report of the Board of Trustees of the Federal supplementary Medical Insurance Trust Fund," Washington, DC, Mar 28, 1985.

Figure 2-3.—Percent Growth in U.S. and Medicare per Capita Physician Expenditures, 1968-83

SOURCE: M. Freeland, Bureau of Data Management and Strategy, Health Care Financing Administration, U.S. Department of Health and Human Services, Baltimore, MD, personal communication, Apr. 4, 1985; and U.S. Federal Supplementary Medical Insurance Trust Fund, Board of Trustees, "1985 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund," Washington, DC, Mar. 28, 1985.

after 1974, and the rate of increase in the residual factors also rose substantially after 1979.

Increases in expenditures have not been uniform across physician specialties or the types of services that they provide. Data have been analyzed from the percent Bill Summary Record sample

to disaggregate changes by specialty and type of service over the period 1975 to 1982 (133). Some of these data are reproduced in table 2-4. (Over this time period, total physician expenditures for the aged increased by 18 percent: 2 percent from enrollment increases, 10 percent from increases in reimbursements per service, and 6 percent from increases in services per enrollee.) Specialists in cardiovascular disease saw their Medicare reimbursements rise by 26 percent in total, half from increases in service volume, half from increases in reimbursements per service. Ophthalmologists and general surgeons also enjoyed comparable increases—of 13 percent—in reimbursement per service, while many other specialties saw increases in reimbursements per service of 9 or 10 percent.

Increases in the provision of services appeared to be much more variable across specialties. Pathologists' services increased by 21 percent over that time period, while general and family practitioners' services increased only 2 percent and those of general surgeons increased but 1 percent (133).

U.S. Expenditures for Physician Services

As indicated earlier, Medicare is only one player in the market for physician services, and

Table 2-4.—Annual Percentage Increases in Medicare Payments for Physicians' Services for Aged Beneficiaries, 1975-82

Specialty	Total reimbursements	Services	Reimbursements/ service
Cardiology	+ 26%	+ 13%	+ 1 3%
Pathology	25	21	4
Ophthalmology	22	9	13
Radiology	22	13	9
Podiatry	20	11	9
Dermatology	20	10	10
Otology/laryngology /rhinology	17	7	10
Orthopedic surgery	17	7	10
Internal medicine	17	7	10
Urology	14	5	9
General surgery	14	1	13
General practice/family practice	12	2	10

SOURCE L Etheridge and D Juba, " Medicare Payments for Physicians' Services, " *Health Affairs* 3(4) 132-137 Winter 1984

Part B physician service payments in 1984 were 19.3 percent of all expenditures for physician services (507). As a result, trends in that larger physicians' market must be observed to understand both the source of some of Medicare's problems and the prospects for their resolution.

Much like Medicare expenditures for physician services, expenditures for physician services in general are a function of the size of the population, per capita use of physician services, and price per service. Hence the change in physician expenditures is a function of changes in prices, changes in per capita use, and changes in the population. The Health Care Financing Administration (HCFA) has developed internal estimates to further partition price changes into those due to price changes in the general economy and price changes in physician services that differ from those in the general economy. These estimates are reported in table 2-5.

In 1965, an estimated total of \$8.5 billion was spent on physician services in the United States (165). By 1984, that expense had expanded more than eightfold to \$75.4 billion, a rate of growth of 11.5 percent per year. The years of the largest growth in physician expenditures occurred in 1969 to 1971, prior to the imposition of the Economic Stabilization Program; in 1976 to 1977, arguably as a result of the malpractice crisis of 1976; and during the inflationary period of 1979 to 1981.

In fact, just over half of the growth in physician expenditures since 1965 can be ascribed to inflation in the general economy as measured by

the Gross National Product (GNP) deflator. Physician fee inflation has exceeded inflation in the general economy with the exception of the 1972 to 1974 period of the Economic Stabilization Program. Since 1965, the total excess has been 39 percent, averaging just less than 2 percent each year (152). The difference between the GNP deflator and the professional services index of the medical care component of the Consumer Price Index (CPI) reached a high of 6 percentage points between 1975 and 1976. Since 1980, this excess inflation has been accelerating as medical inflation has continued while general inflation has declined. Between 1982 and 1983, medical inflation was twice the rate of inflation in the general economy. Physician fee inflation in excess of general inflation contributed 15 percent of the total growth in physician expenditures since the beginning of the Medicare program (152).

The rate of growth in the general population has been fairly constant since 1965, at approximately 1 percent annually. Per capita use of physician services has increased only slightly since 1965 and exhibited actual declines from 1980 through 1983. Together, growth in the use of physician services has represented just under 10 percent of the total growth in expenditures for physician services since 1965 (152).

Finally, one-quarter of the growth of physician expenditures can be ascribed only to the residual category. In the framework of the National Health Accounts (165), this residual can be interpreted as either an increase in the intensity or complex-

Table 2-5.—U.S. Physician Expenditures and Factors Accounting for Growth, 1965-83

Year	Total dollars (in billions)	Percent change from previous year					
		Total dollars	GNPdeflator ^a	Physician fee inflation	Use of physician services per person	Change in population	Other factors
1985	8.5	NA ^c	NA	NA	NA	NA	NA
1966	9.2	8.2	3.2	2.5	−3.8	1.2	5.1
1987	10.1	9.8	2.9	3.8	0.0	0.9	2.1
1968	11.1	9.9	4.7	1.2	−1.8	1.1	4.7
1969	12.6	13.5	5.3	1.7	1.6	1.0	3.9
1970	14.3	13.5	5.5	2.1	7.9	1.1	−3.1
1971	15.9	11.2	5.2	1.9	4.9	1.3	−2.1
1972	17.2	8.2	4.4	−1.0	0.8		2.9
1973	19.1	11.0	5.8	−2.4	0.7	0.9	6.0
1974	21.2	11.0	8.7	0.3	−0.7	0.8	1.9
1975	24.9	17.5	9.8	3.0	1.7	1.0	1.9
1976	27.6	10.8	5.5	6.0	−1.4	1.0	−0.2
1977	31.9	15.6	6.1	3.4	−2.4	1.0	7.5
1978	35.8	12.2	7.5	0.9	−1.1	1.0	4.0
1979	40.2	12.3	8.8	0.5	−0.2	1.1	2.1
1980	46.8	16.4	9.7	1.3		1.2	3.5
1981	54.8	17.1	10.1	1.3	−2.4	1.0	7.1
1982	61.8	12.8	6.2	3.3	−1.9	1.0	4.1
1983	69.0	11.7	3.9	3.9	−0.6	1.0	3.5
1965-83							
Total change	711.8	199.0	39.1	1.5	20.5	70.6	
Average annual change	12.2	6.3	1.9	0.1	1.0	3.0	

The GNP deflator is a measure of the inflation in the general economy.

^aPhysician fee inflation is measured here by the physicians' Services Component of the Consumer Price index minus the GNP deflator

^cNA=Not available.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Financial and Actuarial Analysis. Division of National Cost Estimates, unpublished data, 1985; and R.M. Gibson, K.R. Levit, H. Lazenby, et al., "National Health Expenditures, 1963," *Health Care Financing Review* 6(2):1-30, Winter 1964.

ity of the average physician service—possibly due to technological change—or an increase in the fee for the average service that is not accounted for in the physicians' services price index (that estimates changes in prices with respect to a fixed market basket of services).

In fact, over the period from 1968 to 1983, the increases in per capita expenditures for physician services for the Medicare program have risen at about the same rate as per capita increases in the country as a whole (see figure 2-3). Over that time period, the United States as a whole has averaged increases of 11.6 percent. The comparable statistic for the Medicare program is 11.5 percent. Through 1977, the Medicare increase was less than that of the United States as a whole in 8 out of 10 years. Only since 1978 has the Medicare increase consistently exceeded the aggregate increase.

Physician Incomes

Payments for physicians' services can also be considered as income to physicians. Those in-

comes have also been increasing. For example, average gross professional revenues more than doubled from \$81,800 in 1973 to \$192,200 in 1983 (391). Physicians' average net income also rose over that decade, but in constant dollar terms, it was nearly constant. Average real net physician income in 1984 was 4 percent lower than in 1970 (see table 2-6). However, this pattern of stable or declining real income was common to many occupations during the period of the 1970s with its high inflation rates. During the same period, earnings in constant dollars of workers in private nonagricultural industries fell 9 percent (500).

Income data indicate that there have been substantial differences among physicians by specialty in both the level of income and the growth of income level. Hospital-based specialists in anesthesiology and radiology have had both the highest and the most rapidly increasing net incomes. General practitioners have had the lowest net incomes, on average. Net incomes for general practitioners actually declined between 1981 and 1983 by 2.6 percent a year (see table 2-7).

Table 2-6.—Trends in the Gross Income, Expenses, Net Income, and Real Net Income of Physicians, 1970-84

Year	Average gross income	Average expenses	Average net income	Median net income	Real net income ^a
1970	\$ 66,100	\$24,300	\$ 41,800	NA ^b	\$41,800
1971	74,200	28,900	45,300	NA	43,400
1972	78,500	31,300	47,200	NA	43,900
1973	80,800	32,200	48,600	NA	42,700
1974	86,000	34,000	52,000		41,200
1975	94,900	38,500	56,400	\$54,000	40,800
1977	106,700	45,500	61,200	56,300	39,200
1978	111,900	48,400	65,500	60,000	39,000
1979	131,300	52,900	78,400	73,200	41,600
1981	167,000	74,000	93,000	78,000	39,400
1982	177,900	78,400	99,500	85,000	40,100
1983	192,200	85,900	106,300	90,000	41,600
1984	201,000	92,600	108,400	92,000	40,200

^aAverage net income in 1970 dollars^bNA- Not available

SOURCE American Medical Association, *Profile of Medical Practice 1981* (Chicago, IL: AMA, 1982); G. L. Glandon and J. L. Werner, "Physicians Practice Experience During the Decade of the 1970s," *JAMA* 244(22):2514-2518, Dec 5, 1980; "Average Net Income and Expenses of Physicians-1981," *SMS Report* 15 June 1982; and R. A. Reynolds and R. L. Ohsfeldt (eds.), *Socioeconomic Aspects of Medical Practice 1984* (Chicago, IL: American Medical Association, 1984).

Table 2-7.—Mean Physician Net Income After Expenses Before Taxes, Selected Years, 1973-83 (in \$000)a

	1973	1974	1975	1977	1978	1979	1981 ^b	1982 ^b	1983 ^b
All physicians	\$48.6	\$52.0	\$56.4	\$61.2	\$65.5	\$78.4	\$ 93.0	\$ 99.5	\$106.3
Specialty:									
General/family practice	41.9	44.7	45.4	51.1	54.6	62.0	72.2	71.9	68.5
Internal medicine	47.8	51.4	57.0	61.5	63.8	76.2	85.1	86.8	93.3
Surgery	57.4	60.5	68.2	74.0	82.6	96.0	118.6	130.5	145.5
Pediatrics	41.1	42.1	44.3	48.2	51.2	60.4	65.1	70.3	70.7
Obstetrics/gynecology	55.4	61.7	63.3	69.9	70.3	91.8	110.8	115.8	119.9
Radiology	59.5	63.8	75.2	76.7	81.5	98.0	116.9	136.8	148.0
Psychiatry	38.4	41.3	44.8	48.2	50.2	62.6	70.6	76.5	80.0
Anesthesiology	48.1	54.4	57.1	65.5	74.2	91.4	118.6	131.4	144.7
Census division:									
New England	44.2	46.3	47.2	53.1	54.9	66.6	85.0	82.2	84.5
Middle Atlantic	43.8	47.7	53.2	55.9	59.1	73.2	85.6	91.1	98.6
East North Central	50.5	54.2	59.9	62.7	69.9	81.2	100.9	106.2	114.3
West North Central	51.5	53.6	56.6	61.1	70.2	79.4	87.4	106.5	110.5
South Atlantic	50.3	54.4	58.2	61.8	64.9	79.8	92.6	97.9	106.7
East South Central	53.3	58.4	65.5	68.2	79.7	87.0	97.5	106.8	114.9
West South Central	52.8	57.7	61.4	67.9	70.9	85.8	101.6	118.7	124.4
Mountain	47.4	49.5	54.7	57.5	61.8	73.5	92.6	95.8	91.4
Pacific	48.1	50.9	54.8	63.6	64.9	78.6	91.7	92.9	103.1
Type of practice:									
solo	45.3	48.5	51.6	56.3	61.3	75.8	88.4	93.4	100.0
Non-solo	52.8	55.6	61.1	68.3	69.9	80.7	96.6	104.0	111.3
Location:									
Nonmetropolitan	46.9	48.5	50.2	56.7	64.8	74.1	87.1	86.9	87.2
Metropolitan									
Less than 1,000,000	50.3	53.7	58.8	63.2	67.4	78.8	99.6	103.9	111.0
1,000,000 and over	47.5	51.5	55.6	60.6	63.9	78.8	90.2	98.4	106.3
Physician age:									
Less than 36 years	32.8	40.6	43.7	49.6	49.0	64.3	62.5	73.3	77.0
36-45 years	51.9	57.1	62.9	69.9	70.1	87.5	98.1	108.2	110.2
46-55 years	55.0	58.9	62.3	67.7	76.2	87.1	110.8	116.5	133.6
56-65 years	48.3	49.3	54.1	58.7	65.3	75.9	95.6	99.5	103.1
66 or more years	31.9	34.0	35.0	36.8	44.4	54.9	68.3	64.3	71.9

^aData other than in the specialty breakdown, are based on responses from physicians in all specialties because of changes in methodology made in the transition from the periodic surveys of physicians to the socioeconomic monitoring system. Results for 1981 and 1982 in the location breakdown reflect correct location of previously reported results.

SOURCE R. A. Reynolds and R. L. Ohsfeldt (eds.), *Socioeconomic Aspects of Medical Practice 1984* (Chicago, IL: American Medical Association, 1984).

The variations in income parallel the variation in return on training among specialties. Dresh assessed the net capital value of returns to physician training for various specialties compared to general practice using a measure of lifetime physician earnings (113). He found that, except for pediatricians, psychiatrists and allergists/dermatologists, the adjusted lifetime earnings of medical and surgical specialists were much higher than those of general practitioners (113).

There is also a marked difference in annual earnings among specialties. Several studies confirm this finding and indicate that physician earnings for some specialties are higher than those for other specialties even when allowances are made for the opportunity costs of education and capital spent on education and offices (46).

Medicare's contribution to physicians' income also varies by specialty (353) (see table 2-8). A report of a recent survey of physicians indicated that only 8.4 percent of self-employed physicians had no Medicare patients in 1984 (406a). Those physicians who reported providing care to some Medicare beneficiaries indicated that 31.3 percent of their patients had Medicare as the primary source of insurance coverage (see table 2-9). What is not known is whether, and if so, to what extent, specialty differentials contribute to the differences in Medicare payment among specialty groups. Numerous other variables, such as volume of Medicare services provided, relative payments for procedural services vs. nonprocedural services, and the different mix of services provided by different medical disciplines are also contributory factors.

Physician Control Over Expenditures for Physician Services

Although physician expenditures represent 22 percent of all health expenditures (165), physicians have considerable influence on the use of a wide variety of nonphysician services. Blumberg estimated the fraction of all health care services under physician control and the relative cost of those services (46). By taking the product of those two factors for each type of service and summing over all services, he estimated physician control for 1976 as 69.8 percent of total costs. With respect

Table 2.8.—Gross Physician Earnings From Medicare, 1981

Specialty	Medicare income	Percent of total gross income
Anesthesiology	\$32,790	22
Family practice	21,220	15
General practice	21,170	18
General surgery	43,750	25
Internal medicine	39,630	29
Neurology	37,390	24
Neurosurgery	37,310	18
Obstetrics/gynecology	8,530	5
Ophthalmology	49,010	24
Orthopedic surgery	43,220	17
Pathology	28,000	21
Pediatrics	1,170	1
Plastic surgery	18,780	12
Psychiatry	6,370	6
Radiology	49,730	28
Thoracic surgery	72,420	35
All surgical specialties	38,910	20
All nonsurgical specialties	24,660	17
All MDs	27,490	17

SOURCE: A. Owens, "How Much of Your Money Comes From Third Parties?" *Medical Economics* 60:254-263, Apr. 4, 1983.

to individual services, physician control ranged from 91 percent of the cost of hospital expenditures to 20 percent of the cost of "other professional services." Physician control was assessed by estimating the proportion of services that patients received on the direction of their physicians. In aggregate, physician control over ambulatory care was estimated as 61.5 percent, ranging from 45 percent in pediatrics to 81 percent in psychiatry. Physician control over all physician services in all sites was estimated to be 76 percent.

Another perspective on this question comes from recent work on the potential use of DRGs for physician reimbursement purposes (571). If physician charges represent 20 percent of all health care bills but physicians are responsible for 70 percent of all charges, one would infer that physicians order services of roughly 2.5 times the value of their own services. Based on all the physician approved charge data within 2 months on either side of a hospital stay for Medicare beneficiaries in Florida in 1981, West et al. estimated that physicians as a whole ordered hospital services 1.73 times the value of their own services (571). With respect to only those physician services provided during the hospital stay, the Florida statistic would be 2.2. In South Carolina for the same year, physician charges during a stay and within 2 months

Table 2-9.—Percent of Self-Employed Physicians Reporting Specific Percentile Ranges of Patients With Medicare Coverage, 1984

Percent of patients with Medicare coverage	Percent of self-employed physicians	
	All physicians	Physicians with some Medicare patients
0	8.40/o	0
< 10%	30.0	23.50/o
<20	44.2	39.0
<30	60.8	57.2
<40	75.8	73.5
<50	86.1	84.7
<60	92.0	91.1
<70	95.3	94.8
<80	98.6	98.4

*synthesis of reported percentage of physicians without Medicare Patients and estimated number of physicians with specific Medicare percentages. These percentages were not directly combined in the source report.

SOURCE M L Rosenbach, S Hurdle, and J. Cromwell, *An Analysis of Medicare's Physician Participation Agreement Program* (Chestnut Hill, MA: Health Economics Research Center, Oct 29, 1985).

of either side of a Medicare hospitalization were accompanied by 2.7 times that amount in hospital services. Hospital charges were 3.3 times the value of Medicare physician allowed charges for strictly in-hospital physician services. When the physician charges were further disaggregated to identify the physician practice that alone was responsible for the largest fraction of physician charges, each "lead" practice was responsible for 3.8 times the value of own charges in Florida and 4.8 times the value of own charges in South Carolina.

Whether physicians control 70 percent or more of additional health care services, the potential spillover effect of physician payment reform on those additional health care dollars heightens the importance of any reform.

PHYSICIAN PAYMENT CHANGES AND PRACTICE CHOICES

With any change in the method of physician payment adopted by Medicare, one can expect responses by physicians in practice. The variety of choices available to physicians in response to payment changes includes both entrepreneurial and clinical decisions. Net payment to the physician, however, is only one factor in the physician's decisionmaking process. A patient's health status, presenting complaints, income, health insurance coverage, and health insurer's utilization controls, in addition to the physician's experience, practice style, repertoire of skills, and available equipment may be equally if not more important in influencing both the clinical and business decisions of the physician. These decisions include choices among particular physician services, choices with respect to the volume of services provided to Medicare beneficiaries, and choices with respect to physician participation in the Medicare program on an assigned basis.

Physicians as Entrepreneurs: Accepting Assignment

Two basic entrepreneurial decisions that physicians must make with respect to the Medicare program are: 1) whether to accept Medicare beneficiaries as patients and bill the program for serv-

ices provided to those patients, and 2) whether to accept assignment.⁸ The factors that influence these decisions have been studied, and some significant factors identified, in studies using an economic model of the physician as entrepreneur based on the assumption that the physician is a discriminating monopolist' (184,188,317,357,402).

There is little question about the effects of changes in approved charges on physician participation in the Medicare program. The higher the ratio of approved charges to billed charges, the more likely a physician is to accept assignment for Medicare patients. The higher that ratio, the more services will be provided to Medicare patients per capita and the greater will be the number of individual Medicare patients treated

⁸Since the passage of the Deficit Reduction Act of 1984, all physicians who provide services to Medicare beneficiaries have been asked to make an annual election either: 1) to become a Medicare participating physician and accept assignment for all Medicare claims, or 2) to retain the option of accepting or rejecting assignment on a case-by-case basis.

⁹Strictly defined, a monopolist is the only seller of a particular good or service in a particular market. A seller who can influence (raise) the final market price due to control over a substantial portion of the total volume of a particular commodity or service has a substantial degree of monopoly power. A monopolist who can maintain different prices for different consumers is a discriminating monopolist.

by that physician. The estimated relationships have been consistent and positive. The estimates of physician responsiveness to Medicare's relative allowances have clustered around the value of 0.7 (293), implying that for a 10-percent increase in the ratio of approved to billed charges, there would be an increase of 7 percent in assignment.

With respect to the influence of approved charges on the decision to become a Medicare participating physician, one would expect participating physicians to be comparable to physicians who exhibited high assignment rates prior to the participating physician program (317). Early evidence suggests that those physicians who did elect to "participate" had relatively high assignment rates prior to the initiation of that program (15). An initial study of participating physicians showed, in fact, that previous assignment rates and the percentage of the usual fee reimbursed by Medicare were the most important economic variables associated with the decision to participate (94).

In all likelihood, modification of CPR or conversion of Medicare physician payments from CPR to some other system would result in increases in approved charges for some physicians for some services and might result in decreases for others. Therefore, one would expect a decrease in the probability of assignment being accepted in those instances where approved charges were reduced and an increase where approved charges were raised. (Similarly, one would expect an increase in the probability that a physician would become a "participating physician" if his or her allowed charges had been increased.) The individual effects on specific physicians would depend on their approved charges in aggregate under CPR relative to those of their peers.

The financial effects of changes in physicians' allowed charges on individual beneficiaries would depend on the constellation of physicians providing services and the individual services provided in treatment. Given both increases and decreases in approved charges, one would expect both decreases and increases, respectively, in nonassigned liabilities and increases and decreases, respectively, in beneficiary cost-sharing liabilities. For example, a beneficiary whose physician experiences an increase in approved charges would be

more likely than otherwise to have that physician accept assignment, thereby reducing the expected nonassigned liability. At the same time, however, that beneficiary would face an increase in coinsurance liability equal to 20 percent of the increase in the allowed charge. The net financial effect on any one beneficiary would depend on his or her physicians' combined assignment/participation behaviors and changes in allowed charges.

Changes in the quality of care received by beneficiaries can also be expected to accompany the financial changes occasioned by physician decisions on assignment. In response to any net increases in out-of-pocket liabilities, Medicare beneficiaries may choose to forgo the use of some physician services. For some beneficiaries, such a change might actually result in an increase in quality through the reduction in the probability of receipt of some physician services that are inappropriate to the patient's condition. On the other hand, the provision of otherwise appropriate services might also be reduced, and the probability of receipt of appropriate services that are not currently being provided might also decline. For poor patients, a reduction in care would be likely to have an adverse effect on their health (194).

Quality of care might also be affected if patient choice among physicians were to be restricted because of physician decisions about assignment. If it were the case that those physicians who provided relatively high quality experienced the greatest reductions in allowed charges, the beneficiaries' out-of-pocket costs for securing access to those physicians would be expected to exhibit greater than average increases. If those physicians' patients switched to other sources of care, quality might decline. However, there is no evidence associating physician quality and the level of allowed charges. Further, there is some evidence that patients will not switch providers in response to changes in out-of-pocket costs (288).

A Medicare physician payment reform that is designed to reduce Medicare program expenditures probably will result in increased beneficiary liabilities as long as the case-by-case assignment choice remains an option for physicians and as long as there exists a private market for physi-

cians' services. A net decrease in average allowed charges can be expected to lead to reductions in assignment by nonparticipating physicians and reductions in the numbers of physicians who elect to become participating physicians.

The participating physician concept has modified physicians' options with respect to assignment. One can infer, however, that the participating physician decision is analogous to the case-by-case assignment decision (15), an inference that appears to be confirmed in a study using American Medical Association survey data (94). Data from the Medicare carriers indicate that assignment rates for all claims have increased under the participating physician program (537). A study based on physician survey data from five specialties suggested that net assignment rates for physician visits would decline with respect to a possible "all or none"¹⁰ assignment system (317).

The Effect of Relative Prices on Technology Choices

If one assumes that a physician has made the decision to accept Medicare patients on either an assigned or unassigned basis, in effect, an array of relative expected payments available for specific services is established in advance. That is, the physician can know that he or she may expect to receive \$16 from Medicare and \$4 from the patient for an assigned office visit, for example, or \$48 from Medicare and \$52 from the patient for an unassigned sigmoidoscopy. At that point, one might begin to ask about the impact of such price differences.

In theory, in addition to factors specific to the patient, the patient's health insurance, the patient's physician, and the physician's practice, relative prices *can* influence physicians' clinical decisions. Specifically, one can identify two types of clinical choices where relative prices may make a difference: 1) choices between two services that are substitutes for one another, and 2) choices among services that may be complements.

The choice between substitutes *is* usually illustrated by the classic distinction between medical and surgical treatments for a particular disease. In fact, there may actually be more than two treatments that can be substitutes as in the case of (surgical) Open nephrolithotomy, (catheter-based) percutaneous nephrolithotomy, and extracorporeal shock wave lithotripsy (ESWL) for the treatment of kidney stones. An alternative type of substitution may occur if the physician has the option of delegating the performance of a particular diagnostic test, for example, to an assistant. Similarly, the physician may substitute time spent in performing specialized diagnostic tests, such as endoscopies, for his or her own direct patient contact time. The distinction between substitutes and complements may become blurred at this point, and discerning actual choices from billing records becomes especially difficult. Although it may involve a complementary service, when physicians choose to perform endoscopies or other diagnostic tests by themselves, they are substituting time with one patient for time that might have been spent with another patient.

When would relative price make a difference? Where there are clear medical indications of the advantage of one technology over another or clear contraindications against one choice, price may not matter much to the physician. Differences in net revenues to the physician would be more likely to influence medical decisions for which the medically and ethically correct decision is unclear (194). The relevant comparison with respect to net revenues involves not only the net revenues anticipated from the particular services that may be substitutes for the patient in question, but the opportunity costs of providing services to another patient. For example, although a physician might receive a greater net revenue from Medicare for providing a limited¹¹ office visit rather than a brief

¹⁰Under an "all or none" system, a physician would have to choose between accepting assignment on all Medicare claims versus not being able to accept assignment on any Medicare claims. The current system might be described as "all or some."

¹¹The manual of Current Procedural Terminology, 4th ed. (CPT-4) defines a *limited* service as follows, "a limited level of service is one pertaining to the evaluation of a circumscribed acute illness or to the periodic re-evaluation of a problem including an interval history and examination, the review of effectiveness of past medical management, the ordering and evaluation of appropriate diagnostic tests, the adjustment of therapeutic management as indicated, and the discussion of findings and/or medical management" (85). *Brief* involves "a level of service pertaining to the evaluation and treatment of a condition requiring only an abbreviated history and examination."

office visit to a Medicare beneficiary, that physician might choose to provide the brief visit if still greater net revenues were available for providing services to patients with insurance that provide higher payments than Medicare.

The effects of relative prices on treatment choices, however, have not been studied empirically. This situation is partly a result of data limitations, but it also derives from the difficulty in empirically framing the question for analysis. Finding specific examples where a sufficient number of individual physicians face a particular choice among substitute services involving comparable patients but with differing relative payment levels is not easy.

Several authors have speculated on the potential effects of relative revenue differences involving services that may be viewed as complements to office visits (4,424). Schroeder and Showstack note that the per physician net incomes of a group practice that performed eight specific diagnostic tests in the practice would be nearly three times greater than that of a physician in a solo practice in which virtually no diagnostic testing was performed by the physician in the office even though each physician in the group practice might see fewer patients than the solo physician (424). In the case of a Medicare beneficiary whose coinsurance and deductible were covered by a private supplemental insurance policy, the additional cost to the patient of an endoscopic exam might be negligible, but the increase in revenue to the physician who complements the patient's treatment with that exam may be several hundred dollars. Because the information provided by the test may be useful and the time required to perform the test is relatively short (423), the incentive to perform the test may be nearly irresistible.

Is There Too Much Service With Fee for Service?

One issue that should be addressed at this point involves the incentives faced by physicians under a fee-for-service payment system. In one sense, fee-for-service incentives are volume increasing because the physician can receive an extra payment for each extra service performed and billed. The gross price per service alone, however, will

not establish a positive incentive. Any incentive will depend on the available revenue per service net of cost. If, for example, a physician can spend the same amount of time to administer an injection of pneumococcal vaccine or prescribe a drug, and if the additional cost to the physician for the vaccine is \$5 with no appreciable additional cost for a prescription pad, a positive incentive exists to prescribe rather than to inject even if the payment for the injection is \$10 and that of the visit with a prescription is \$6.

One might argue, however, that physicians behave as if virtually all their costs were fixed; ¹² hence gross payment levels do indicate incentives. Physician obligations for employee salaries, space and equipment, insurance, and transportation may be considered by physicians to be fixed annually, and those obligations may represent 70 to 90 percent of all office expenses (355,391). Further, since total physician office costs are approximately 40 percent of gross professional revenues, most services may appear to yield profits and hence embody an incentive to provide more. This argument assumes, however, that physician time is of no value in and of itself. When the alternative revenues that a physician might generate with his or her time, the opportunity costs, are included in the calculation of costs, incentives for greater amounts of service exist only when net payments exceed those opportunity costs. From this perspective, any incentives would be a function of the level of payment in addition to the method through which that payment level is derived.

In one sense, Medicare payments may be too high for some services. They may be too high in general. For example, nearly one claim in five is paid at or below the level of the physicians' customary charges (535). Because a physician will be paid the lower of the billed charge or the customary (or prevailing) charge, one would expect billed charges to exceed customary charges if approved charges were consistently too low. Lower approved charges within the context of a fee-for-

¹²Fixed costs are those costs that do not vary as output varies. Most overhead costs can be considered fixed costs. Although a policy for professional liability insurance may subsequently be canceled, a physician's expenditures for such insurance are fixed at rates established annually. Some office overhead expenditures, e.g., heat or electricity, however, are not fixed, since they will cease to be incurred if the physician does not have his or her office in operation.

service, therefore, might retain beneficiary access to physician services in addition to reducing some inappropriate incentives to provide too much service.

Volume Responses and Induced Demand

The additional possibilities of providing physician services that in some sense are complements to treatment lead to the issue of changes in the aggregate volume of physician services in response to changes in allowed charges. In a market economy, most suppliers would respond to a decrease in prices paid for their goods and services by reducing the quantity they were willing to sell. One might believe, therefore, that reductions in approved charges for physicians services would lead to reductions in Medicare expenditures for those services, even if there were no reduction in the volume of services provided. In fact, one might believe that a reduction in approved charges by Medicare would lead to a reduction in the number of services provided by physicians to beneficiaries, reducing expenditures by an even greater amount. However, in response to changes in approved charges, beneficiaries and physicians may appear to change their behaviors in ways that increase service volumes. For example, in response to a decrease in approved charges some patients might want to increase their purchases of physician services. If, in addition, physicians can control service volumes, an alternative approach to payment “reform based solely on reductions in allowed charges may be needed to control increases in expenditures,

The question of whether physicians in particular can influence the use of their services and hence frustrate cost control efforts based solely on controls on fees is one of a number of issues included under the topic of iatrogenic- or supplier-induced demand. The possibility that physicians might induce demand for their services has been the subject of empirical studies since as early as the late 1960s (389). In particular, studies of cases where public health insurance programs have reduced or frozen physician fees have suggested that such efforts have not controlled costs (158).

Unfortunately, none of the studies unequivocally proves or disproves the magnitude or even the existence of induced demand. For example, a study of California physicians' billings to Medicare during the period of the Economic Stabilization Program, found that in spite of the fee freeze overall costs rose substantially because there was an increase in the volume of services provided to Medicare beneficiaries (215). This result is often cited as evidence that even if *price* controls do control price, they do not control expenditures. However, an alternative explanation for the increase in Medicare volume during the Economic Stabilization Program can be found in the well-established positive relation between Medicare participation and allowed charges. The Economic Stabilization Program was instituted in August 1971, 1 month after Medicare approved charges had been increased for fee screen year 1972 and 5 months prior to the (January) period typically exhibiting the largest increases in physicians charges. As a result, Medicare approved charges relative to private market payments were frozen at a level typically higher than that of any other time of the year. Given that physician participation in the Medicare program has been found to be positively related to the ratio of approved charges to billed charges, one would have expected physicians to increase the volume of services provided to Medicare patients.

If not resolved, the current debate on this issue only simmers. There appears to be some physician volume response to reductions in physician prices. Quebec's experience indicates that fee controls can be effective in reducing the rate of growth in physician expenditures, in spite of some volume increases (28). If the volume response is perceived as potentially vitiating the desired effect of physician payment reform, an initial step might be to monitor volume changes to ascertain the need, if any, for additional controls.

Cost-Shifting

One other potential physician response to reductions in Medicare approved charges is that physicians might raise their non-Medicare charges, a form of “cost-shifting.” However, if non-Medi-

care patients are responsive to price, i.e., if their willingness to purchase physician services is reduced when prices increase, rational physicians would reduce their charges to non-Medicare patients rather than increase them in response to reductions in approved charges (188,357). It may well be the case that physicians may choose not to participate in the Medicare program if payments are reduced to levels significantly below those of the non-Medicare market, but there is no theoretical or empirical evidence for physicians' cost shifting.

It is possible that some physicians might appear to provide greater quantities of service to their non-Medicare patients as an additional response

to reductions in Medicare approved charges. This might also be perceived as "cost-shifting." However, other things being equal, if non-Medicare patients are responsive to price, there should be no net increase in physician service volumes to those patients unless there is a decrease in average fees charged to those patients. Alternatively, if some physicians elect to serve fewer Medicare patients in response to a decrease in Medicare approved charges, there might be a reduction in appointment delays or office waiting times. This decrease in the "time price" might then be followed by an increase in demand for services by those physicians' non-Medicare patients.

ISSUES WITH RESPECT TO MEDICARE'S PHYSICIAN PAYMENT SYSTEM

Then HCFA Administrator Leonard Schaefer enunciated the basic missions of HCFA in 1979 (508):

- to promote the timely, cost-effective delivery of appropriate, quality health care services to its beneficiaries;
- to make beneficiaries aware of the services for which they are eligible, and to make those services accessible to them in the most effective manner; and
- to ensure that its policies and actions promote efficiency and quality within the total health delivery system which serves all Americans.

This mission statement can provide the basic starting point in examining whether Medicare's physician payment systems foster or hinder the achievement of those objectives. As might be expected, however, it is easier to raise the issues than to resolve them. As reviewed above, Medicare expenditures for physician services have continued to increase, but until 1982, Medicare increases were roughly in concert with those observed in all U.S. expenditures for physician services. There are perceived excessive variations in such aspects of Medicare physician services as payment levels, assignment rates (and hence effective financial coverage), and utilization of services. Such variations are consistent with problems in quality, ac-

cess, cost and/or efficiency, but one would also expect to observe even some substantial variations in a national program serving more than 30 million beneficiaries in thousands of local markets. Although many observers conclude that the variations are too great not to reflect a particular problem of interest, there is little or no consensus about whether the variations signify actual problems.

Although the many perceived variations in the Part B program may not unequivocally indicate the presence of problems, there seems to be no question that such variations have led to confusion on the part of both the beneficiaries and the providers. In addition, health insurance coverage, which insulates patients and providers from health care costs, and the design of the Medicare benefit package itself do not provide incentives for efficiency. Confusion and inefficiency are the first issues reviewed below. Following that discussion, the magnitudes of the potential problem variations are addressed. Potential problems include:

- variations in annual expenditures per beneficiary;
- variations related to assignment; and
- payment level variations with respect to geographic areas, physician specialties, and place, type, and vintage of service.

Some variations that might be expected, such as those due to quantity discounts, for Medicare as a large payer, are not evident, and some variations are either exacerbated or moderated by the MEI. These potential problem areas are reviewed in light of what is known about plausible levels of variations in payments and expenditures that might be expected in the Medicare program.

Beneficiary and Provider Confusion

The CPR method of determining approved charges, the possibility of case-by-case assignment choice by physicians, and even the existence of the Part B deductible itself all contribute to confusion about payments among both beneficiaries and providers. An Administrator of HCFA once noted, "We get something like 9 million letters a year on reimbursement, most simply wanting to know how the payment was arrived at" (98). Even with the Medicare participating physician program initiated under the Deficit Reduction Act of 1984 (Public Law 98-369), it is rarely straightforward for a Medicare beneficiary to establish in advance his or her out-of-pocket liability for covered Part B services.

Because CPR in effect establishes a separate fee schedule for each physician practice, the approved charge for a specific procedure may vary widely within a given locality. Hence, there will be variations in beneficiary coinsurance liability for a specific service regardless of assignment. Further, some physicians may not be able to recall their Medicare approved charges when they recommend to the patient that a specific service be rendered, and when they refer a patient to another physician for a specialized service, they may not know all of the services that that physician may render, much less the charges for those services. In that case those physicians may not be able to tell patients what their expected out-of-pocket cost will be. Finally, for some infrequently performed procedures rendered near the beginning of a fee screen year, an approved charge for the procedure may not have been calculated for the physician practice. Neither the beneficiary nor the physician would then know the level of the approved charge until after a bill for the service had been submitted.

Under Medicare's participating physician program, a significant proportion of practices have agreed to accept assignment on all claims. There are also directories available at the offices of the carriers that identify those practices. Unfortunately, because some physicians may have more than one practice and may not have elected to "participate" in each practice, the directories are not a perfect guide to 100-percent assigned practices (231).

With respect to the providers, there are many situations in which a physician will not know how much he or she will be paid for treating a Medicare beneficiary. Prior to the implementation of the freeze, at the beginning of a fee screen year a physician would be likely to learn of that year's allowed charges only as reimbursements were received for services rendered in the new fee screen year. A physician could request information on those new approved charges from the carrier, but there was no organized information dissemination of approved charges to physicians from the carriers. However, even where the approved charges are known, those charges are not reimbursed by the carriers for patients who have not yet satisfied the Medicare deductible. Further, the deductible is assessed as of date of payment, not date of service. If a Medicare beneficiary received \$75 of physician services on a nonassigned basis in January but did not file those claims until after receiving \$75 of assigned physician services in March, the assigned services would be applied to the deductible and hence would not result in a payment from the carrier. Even though the patient may have indicated that he or she had already met the deductible, the physician who accepted assignment in this example would have to collect those charges from the beneficiary.

Finally, provisions regarding elderly beneficiaries who are employed may also lead to uncertainty for providers. Medicare is not the primary payer for aged beneficiaries below age 70 who are covered by employer-offered health insurance plans. As a result, a physician who treats such a Medicare patient may find that the charge approved by the patient's insurer is not the same as the Medicare allowed charge. In addition, if the physician had accepted assignment and submitted a bill to the Medicare carrier, Medicare might

deny payment of the bill unless it had been first presented to the third-party carrier of the patient's employer.

Inefficiencies in the Delivery of Medical Care

In addition to improving people's ability to obtain medical care, health insurance affects people's decisions about using services and providers' decisions about purchasing and using technologies (343). Compared to those who pay for care out of pocket, cost is less of a deterrent to insured persons' decisions to seek care and to choose costly providers and technologies. Similarly, consideration of insured patients' finances is less of a concern to physicians and other providers who buy and use medical technologies. Thus, one would expect to observe Medicare beneficiaries demanding greater volumes of covered physician services at any price level than would be strictly cost effective. Further, this is more likely to be the case for those beneficiaries who: 1) receive services under cavitation without copayment, or 2) have obtained supplemental insurance that pays for the Medicare deductible and coinsurance. Under fee-for-service payment, in those cases where net revenues are increased by the increased provision of care, providers' financial incentives reinforce the beneficiaries' enhanced demand for services. Under cavitation, net revenues are diminished by the increased provision of care; hence, the incentives regarding use for beneficiaries conflict with the incentives for those who receive the cavitation payments.

The Medicare benefit package may also contribute to inefficiency in the provision of physician services. Although providers render much preventive care to Medicare beneficiaries in the course of visits, many preventive services, such as physical examinations and influenza vaccinations, and some rehabilitative services, such as hearing aids, are not officially included under Medicare coverage. Exceptions are pneumococcal vaccination, which is covered for all beneficiaries, and hepatitis B vaccine, which is covered for end-stage renal disease patients and other categories of beneficiaries at high or intermediate risk of contracting hepatitis B (89). Beneficiaries are

liable for the total charges of services not covered by Medicare, and might be expected to use less of such services than might be recommended on strictly medical or cost-effective grounds. On the other hand, legislation (the Omnibus Reconciliation Act of 1980, Public Law 96-499) has eliminated beneficiary cost-sharing in certain cases to encourage the use of less costly alternatives. For example, beneficiaries are liable for no deductibles or coinsurance for certain surgery performed in ambulatory surgical centers.

The result from these design decisions would be expected to be inefficiency (higher cost for a given level of quality) in the provision of particular technologies and in the combination of technologies used for a given medical condition. For example, duplicative laboratory tests may be performed, diagnostic and therapeutic equipment and facilities may be used far below capacity, and the more expensive and hazardous hospital setting may be used when ambulatory care would be just as effective (483).

Variations in Annual Expenditures per Beneficiary

There is more than a twofold variation in reimbursements per Medicare enrollee across the 50 States. In 1982, for example, Medicare reimbursements for physician and other Part B medical services on behalf of aged beneficiaries in the United States averaged \$517.93 per enrollee. In Nevada, however, the average was \$842.29, while in West Virginia, the average was \$305.15 per enrollee. The western census region as a whole averaged **\$654.40**, nearly 40 percent greater than the southern census region at **\$468 (525)**.

Although not necessarily indicative of problems, there are also variations by age, gender, and race. As might be expected, Medicare reimbursements per enrollee increase as the age of the enrollee cohort increases. In 1978, average reimbursements per enrollee for physician services for aged Medicare eligibles averaged \$197. For the age 65 to 69 cohort, the average was \$152; for those aged 85 and over, the average was \$259. During that same year, reimbursements on behalf of male beneficiaries were \$214 compared to \$186 for fe-

males. This disparity widened over the 1975 to 1978 period. Average reimbursements for white beneficiaries were \$201 in 1978, compared to an average of \$153 for nonwhite beneficiaries. (There was no obvious trend in this relation over the 1975 to 1978 time period (297).)

Part of the regional variation in Medicare expenditures per beneficiary is due to the variation in the proportion of beneficiaries who exceed the Medicare deductible—and who are thus eligible for reimbursements.³ In 1982, 65.6 percent of both the aged and the disabled populations exceeded the deductible. In Rhode Island, however, 78 percent of the aged beneficiaries exceeded the deductible, while only 54.7 percent of Kentucky's aged beneficiaries exceeded the deductible. (There are no marked disparities in any State between aged and disabled Medicare populations in terms of the percentages exceeding the deductible.)

One other factor that contributes to the variation in expenditures per beneficiary involves differences in the apparent relative stringency of the reasonable charge process. In the first quarter of 1985, 17.4 percent of physician claims were submitted with charges *at or below* the effective approved charge limits. Of the remaining 82.6 percent of claims, the average reduction per claim was **\$32.84**. As a result, Medicare's approved charges in aggregate were 74.5 percent of the total submitted charges. The differences in these statistics among carriers are striking. For example, Maryland Blue Shield reduced only 48.7 percent of claims, while 91.6 percent of Hawaii's claims were subject to reductions by its carrier, Aetna. The average reduction per claim for that time period was \$19.98 in Vermont, but \$44.49 in Nevada. Finally, allowed charges were 80.8 percent of total covered charges in Kentucky, but only 66.2 percent of total covered charges in Rhode Island (535). Thus, a Kentucky beneficiary with a nonassigned claim for \$100 might expect to have to pay \$33.36 out-of-pocket charges, while a Rhode Island beneficiary with a comparable claim might have to pay **\$47.04**, 41 percent more.

³This in turn is due to variations in patient health and in both the level of allowed charges and service volume. Patients who do not initiate visits to physicians or patients with either very inexpensive doctors and/or medically very conservative doctors may not exceed the deductible.

Variations Related to Assignment

There is substantial variation in assignment rates across the United States. Assignment rates nationally declined from 1969 through 1977, but they have increased since that time reaching 59 percent of claims and 59.6 percent of charges in 1984.⁴ In 1982, when assignment was accepted on 51.8 percent of charges for the aged, assignment rates for elderly people increased as the age of the cohort increased, ranging from 47.3 percent for the age 65 to 69 cohort to 61.1 percent for those aged 85 or above. Assignment rates among female beneficiaries exceeded those of males, 52.6 percent compared to 50.6, and nonwhite beneficiaries exhibited higher assignment rates than whites, 79.9 percent compared to 49.3. Assignment rates for disabled beneficiaries exceeded those for aged beneficiaries. Within the disabled population, rates for females were greater than for males, and rates for nonwhites were greater than those of whites. Assignment rates for the youngest cohorts of disabled beneficiaries were the greatest at 88.7 percent for those younger than age 25 compared to 66.6 percent for those aged 45 to 64. Across the States in 1982, the rates for the aged ranged from 87 percent in Rhode Island to a low of 17 percent in South Dakota. Assignment rates for most major physician specialties ranged from 40 for otolaryngologists to 54.7 percent for cardiologists with most specialties at less than 50 percent (296).

In fiscal year 1985, the first year of the participating physician program, 29.8 percent of the physician practices that provided services to Medicare beneficiaries elected to participate. Across the States, the percentage of participating physician practices ranged from a high of 53.9 percent in Alabama to a low of 5.6 percent of the practices in South Dakota. With respect to physician specialties with substantial Medicare volumes, 21.1 percent of anesthesiology practices elected to participate compared to 50.8 percent of the nephrologists. Of 17 distinct physician specialties reported by HCFA, 11 exhibited participation rates between 25 and 35 percent (518). (Early tabulations

⁴Unless otherwise noted, these and subsequent statistics on assignment include the mandatorily assigned claims of beneficiaries who are entitled to both Medicare and Medicaid coverage.

from the second year of the program indicate that 15.3 percent of the participating practices of physicians, osteopaths, and limited license practitioners from fiscal year 1985 did not continue their participation into fiscal year 1986, although 13,718 new agreements were submitted. As a result, the aggregate participation rate for physicians, osteopaths, and limited license practitioners dropped from 30.4 to 28.4 percent (521).)

Because of the assignment option, differences in the proportion of total charges that are approved yield differences in beneficiaries' out-of-pocket liabilities for covered services. In the first quarter of 1985, 81.6 percent of *assigned* claims were subject to reductions averaging **\$32.48** per claim, as a result of which 73.5 percent of total covered charges were allowed. Of *nonassigned* claims, 84.7 percent were subject to reductions, which averaged \$32.84 per claim, yielding approved charges equal on average to 74.5 percent of total covered charges (535). Therefore, for claims that were subject to CPR reductions, expected beneficiary out-of-pocket cost was \$18.02 for the average assigned claim. Adding an average coinsurance of \$19.19 to the nonassigned liability of \$32.84, the expected beneficiary out-of-pocket on an unassigned claim was \$52.03 (see table 2-10).

Historically the differences in the statistics between assigned and nonassigned claims have been small. Although a slightly higher percentage of nonassigned claims have been subject to reductions, the reductions on assigned claims have been somewhat greater both in absolute and percent-

age terms. Within the class of nonassigned claims, however, differences in the effective stringency of the reasonable charge process across carriers directly lead to differences in beneficiary liability. In dollar terms, the average reduction on nonassigned claims is exactly equal to beneficiary average nonassigned liability per nonassigned claim. Although the average for the country was **\$32.84** per claim in the first quarter of 1985, in Maine, the average nonassigned liability per claim was \$17.37, while in the Minneapolis, Minnesota, region served by Travelers, this liability was \$56.38 per claim (535).

One might expect that beneficiaries would appear to react to these variations in nonassigned liability with more searching for doctors who accept assignment in those areas where average nonassigned claims were relatively expensive in terms of beneficiary out-of-pocket costs. This does not appear to be the case, however. There is little obvious positive correlation between assignment rates and average nonassigned liability per claim. In fact, in the carrier data reported to HCFA one can observe a slight negative correlation.¹⁵

Some evidence consistent with searching for assignment can be seen in the variations in assign-

¹⁵In the first quarter of 1982, the correlation between average nonassigned liability per claim and the assignment rate by carrier was -0.26. Possibly due to the increase in assignment rates concomitant with the participating physician program, the negative correlation between average nonassigned liability per claim and the assignment rate by carrier has been reduced. In the first quarter of 1985, this correlation was -0.12.

Table 2.10.—Medicare Reasonable Charge Reductions per Claim, January-March, 1985

	Type of claim	
	Assigned	Unassigned
Average billed charge	\$122.35	\$128.93
Percent of claims reduced	81.60/o	84.70/o
Percentage reduction	26.50/o	25.50/o
Average CPR reduction (26.5°/o x \$122.35)	\$32.48	(25.50/o X \$128.93) \$32.84
Average approved charge (\$122.35 - 32.48)	\$89.87	(\$128.93 - \$32.84) \$96.09
Medicare payment (80°/o x \$89.97)	\$71.90	(800/0 X \$96.09) \$76.87
Beneficiary coinsurance (20°/o x \$89.97)	\$ 17.97	(200/0 X \$96.09) \$ 19.22
Nonassigned liability	\$ 0.00	\$32.84
Total beneficiary cost	\$ 17.97	(\$19.22 + \$32.84) \$52.06

SOURCE: U S, Department of Health and Human Services, Health Care Financing Administration, Bureau of Quality Control, *Carrier Reasonable Charge and Denial Activity Report January-March 1985* (Washington, DC: U S Government Printing Office 1985)

ment rates by annual charges per user. In 1978, assignment was accepted on 44.6 percent of total physician charges. For those aged patients with charges less than \$100, the assignment rate was 30.3 percent. For those with charges between \$100 and \$149, the rate was 27.9 percent. For those with annual charges in excess of \$149, however, as annual charges increased, assignment rates increased. The maximum average assignment rates were 52 percent for those beneficiaries with annual charges in excess of \$2,500. This general pattern is consistent by specialty and holds for both the aged and disabled populations (297). These data are also consistent with the “big bill” hypothesis that physicians accept assignment more readily for services with high charges, accepting the Medicare approved charge with certainty rather than risk the possibility of incurring a relatively large bad debt. In 1981, with respect to those “big bills” with submitted charges in excess of \$200, assigned charges were 52.9 percent of total submitted charges. For bills of \$200 or less, assigned charges were 47.6 percent of the total (69).

The assignment option probably exists in Medicare because Blue Shield Plans in the mid-1960s had participating physician options under which, for some patients, a physician would agree to accept as payment in full a fee that was below his or her usual charge for a particular service. A beneficiary who receives an assigned service from a particular physician has therefore received a discount from that physician’s otherwise standard fee. From this perspective there is no correct or best level of assignment. A beneficiary who received all physician services on assignment is not necessarily better off than another beneficiary who received the same services from another physician with no services provided on assignment. The out-of-pocket costs of the first beneficiary could be higher than those of the second. Other things being equal, assignment can mean reduced out-of-pocket liabilities and hence reduced financial barriers to care. Assignment rates may thus be interpreted as imperfect indicators of beneficiary access to care, with higher assignment rates presumed to reflect better access. There is no evidence, however, that there are particular groups of Medicare beneficiaries who could not obtain access to needed physician services included in the Medicare benefit package.

Perceived Payment Imbalances

In addition to aggregate and per capita variations in expenditures and out-of-pocket liabilities, there are also significant variations in approved charges for specific services, i.e., individual fees. There are variations across States, across geographic areas within States, and across the physician specialties regardless of State. Variations have also been observed by site of service, by the type of service, by the vintage of the service, and by the apparent relative effective stringency of the MEI.

By design, the legislation establishing the Medicare program did not mandate a national fee schedule for physician services, and the CPR system was at least partly adopted to allow recognition of local differences in charge levels. The observed ranges in approved charges, however, suggest to some that there is excessive variation in charges. Further, the variation in charges is not random. As a result, the incentive effects of Medicare’s physician reimbursements may not be in concert with other public policy objectives.

Geographic Variations

For Medicare Part B payment purposes, the country is currently divided into 240 localities. In 18 States, the entire State is a locality; in the remaining States, there are two or more localities. Texas has the greatest number of localities with 32, California has 28, and Illinois has 16 (515). Although multiple localities may be identified and used to partition physician claims for the purposes of establishing prevailing charges and determining approved charges, it should be noted that not every procedure will have a prevailing charge established on a locality-specific basis. Relatively low-volume procedures may have a state- or carrier-wide prevailing charge even in some States with more than one locality.

Medicare carriers were given the responsibility to identify localities in the original Medicare legislation. The Social Security Act, however, was permissive in that it did not require that a carrier identify two or more localities. The original guidelines indicated that localities were to embody substantial, relatively homogeneous, but not necessarily contiguous geographic areas. Homogeneous

but relatively small jurisdictions, such as particular neighborhoods, were not to be identified as distinct localities for payment purposes. Subsequent instructions to the carriers required HCFA permission to change the number of localities within any carrier jurisdiction. In recent years, many carriers have consolidated two or more localities.

Interarea Variations.—The range across localities in charges for specific services is substantial. Data from HCFA for fee screen year 1980 reveal that the highest prevailing charge for a brief followup hospital visit exceeded the lowest by 373 percent. For extraction of lens the “excess” was 159 percent. For electrosection of the prostate, hysterectomy, and single view chest X-rays, respectively, comparable differences were estimated as 197, 143, and 536 percent (see table 2-11).

Four-, five-, and six-fold differences in prevailing charges in 1980 were not aberrations. Data from fee screen years 1976 through 1980 show those differences as datively constant over time. A study of Medicare prevailing charge data from 1975 for a selection of surgeries also showed the same range of results (50). In addition, that review examined whether those variations could be explained by differences in cost of living, malpractice premiums, quality of care, or relative physician shortages. The findings of the study were that cost-of-living adjusted fees still showed three-fold variation; that neither quality differences nor malpractice expense differences could explain the variation; and that relative physician shortage areas

exhibited lower rather than higher fees as might have been anticipated.

Intrastate Variations.—Within those States where carriers had established more than one locality, variations in prevailing charges between the highest charge and lowest charge localities have been commonly observed to exceed so percent (494). In general this reflects urban/rural payment level disparities. A 1976 study showed that Medicare payment levels in urban areas exceeded those in rural areas by 23 percent (421). After adjustment for cost-of-living differences, Medicare prevailing charges in the largest standard metropolitan statistical areas in 1975 averaged 17 percent above the national average, while those in the counties with the lowest populations averaged 8 percent below (494). If payment level differences exceed differences in physicians’ costs of practice, these urban/rural disparities under Medicare will tend to discourage physicians from locating in rural areas. To the extent that the Federal Government has a policy of trying to enhance access of residents of rural areas to physician services, Medicare’s physician reimbursement policy in this regard is at variance with national policy.

How Much Geographic Variation Is Enough?—There are arguments on both sides of the question of whether to have identical or varying fees for the same service in different jurisdictions. Two arguments for identical payment levels across jurisdictions, such as might be produced through the use of fee schedules, involve: 1) the potential inappropriateness of different effective benefit

Table 2-11.—High and Low Prevailing Charges in Localities for Five Selected Procedures, Fee Screen Year 1980

Procedure	Locality prevailing charges			
	High	Low	Range	Ratio
1. Brief followup hospital visit by an internist	\$ 33.10	\$ 7.00	\$26.10	4.73:1
2. Extraction of lens by an ophthalmologist	1,390.70	536.50	854.20	2.59:1
3. Electrosection of prostate by a urologist	1,410.40	475.25	935.15	2.97:1
4. Hysterectomy by an obstetrician/gynecologist	1,305.20	536.50	768.70	2.43:1
5. Chest X-ray single view by a radiologist	35.00	5.50	29.50	6.36:1

SOURCES: U.S. Department of Health and Human Services, Health Care Financing Administration, “Medicare Part B Charges, Overview and Trends, Fee Screen Years, 1976-1980,” Washington, DC, Feb. 3, 1982; and U.S. Congress, Senate Committee on Finance and House Committee on Ways and Means, *Background Data on Physician Reimbursement Under Medicare*, S. Pd. 98-153 (Washington, DC: U. S. Government Printing Office, October 1983).

levels for a program supported by national taxes and beneficiary premiums that do not vary by jurisdiction, and 2) the implicit incentives in varying payment levels that make the Medicare program nonneutral with respect to physician location choice. (In particular, it is alleged that Medicare payments encourage new physicians to locate in urban areas while the explicit policy of the Department of Health and Human Services has been to encourage physicians to locate in “undeserved,” predominantly rural areas.) On the other hand, two arguments for varying payment levels involve: 1) variations in the costs of physician practices across jurisdictions, and 2) variations in what may be market-determined prices for physician services across those areas.

National Equity.—The Medicare Part B program is a national program. It is funded primarily (about 75 percent) through general revenues collected largely on the basis of ability to pay—not State of residence. Beneficiary premiums for enrolling in Part B do not vary across the country, nor is there variation in the deductible that must be met prior to receiving reimbursements for approved charges. Part B enrollees are eligible for benefits regardless of their State of residence or the State in which they may receive physician services.

Medicare payments on behalf of beneficiaries, however, do vary considerably. Variations in payment levels across States and within some States contribute to the variations in benefit payments both directly and indirectly. In particular, compared to beneficiaries who receive physician services in States with relatively high approved charges, those in States with low approved charges have to receive more physician services in order to meet the deductible and hence qualify for reimbursement. In effect, beneficiaries who are in some sense in equally poor health may not have equal financial access to care through the Medicare program. Of course, beneficiaries in lower cost areas are likely to have lower cost-sharing for a given set of physician services.

Location Incentives.—In general, Medicare allowed charges for physician services are highest in urban or suburban areas and lowest in rural parts of the country (471). However, it is exactly in those rural areas that beneficiaries may experi-

ence the most difficulty finding a source of medical care because physicians have not elected to establish practices in those locations. Recent evidence has suggested that increasingly fewer rural areas are without a specialist physician (344), but there is still enough of a perceived problem of unequal access to care that Federal policy remains committed to rectifying shortages in “underserved” areas. Therefore, the incentive effects of Medicare physician payment policies are in conflict with other Federal policies with respect to the encouragement of rural practice locations.

The importance of this conflict, however, is far from clear. Based on 1981 revenue estimates, Medicare payments to physicians represent only 17 percent of all their gross professional revenues, ranging from a low of 1 percent for pediatricians to a high of 35 percent for thoracic surgeons (353). In this regard, one might want to design a system that was “location neutral” only to certain specialties, not necessarily including those specializing in tertiary care. However, to the extent that current levels of Medicare approved charges approximate those of the private market in individual localities for any specialty, spectacular increases in Medicare allowances would be required to reduce any aggregate location incentives due to differences in physician prices. Further, the empirical evidence shows that, other things being equal, the link between market-specific physician payment levels and location choice is weak (438). Thus, even if Medicare prices were adjusted to become location neutral, there would be little, if any, effect on local physician shortages.

Differences in Practice Costs.—Although the possibility of varying cost levels provides a plausible argument for varying payment levels, the data on the degree of cost variation are equivocal. Average physician *expenditures* for practice inputs consistently have been the highest in the West South Central census division and lowest in the Middle Atlantic census division (390). In addition, average reported professional expenses have been highest in nonmetropolitan areas, and lowest in the largest of the metropolitan areas (390). Unfortunately, these gross differences in expenditures may mask both differences in practice volumes and differences in physicians’ purchasing decisions as a result of their rational entre-

preneurial responses to differences in price. For example, other things being equal, physicians who practice in an areas with relatively low commercial rent levels may choose to have larger offices or more patient examining rooms. As a result, those physicians' expenses for office space might be greater than, equal to, or less than those of their counterparts in the higher rent districts. There are no available data on the variations in the costs of operating physician practices of equivalent size, amenity levels, or style.

The available evidence does suggest that current Medicare variations in payment levels exceed plausible differences in the costs of living, if not costs of an "equivalent" practice. As a result, some consideration might be given during implementation of any Medicare physician payment reform to assessing the extent of some of the existing variations to verify whether any remaining variation can be justified.

Physician Opportunity Costs. —Although practice cost differences are important, differences in physicians' opportunity costs need to be considered in establishing a Medicare payment policy that must also foster the goal of assuring beneficiary access to care. Various authors have found that physicians' decisions with respect to Medicare program participation—either generally or specifically on an assigned basis—are influenced by the level of Medicare approved charges relative to the physicians' billed charges (190,317,357). If physicians' private pay patients (and their insurers) are willing to pay relatively high fees regardless of—or even in excess of—differences in practice costs, constraining variations in Medicare allowances to the levels of practice cost differences may result—in high fee areas—in fewer physicians' either accepting Medicare patients or accepting assignment when they do see Medicare patients.

In fact, data from the Medicare carriers suggest that there is less variation in the degree to which approved charges match private pay prices than in the absolute approved charges themselves. Physician submitted charges to Medicare have been found to be a good estimator of private market prices even if most insurers rarely pay 100 percent of submitted charges. As a result, the ratio

of allowed charges to submitted charges, by carrier has been accepted as a measure of the degree to which Medicare payment levels match private market levels (215). In the first quarter of 1985, the range in this ratio across carriers went from a low of 66.2 percent in Rhode Island to a high of 81.8 percent in Kentucky. For all but six carriers, the ratio of approved charges to billed charges was between 70 and 80 percent. The national average was 73.8 percent (535). Reducing the interstate variations in Medicare absolute approved charge levels by paying the national average would tend to increase the variation in Medicare's "comparability" to private market physician prices. In particular, it would reduce Medicare's comparability in such States as New York, Pennsylvania, Florida, Michigan, and Texas, all of which are currently below average in terms of the ratio of approved charges to billed. The initial impact of such a policy might well be to reduce beneficiary access to care in States with above-average ratios. One might argue, however, that if Medicare reduced its payment levels in States with relatively high physician prices, the private market would follow, thus bringing Medicare's charges back into line and ameliorating any adverse impact on physician participation in Medicare.

Are Geographic Differentials Necessary?—Having examined the pros and cons with respect to uniform payment levels, what can one conclude? First, a national fee determination process cannot be dismissed as a possibility for improvement. Providing uniform national benefits to Medicare enrollees is not an unreasonable goal. Further, the evidence on the correlation between payment levels and the percentage of beneficiaries meeting the deductible is consistent with effectively *nonuniform* insurance coverage under Medicare Part ¹¹. (A Medicare beneficiary in California need not be so sick as one in Oklahoma in order to meet the deductible and hence qualify to receive additional reimbursements.) Eliminating geographic differentials would certainly reduce some of the administrative complexities of the program, and fee schedules by jurisdiction could eliminate any confusion among beneficiaries or physicians about what amounts Medicare will pay. (Fee schedules by jurisdiction could eliminate all variation in approved charges within a

jurisdiction.) To a certain extent, a national fee schedule might also make resistance to physician price increases easier for private market payers in relatively high cost States. Further, if there is significant competition between private insurers in the affected jurisdictions, the imposition of a national fee schedule would not necessarily contribute to market-wide price increases for physician services in the relatively low cost States even though the physicians in those States might increase submitted charges in response to the increase in Medicare payments.

On the other hand, neither a national fee schedule nor even a set of 53 statewide fee schedules is a requirement.¹⁶ Although it is a national program, Medicare must operate in local markets across which the costs of operating a physician practice—including the opportunity costs of the physicians' own time—are not uniform. In fact, given that the market prices of specific physician services differ across the country, the provision (through those markets) of a uniform real level of benefits to Part B enrollees would require that different prices be paid in different jurisdictions. (In fact, a substantial factor in the origin of the "usual, customary, and prevailing" within Blue Shield Plans was the demand from national purchasers, such as the automobile manufacturers, for consistent paid-in-full benefits for members in all parts of the country (122,312).) Paying the same price for a particular service in all parts of the country would certainly imply large inter-regional transfers of funds within the Medicare program, and one would expect significant changes in beneficiaries' access to assigned services.

What would be useful, if not required, would be an explicit effort to monitor the continued justification both for maintaining the level of differences in approved charges among jurisdictions and even for maintaining separate locality jurisdictions. Because program administration is eased and provider and beneficiary understanding can be improved when there are fewer rather than more localities in any State, reducing the number of Localities to only those with reasonable justification is a plausible goal. There may be some negative spillover effects on assignment

rates concomitant with locality consolidation that should be weighed in advance against anticipated benefits.¹⁷

Specialty Variations

One other source of variation in approved charges per unit of service is the use of specialty-specific groupings of physician practices in implementing the CPR fee determination process. In the 1984 fee screen year, Medicare carriers established prevailing charge limits by specialty in all areas of the country except Florida, the area of Kansas served by Blue Shield of Kansas, North Dakota, South Dakota, and the area of New York served by Blue Shield of Western New York (471). All of the other carriers have established that there may be some services for which approved charges may be influenced by the specialty of the physician who performed the service.

This approach may take the form of two prevailing charge screens, one for "generalists" and the other for "specialists." Alternatively, separate prevailing charge screens may be established for each of several sets of specialties. South Carolina, for example, has 33 prevailing charge screens, and Pennsylvania has 58 different groups. Although each physician's *customary* charge for a particular procedure is established solely with respect to his or her own submitted charges for that procedure, in jurisdictions that recognize more than two specialty distinctions, two or more specialty-specific *prevailing* charges might be established for the procedure. As a result, two physicians of different specialties with identical customary charges might have different approved charges for the same procedure.

In fact, because of physician specialization, most of the roughly 7,000 physician procedures will have specialty-specific prevailing charges whether or not the carrier in question recognizes specialty distinctions. For example, relatively few cataract operations are performed by physicians who are not ophthalmologists. As a result, the

¹⁶Fifty states plus the District of Columbia, Guam, and Puerto Rico.

¹⁷Colorado consolidated its localities into a single locality in 1976. Assignment rates declined in each area of the State following the consolidation, consistent with the declining trend in assignment rates observed at that time in all parts of the country. Assignment rates declined the most, however, in those areas where prevailing charges were reduced as a result of the consolidation (394).

distribution of ophthalmologists' customary charges will determine the prevailing charge for this type of procedure even where all physicians' charges for the procedure are combined to determine a single prevailing charge.

Specialty-specific prevailing charge screens that may make a difference involve those services that are performed by physicians of many different specialties. The most prominent of such services are visits (which account for 57 percent of all physician services provided to Medicare beneficiaries and 33 percent of total approved charges (247)). Among the prevailing charges in fee screen year 1982 for a selection of 16 specific types of office or hospital visits, differences between general practitioners and internists were observed of up to 53 percent (494). Further, the prevailing charge for the general practitioners was lower than that of the internists in 15 of the 16 cases.

Effects of Maintaining Separate Specialty Charge Screens.—Under the CPR system, however, the prevailing charges set only a maximum on the approved charge for a particular set of physicians; each physician's customary charge also establishes a unique limit that maybe the effective constraint on the approved charge. Because the approved charge for a service from a particular physician will never exceed his or her customary charge for that service, the major effects of establishing separate charge screens by specialty involve primarily those physicians in each specialty whose customary charges are high relative to their peers. The actual effects of any specialty consolidation or partition would depend on the relative volumes of service for the specialties in question and the degree of overlap in the distribution of customary charges among those specialties.

For example, if one ignores for the moment the effects of the MEI, the results of creating two specialty screens where formerly there was one might be as follows: If the service volumes of the two specialties were comparable but the customary charges of one specialty were no higher than the 50th percentile of the other, the partition would raise the approved charges of only those physicians in the higher charge specialty whose customary charges were above the 50th percentile. It would lower the approved charges of only those

physicians in the low charge specialty that were above the 75th percentile in that specialty because all other physicians in that specialty had been unaffected by the initial prevailing charge and would remain unaffected by the new one. If the service volume of the lower charge specialty were insignificant compared to the other, the partition would have little effect on the higher volume, higher charge specialty, while reducing the approved charges of only those physicians in the low volume, low charge specialty which were above the 75th percentile in that specialty. Finally, if the service volume of the higher charge specialty were insignificant compared to the other, the partition might have a slightly negative effect on the approved charges of the higher volume, lower charge specialty above the 75th percentile in that group, while raising the approved charges of most of the physicians in the low volume, high charge specialty.

For the most part, maintaining separate prevailing screens for different specialties permits higher approved charges for the highest priced of the higher priced specialties and reduces the approved charges of the highest priced of the lower priced specialties. The effects on the beneficiaries of maintaining separate specialty distinctions are not unequivocal. The out-of-pocket costs of a beneficiary who receives service from one of the relatively low priced physicians in either of two specialties would be virtually unaffected by creating separate prevailing charges. The patient who receives service from a high priced doctor in the lower priced specialty will face reduced coinsurance but possibly a higher amount of nonassigned liability. Similarly, the patient who receives service from a high priced doctor in the higher priced specialty will face increased coinsurance but a somewhat lower level of unassigned liability.

Considerable attention has been given to comparisons of the prevailing charges of general practitioners and "specialists" due to the availability of the Medicare prevailing charge directories (513). Although there is some concern that such differentials may encourage specialization, there is no evidence that fee differentials in and of themselves have much influence on specialty choice (438), and no one has seriously suggested that the

relatively low fees paid by Medicare are solely responsible for the declining numbers of general practitioners. There is some question about the appropriateness of allowing individual physicians to declare themselves specialists and take advantage of higher prevailing charges (475).

Recent analyses of the distributions of approved charges for individual procedures have found that, compared to surgeries, a much greater proportion of physician visits have approved charges equal to the prevailing charge (247,294). Where the MEI (or market competition) has compressed the distribution of approved charges within specialties, changes in specialty distinctions can have more dramatic effects. Juba estimated that if a fee schedule had been adopted based on average approved charges in South Carolina in 1983 that did not recognize specialty differentials, Medicare revenues for office *visits* for general practitioners would have increased 19.6 percent. Family practitioners would have observed an increase of 16.6 percent, and internists would have observed a decrease of 16.5 percent (247).

These findings suggest a difference between fee schedules and CPR. Because of the presumption that fee schedule amounts will provide a limit for all physician payments—not just payments for the physicians with the highest fees relative to their peers, specialty distinctions may have more significant financial implications under a fee schedule than under CPR.

Different Fees for Different Physicians. -There are no data with respect to the number of distinct specialties that have billed Medicare carriers for specific physician procedures. Office visits and hospital visits—which account for 33 percent of Medicare approved charges (247), however, are provided and billed by most of the medical specialties and subspecialties. It is commonly accepted that most surgeries are primarily specialty specific, but here, too, there may be instances where some fraction of particular surgeries may be performed by physicians outside of the specialty considered most likely or most appropriate to perform that procedure (“modal” specialists). How does one determine the “right price” in these instances, and should that price be the same as is paid to the modal specialists?

The common justifications for recognizing higher approved charges for specialists compared to general practitioners involved either higher quality or qualitatively different services provided by specialists even though the procedures (such as visits) may have the same label. Office visits of internists, for example, have been found to be 46 percent longer than visits to general and family practitioners (548). Although physician time is important, time alone may not fully describe the differences in professional effort that may be involved or the resources of knowledge and skill that may be brought to bear by the physicians in question.

In order to account for such differences between physician *services*, various observers have introduced the concept of skill, complexity, urgency, intensity, stress, and severity. Although the concepts differ from one another, they are all interrelated with respect to the utilization of physicians’ personal resources. Basic skills involve the clinical judgment needed to diagnose and choose appropriate therapeutic procedures. Complexity reflects the technical skills needed to perform the procedure. A patient’s severity and the urgency of his or her medical situation will influence both the intensity of the physical or mental effort required of the physician and the stress due to the potential risk of the procedure in question.

Previous studies have found a fair degree of consensus among physicians with respect to these types of complexity rankings across individual physician services (225,226,227,422). There is no empirical literature on whether such differences are evident with respect to a set of specific procedures performed by physicians of different specialties.

Physician Opportunity Costs.—One might argue that physicians in different specialties elect to invest different amounts of time in specialty training, and that payment differentials should merely reflect such differences. Various authors have used a “returns to training” adjustment to account for differences in physicians’ incomes and, notably, differences between the costs of various physician services (227).¹⁸

¹⁸If anything, these studies of income differences have tended to suggest that payment levels to specialists more than compensate those physicians for their additional investments in training (72,113).

When applied to specific physician services, however, this argument involves a potential double adjustment for differences across specialties in physician opportunity costs. The problem is as follows: Although physicians do make an investment of time and money in obtaining specialty training beyond the “intern” level, part of the return on that investment is the “specific training” (31) skills that allow the performance of relatively complex—and more highly paid—services. In theory, services that involve primarily the “general training” skills that all physicians acquire will not warrant additional payment. If, for example, a gastroenterologist perceives the opportunity costs of the professional time devoted to an office visit in terms of the payments available for performing an endoscopy, it may be rational for that physician to bill accordingly. However, unless it can be shown that beneficiaries’ access to comparable specialists’ services suffers or that the Medicare program can make operational a valid option demand¹⁹ for that physician’s more specialized skills, it may not be rational for Medicare to pay higher approved charges for that visit.

Practice Status.—Because the arguments for the use of board certification as a basis for payment differentials are essentially a refinement of the general specialty differential arguments, these arguments will not be repeated in this section. The arguments with respect to higher payment levels for teaching physicians do involve a different perspective. In particular, teaching physicians may provide an adjunct service-teaching of new physicians—at the same time that they provide strictly medical services to Medicare beneficiaries. In addition, some may argue that because the opportunity costs of a teaching practice are high, higher payments than otherwise available for comparable services will be necessary to retain highly qualified physicians in the role of teachers.

With respect to the first argument, Medicare has recognized a share in hospitals’ direct and indirect education and training expenses of health professionals even under the prospective payment system. This situation might tend to legitimize the argument for higher payments for such physi-

cians. Alternatively, one can argue that Medicare or other governmental contributions for such expenses should be made explicitly. Payments embodied in allowed charge differentials for teaching physicians could contribute to inequitable variations in beneficiary liability just as much as any locality or specialty differential. With respect to the question of the opportunity costs of teaching, one might want to examine evidence that the quality of the teaching staffs in the country have suffered due to relatively low payments available under Medicare before proceeding to raise payments in that regard.

Variations by Site of Service

Comparable though not necessarily identical services may be observed to have both differing customary charges and prevailing charges for a single physician practice depending on the site of service. In the HCFA Common Procedure Coding System (HCPCS) and most other physician service taxonomies, different procedure codes are assigned to physician encounters—visits—according to where they occur. Thus, one can have a limited²⁰ (subsequent) visit in the physician’s office (CPT-4 code **90050**); in the patient’s home (90150); in the hospital (90250); in a skilled nursing facility, intermediate care facility, or other long-term care facility (90350); in a nursing home, boarding home, domiciliary, or other custodial care facility (**90450**); in an emergency department (**90550**); or in a critical care unit (99172). (A limited visit may also be provided as a consultation (90641) or for the purpose of issuing a second opinion (90650) without regard to site (85).)

Average prevailing charges across the country (for fee screen year 1982) exhibited the pattern that for a given category of visit (such as limited or intermediate) a hospital visit commanded a higher allowed charge than a nursing home visit, which in turn was higher than an office visit (494). Average prevailing charges in that year ranged from 11 to 32 percent higher for the inpatient visits compared to office visits. If one assumed that the medical content of the visits was comparable, this pattern implies an incentive to favor the hospital

¹⁹An option demand Would involve a payment for a service that although it may not be used by the purchaser is valued for its existence as an option.

²⁰The definition of a “limited” service is provided in footnote 11 to this chapter.

as a site of service where *additional* physician practice costs, if any, for hospital visits were less than 11 percent higher than comparable office costs. (One might also note that the regulations promulgated with respect to physician services performed in an ambulatory surgical center provide for physicians to be paid 100 percent of approved charges on those services whether provided in an ambulatory surgery center or hospital outpatient department, *if they accept assignment*. Although accepting assignment in this case may lead to a reduction in a physician's bad debts, that physician's total expected revenues may still be greater when assignment is not accepted for those services. Further, whether the physician is paid more for ambulatory surgical services than for the same services provided to inpatients depends on the relevant array of customary and prevailing charges. A physician's total expected revenue may remain higher for hospitalized patients.)

The arguments with respect to site differentials revolve around two questions. The first involves the issue of whether existing differentials inappropriately influence the site of care, particularly when in-hospital payments exceed those for services that might otherwise be provided in a physician's office. Second, for services provided outside a physician's office, there is the perception that some of the practice costs are not paid by that physician, and hence payment to the physician should be lower.

For the most part, the first issue arises for separately billed physician visits, not for surgeries or interpretations. Prevailing charges for office visits have been shown to be lower than those for hospital visits of ostensibly the same variety (494). With respect to the second issue, it is argued that since physician's overhead costs account for roughly 40 percent of gross professional revenues, payments for services provided in outpatient departments, for example, should be limited to 60 percent of payments allowed for comparable services provided in the physician's office.

The first issue regarding payments for inpatient visits may be a case where the nomenclature of physician services may be misleading. A limited hospital visit may be very different from a limited office visit even though both are described as

limited visits. On the whole, patients seen in hospitals are sicker than those who are ambulatory. And on average their verified medical complaints may require more physician attention than the reported symptoms of their ambulatory counterparts. If there are some circumstances for which physician hospital visits are warranted to be cursory, that situation may argue for a single, per admission hospital care payment rather than daily visit payments, not necessarily for reducing daily payment rates to the level of office visit payments.

With respect to both issues, differentials in payment may be compared to differentials in costs, including both variable costs with respect to the site of treatment and fixed costs of the physician's office or primary place of practice. Although physicians do have the use of highly qualified technical personnel in outpatient departments or emergency rooms, those persons, for the most part, are not substituting for similarly trained individuals in the physician's office. Physicians' costs for providing such services outside of the office may be lower than they would be otherwise, but most physicians bill only for a professional component for such care; they do not bill for the cost of services provided by the institution. Most physician's office employees are bookkeepers, receptionists, or secretaries. In effect, their compensation is a fixed cost to the physician that is unaffected by the amount of professional time spent on practice outside the office. Variable costs with respect to site maybe limited to drugs and supplies, which represent 4 percent of physicians' gross revenues (117).

Differences Among Procedural and Nonprocedural Services

In addition to the obvious issue about the justification for establishing different approved charges for what appear to be identical services, there have also been questions raised about the appropriateness of apparently large differences in relative approved charges for different services. In particular, there is some concern that "procedural" services are overvalued compared to "non-procedural" services. One HCFA study found that even after adjusting for differences in complexity, physicians were reimbursed as much as four

to five times more per hour for inpatient surgery than for office visits (227). Even within the office setting, the lack of additional reimbursement for such primary care services as history taking or nutritional counseling provided during a visit is in sharp contrast to the additional fees that can be generated by ordering and/or interpreting an electrocardiogram (EKG), performing an endoscopy, or providing laboratory tests. To the extent that physicians respond to relatively lower reimbursements for nonprocedural services, fewer of these services will be provided to Medicare beneficiaries with a possible increase in the subsequent demand for more expensive curative or ameliorative services. To the extent that net revenues from procedural services exceed those of the nonprocedural services, there may be a financial incentive to provide more of such services than would be appropriate on strictly clinical grounds.

There has been a great deal of recent interest in identifying whether the extent of the differences observed between payments for procedural services and those for less technical nonprocedural services are warranted (16,17,103,136,195). There are a variety of reasons why the actual payment rates for specific services might differ from one another on either an absolute basis or as expressed in payments per unit of time. Such differences in payment may be due to differences in patient characteristics including health status differences, differences in the physical and mental demands on the physician occasioned by the service and/or circumstances in question, and differences in the length of training invested by individual physicians. The question remains whether the present physician payment systems—in which Medicare is only a subsystem—overcompensate for some of those differences. In particular, since the “beneficiaries of the perceived overcompensation are also physicians in specialties that have relatively high estimated net incomes, namely, surgery, there is an issue of whether these perceived imbalances should be redressed concomitant with the initial implementation of any physician payment reform.”²¹

Were overcompensation to be verified, the time of conversion to a new payment system might be

²¹A specific proposed remedy is the development of a resource cost-based relative value scale, which is reviewed in ch. 5.

an opportune one. Any major modification of Medicare’s physician payment system is likely to embody some years of conversion, much as the recent implementation of the prospective payment system for hospital payments. If there is a problem that needs correcting, delay until after the conversion might simply make a subsequent correction that much harder to implement. The question remains, however, how to identify whether there is a problem.

The arguments and evidence on procedural/nonprocedural imbalances are as follows: physician payments for nonprocedural services, i.e., visits, are low compared to surgeries in terms of payment per unit of time spent with patients (227); specialties in which the bulk of practice involves procedural services receive higher net incomes than those specialties more heavily concentrated in nonprocedural services (35422); estimated rates of return to training are higher in medicine than in other learned professions and within medicine, higher in those specialties in which the procedural services are concentrated (72,113); patients’ health would be improved if they received more primary/preventive/nonprocedural services, which in turn would be more available if those services were paid higher fees (336).

Although the price and income differences may be evidence of imbalances, it is not clear that those differences alone are evidence of a problem, much less a problem to be redressed by Medicare. In a market economy, one would expect periodic imbalances between supply and demand and reductions over time in those imbalances as physicians, in this case, responded to just those market signals that are being produced. In a simple world, one would expect that more physicians in training would enter the surgical specialties and that more students in general would enter the profession of medicine because the returns to medicine exceed those of other learned professions. Long-run trends in medicine are consistent with such “corrections.” There are more physicians per capita, but fewer physicians not pursuing a specialty.

“The author reports an increase in internists’ net incomes relative to changes in the Consumer Price Index, and states, ‘This suggests that [internists] have begun to succeed in their long-standing battle to reduce the third-party reimbursement gap between cognitive and procedural services.’”

Many observers would be unwilling to wait for the long run to arrive. They would assert that although some differences in payment are expected, the observed differences represent actual discrepancies in payment policy that are either not right in and of themselves or not right in that these payment differences lead to incentives that may inappropriately influence medical decisionmaking.

With respect to the “correctness” of fee (or income) differences, there is no consensus. For example, in fee screen year 1984, the average prevailing charge for a cataract extraction was **\$981.77**, nearly 50 times higher than the average prevailing charge for a limited office visit (532). During that same year, the median income of ophthalmologists was estimated to be \$150,000, compared to a median income of \$89,660 for internists (354). The face validity (or lack of validity) of such payment/income differences, however, rests primarily in the eye of the beholder. Whether ophthalmologists or internists or both are paid too much or too little is an open question.

There is potential consensus with respect to whether such payment differences either inappropriately influence medical decisionmaking or threaten beneficiaries’ access to care. If the relative approved charges of procedural services were so high as to lead to the provision of services of zero or negative benefits to patients, many physicians would agree that those prices were too high.²³ On the other hand, if the relative approved charges of nonprocedural services were so low that physicians providing such services refused to see Medicare patients and if, as a result, those patients’ health deteriorated, many would agree that those prices were too low.

Verifying either of these states of the world in the current state, however, has proved elusive. There is a host of literature on variations in the use of hospital services and individual surgical services (272). None of these studies has identified a correlation between levels of use and levels of fees. Various observers have claimed to identify specific surgeries that may have been provided

in excess, but there is no indication that this surgical excess has been associated with excessive reimbursement rates. At the same time, there are no studies indicating that any particular groups of Medicare patients have not had access to needed health care services due to low reimbursement rates. Further, recent empirical evidence on the lack of dramatic effects for those who have forgone primary/preventive care (343,348) suggests that the health improvement argument for raising nonprocedural fees may be overstated.

Where additional arguments might be made and where sufficient evidence may yet be developed involves differences in beneficiary access to specific types of health care services in terms of differential out-of-pocket liabilities with respect to different types of physician services. There is some evidence that reasonable charge reductions by carriers are relatively higher for visits than for surgeries (247,294), that assignment rates prior to 1984 were somewhat lower for primary care specialties than for surgical ones (247), and that beneficiary out-of-pocket expenses, *if collected*, were a larger part of total Medicare billings by the primary care doctors than for surgeons and radiologists (247). This situation may suggest that it is harder for beneficiaries to secure nonprocedural services.

New vs. Old

Finally, one other pattern observed among approved charges is that services of newer vintage or those that are provided by physicians of newer vintage have higher approved charges than those of older vintages. Specifically, new physician practices appear to have higher customary charges than more established ones, and newly introduced physician procedures have higher customary and prevailing charges than those procedures that have been commonly accepted for a longer time. With respect to a carrier’s assessing claims from new physicians, there is no claims experience from which to compute a customary charge. Carrier rules have therefore been established to assign a customary charge in such cases by default. This default customary charge is equal to the 50th percentile of the distribution of comparable customary charges for the procedure in the relevant locality. As a result, new physicians can have ap-

²³Economists would argue that the price of a particular procedure was too high if services were provided at a price that exceeded the value of the change in health status expected to result from a particular procedure.

proved charges that, by definition, may exceed those of half of their more established colleagues. Prior to the freeze on submitted charges imposed by the Deficit Reduction Act of 1984 those more established colleagues were not prohibited from raising their own charges to retain a relative allowed charge position more in keeping with their experience.²⁴

The question of the appropriateness of relatively higher approved charges for "new" procedures is more subtle. Very often a new procedure will require the acquisition of new skills or new equipment. The extra care required to execute the new procedure may require more time or place more stress on the physician performing the procedure for the first time. The relative value of the physician services involved in performing the procedure may be relatively high, and initial approved charges will reflect this. Although over time one would expect this relative value to decline as performance of the procedure becomes more routine, both the perceived relative value and the submitted charges of the procedure tend to become embedded in the structure of relative charges within a particular specialty. Since there is no periodic "zero-based" reevaluation of charges for specific procedures, the structure of approved charges simply drifts upward over time. (This is consistent with and may exacerbate the perceived imbalances in approved charges between procedural and nonprocedural services.)

For example, coronary artery bypass surgery has been cited as a procedure that when first introduced required extraordinary expertise and enormous amounts of time. Initially, 3 or 4 procedures per week were a heavy workload, but today, some surgeons perform 3 to 4 procedures in 1 day. Furthermore, many of the surgeons' earlier tasks are carried out by other professionals who bill independently from the surgeon. Surgeons' fees have not dropped but have increased more than the rate of inflation (403). Both cata-

tract surgery and blood chemistry tests, in particular, have also been cited as examples of this phenomenon (46).

Lack of Variations Due to Quantity Discounts

Although Medicare reimbursements may account for only 17 percent of physicians' gross professional revenues, there may be some services for which Medicare revenues represent the bulk of all purchases. One might expect Medicare to get a better bargain in purchases of those services compared to physician services that are little used by Medicare beneficiaries. Table 2-12 indicates the proportion of specific inpatient services that are provided to elderly persons—who can be presumed to be Medicare patients. Although the reasonable charge reductions inherent in the cur-

Table 2-12.—Elderly Population's Share of Market for Selected Inpatient Surgical and Diagnostic and Therapeutic Procedures, 1983

Procedure	Market share represented by population 65 and over (percent)
<i>Inpatient surgical procedures:</i>	
Insertion of prosthetic lens	82.80/o
Extraction of lens	79.5
Pacemaker ^a	79.4
Prostatectomy	76.8
Arthroplasty and replacement of hip	74.2
Partial gastrectomy/resection of intestine	59.7
Dilation of urethra	42.9
Mastectomy	37.9
Direct heart revascularization	35.1
Open heart surgery	32.0
Open reduction of fracture	31.4
Arthroplasty and replacement of knee	27.9
Repair of inguinal hernia	27.5
Skin graft (except mouth or lip)	26.0
<i>Inpatient diagnostic and therapeutic procedures:</i>	
Endoscopy	51.40/o
Radioisotope scan	47.0
Bronchoscopy	44.5
Computerized axial tomography (CAT)	42.8
Esophagoscopy and gastroscopy	38.6
Arteriography and angiocardiology	38.3
Diagnostic ultrasound	35.8
Pyelogram ^b	33.8
Cardiac catheterization	27.2

^aIncludes insertion, replacement, removal, and repair of Pacemakers.
^bA, X-ray highlighting the kidney and urinary tract

Data source: Table 7. *Advance Data*, Sept. 28, 1984, No. 101, Vital and Health Statistics National Center for Health Statistics, Department of Health and Human Services, Public Health Service.

SOURCE: 1. Burney and G. Schieber, "Medicare Physicians' Services: The Composition of Spending and Assignment Rates," *Health Care Financing Review*, forthcoming.

²⁴A common misperception among physicians, however, was that Medicare "locked" them into a set of fee screens, over which successively newer cohorts of physicians would leapfrog, leaving established physicians financially behind. Patients' expectations, if not their potential responsiveness to price changes may have inhibited physicians from raising charges as much as desired, but this outcome was not a function of Medicare regulations.

rent CPR system may be considered to be a form of quantity discounting in and of themselves, one might expect that greater reductions would be observed for those services primarily provided to Medicare beneficiaries. In fact, this does not appear to be the case. In 1983 in South Carolina, for example, Medicare approved charges were roughly 75 percent of billed charges for all services, but for cataract extractions—the most common Medicare surgery in that State—approved charges were 90 percent of billed charges (294).

Uneven Effects of the Medicare Economic Index (MEI)

In 1972, in response to concerns that increases in physician fees under Part B were the cause of rather than the result of medical inflation, Congress mandated that an additional fee limit—an economic index—be included in the reasonable charge determination process. This index was to reflect changes in physicians' operating expenses and changes in general earnings levels and was to be used as a cap on prevailing charges.²⁵ Prior to the imposition of the index, the maximum reasonable charge allowed by the carriers was equal to the "prevailing charge." The prevailing charge for any service was computed by the Part B carriers as the lowest customary charge that was no less than 75 percent of all customary charges when weighted by the volume of services billed. With the advent of the MEI, the value of the maximum reasonable charge was established as the "adjusted" prevailing charge, which was the lesser of: 1) the unadjusted prevailing, i.e., the 75th percentile; or 2) the product of the prevailing charge from fee screen year 1973 multiplied by the value of the MEI (117).

Although some observers contend that the effect of the MEI has been to create de facto fee schedules, the actual effects are much less certain. The MEI has been constraining, and in the early 1980s, it appeared to be becoming more constrain-

ing over time. In fact, however, in the Medicare Directory of Prevailing Charges the number of entries that indicate those prevailing charges that were due to the MEI declined each year from 1981 to 1984 (532). In addition, a study of fee screen year 1980 data from California for a selection of physician procedures found that the percentage of customary charges that might be directly affected by the MEI ranged from 24.5 percent of eye exams from ophthalmologists to 99.7 percent of basic anesthesiology services from anesthesiologists (187). Basically, this range goes from no effect to total effect. Further, an analysis of calendar year 1983 carrier data from the State of South Carolina showed that 43.2 percent of approved charges were established at the level of the adjusted prevailing charge (see table 2-13). Because the adjusted prevailing is the lower of the MEI cap or the actual 75th percentile, 43.2 percent must be considered an upper bound estimate of the impact of the MEI in that State (247). Finally, although some have alleged that the MEI has unfairly prevented reimbursements from rising in rural areas (415), California data show instances where in capping prevailing charges in urban areas, the MEI, in effect, prevented urban/rural disparities from increasing (359).

Until recently, in performing the reasonable charge reduction process, carriers did not commonly record the specific limit—actual charge, customary, adjusted prevailing, or unadjusted prevailing—used to determine the approved charge for a specific claim. Because of this lack of data on the specific reasons for reasonable charge reductions and amounts of reductions by type of limit, there has been no definitive analysis of the impacts of the MEI. Its inclusion in the reasonable charge process does make the process somewhat more cumbersome and potentially more confusing to providers, if not to the beneficiaries. Further, because by constraining some reimbursements but not others the MEI can lead to either increased or decreased payment differentials, the MEI also contributes to variations in payment levels across specialties and geographic areas.

Summary of Variations

The review of issues with respect to Medicare's physician payment system began with an indica-

²⁵Inputs to the MEI are of two types, one reflecting increases in physician practice costs and the other reflecting increases in general earning levels. Of the first type, there are six practice costs measures: wages and salaries, office space, drugs and supplies, automobile expenses, professional liability insurance premiums, and all other practice expenses. General earnings levels measures included in the MEI are average weekly earnings of nonagricultural production and nonsupervisory workers and changes in productivity (117).

Table 2-13.—Distribution of Medicare Approved Charges Across CPR Limits by Specialty and Type of Service (South Carolina, 1983)

	CPR limit			
	Billed charge	Customary charge	Prevailing ^a charge	Other ^b
Specialty:				
All	15.7	38.7	43.2	2.3
General practice	20.7	20.5	56.8	2.0
Family practice	15.2	22.9	59.0	2.9
Internal medicine	17.4	28.5	51.2	2.9
General surgery	20.8	49.7	28.4	1.1
Orthopedic surgery	13.1	38.1	48.1	0.7
Ophthalmology	12.8	72.3	14.6	0.3
Radiology	12.9	40.4	39.7	7.0
Type of service:				
Office visits	12.4	19.7	65.2	2.8
Hospital visits	11.4	22.4	64.6	1.7
Other medicine	27.0	34.7	37.0	1.2
Surgery	15.4	53.4	30.3	0.9
Radiology	13.0	41.2	38.9	6.9

^aAdjusted prevailing charge^bAny amounts not equal to either the billed, customary, or prevailing limits.

SOURCE: D. Juba, "Analysis of Issues Relating to Implementing a Medicare Physician Fee Schedule," prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, November 1985.

tion of beneficiary and provider confusion. In the sections that followed some of the other sources of beneficiary and provider confusion were themselves illustrated as issues. In the Medicare program, one can observe variations in annual expenditures, variations in the proportions of beneficiaries who meet the deductible, and variations in assignment rates. In addition, approved charges for a particular service will vary by geographic area, specialty of the physician, place of service, type of service, and "cohort" of either the service or of the physician performing the service. There are also variations in use of physician services across the country, and these variations have not been found to correlate with variations in approved charges. Finally, there do not appear to be variations in approved charges by quantity of service provided to Medicare beneficiaries, but there are unpredictable and uncertain variations in approved charges due to the MEI.

Medicare is a national program with roughly 30 million beneficiaries receiving physician services in thousands of communities in the United States and abroad. Some of the variability in the program should be expected and much of the variability is desirable.

What has not been included in the Medicare program is an organized and timely review of Medicare's experiences to identify potential disparities across the many dimensions of the program and to verify or refute the existence of such problems. Time and again one finds, "There are no data." Although this may be taken to imply that there are no problems, in fact, it is more likely to betoken the lack of solutions for the problems that do become evident.

THE CHANGING CONTEXT OF PHYSICIAN PAYMENT

Changes in Medicare payment policies are being discussed in a context that is itself in flux. From both the beneficiary and the provider sides of health care delivery, developments taking place

outside of Medicare are likely to affect program expenditures independently of changes in payment policies. The remainder of this chapter examines the implications for future Medicare expenditures

of changes in payment policies regarding hospitals; results from certain trends in the demographics of the elderly population, who makeup 97 percent of Medicare beneficiaries (563); and developments with respect to the number and practice arrangements of physicians.

Changes in Policies of Hospital Payment

In October 1983, Medicare began paying for the operating costs of beneficiaries' inpatient care on the basis of DRGs. Until that time, Medicare reimbursed hospitals on the basis of the estimated costs that they incurred for Medicare patients. This payment method encouraged the adoption and use of expensive technology rather than the efficient diagnosis and treatment of medical conditions.

Beginning with the hospital payment reforms introduced in the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) (Public Law 97-248), the link between costs and Medicare payment levels was reduced. Under the new prospective payment system, Medicare pays a fixed amount based on diagnosis for the operating costs associated with inpatient admissions. Within each diagnostic category, the hospital has an incentive to use resources judiciously, including staff and equipment, and to reduce the length of stay. Incentives remain, however, to increase the number of admissions.

During the first year of Medicare's DRG-based hospital payment system, lengths of stay for elderly people fell much more than the secular trend even though the prospective payment system was applied to a relatively small fraction of the hospitals in that year (489). Whereas the length of stay for people over age 65 had been falling by 1.9 percent per year, the length of stay during fiscal year 1984 fell 10.2 percent. Contrary to expectations, Medicare hospital admissions also declined during fiscal year 1984.

The rate of increase in Part B expenditures fell substantially during the first year of the prospective payment system. During fiscal year 1984, Part B Medicare payments rose only 12 percent, in contrast to increases exceeding 19 percent in each of

the 5 preceding fiscal years. This reduction is consistent with the likelihood that expenditures for physician hospital visits and consultations would be lower for patients with shorter lengths of stay. It is unlikely, however, that shorter lengths of stay accounted for all or even most of this reduction in Part B increases. Since hospital visits and consultations account for about 20 percent of Part B expenditures (68) and lengths of stay fell 10.2 percent, one might expect the growth in total Part B expenditures to have fallen about 2 percent because of DRG payment. Other factors, such as declines in price increases, may help to explain the overall decline.

Changes in the Elderly Population

The aging of the U.S. population is a long-term trend that is projected to continue into the next century. From 1970 to 1980, the cohort of people 65 years or older grew from 9.8 to 11.3 percent of the population. This cohort will account for 13.1 percent of the population in the year 2000 and 21.7 percent by 2050 (see table 2-14). Within the elderly population, the age structure is also changing. Those age 75 and older comprised 4.4 percent of the population in 1980, but will reach 6.5 percent by the year 2000.

The growth of the elderly population stems mainly from previous changes in birth rates. Current increases in the 65 to 74 age group reflect higher birth rates after World War I. The size of this age group is projected to fall slightly by the year 2000 because of lower birth rates during the Depression and then to rise sharply as the baby boom of World War II reaches age 65 (498).

Increases in life expectancy, although less important in explaining changes in the elderly population, have been substantial. A woman of age 65 could expect about 17 more years of life in 1970, but will be likely to live almost 21 additional years in the year 2000 (see table 2-15). The age-adjusted death rate for people age 65 and older fell 22 percent from 1970 to 1982, with a much faster decline for women than for men (550,563).

A pattern of higher use and expenditures can also be observed among the older age groups within the elderly population. As previously noted

Table 2-14.—Elderly Population in the United States, Actual and Projected, by Age Cohort, 1970-2050^a(numbers in thousands)

Year	Total population all ages	65 to 74 years		75 to 84 years		>= 85 years		>= 65 years	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
1970	203,302	12,447	6.1	6,124	3.0	1,409	0.7	19,980	9.8
1980	226,505	15,578	6.9	7,727	3.4	2,240	1.0	25,544	11.3
1990	249,731	18,054	7.2	10,284	4.1	3,461	1.4	31,799	12.7
2000	267,990	17,693	6.6	12,207	4.6	5,136	1.9	35,036	13.1
2010 . . # . .	283,141	20,279	7.2	12,172	4.3	6,818	2.4	39,269	13.9
2020	296,339	29,769	10.0	14,280	4.8	7,337	2.5	51,386	17.3
2030	304,339	34,416	11.3	21,128	6.9	8,801	2.9	64,345	21.1
2040	307,952	29,168	9.5	24,529	8.0	12,946	4.2	66,643	21.6
2050	308,856	30,022	9.7	20,976	6.8	16,063	5.2	67,061	21.7

^aProjections are middle Series.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Decennial Censuses of Population 1900-1980 and Projection of the Population of the United States: 1982 to 2050 (Advance Report), Current Population Reports, Series P-25, No. 922, October 1982; as cited in U.S. Congress, Senate Special Committee on Aging, and the American Association of Retired Persons, *Aging America: Trends and Projections*, (Washington, DC: U.S. Government Printing Office, Second Printing, 1984).

Table 2-15.—Life Expectancy at Birth and Age 65, by Sex and Calendar Year

Year	Male		Female	
	At birth	At age 65	At birth	At age 65
1970	67.05	13.14	74.80	17.12
1980	69.85	14.02	77.53	18.35
1990	72.29	15.11	79.85	19.92
2000	73.42	15.71	81.05	20.81
2010	73.93	16.08	81.62	21.27
2020	74.42	16.45	82.18	21.73

SOURCE: U.S. Department of Health and Human Services, Social Security Administration, Office of the Actuary, September 1982, as cited in U.S. Congress, Senate Special Committee on Aging and the American Association of Retired Persons, *Aging America: Trends and Projections* (Washington, DC U.S. Government Printing Office, Second Printing, 1984).

those aged 75 and older are more likely to have Medicare reimbursements and to have higher reimbursements per person served (see table 2-16). Older people have higher expenditures at least partly because they have higher death rates; people during the last year of life have had Medicare reimbursements six times the level for survivors (277,487a).

Health care expenditures for women, who will constitute an ever-growing percentage of Medicare beneficiaries because of their lower mortality rates, have also exceeded the average (213,487a). Among elderly people, the difference is especially pronounced for nursing homes. Women age 65 and older are twice as likely to use nursing homes as men (550).

All of these demographic trends portend increasing health care expenditures for the Medicare program. Greater numbers of people will

Table 2-16.—Medicare Enrollees Served and Their Reimbursement, by Age, 1982

Age	Persons served per 1,000 enrolled	Reimbursement per person served
Total >=65	641	\$2,439
65-74	600	2,172
75-84	691	2,705
>= 85	733	2,960

SOURCE: D.R. Waldo and H.C. Lazenby "Demographic Characteristics and Health Care Use and Expenditures by the Aged in the United States: 1977-84," *Health Care Financing Review* 6(1):1-29, Fall 1984

reach age 65 and be eligible for the Medicare program. Furthermore, Medicare beneficiaries as a group will be older and consist of more women, both subgroups that have higher per capita medical expenditures.

Changes in Medical Providers

Increasing Supply of Physicians

From 1970 to 1980, the number of active physicians in the United States grew from 156 to 197 per 100,000 population (see table 2-17). This increase occurred primarily as a result of Federal support to expand medical school enrollment dating from the late 1960s (168). Since 1982, the Federal Government has moved away from funding medical schools and subsidizing loans for medical students, and both medical school enrollment and medical school applications have begun to decline (96). About one-fifth of the growth in the number of physicians resulted from sizable increases in foreign medical graduates, who in 1982 accounted for 38 percent of hospitals' full-time

Table 2-17.—Active Physicians (M.D.s and D.O.s) in the United States and Estimated Requirements, 1970-2000

Year	Number of physicians	Actual physicians per 100,000 population	Estimated requirements
1970	326,500	156	
1980	457,500	197	
1990	594,600	243	559,300
2000	706,500	271	654,700

SOURCES U.S. Department of Health, Education, and Welfare, Public Health Service, Bureau of Health Manpower, *Report to the President and Congress on the Status of Health Professions Personnel*, DHEW Pub No (HRA) 79-93 (Washington DC DHEW, August 1978 and March 1979), U S Department of Health and Human Services, Public Health Service, Health Resources and Services Administration, *Report to the President and Congress on the Status of Health Personnel in the United States, 1984*, DHHS Pub No HRS-P-OD 84-4 (5/84) (Washington, DC HRSA, May 1984), and U S Department of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health, United States, 1983*, DHHS Pub No (PHS) 84.1232 (12/83) (Washington, DC U S Government Printing Office, December 1983)

staff. The number of foreign medical graduates is expected to grow at a slower rate in the future because of changes in the required examination and competition for the decreasing number of residency positions (524,547). At the same time, U.S. physician graduates are increasing in number, and the orientation of medical practice is shifting away from hospitals.

Even with these expected changes, current estimates project that active physicians will number 243 per 100,000 population in 1990 and 271 per 100,000 by the year 2000 (550).²⁷ As implied by these ratios, physician increases are expected to continue to outpace population growth. Moreover, physician supply is projected to exceed the estimated requirements for physician services, based on projected changes in the age and sex distribution of the population and adjustments for expected per capita use (547).

²⁷The Graduate Medical Education National Advisory Commission methods were developed to set national goals for physician specialty distribution. The "adjusted needs based" approach produced physician requirements as a function of expected national morbidity, which was initially modified by expert opinion. Experts identified morbidity that would require medical intervention and then modified requirements by the estimated constraints of the existing health care system. The Bureau of Health Professions based its estimates of requirements on projected demand for medical services using the "adjusted utilization approach." This approach modified recent existing patterns of medical use with projected population changes, such as age and sex adjustments, and trends in per capita use. The estimates were updated for the 1984 *Report to the President* by refinements in health personnel staffing.

The increasing supply of physicians has had implications for availability of and access to physician services. Increasing physician supply has been associated with a change in the distribution of physicians between urban and rural areas and presumably greater availability of specialists in more sparsely settled areas (344). Although physicians have continued to be concentrated in the most populated States, from 1977 to 1981 the number of counties without an active physician fell from 139 to 131 (124). Primary care physicians (general practice, family practice, internal medicine, and pediatrics) increased at about the same rate as total physicians and grew from 56 per 100,000 population in 1970 to 70 per 100,000 population in 1981 (546).

Changes in Physician Practice Arrangements

In addition to the growth in physician supply, a major development in the provision of medical care has been the increasing number of innovative practice arrangements through which physicians provide services to their patients. Indeed, physicians may have sought such arrangements because they felt greater competition from their colleagues for patients and for income. No longer is the typical physician a solo practitioner paid on a fee-for-service basis. From the early 1980s, the majority of physicians have been in practices of two or more physicians (82).

Health Maintenance Organizations. -HMOs have been growing rapidly in recent years. HMO enrollment increased **24.9** percent in the year ending June 1985, and total HMO enrollment estimated at more than 18.9 million in June 1985 may rise as high as 50 million by 1990 (5,464). In 1984 over 16.7 million persons (over 7 percent of the insured population) belonged to **337** HMOs operating in **43** States, the District of Columbia, and Guam (**240**).

By the end of 1985, 635,000 Medicare beneficiaries were enrolled in HMOs for the equivalent of Part A and Part B services. This number included those enrolled in Medicare demonstration HMOs. Previous Medicare HMO enrollment was 116,000 as of March 1982. An additional 637,000 Medicare enrollees receive Part B benefits from prepaid group practices under the provisions of Section 1833 of the Social Security Act—up from

515,000 in March 1982 (533). Under these provisions HMOs or prepaid practice plans can contract with HCFA and provide Part B services on a usual, customary, and reasonable basis. The Medicare population enrolled in HMOs is expected to increase as new regulations under the TEFRA legislation are implemented.

There have been other changes in organizational structure among HMOs that are likely to affect physicians. Health care services organizations are forming multistate chains, and corporations are increasing their for-profit involvement in HMOs. HMOs are also joining forces for joint purchasing decisions and other cost-saving ventures.

Preferred Provider Organizations .-Preferred provider organizations (PPOs) contract with insurers or employers to give care at a reduced price. Since these contracts are individualized, it is difficult to generalize about PPOs. patients have the option of seeing the preferred provider and receiving full reimbursement or visiting another provider and receiving less than full reimbursement. Although designed to reduce expenditure, as yet no evidence exists that PPOs deliver care at lower cost.

Although unknown as an organizational form in 1977, PPOs have grown in number to 334 (229 in operation) by June 1985. Fifty-six of the operating PPOs were sponsored by doctors, 59 were jointly sponsored by hospitals and doctors, 60 by hospitals, 12 were sponsored by third-party administrators, 54 by insurers, and 11 by individual practice associations (237). A number of States are passing legislation that would either encourage or allow PPO development. California passed such a law, and by the end of 1983, 74 percent of physicians had been offered contracts by PPOs and 36 percent had signed them (77). PPOs are also diversifying to include other than physician services, such as dental and mental health services (383).

Freestanding Ambulatory Care Centers.—Hospitals have offered ambulatory surgery for some time, but the first freestanding ambulatory surgery center was opened in Phoenix, Arizona, in February 1970. By 1984, freestanding surgery

centers numbered slightly over 300 (238 open and 65 under development (130)).

Medicare began paying for freestanding ambulatory surgery centers in 1982 under Part B. In an attempt to encourage utilization where appropriate, Medicare reimburses the centers based on complexity of procedure with no copayment or deductible required from patients. In addition, physicians who accept assignment are paid 100 percent of reasonable charges for covered services.

Another new type of practice setting is the freestanding emergency center offering expanded office hours or other increased conveniences to patients often at lower cost than traditional medical care facilities. However, only 9 percent of physicians in 1983 provided some care in such settings, and they averaged only 13 hours per week practicing in such facilities (82).

Implications for Medicare Expenditures

Changes that are occurring in the provision of medical care have less clear-cut implications than those concerning beneficiaries' demographics. Greater numbers of physicians will increase the availability and most likely the accessibility of services to beneficiaries. Independent of physicians' changes in patterns of use or pricing, higher Medicare expenditures can be expected as greater physician accessibility enables the increased demand from more numerous and more elderly beneficiaries to be realized. However, the level and rate of increase of Medicare expenditures may be affected by changes in physician practice arrangements. Such changes are unpredictable. Even the few results to date with respect to alternative practice arrangements may not be generalizable to Medicare beneficiaries, to other physicians, or to other organizations.

Recent policy changes have been intended to moderate the growth in medical expenditures by rewarding hospitals for more efficient resource use and by channeling beneficiaries to less costly sites of care and delivery systems. Although these changes have initially been associated with reductions in the hospital sector and lower increases

in Part B expenditures, policy changes only partly explain these declines. Moreover, expenditure changes over a longer period will depend on how

physicians, other providers, and plans respond to policy changes as they enroll beneficiaries, use technologies, and price services.

CONCLUSION

Medicare physician expenditures represent 17 percent of gross professional revenues for physicians and 23.1 percent of total Medicare expenses (507). Both the program and the profession of medicine have a substantial relation to one another. This chapter has reviewed some of the aspects of this relation that have been called into question by observers of trends in health care financing.

With the exception of the most recent fiscal year, Medicare physician expenditures have been increasing at rates in excess of 19 percent per year, increases which have exceeded those of most Federal programs. In addition, in examining the dis-

tribution of Medicare physician expenditures, there remain substantial variations across many dimensions. These variations suggest to some observers that there exist either potential economies in the program or ways to make the distribution of benefits more equitable. There is little if any consensus, however, on the exact magnitude of specific problems, much less on the value of specific remedies. In the chapters that follow, general approaches to the perceived problems will be outlined and explored with respect to their applicability for reforming Medicare's physician payment program.