

Physician Practice in a Dynamic Environment: Implications for the Health Care System

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Issue Brief

- Expenditures on physician services amounted to \$171 billion in 1993, compared with \$13.6 billion in 1970. During this period, the environment in which physicians practice was transformed as a part of the changing health care financing and delivery system. This *Issue Brief* provides an overview of changes in the health care system that affect the environment in which physicians practice, focusing on what is known and issues needing further analysis.
- Public and private payers have held down the rate of growth in payments to physicians by restructuring reimbursement. Physician behavior, payment, and practice patterns will be major factors in determining future health care costs and the type and quality of health care individuals receive.
- In both the private and public sectors, one of the significant changes affecting physician practice patterns has been the movement of insured individuals away from traditional retrospective fee-for-service reimbursement to a prepaid prospective managed care setting. As a result, physicians are more likely to contract with a managed care organization.
- The way in which physicians are reimbursed for outpatient Medicare services has changed significantly as a result of OBRA '89, which adopted a fee schedule based on a resource based relative value scale coupled with volume performance standards. These changes were designed to eliminate the incentive for physicians to increase service volume.
- The distribution of physicians across specializations changed significantly between 1970 and 1992. In 1970, 17.3 percent of physicians were practicing family and general medicine, compared with 11 percent in 1992.
- Recently, a larger proportion of physicians has joined group practices, and the average size of a group practice has increased. In 1975, 23.5 percent of physicians worked in a group practice, compared with 32.6 percent in 1991. Between 1975 and 1991, the average size of a group practice increased from 7.9 physicians to 11.5 physicians.
- The U.S. physician-to-population ratio has been growing since at least 1970. In 1992, there were 255 physicians per 100,000 Americans, up from 161 in 1970. Among physicians with office-based practices, there were 209 physicians per 100,000 Americans in 1992, compared with 134 in 1970.

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Introduction

Expenditures on physician services amounted to \$171.2 billion in 1993, compared

with \$13.6 billion in 1970 (Levit, et al., 1994). During this period, the environment in which physicians practice changed as part of the changing health care financing and delivery system. Changes in health care financing and delivery have occurred in both the private and public sectors. In both sectors, one of the significant changes affecting physician practice patterns has been the movement away from traditional retrospective fee-for-service reimbursement to a prospective prepaid managed care setting, a movement that has resulted in a change in the way physicians are reimbursed. Changing physician practice patterns in response to economic incentives raise a number of important questions. How or to what extent have physicians changed their general practice patterns in response to changing private and public plan design changes and financial incentives? Has access to health care decreased or increased? Has access to health care changed for different population segments, provider structures, or financial arrangements? Has the quality of health care services improved or declined? Have health care costs been affected? Has the marketplace for physicians changed? Will physician-induced demand be of concern as physicians move into managed care arrangements?

This *Issue Brief* provides an overview of changes in the health care financing and delivery system that affect the environment in which physicians practice, focusing on what is known and on issues needing further analysis. It first examines the changing characteristics of physicians and then examines the changing marketplace for physician services and the effects of changing private and public financial incentives on physician practice patterns.

Characteristics of Physicians

The changes in private health insurance and Medicare reimbursement

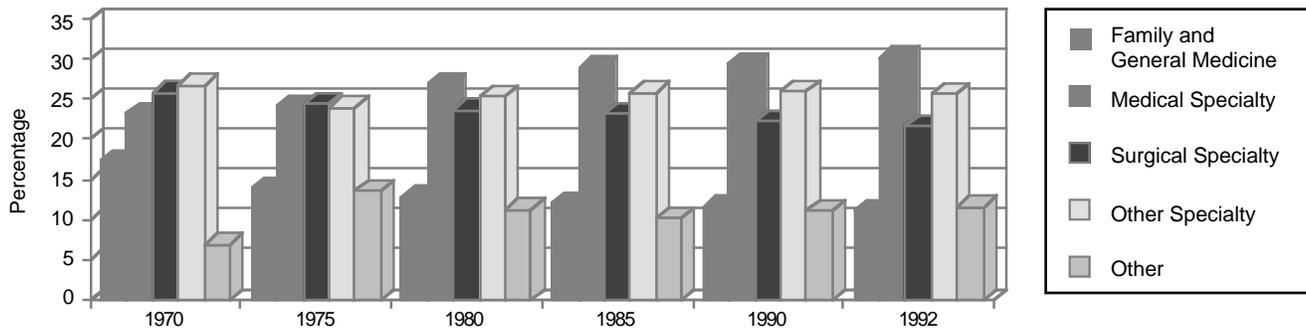
approaches for physicians have in part been a response to the changing mix of physicians and concern about the impact of health care costs. The distribution of physicians across specialties has changed, the percentage of physicians joining group practices has increased and the average size of a group practice has risen, the supply of physicians has increased, and physician income relative to the U.S. population's income has increased. These changes will be explored in more detail in this section.

Specialty Mix

The distribution of physicians across specializations changed significantly between 1970 and 1992. In 1970, 17.3 percent of physicians were practicing family and general medicine (chart 1 and table 1). By 1992, only 11 percent were practicing family and general medicine. While the practice of family medicine increased between 1975 and 1992 (from 3.1 percent to 7.8 percent), between 1970 and 1992 there was a 14.1 percentage point decline in the percentage of physicians in general practices (falling from 17.3 percent to 3.2 percent). Overall, the percentage of physicians practicing family and general medicine declined by 6.4 percentage points between 1970 and 1992.

As family and general practice has declined, the percentage of physicians practicing specialties has risen. The percentage of physicians practicing in medical specialties increased 7.1 percentage points, from 23.1 percent in 1970 to 30.2 percent in 1992 (chart 1 and table 1). There was a decline in the percentage of physicians practicing in surgical specialties (-4.1 percentage points), and a small decline in physicians in other specialties (-1.1 percent-

Chart 1
Distribution of Physicians by Specialty, Selected Years 1970–1992



Source: Employee Benefit Research Institute tabulations based on American Medical Association, *Physician Characteristics and Distribution in the U.S.* (Chicago, IL: American Medical Association, 1986, 1990, and 1993).

age points) between 1970 and 1992.¹ These trends have continued unabated even as the health care financing system has moved away from traditional fee-for-service reimbursement toward a managed care setting in which primary care physicians are more likely to be general practitioners.

In general, specialists charge higher fees than physicians practicing family and general medicine. In 1993, the mean fee for an office visit with an established patient was \$40.64 for general and family practitioners, \$57.29 for internists, \$53.43 for surgeons, \$45.91 for pediatricians, and \$62.56 for obstetricians and gynecologists. The mean fee for an office visit with a new patient in 1993 was \$58.85 for general and family practitioners, \$115.80 for internists, \$85.29 for surgeons, \$70.98 for pediatricians, and \$93.11 for obstetricians and gynecologists (American Medical Association, 1994). These higher fees may be justified because specialists spend more time in medical school and possess highly specialized skills, or they may reflect the relative market power of specialists and generalists. In many instances, by the time patients see a specialist, they have exhausted their deductibles. Specialists may charge higher fees because patients may be less price sensitive because of lower out-of-pocket expenses. However, specialists' ability to increase fees may be attenuated in the future because of the changes in the health care financing and delivery system discussed in the next section. As the market for health care services becomes more competitive, fees for health care

services should decline.

The trend away from family medicine toward specialists may be reversing. In 1994, 15.6 percent of medical graduates selected primary care residencies. Projections suggest that in the year 2000, the supply of primary care physicians will be close to equilibrium, but there will be a significant surplus of specialists, ranging from 61 percent to 67 percent above work force requirements (Weiner, 1994).

Practice Size

For more than 100 years prior to the 1970s, the predominant form of medical practice was a solo practice with fee-for-service reimbursement (Feldstein, 1993). Recently, a larger proportion of physicians has begun joining group practices, and the average size of a group practice has increased. In 1975, 23.5 percent of physicians worked in a group practice, compared with 32.6 percent in 1991 (chart 2). Between 1975 and 1991, the average size of a group practice increased from 7.9 physicians to 11.5 physicians. The average size of general and family practice arrangements and single and multi-specialty arrangements also increased (chart 2).

One explanation for the movement away from solo practices to group practices is that physicians can lower average health care costs by taking advantage of economies of scale in group practices. The multiplicity of public and private payers' administrative and payment guidelines has created a large administrative burden for solo practitioners. As physicians lower their average costs for caring for patients, they can either pass along the savings to the patients (and payers) or increase their

¹ The physician medical specialty and surgical specialty classifications used in this study come from the American Medical Association. Some individuals in the health care industry consider physicians practicing internal medicine and pediatricians general practitioners instead of specialists. If they are reclassified as general practitioners, the increase in the percentage of specialists would be less than one percentage point.

Table 1
Distribution of Physicians, by Specialty, Selected Years 1970–1992

	1970	1975	1980	1985	1990	1992	Percentage Change 1970–1992
	(thousands)						
Total	334.0	393.7	467.7	552.7	615.4	653.1	
	(percentage)						
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Family and General Medicine	17.3	13.9	12.8	12.1	11.5	11.0	-6.4
Family practice	a	3.1	5.9	7.2	7.7	7.8	4.7 ^b
General practice	17.3	10.8	7.0	4.9	3.7	3.2	-14.1
Medical Specialty	23.1	24.1	26.9	28.9	29.4	30.2	7.1
Allergy/immunology	0.5	0.4	0.3	0.3	0.6	0.5	0.0
Cardiovascular disease	1.9	1.8	2.1	2.4	2.6	2.5	0.6
Dermatology	1.2	1.2	1.2	1.2	1.2	1.2	0.0
Gastroenterology	0.6	0.6	0.9	1.1	1.2	1.2	0.6
Internal medicine	12.5	13.8	15.3	16.4	16.0	16.7	4.2
Pediatrics	5.5	5.6	6.2	6.5	6.6	6.9	1.4
Pediatric cardiology	0.1	0.1	0.1	0.1	0.2	0.2	0.0
Pulmonary disease	0.7	0.6	0.8	0.9	1.0	1.0	0.3
Surgical Specialty	25.8	24.4	23.7	23.2	22.2	21.7	-4.1
Colon/ rectal surgery	0.2	0.2	0.2	0.1	0.1	0.1	-0.1
General surgery	8.9	8.0	7.3	6.9	6.2	6.0	-2.9
Neurological surgery	0.8	0.7	0.7	0.7	0.7	0.7	-0.1
Obstetrics and gynecology	5.7	5.5	5.6	5.6	5.5	5.4	-0.2
Ophthalmology	3.0	2.8	2.8	2.7	2.6	2.5	-0.5
Orthopedic surgery	2.9	2.9	3.0	3.1	3.1	3.2	0.3
Otolaryngology	1.6	1.5	1.4	1.3	1.3	1.3	-0.3
Plastic surgery	0.5	0.6	0.6	0.7	0.7	0.7	0.2
Thoracic surgery	0.5	0.5	0.5	0.4	0.3	0.3	-0.2
Urological surgery	1.7	1.7	1.7	1.6	1.5	1.4	-0.3
Other Specialty	26.8	24.0	25.3	25.8	25.9	25.7	-1.1
Aerospace medicine	0.4	0.2	0.1	0.1	0.1	0.1	-0.2
Anesthesiology	3.3	3.3	3.4	4.0	4.2	4.3	1.1
Child psychiatry	0.6	0.7	0.7	0.7	0.7	0.7	0.1
Diagnostic radiology	0.6	0.9	1.5	2.3	2.5	2.6	2.1
Emergency medicine	0.0	0.0	1.2	2.0	2.3	2.4	2.4
Forensic pathology	0.1	0.0	0.1	0.1	0.1	0.1	0.0
General preventive medicine	0.2	0.2	0.2	0.2	0.2	0.2	-0.1
Neurology	0.9	1.0	1.2	1.4	1.5	1.5	0.6
Nuclear medicine	0.0	0.0	0.0	0.2	0.2	0.2	0.2
Occupational medicine	0.8	0.6	0.5	0.5	0.4	0.4	-0.4
Pathology - anatomic /clinical	3.1	3.0	2.9	2.8	2.6	2.6	-0.5
Physical medicine/ rehabilitation	0.4	0.4	0.5	0.6	0.7	0.7	0.2
Psychiatry	6.3	6.1	5.9	5.8	5.7	5.6	-0.8
Public health	0.9	0.7	0.5	0.4	0.3	0.3	-0.6
Radiology	3.2	2.9	2.5	1.6	1.4	1.2	-1.9
Radiation oncology	0.3	0.3	0.3	0.4	0.5	0.5	0.2
Other specialty	2.1	1.8	1.2	1.2	1.2	1.1	-1.0
Unspecified	3.7	1.9	2.6	1.5	1.3	1.2	-2.5
Other	6.9	13.6	11.3	10.1	11.1	11.5	4.5
Inactive	5.9	5.4	5.5	7.0	8.6	8.5	2.6
Not classified ^c	0.1	6.6	4.4	2.5	2.1	2.5	-4.1
Address unknown	1.0	1.5	1.4	0.5	0.5	0.4	-0.5

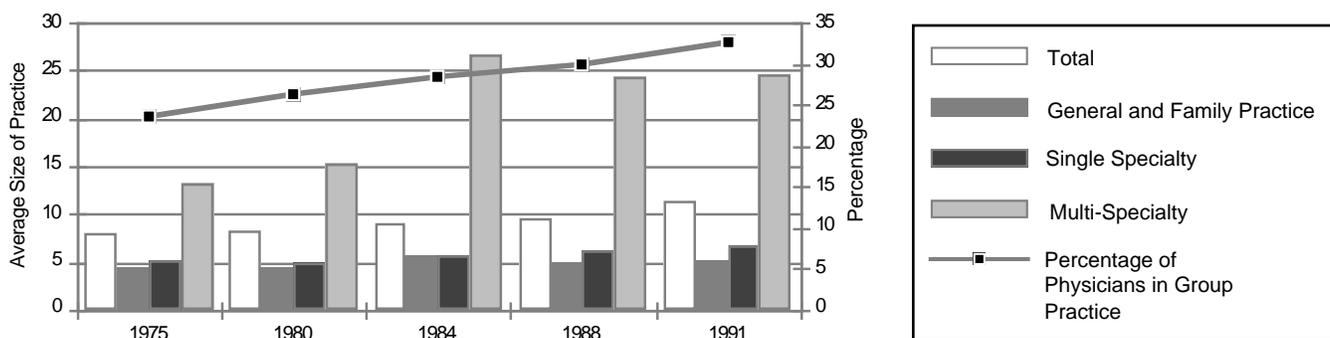
Source: Employee Benefit Research Institute tabulations based on American Medical Association, *Physician Characteristics and Distribution in the U.S.* (Chicago, IL: American Medical Association 1986, 1990, and 1993).

^aData not available prior to 1975.

^bRepresents the percentage change between 1975 and 1992.

^cThe category of not classified was established in 1970, but complete data were not available until 1972. The total for 1970 includes 358 not classified physicians.

Chart 2
Percentage of Physicians in Group Practices and Mean Group Size, by Specialty Mix, Selected Years 1975–1991^a



Source: American Medical Association, *Medical Groups in the U.S.* (Chicago, IL: American Medical Association, 1992).

^aIncludes total active nonfederal physicians.

income. This allows physicians to compete for patients on the basis of price without sacrificing quality. One disadvantage of this approach is the free rider problem. Sharing of benefits² among many physicians may reduce any one physician's incentive to provide health care in the most efficient manner. The free rider problem may be exacerbated because monitoring individual physician practice patterns becomes more difficult as group size continues to increase.

Another reason for the growth of group practices involves market share. If large medical groups have a greater market share than small and solo practices, there is less competition among area physicians, and larger groups are better able to negotiate lower prices for resources that are used to produce health care such as medical supplies. In addition to the advantages of negotiating lower prices for inputs, groups are better positioned to negotiate with payers such as managed care organizations and large employer groups. Again, these savings can either be passed along to patients or used to increase profits (physician income).

Insurers have contributed to the movement toward group practice by restructuring reimbursement methods. The movement to capitated payment for independent practice arrangements (IPAs) and other groups to some degree rewards group practice and may have encouraged the formation of groups. There are several other reasons for the growth of group practices. New physicians joining a group practice immediately gain the reputation of the group practice instead of entering the market as solo practitioners without a

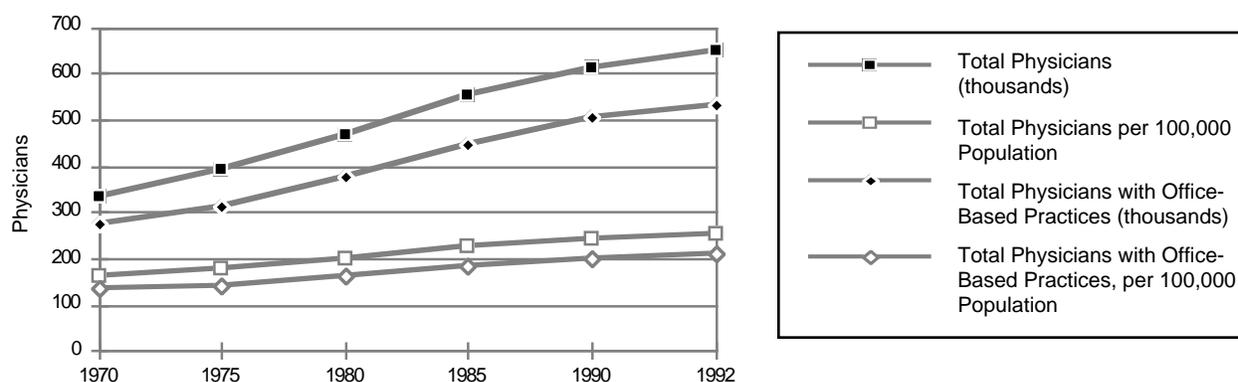
developed reputation. They gain quick and affordable access to capital and wait a shorter time for "real returns." They can reduce uncertainty and share risk because of the greater variations in workloads and fees than they would have in solo practice. They benefit from information sharing and the ability to exercise greater leverage over hospitals that want their patients and with suppliers of medical equipment and services.

Supply of Physicians

The U.S. physician-to-population ratio has been growing since at least 1970 (chart 3). In 1992, there were 255 physicians per 100,000 Americans, up from 161 in 1970. Among physicians with office-based practices, the same trend is evident, with 209 physicians per 100,000 Americans in 1992, compared with 134 in 1970. Traditional economic theory suggests that an increased supply of physicians will lead to lower relative prices for health care; we should expect a negative relationship between prices for physician services and physician-population ratios if physician characteristics affect physician prices. However, the evidence on physician-induced demand is quite extensive and controversial (Rice and Labelle, 1989). Econometric evidence can be found to support both sides of the argument (Feldman and Sloan, 1988). Fuchs found that a 10 percent increase in the surgeon-to-population ratio resulted in a 3 percent increase in per capita utilization of surgery (Fuchs, 1978). This evidence suggests that there is some degree of physician-induced demand. McCarthy provides evidence that the market for primary care physician services in large metropolitan areas is competitive (McCarthy, 1985). However, Cromwell and Mitchell find evidence of physician-

² Physicians in group practices share the benefits by taking advantage of lower "average" prices for resources used to produce health care because of economies of scale.

Chart 3
Supply of Physicians per 100,000 Individuals in the United States, Selected Years 1970–1992



Source: American Medical Association, *Physician Characteristics and Distribution in the U.S.* (Chicago, IL: American Medical Association, 1993).

induced demand in the market for surgery, especially in large metropolitan areas (Cromwell and Mitchell, 1986). A recent study provides evidence that declining fertility rates in the United States increased the income pressures on obstetricians and gynecologists and led them to substitute cesarean section deliveries for normal childbirth, a more costly alternative (Gruber and Owings, 1994). Another study by Dranove and Wehner also found evidence of demand-induced childbirths but concludes that their own results are “absurd” because their model (and other models of demand inducement) is not sensitive enough to reject the physician-induced demand hypothesis (Dranove and Wehner, 1994).

Physician-induced demand is of concern because physicians have multiple roles. They supply not only advice but also services. Concern exists that the financial incentive physicians may have in supplying services may ultimately bias the advice they give to patients (Feldstein, 1993). The additional health care services performed due to demand inducement are considered wasteful when the additional benefits to the patients do not outweigh the additional costs of providing the services. Demand can increase for reasons other than demand inducement. Patients may demand additional health care services as they move into health plans with lower cost-sharing responsibilities and because of improvements in technological innovation. New technology lengthens the list of procedures physicians can perform for a given condition and increases the number of services demanded by patients.

The marketplace for health services is placing more controls on physician behavior than ever before. Currently, insurers’ use of utilization review (UR) is at its highest point. Record numbers of individuals are moving into managed care plans annually, in both the private and public sectors. In addition,

more physicians are likely to offer their services at discounts or capitation than ever before. Capitation will exert much greater influence over physician practice and utilization than discounts. The straight offering of discounts may cause physicians to compensate for lost income by increasing volume. Capitation removes the incentive for inappropriate overutilization. As these measures are more fully utilized, it should become more difficult for physicians to induce demand, and the degree of price competition should increase; however, evidence concerning these effects is still mixed (Fronstin, 1994).

Physician Income

Median and mean physician net income after expenses has grown considerably both in current and real dollars. In current dollars, median physician income increased 80.5 percent between 1982 and 1992 (table 2). After controlling for inflation, real income increased 24.1 percent during the same period (table 2). The income increases varied by specialty, region, and physician’s age. General and family practitioners experienced the smallest income increase between 1982 and 1992, amounting to 9.2 percent. Differences across specializations may have occurred because generalists tend to perform fewer procedures than specialists. Physicians in New England experienced a 35.6 percent increase in income, compared with physicians in the East South Central United States, whose income increased 7.0 percent. Older physicians experienced the largest income increase but had the lowest income levels among all physician age groups.

Growth in physician income has outpaced growth in the income of the general population (chart 4). Between 1985 and 1987, annual growth in physician real income increased from 1 percent to over 6 percent. From

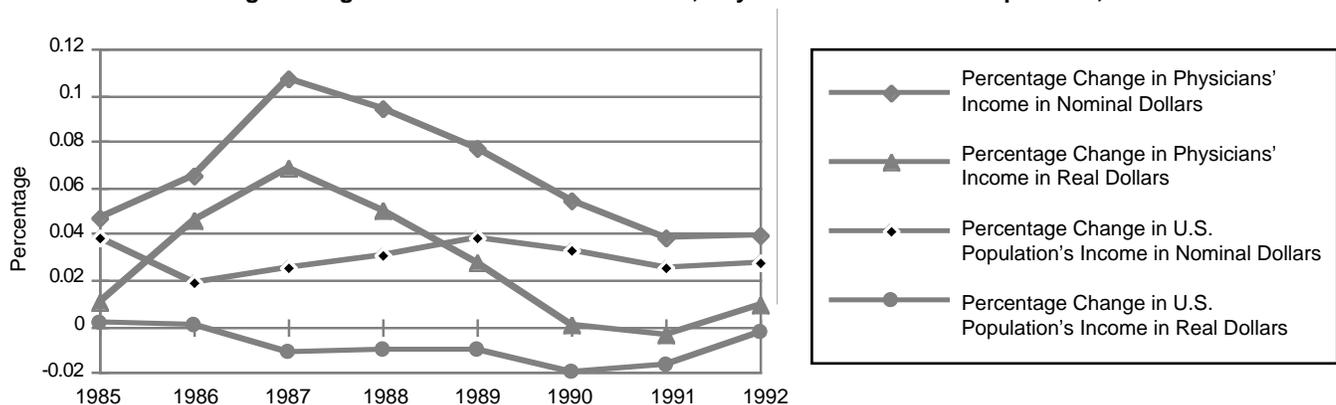
Table 2
Median Physician Net Income after Expenses before Taxes,
Nominal and Real Income,^a Selected Years 1982–1992

	1982	1985	1990	1992	Percentage Change 1982–1992
(\$ thousands)					
Total					
Nominal income	\$ 82.0	\$ 94.0	\$130.0	\$148.0	80.5%
Real income	119.2	122.6	139.5	148.0	24.1
General and Family Practice	91.6	91.3	99.8	100.0	9.2
Internal Medicine	109.0	117.4	128.8	130.0	19.2
Surgery	159.9	168.2	214.7	207.0	29.4
Pediatrics	90.1	91.3	107.3	112.0	24.2
Obstetrics/Gynecology	155.6	156.5	197.5	190.0	22.1
Radiology	174.5	176.0	214.7	240.0	37.6
Psychiatry	98.9	104.3	114.9	120.0	21.4
Anesthesiology	174.5	173.4	214.7	220.0	26.1
Pathology	129.4	149.9	161.0	170.0	31.4
Solo	114.9	122.6	134.2	140.0	21.9
Non-Solo	123.6	123.9	144.9	150.0	21.4
New England	103.2	122.6	128.8	140.0	35.6
Middle Atlantic	109.0	117.4	134.2	140.0	28.4
East North Central	130.8	130.4	150.3	149.0	13.9
West North Central	130.8	110.8	139.5	154.0	17.7
South Atlantic	116.3	122.6	142.8	145.0	24.7
East South Central	130.8	120.0	150.3	140.0	7.0
West South Central	145.4	130.4	161.0	160.0	10.0
Mountain	117.8	110.8	144.9	128.0	8.7
Pacific	116.3	126.5	144.9	150.0	29.0
Age					
Under 36	90.1	97.8	107.3	101.0	12.0
36–45	133.8	130.4	149.2	155.0	15.9
46–55	145.4	143.4	169.6	180.0	23.8
56–65	116.3	117.4	148.1	150.0	29.0
66 or over	72.7	90.0	96.6	100.0	37.6

Source: American Medical Association, *Socioeconomic Characteristics of Medical Practice* (Chicago, IL: American Medical Association, 1994).

^aWith the exception of total nominal income, all figures in this table represent real income and are inflated to 1992 values.

Chart 4
Percentage Change in Nominal and Real Income, Physicians versus U.S. Population, 1985–1992



Source: American Medical Association, *Socioeconomic Characteristics of Medical Practice*, 1994 (Chicago, IL: American Medical Association: 1994); and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, DC, November 1994).

1988 to 1990, growth in physicians' real income slowed but remained positive. In 1991, growth in physician's real income was negative, but by 1992 it was positive again. During this same period, growth in the income of the general population was negative, except for 1985 and 1986, when growth was slightly above 0 percent. The late 1980s was a period when the health care financing and delivery systems experienced great changes, intended to control health care costs. However, these changes have had little effect on physicians' real income compared with that of the general population.

The Marketplace

In both the private and public sectors, one of the significant changes affecting

physician practice patterns has been the movement of insured individuals away from traditional retrospective fee-for-service reimbursement to a prepaid prospective managed care setting. Between 1987 and 1993, enrollment in health maintenance organizations (HMOs) increased from 28.6 million to 39.8 million, enrollment in preferred provider organizations (PPOs) increased significantly, and enrollment in point-of-service (POS) plans increased from virtually none to 2.3 million (Interstudy, 1994; Kraus, Porter, and Ball, 1991; and SMG Marketing Group, 1993). During this same period, enrollment in fee-for-service health plans declined significantly. In addition, the percentage of fee-for-service health plans that can be thought of as traditional—those that do not monitor and influence health care with UR—fell from 59 percent in 1987 to 5 percent in 1990 (Hoy, Curtis, and Rice, 1991). As a result of the movement of insured individuals into a managed care setting, physicians are more likely to contract with a managed care organization; thus, the environment in which physicians practice has changed.

On the public side, the federal government has also instituted a number of changes. In 1975, the Medicare Economic Index (MEI) was instituted to limit increases in prevailing charges. In 1983, Medicare's prospective payment system (PPS) was implemented, resulting in major changes in the hospital industry and in the way physicians and Medicare beneficiaries utilize health care services. In 1984, the Medicare program provided incentives for physicians participating in Medicare to accept assignment.³ In 1987, the maximum allowable charge limits restricted the amounts that physicians not participating in Medicare could charge (Gornick, 1993). In 1989, the Omnibus Budget Reconciliation Act adopted a fee schedule based on a resource based relative value scale (RBRVS). RBRVS was coupled with volume performance standards (VPS) in order to eliminate the incentive for physicians to increase service volume.

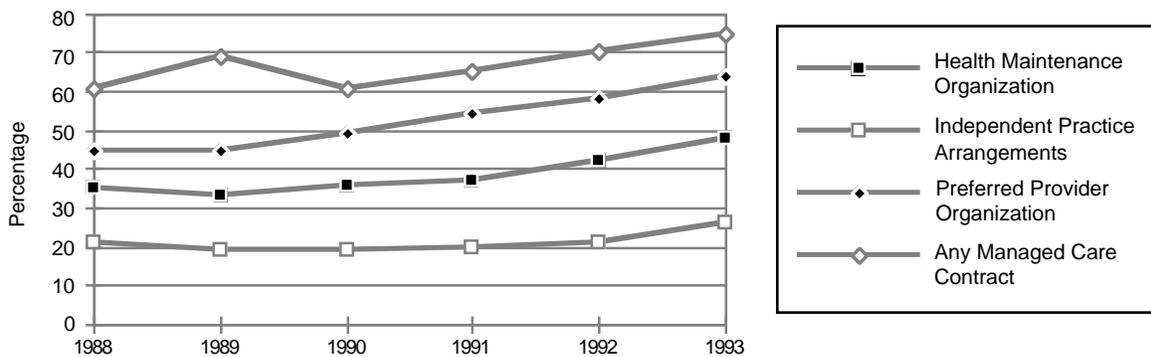
Managed Care Participation

As the number of individuals enrolled in managed care organizations has increased, so has the percentage of physicians with managed care organization contracts. In 1993, 75 percent of all physicians provided health care services to enrollees of managed care organizations, up from 61 percent in 1988 (chart 5). The largest increase occurred among PPOs (19 percentage points). The increase in HMO physicians has been gradual, reaching 48 percent in 1993. On the other hand, IPA involvement was flat until 1992, but the portion of physicians participating in an IPA increased from 21 percent to 26 percent between 1992 and 1993.

HMOs—In recent years, the use of HMOs has been one of the most prevalent methods employers have used to

³ Physicians who accept assignment are not allowed to bill patients for the portion of the charges that are not reimbursed by Medicare.

Chart 5
Trends in Physician Participation in Managed Care Organizations, 1988–1993



Source: David W. Emmons and Carol J. Simon, "Recent Trends in Managed Care," in Martin L. Gonzalez, ed., *Socioeconomic Characteristics of Medical Practice, 1994* (Chicago, IL: American Medical Association, 1994).

control rising health costs. An HMO is an integrated health plan, whose goal is to alter the financial incentives in such a way that providers move away from the provision of more care regardless of benefit and toward balancing the cost of health care services against the benefits. HMOs were originally able to manage their costs partly because they alter the financial incentive structure faced by health care providers from a fee-for-service or cost-plus reimbursement scheme to a payment system in which the provider is paid a salary or is reimbursed on a capitated basis. Recently, reimbursement schemes have evolved from the typical salaried/capitated basis to more intricate arrangements. Alternative reimbursement arrangements include withholding accounts⁴ and bonus programs based on a variety of measures; however, some HMOs continue to contract with physicians on a fee-for-service or discounted fee-for-service basis (Hillman, et al., 1989; DeBrock and Arnould, 1992; and Arnould and DeBrock, 1993).

IPAs—IPAs are groups of physicians in private practice who provide some services to HMO participants, but they may provide services to patients not enrolled in an HMO. The IPA may contract with more than one insurer or HMO. The non-HMO patients are treated on a fee-for-service basis. IPA providers working with HMOs are generally paid on a fee-for-service basis; therefore, they do not have strong incentives to provide cost-effective care; however, there has been a movement toward

reimbursing IPAs on a discounted fee-for-service basis or a capitated basis. The advantage of an IPA is that contracting with physicians practicing in their own offices allows the HMO to offer services in a broader geographic area, requires less capital investment than a staff or group model HMO of similar size, and generally offers patients more choice among providers.

PPOs—A PPO is a panel of health care providers who individually contract with insurance companies and/or employers to offer health care benefits to their members. Few PPOs require that each enrollee choose a physician who acts as a gatekeeper (primary care physician) to the system. PPO network physicians generally do not assume financial risk for the provision of health care services. Typically, PPOs reimburse their physicians on a negotiated fee schedule or a discounted fee-for-service basis. Providers can be chosen on the basis of their performance, but many plans choose physicians who are willing to accept discounts and to fit geographic or specialty areas, often in response to employer requests. Enrollees can receive health care services from PPO providers or non-PPO providers, but they usually face higher cost-sharing requirements when receiving care from a non-PPO provider. While the PPO structure differs greatly from the HMO structure, they both combine three broad cost management strategies: a limited provider panel, negotiated fee schedules, and UR.

Physician Characteristics—The percentage of physicians contracting with managed care organizations differs according to specialty, type of arrangement, and geographic region. Obstetricians, gynecologists, radiologists, pediatricians, and surgeons were most likely to belong to an HMO in 1992 (table 3). Pediatricians, internists,

⁴ In a withholding account arrangement, a percentage of the payment is withheld until the end of the year. Premiums are set aside in a referral fund that is used to pay for the services of primary care physicians, hospitals, and outpatient testing. If the referral fund runs a surplus, physicians receive the amount that accumulated in the withholding account. If the referral fund runs a deficit, nothing is returned to the provider.

Table 3
**Percentage of Physicians Contracting with a Managed Care Organization,
 by Specialty, Arrangement, and Region, 1992, 1993**

	HMO ^a		Percentage Point Change	IPA ^b		Percentage Point Change	PPO ^c		Percentage Point Change
	1992	1993	1992–1993	1992	1993	1992–1993	1992	1993	1992–1993
Total	41.8%	47.7%	5.9	20.6%	26.0%	5.4	57.6%	64.5%	6.9
General Family Practice	37.6	40.6	3.0	18.6	21.4	2.8	52.2	59.0	6.8
Internal Medicine	40.8	50.8	10.0	23.5	27.2	3.7	60.7	67.0	6.3
Surgery	48.1	52.0	3.9	23.3	31.6	8.3	65.9	71.3	5.4
Pediatrics	50.2	51.8	1.6	23.7	28.0	4.3	61.3	68.5	7.2
Obstetrics Gynecology	51.5	59.0	7.5	23.1	30.5	7.4	66.5	73.0	6.5
Radiology	50.9	62.6	11.7	19.1	33.7	14.6	61.2	70.0	8.8
Psychiatry	22.5	23.1	0.6	10.5	10.9	0.4	41.6	44.9	3.3
Anesthesiology	41.5	54.8	13.3	20.7	28.7	8.0	53.2	67.9	14.7
Pathology	37.1	45.2	8.1	12.2	19.9	7.7	51.1	60.8	9.7
Emergency Medicine	22.3	29.9	7.6	10.3	11.4	1.1	31.2	40.4	9.2
Self-Employed	43.7	46.4	2.7	22.9	29.1	6.2	62.7	67.2	4.5
Solo	37.1	39.3	2.2	21.0	23.5	2.5	59.1	60.9	1.8
Two physicians	42.4	47.8	5.4	24.6	36.0	11.4	65.9	74.1	8.2
Three physicians	48.5	49.1	0.6	23.6	35.4	11.8	66.5	69.0	2.5
Four to eight physicians	51.9	53.1	1.2	27.7	36.4	8.7	65.4	74.8	9.4
Over eight physicians	57.5	67.2	9.7	20.7	31.9	11.2	66.8	76.7	9.9
Employee	39.2	53.3	14.1	14.9	19.4	4.5	46.6	60.4	13.8
Independent Contractor	30.8	33.6	2.8	17.3	21.2	3.9	41.5	50.6	9.1
New England	45.7	63.0	17.3	38.6	46.0	7.4	57.2	63.1	5.9
Middle Atlantic	38.2	43.7	5.5	15.2	19.9	4.7	36.1	45.5	9.4
East North Central	49.8	53.9	4.1	19.1	24.0	4.9	62.8	70.1	7.3
West North Central	48.7	52.1	3.4	16.7	22.1	5.4	59.7	68.7	9.0
South Atlantic	37.0	43.3	6.3	15.1	20.1	5.0	60.6	66.9	6.3
East South Central	31.1	31.8	0.7	15.3	16.1	0.8	60.0	68.5	8.5
West South Central	34.7	40.7	6.0	9.5	14.5	5.0	55.7	65.2	9.5
Mountain	48.8	56.2	7.4	22.7	29.5	6.8	64.9	69.7	4.8
Pacific	45.5	50.8	5.3	36.0	44.0	8.0	68.8	72.7	3.9

Source: American Medical Association, *Physician Marketplace Statistics*, (Chicago, IL: American Medical Association, 1992, 1993).

^aHealth maintenance organization; excludes independent practice arrangements (IPAs).

^bIndependent practice arrangement.

^cPreferred provider organization.

surgeons, obstetricians, and gynecologists were most likely to belong to an IPA in 1992. Obstetricians, gynecologists, surgeons, radiologists, and pediatricians were most likely to belong to a PPO in 1992. Between 1992 and 1993, the participation rate of anesthesiologists in HMOs increased the most, followed by radiologists and internists. These physicians may have become part of an HMO because the hospital where they were employed either formed or joined an HMO. Psychiatrists, pediatricians, and physicians with general family practices experienced the lowest increase in participation rates. Within the IPA setting, participation rates increased the most among radiologists, surgeons, pathologists, and anesthesiologists. The lowest rates of increase occurred among psychiatrists, general practitioners, and emergency medicine physicians. Within the PPO setting, the participation rates of anesthesiologists and pathologists increased the most. The lowest rates of increase occurred

among psychiatrists, surgeons, and internists. Physicians with general and family practices had among the lowest rates of participation in HMOs, IPAs, and PPOs.

With respect to size of practices, in HMOs, the participation rates of practices with more than eight physicians increased the most during 1992–1993. With respect to IPAs, physicians with solo practices were least likely to participate, but in general, as the practice size increases, the probability of joining an HMO or a PPO increases (table 3).

The percentage point increase in physician managed care participation also varied by geographic region between 1992 and 1993. New England experienced the largest increase in HMO participation, making it the area with the highest degree of physician participation. The largest increases in IPA participation occurred in New England and the Pacific region. The largest increases in PPO participation occurred in the

One study of the effects of financial incentives on the utilization of health care found that the use of salaried or capitated reimbursement was associated with a lower rate of hospitalization than the use of fee-for-service payment.

Middle Atlantic, West North Central, East South Central, and West South Central regions.

Financial Incentives—Researchers have recently focused on the effect of the various financial incentive models on physician practice

patterns. One study of the effects of financial incentives on the utilization of health care found that the use of salaried or capitated reimbursement was associated with a lower rate of hospitalization than the use of fee-for-service payment (Hillman, et al., 1989). Differences in the extent of hospitalization were also found with HMO organizational structure. Physicians in for-profit HMOs and group model HMOs used the hospital less often, and physicians who were placed at financial risk were associated with fewer outpatient visits per enrollee. In addition, the study found that physicians in IPAs hospitalize their patients more often than physicians in group model HMOs. Withholding accounts and bonuses did not affect the rate of hospitalization. Another study also found that fewer outpatient visits and referrals to specialists were observed when physicians were placed at financial risk (Martin, et al., 1989).

Another study analyzed physician response to a change in reimbursement mechanism by studying a group of physicians who participated in a fee-for-service plan and then formed an IPA using capitation payment for primary care physicians and a reduced fee schedule for specialists (Stearns, et al., 1992). The study was able to control for benefit package changes because the benefits were similar under the two plans. The results showed that a change in the physician payment mechanism was associated with a reduction in hospitalizations but increases in hospital lengths of stay and the number of ambulatory visits. These increases may have occurred because new payment mechanisms for specialists led to a greater number of referrals, with no incentive in place for reductions in length of stay for specialty admissions.

There has been some controversy as to whether

or not HMOs are able to contain costs while maintaining quality comparable with that of fee-for-service plans. One reason for the controversy is that HMOs' cost savings efforts may not be immediately realized. As HMOs age, they perform more efficiently. Former fee-

for-service physicians and patients learn to provide and accept more cost-effective care as the HMO learns how to provide the appropriate cost-effective financial incentives to providers. A recent study uses data from 1980 to 1988 to show that HMOs significantly reduce costs in the long run, although the immediate impact is to increase costs (Olsen, 1993). One reason for the initial cost increases in new HMOs is the inability of some newer HMOs to adequately manage their participating physicians' practice styles (Feldstein, 1993). In addition, the opportunities to manage and/or improve the health of an enrollee increases over time. Membership volumes required to meet fixed operating costs vary dramatically by delivery model. Group and staff model HMOs have a significantly higher development cost, demanding a higher level of membership to meet fixed cost and capital requirements.

HMOs typically have lower cost sharing than other types of health plans. Deductibles for primary care are nonexistent, and copayments for primary care are usually at or below \$15 per visit. As a result, these plans may improve access to health care services because enrollees are not deterred by large cost-sharing responsibilities from visiting their health care provider.

Researchers have questioned whether lower HMO costs are a result of changing physician practices or rather of selection bias, i.e., healthy, young individuals being more likely to enroll in HMOs than relatively older unhealthy people. Some employers have claimed that relatively lower risk employees tend to enroll in HMOs, while employees who incur higher costs remain in fee-for-service plans. One study found that

families selecting HMOs were younger, had lower income, and had lower claimed health care expenses prior to enrollment than families selecting a fee-for-service plan (Buchanan and Cretin, 1986). This results in higher overall health care costs because if riskier workers choose fee-for-service plans over HMOs, premiums for fee-for-service plans will increase due to adverse selection. One study found that offering an HMO, in addition to a fee-for-service plan, raises the fee-for-service average premium for family coverage health insurance by \$25.14 per month and for single coverage by \$3.68 per month (Feldman, Dowd, and Gifford, 1993). The RAND Health Experiment, the earliest research on health care utilization across different types of health plans, used random assignment to place individuals into an HMO. This group was given health care benefits identical to those offered in the fee-for-service plan. The study found that individuals assigned to the HMO spent 28 percent less on health care than those in the fee-for-service plan without copayments. It also found no differences in the health status of individuals assigned to the HMO and those in the fee-for-service health plan with no cost sharing, except for low-income individuals, who entered the experiment already in poor health (Manning, et al., 1987). Other researchers have found little or no evidence of selection bias. Welch and Frank found that health status had little effect on the choice between a prepaid practice and a fee-for-service health plan (Welsh and Frank, 1986).

Another reason for the controversy is federal regulations. The HMO Act of 1973 imposed more stringent requirements on federally qualified HMOs than on their competitors. One requirement was that a relatively costly benefit package was necessary. Typically, this requirement increased HMO premiums relative to non-HMO premiums, rendering the HMO unable to compete on the basis of price. As a result, comparisons between federally qualified HMOs and their competitors were made more difficult, leading to the impression that HMOs were not cost effective compared with other organizations. In 1988, amendments to the 1973 HMO

Act relaxed some regulations, allowing employers to negotiate HMO rates and coverage more easily.

Results from the studies on PPO performance have been mixed. One study that examined physician charges in a PPO and a fee-for-service plan found that PPO enrollees had lower charges per visit than fee-for-service enrollees, but overall expenditures were higher in the PPO plan because more services were provided per visit and more visits occurred (Garnick, et al., 1990). In this study, the same physicians treated enrollees in one group of employees who switched to a PPO plan and enrollees in another group of employees who did not switch. Other studies have also found that PPO enrollees had higher expenditures than enrollees in traditional fee-for-service plans (Wouters, 1990). Based on 1982–1985 data from a single employer, Wouters found that the total cost of outpatient primary care was less than one percent higher in the PPO when compared with the costs in the fee-for-service plan. Another study observed utilization and cost patterns over time for an employer using a PPO for the first time and found that expenditures increased substantially after the implementation of the PPO because of expansions in outpatient benefits (Zwanziger and Auerbach, 1991). Both studies concluded that costs were higher in the PPO because the PPOs paid physicians according to a fee schedule without any risk sharing, and there were virtually no UR or gatekeeper services.

Sources of Revenue

Physician revenue comes from public and private payers. Public payers include Medicare and Medicaid. Private payers include insurers and private pay patients. **In 1993, the majority of public payments came from Medicare (26.1 percent), and the majority of private payments came from private insurers (31.3 percent) other than Blue Cross and Blue Shield** (table 4 and table 5, respectively). Reimbursement from private sources can come from traditional reimbursement fee-for-service health insurers and/or

Table 4
Percentage of Physician Revenue from Public Sources, 1992, 1993

	Medicare		Percentage Point Change	Medicaid		Percentage Point Change
	1992	1993	1992-1993	1992	1993	1992-1993
Total	26.7%	26.1%	-0.6	9.7%	11.0%	1.3
General/Family Practice	23.9	24.1	0.2	11.2	12.9	1.7
Internal Medicine	40.0	38.3	-1.7	7.4	7.2	-0.2
Surgery	34.4	32.3	-2.1	6.0	7.1	1.1
Pediatrics	0.5	1.6	1.1	19.4	25.7	6.3
Obstetrics/Gynecology	6.8	7.1	0.3	13.7	13.6	-0.1
Radiology	32.6	31.9	-0.7	8.8	10.0	1.2
Psychiatry	13.1	12.0	-1.1	11.9	12.5	0.6
Anesthesiology	25.0	28.4	3.4	10.3	10.3	0.0
Pathology	29.8	31.6	1.8	8.9	8.1	-0.8
Emergency Medicine	24.5	25.3	0.8	14.5	19.8	5.3
Self-Employed	28.1	27.1	-1.0	8.2	9.0	0.8
Solo	27.5	26.3	-1.2	8.5	9.3	0.8
Two physicians	31.1	29.1	-2.0	7.9	9.0	1.1
Three physicians	32.2	29.2	-3.0	7.2	8.2	1.0
Four to eight physicians	25.8	26.8	1.0	8.2	8.3	0.1
Over 8 physicians	27.8	27.2	-0.6	8.4	8.8	0.4
Employee	22.6	23.8	1.2	14.3	15.8	1.5
New England	25.7	25.0	-0.7	10.6	12.5	1.9
Middle Atlantic	28.8	27.4	-1.4	7.7	9.4	1.7
East North Central	28.3	27.6	-0.7	9.3	10.5	1.2
West North Central	24.8	25.9	1.1	11.5	9.9	-1.6
South Atlantic	28.0	26.5	-1.5	9.8	11.5	1.7
East South Central	25.4	27.0	1.6	14.0	16.1	2.1
West South Central	27.1	26.8	-0.3	9.2	10.1	0.9
Mountain	21.3	21.7	0.4	10.8	11.6	0.8
Pacific	24.6	23.8	-0.8	9.7	11.6	1.9

Source: American Medical Association, *Physician Marketplace Statistics* (Chicago, IL: American Medical Association, 1992, 1993).

managed care organizations. Revenue from HMOs and IPAs increased by as much as 14.0 percentage points between 1992 and 1993, and revenue from PPOs declined less than one percentage point (table 6).⁵

Increasing reimbursement from HMOs and IPAs occurred in all specialties, practice arrangements, and geographic regions. The largest increases occurred among physicians practicing in general and family practices, those practicing in employee arrangements, and those with practices in the Pacific region. Differences in the reimbursement arrangements across two years may not be detailed enough to draw general conclusions, but given the rising enrollment of individuals in HMOs and PPOs, it is not surprising to see increasing physician revenues derived from managed care organizations.

Cost Management in Government Programs

A number of changes in both public and private programs have emerged from closer analysis of office-based practice patterns. One change is related to Medicare. Physicians saw fewer Medicare patients in 1993 than they did in 1987. **In 1993, physicians averaged 37 visits per week with Medicare patients, down from 38.6 visits per week in 1987** (table 7). The overall decrease in Medicare patient visits was 4.1 percent, but it ranges from -41.7 percent to +31.6 percent according to specialty.⁶ With respect to medical specialty, internists, pediatricians, and emergency medicine physicians have experienced the largest decreases, while obstetricians and gynecologists have experienced the largest increases. In general, self-

⁵ The small decline in preferred provider organization (PPO) reimbursement may be due to increased use of cost management strategies in PPOs such as the use of gatekeepers.

⁶ The 41.7 percent decrease in Medicare visits for pediatricians is based on a decrease from 2.4 visits per week in 1987 to 1.4 visits per week in 1993. Approximately 10 percent of the Medicare population are nonelderly individuals (Institute of Medicine, 1993).

Table 5
Percentage of Physician Revenue from Private Payers, 1992, 1993

	Blue Cross & Blue Shield		Percentage Point Change	Other Private Insurance		Percentage Point Change	Patients		Percentage Point Change
	1992	1993	1992-1993	1992	1993	1992-1993	1992	1993	1992-1993
Total	17.4%	16.3%	-1.1	29.9%	31.3%	1.4	16.4%	15.6%	-0.8
General and Family Practice	14.8	14.1	-0.7	29.4	27.9	-1.5	20.5	21.4	0.9
Internal Medicine	16.6	15.5	-1.1	23.8	27.9	4.1	13.2	11.5	-1.7
Surgery	18.0	17.7	-0.3	28.7	31.7	3.0	12.9	11.5	-1.4
Pediatrics	15.5	14.0	-1.5	37.9	35.4	-2.5	26.3	23.3	-3.0
Obstetrics/Gynecology	22.0	23.3	1.3	42.2	43.3	1.1	15.2	13.0	-2.2
Radiology	21.0	18.7	-2.3	26.6	29.2	2.6	10.4	10.4	0.0
Psychiatry	18.3	11.3	-7.0	30.0	30.8	0.8	26.7	33.6	6.9
Anesthesiology	20.6	19.6	-1.0	34.4	34.7	0.3	12.0	7.9	-4.1
Pathology	20.0	19.3	-0.7	30.0	29.7	-0.3	12.3	13.7	1.4
Emergency Medicine	17.0	14.7	-2.3	27.7	24.7	-3.0	16.1	15.7	-0.4
Self-Employed	17.7	16.9	-0.8	29.4	31.3	1.9	16.3	16.1	-0.2
Solo	16.6	15.9	-0.7	29.1	29.5	0.4	18.3	19.1	0.8
Two physicians	16.9	16.3	-0.6	27.9	31.5	3.6	15.7	14.7	-1.0
Three physicians	17.9	18.8	0.9	27.4	30.4	3.0	14.1	14.1	0.0
Four to eight physicians	20.6	17.8	-2.8	30.7	34.6	3.9	15.1	13.0	-2.1
Over eight physicians	19.1	19.1	0.0	33.4	35.4	2.0	11.0	9.5	-1.5
Employee	16.4	15.1	-1.3	31.4	31.2	-0.2	16.8	14.3	-2.5
New England	21.5	18.3	-3.2	27.6	30.7	3.1	15.1	14.3	-0.8
Middle Atlantic	19.3	17.5	-1.8	26.7	28.6	1.9	17.2	16.8	-0.4
East North Central	18.2	18.2	0.0	30.2	32.2	2.0	14.3	12.4	-1.9
West North Central	19.7	15.8	-3.9	30.9	36.6	5.7	13.1	12.6	-0.5
South Atlantic	18.0	17.0	-1.0	27.3	28.9	1.6	17.5	16.3	-1.2
East South Central	19.9	20.8	0.9	24.7	22.8	-1.9	17.3	13.3	-4.0
West South Central	11.5	11.8	0.3	33.8	32.3	-1.5	18.0	19.7	1.7
Mountain	14.0	13.0	-1.0	35.6	35.3	-0.3	18.9	18.1	-0.8
Pacific	15.1	14.4	-0.7	34.2	34.7	0.5	15.9	15.5	-0.4

Source: American Medical Association, *Physician Marketplace Statistics* (Chicago, IL: American Medical Association, 1992, 1993).

employed physicians had a decrease in Medicare visits, while employee physicians and independent contractors had increases of 7.5 percent and 10.5 percent, respectively. Wide-ranging changes occurred across geographic regions, with the Mountain states experiencing a 23.6 percent increase, the West South Central region experiencing a 12.5 percent increase, and New England experiencing a 17.3 percent decrease. The relatively large decline in New England may be related to the relatively large increase in the percentage of physicians joining HMOs in New England (table 3). However, as the number of Medicare beneficiaries grew in New England, the percentage of Medicare beneficiaries participating in managed care declined slightly between 1992 and 1994 (U.S. Department of Health and Human Services, 1995).

Prospective Payment System—The implementation of Medicare's PPS in 1983 has resulted in major changes in the hospital industry and in the way physicians and Medicare beneficiaries utilize health care services. Medicare's PPS provides incentives designed to lead to more efficient production of services within the hospital.

Medicare's reimbursement methodology changed hospitals' incentives in two distinct ways. First, the change from a reimbursement rate based on the individual hospitals' historic costs meant that hospitals could no longer influence future reimbursement rates by incurring higher costs in the present. PPS thus removed one disincentive for hospitals to restrain their costs. The second way in which PPS changed hospital incentives was the bundling of the services provided a patient during a single admission. Historically, cost-based, per diem reimbursement provided hospitals with a financial incentive to increase Medicare patients' length of stay and provide more services per stay. Conversely, under PPS, hospitals have an incentive to reduce the length of stay and provide the minimum services necessary for care. As a result of these incentives, changes have occurred in both inpatient and outpatient care. The major changes of PPS on practice patterns include the following:⁷

⁷ See Coulam and Gaumer (1991) for a more detailed analysis of the effects of the prospective payment system (PPS).

Table 6
Percentage of Physician Revenue from Managed Care Organizations, 1992, 1993

	HMOs ^a /IPAs ^b		HMOs ^c	Percentage Point Change ^e		PPOs ^f		Percentage Point Change
	1992	1993	1993	1992-1993	1992	1993	1992-1993	
Total	21.5%	21.0%	14.5%	14.0	21.2%	20.8%	-0.4	
General/Family Practice	25.9	22.2	22.0	18.3	20.5	20.0	-0.5	
Internal Medicine	20.0	21.0	14.3	15.3	18.5	19.2	0.7	
Surgery	18.0	18.1	12.5	12.6	20.3	20.0	-0.3	
Pediatrics	27.2	24.2	15.6	12.6	27.0	23.3	-3.7	
Obstetrics/Gynecology	25.7	29.1	13.9	17.3	29.8	27.3	-2.5	
Radiology	19.0	17.8	11.6	10.4	17.2	19.9	2.7	
Psychiatry	20.3	20.5	8.7	8.9	20.6	20.4	-0.2	
Anesthesiology	19.8	21.0	16.5	17.7	23.2	23.2	0.0	
Pathology	21.1	19.6	g	g	19.3	25.1	5.8	
Emergency Medicine	24.9	18.3	g	g	17.9	16.8	-1.1	
Self-Employed	20.2	18.9	14.2	12.9	21.4	20.8	-0.6	
Solo	18.7	17.8	15.0	14.1	23.0	21.1	-1.9	
Two physicians	19.1	18.6	15.3	14.8	21.0	21.3	0.3	
Three physicians	21.7	18.2	12.4	8.9	20.9	21.1	0.2	
Four to eight physicians	19.4	18.1	14.3	13.0	19.3	21.0	1.7	
Over eight physicians	26.7	23.9	11.3	8.5	19.3	18.6	-0.7	
Employee	25.0	25.5	15.0	15.5	19.8	20.1	0.3	
Independent Contractor	28.0	23.1	18.5	13.6	23.1	24.3	1.2	
New England	22.6	19.4	15.6	12.4	17.6	18.7	1.1	
Middle Atlantic	20.8	19.9	15.0	14.1	16.4	15.6	-0.8	
East North Central	19.2	20.6	13.6	15.0	18.8	18.4	-0.4	
West North Central	22.0	20.1	14.0	12.1	21.9	23.2	1.3	
South Atlantic	17.7	17.3	11.8	11.4	19.1	20.4	1.3	
East South Central	14.4	16.8	9.4	11.8	25.4	20.7	-4.7	
West South Central	18.4	16.4	7.0	5.0	19.4	20.4	1.0	
Mountain	25.8	23.7	13.7	11.6	26.8	24.2	-2.6	
Pacific	27.8	29.1	17.8	19.1	26.9	25.6	-1.3	

Source: American Medical Association, *Physician Marketplace Statistics* (Chicago, IL: American Medical Association, 1992, 1993).

^aHealth maintenance organizations.

^bAmong physicians with HMO and/or independent practice arrangement (IPA) contracts.

^cAmong physicians with HMO contracts, excluding IPA arrangements.

^dAmong physicians with IPA contracts.

^eNumber in column represents an upper limit on the percentage change.

^fAmong physicians with preferred provider organization (PPO) contracts.

^gStatistics not reported.

- substantial decline in hospital admissions until 1987;
- initial, sharp decline in inpatient lengths of stay;
- decline or little change in intensity of care;
- substantial increase in nominal case mix was the largest single factor in per case payment increases;⁸
- shift in physician services to outpatient setting and drop in inpatient share of surgical services;
- mixed evidence on whether skilled nursing home facility utilization increased, but clear evidence of increase in home health utilization; and
- increase in admissions to exempt facilities, such as

psychiatric, rehabilitation, children's, and long-term care hospitals, because PPS creates incentives to divert or transfer patients to these environments.

RRVS—In the late 1980s, one-half decade after the implementation of PPS for inpatient care, Congress enacted legislation that significantly changed the way in which physicians were reimbursed for outpatient Medicare services. On April 1, 1988, Congress reduced the prevailing charge for 12 “overpriced” procedures by 2 percent.⁹ The availability of physicians treating

⁸ Nominal case mix increases occurred because of a one-time case-mix increase due to data flaws in the calculation of the original diagnosis related groups (DRG) weights. In addition, research has found that PPS has had the effect of encouraging upcoding and DRG creep by hospitals.

⁹ These procedures include the following: hip replacement, knee arthroplasty, knee arthroscopy, bronchoscopy, pacemaker insertion, coronary artery bypass graft (CABG), gastrointestinal (GI) endoscopy, transurethral resection of the prostate (TURP), suprapubic prostatectomy, dilation and curettage (D&C), carpal tunnel release, and cataract extraction.

Table 7
Average Number of Total Physician Visits with Medicare Patients per Week, Selected Years 1987–1993

	1987	1989	1991	1993	Percentage Change 1987–1993
Total	38.6	40.0	38.9	37.0	-4.1%
General and Family Practice	44.3	50.8	48.4	44.6	0.7
Internal Medicine	56.8	57.6	53.7	52.8	-7.0
Surgery	40.5	41.4	43.3	38.8	-4.2
Pediatrics	2.4	2.3	2.3	1.4	-41.7
Obstetrics/Gynecology	7.6	8.9	9.8	10.0	31.6
Emergency Medicine	36.8	35.5	34.1	33.6	-8.7
Self-Employed	42.2	44.2	42.8	41.0	-2.8
Solo	40.9	41.7	42.8	39.7	-2.9
Two physicians	45.9	52.1	44.6	42.8	-6.8
Three physicians	45.7	50.6	40.8	44.8	-2.0
Four to eight physicians	39.8	46.3	43.0	41.1	3.3
Over eight physicians	45.0	37.3	41.9	42.6	-5.3
Employee	26.5	26.0	27.5	28.5	7.5
Independent Contractor	28.5	34.7	35.6	31.5	10.5
New England	37.6	35.8	34.6	31.1	-17.3
Middle Atlantic	38.5	41.8	39.1	38.3	-0.5
East North Central	41.4	43.0	40.1	37.6	-9.2
West North Central	46.9	49.0	42.8	45.5	-3.0
South Atlantic	43.2	41.7	41.4	39.7	-8.1
East South Central	50.8	58.7	49.6	44.8	-11.8
West South Central	34.3	34.6	38.1	38.6	12.5
Mountain	26.3	35.4	32.2	32.5	23.6
Pacific	29.4	29.3	30.4	28.3	-3.7

Source: American Medical Association, *Physician Marketplace Statistics* (Chicago, IL: American Medical Association, 1993).

Medicare enrollees or performing over-priced procedures did not change substantially between 1987 and 1988, despite the price reductions (McCall, 1993). In 1989, RBRVS and VPS were adopted, which completely revised Medicare's method for reimbursing physicians.

RBRVS is an index of the resources necessary to provide a given medical service. Like PPS for hospitals, RBRVS makes physician reimbursement prospectively determined. It removes incentives for physicians to charge higher fees one year in the hope of achieving higher reimbursement levels the next, along with increasing payments to primary care physicians. These incentives were necessary because of the shift from the inpatient setting to outpatient departments that occurred after the implementation of PPS in 1983. But unlike PPS, the new physician reimbursement methodology does not bundle services. Physicians are still reimbursed on a piecemeal basis, and the upcoding of procedures may continue. The financial incentive to provide as many services as possible for each episode of care remains.

Volume performance standards were implemented to reduce the incentive to increase service volume by tying increases in physician reimbursement rates to an annual volume target that is determined through congressional action or, if the Congress does not act, through a default formula (Physician Payment Review Commission, 1994). The difference between the target and actual volume partly determines future physician payment rate updates, with low volume

growth rewarded by higher updates. As a result of the changing incentives, there has been concern over the availability of physicians for Medicare patients. This concern may be overstated, however; recent findings indicate that only between 4 percent and 6 percent of physicians accepting new patients were not accepting new Medicare patients.

One survey found that between 1991 and 1992, the proportion of physicians not accepting new Medicare patients increased from 4 percent to 5.9 percent (Lee and Gillis, 1994). The same survey found that between 1992 and 1993 the percentage of physicians not accepting new Medicare patients decreased to 4.7 percent. Surveys by the Physician Payment Review Commission (PPRC) also found that in 1993 less than 5 percent of physicians were not accepting new Medicare patients (Physician Payment Review Commission, 1994). The PPRC study concludes that the implementation of the Medicare fee schedule has not caused physicians to close their practices to Medicare patients.

Medicaid—The Medicaid program has provided a natural laboratory in which to study the effects of financial incentives on access to health care. In 1986, Tennessee increased Medicaid fees paid to physicians, hoping to increase physician participation in the program. Tennessee's policy was aimed at integration of low-income persons into mainstream provider networks for obstetrics and pediatric care. Research shows that the increase in the relative Medicaid fees was related to

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an increase in the number of monthly visits per enrollee and an increase in the number of physicians serving enrollees (Adams, 1994). However, closer analysis suggests that the growth of participating physicians and their service volume was somewhat more than enough to keep pace with the increased number of Medicaid enrollees over the 1985–1988 period. Another study of the Medicaid program examined how changing physician reimbursement levels affect the use of physician and hospital services (Cohen, 1993). The results indicate that low Medicaid reimbursement of physician fees hampers access to office-based physicians and encourages the use of hospital outpatient departments and emergency rooms. To the extent that office-based care is used instead of inpatient care, admissions to hospitals should be reduced and overall costs may decline or remain steady.

Conclusion

The practice environment of physicians has changed over the past decade as part of the changing health care financing and delivery system. In general, physicians moved away from general and family practice into higher paying specialties, group practices, and managed care arrangements. However, there is recent evidence that medical students are selecting primary care residences. We can expect to see a continued movement of medical students into primary care positions as an increasing percentage of Americans enroll in managed care plans.

Claims have been made that the movement to managed care will cause a one-time savings in health care costs, but the long-term rate of health care cost inflation will be largely unaffected. This may have

significant implications on the future design and provision of health insurance plans. **If employers find that managed care does not reduce health care costs in the long run, we can expect to see continued reduction in the availability of employer-sponsored health insurance, more pressure by employers on health care providers to cut costs and/or services, and more pressure on workers to share in the cost of providing health insurance. We may see additional use of various cost-sharing techniques such as higher deductibles and higher coinsurance. We may also see greater use of medical savings accounts, especially if they are implemented on a national basis.**

Questions about the effects of the changes in the health care financing and delivery system remain. For example, while we know that changes to the Medicare fee schedule have not caused physicians to close their practices to Medicare patients, and while there is some evidence that low Medicaid fees hamper access to office-based practices and encourage the use of hospital outpatient departments and emergency rooms, controversy still remains as to whether or not changing financial incentives have affected health care costs, utilization, and access in the private sector. Under a capitated health plan, physicians have an incentive to lower utilization rates, but patients have an incentive to increase utilization rates because of typically lower cost-sharing responsibilities. In addition, there is still no evidence that changing financial incentives has affected the quality of health care services, either positively or negatively. Even if financial incentives change physician practice patterns and have a permanent effect on health care cost inflation, the aging population, labor cost within the market for health care services, and the continued introduction of new technology will continue to be significant factors affecting the growth of health care costs.

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