


RAND

*Medicare Reimbursement
Differentials by Physician
Experience*

Richard Buddin, Joyce Mann

*RAND/UCLA/Harvard
Center for Health Care
Financing Policy Research*



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*Prepared for the
Health Care Financing Administration,
U.S. Department of Health and Human Services*

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Preface

This study was conducted to aid the Health Care Financing Administration (HCFA) in determining the appropriateness of differential Medicare reimbursement rates for new versus experienced physicians. It examines potential experience differentials in physician fees and wages in other settings. The reimbursement practices of private insurers are also examined.

The research was conducted at the RAND/UCLA/Harvard Center for Health Care Financing Policy Research, which is supported by the Health Care Financing Administration.

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Summary

Under current policy, Medicare reimburses for physician services according to a fee schedule that differentiates payment levels for new and experienced physicians. Experienced physicians are paid the full fee schedule amount, whereas new physicians are paid 80 percent of the fee schedule amount in the first year of practice, 85 percent in the second year, 90 percent in the third year, and 95 percent in the fourth year. The “first year of practice” is defined as the first full calendar year that a physician receives payments under Medicare Part B. Experienced salaried physicians who have not previously billed for Medicare services are reimbursed as “new” physicians if they join a practice and seek payments under Medicare.

Two types of factors could be used to justify the reimbursement differential. First, inexperienced physicians have less power in the physician services market because they do not have established practices. As a result, new physicians have less potential to substitute private patients for Medicare patients and may be willing to treat Medicare patients at a lower rate than experienced physicians. Second, experienced physicians may produce health services more efficiently than new physicians, so some premium may be justified on productivity criteria. If, for example, experienced physicians ordered fewer tests for an accurate diagnosis than new physicians, then it would be inefficient to reimburse new and experienced physicians equally. Physician wages are likely to rise with experience if either market power or productivity rise with experience. With a rising wage profile, inexperienced physicians will have a lower opportunity cost for treating Medicare patients and will accept lower reimbursement for their services.

This study examines the physician experience differentials in other market settings to assess the appropriate fee differential for Medicare reimbursement. The analysis examines marketplace differentials for physicians in three settings:

- reimbursement practices of private insurers,
- fees and wage profiles of self-employed physicians,
- wage profiles of salaried physicians.

If the opportunities available to new physicians systematically differ from those facing experienced physicians, then payment practices of private insurers should

reflect this difference. If the opportunity cost of providing services rises with experience, then we would expect experienced physicians to charge higher fees than new physicians and consequently to earn higher wages. Similarly, salaried physicians are expected to face a rising wage profile if physician productivity in providing medical services increases with experience.

The study provides little support for the existence of the Medicare reimbursement differential for new physicians. First, evidence from the established payment policies of private insurers reveals that experience differentials are the exception rather than the rule. The four large national carriers sampled make no such distinction. The Blue Cross/Blue Shield plans of three states (Maryland, Massachusetts, and Michigan) place limits on new physician customaries, but interviews with other state plans and with the national Blue Cross/Blue Shield Association indicate that experience differentials are not a common practice among most other Blue Cross/Blue Shield plans.

The empirical evidence for a payment differential between new and experienced physicians is contradictory, depending on the measure of opportunity costs. Three measures were used: the usual fee for an office visit, the usual fee for a hospital visit, and an annual wage rate. The study examined differentials in the earnings capabilities between new and experienced practitioners for both self-employed physicians and salaried physicians (only wage information is available for salaried physicians as they are not paid on a fee basis). Both office visit and hospital visit fees are invariant to experience (if anything, fees of new physicians tend to be higher than those of experienced physicians). Wage rates, however, do vary by experience levels, increasing sharply at low experience levels for both self-employed and salaried physicians, with first-year physicians having wage rates 30 percent and 45 percent lower, respectively, than physicians with 15 and 12 years of experience, the average level of experience for the self-employed and salaried sample, respectively.

The analysis on wage rates shows that there are other practice characteristics, such as practice age and solo versus group practice, that have a substantial bearing on physician wages. The current differential based solely on physician experience does not adequately account for differences in these practice characteristics. For example, if a new physician joins an experienced practice, his or her wage rate would be substantially above that of a new physician at a new practice, especially if the new practice is also a sole proprietorship. A single new physician differential gives first-year physicians in solo practice or new practices substantially more incentive to provide care to the elderly than new physicians in other settings. If the intent is to adjust for factors that affect the opportunity cost of physicians, it is not clear why Medicare should prefer a differential based

solely on individual physician experience and not on other relevant practice characteristics.

Another indication of the appropriateness of an experience differential is reflected in the actual decisions of physicians to accept Medicare assignment prior to adoption of the fee differential. Under the assignment program, self-employed physicians agree to accept Medicare reimbursement as payment-in-full for services provided, thereby foregoing the option to bill the patient for the difference between the actual charge and the Medicare approved charge (balance billing). If new physicians had systematically lower opportunity costs than experienced physicians, they would have been more likely to accept assignment under the old regulations, which had no reimbursement differential for experience. Our results show that first-year physicians were neither more nor less likely to accept Medicare assignment than experienced physicians. The old policy provided comparable incentives for new and experienced physicians to treat the elderly; an experience differential would apparently discourage new physicians from providing a similar level of care.

The evidence suggests that a 20-percent reimbursement differential for new versus experienced physicians is likely to discourage new physicians from treating Medicare patients. It is unlikely that new physicians would completely exclude Medicare patients from their practice, but they may limit the volume of such patients during the first years of their practice to the minimum necessary to qualify as an experienced physician for purposes of Medicare payment in future years.

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1. Introduction

Under current Medicare reimbursement policies, a payment differential is in place for physician services provided by new versus experienced physicians. Experienced physicians are paid according to a physician fee schedule that adjusts for the relative value of the service, geographic adjustment factors (physician work, practice expenses, and malpractice expense), and a conversion factor that is related to national changes in the Medicare Economic Index (Health Care Financing Administration, 1991).¹ New physicians are paid 80 percent of the fee schedule amount in the first year of practice, 85 percent in the second year, 90 percent in the third year, 95 percent in the fourth year, and the full fee schedule amount in the fifth and subsequent years.² For reimbursement purposes, new physicians are defined as all physicians having no previous billing history with the Medicare carrier. Some of these “new” physicians may actually have previous medical experience either in a salaried setting or in the jurisdiction of another carrier in another part of the country.³ However, the differential is premised on the belief that most physicians without a previous billing history have little or no medical practice experience. Certainly, all such recently trained physicians would be included within the new group. Factors used to justify the rate differential include assumptions about the lower productivity and lower market power of inexperienced physicians. New physicians may be less efficient in providing medical services than experienced physicians. Further, lacking an established practice, inexperienced physicians may be willing to treat Medicare patients for a lower fee than experienced physicians.

Concerns about the level of the differential arose because it may potentially affect the practice decisions of new physicians. Setting too high a differential could discourage new physicians from participating in the Medicare program. Although it is unlikely that new physicians would completely exclude Medicare patients from their practice, they may limit the volume of such patients during

¹Payment for physician services is limited to the lesser of 80 percent of the fee schedule amount or 80 percent of the actual physician charge. The beneficiary is required to pay the remaining 20 percent of the fee or charge.

²The new physician adjustment is not applied to primary physician services or to services in rural areas that are characterized as Health Professional Shortage Areas (HPSA).

³In some cases, carriers will accept a physician’s billing history from another carrier and reimburse at the experienced rate.

the first years of their practice to the minimum necessary to qualify as an experienced physician for purposes of Medicare payment in future years. Setting too low a differential would provide incentives for new physicians to treat Medicare patients but would also inflate the costs of providing care to the elderly.

Using data from a variety of marketplace settings, we investigate the size of the reimbursement differential for new and experienced physicians. In so doing, we obtain information on the extent to which experience differentials occur in the market for physician services.⁴ This study examines physician differentials in three settings:

- reimbursement practices of private insurers,
- fees and wage profiles of physicians in private-practice settings,
- wage profiles of salaried physicians.

Our data come from two sources: telephone interviews with private third-party payers; and the 1983–84 Physician Practice Costs and Income Survey (PPCIS) sponsored by the Health Care Financing Administration (HCFA) and conducted by the National Opinion Research Center (NORC).

Our analysis is limited to an examination of reimbursement differentials and does not address the issue of the absolute level of Medicare reimbursement for physicians as a whole. Burstein and Cromwell (1985) have argued that returns on training investments are substantially higher for physicians than for other highly trained professionals, such as lawyers and dentists. They also contend that the government-financed Medicare and Medicaid programs have contributed to their economic advantage. These broader issues of physician earnings and reimbursement levels are beyond the scope of the current research.

The document is organized as follows. Section 2 provides background on physician reimbursement structure in the Medicare program and on recent changes in physician payment policies. In Section 3, we discuss our investigation of the charge practices of private third-party payers. Our analyses of fee and wage differentials between new and experienced physicians in both fee-for-service and salaried settings are presented in Section 4. The last section summarizes the results and draws conclusions.

⁴An alternative approach would have relied on usual fee data contained in Medicare Part B claims submitted by physicians. We could not use Medicare Part B claims data, however, because they lack information on physician experience. In lieu of an appropriate database for the Medicare population, we examine physician differentials in alternative settings.

2. Background

Medicare Physician Reimbursement

In January 1992, a new Medicare physician payment system was adapted that replaced Medicare's traditional customary, prevailing, and reasonable payment system with a resource-based relative value scale (RBRVS) that reimburses physicians based on a physician fee schedule. The new law continued the reimbursing of new physicians at a lower rate than experienced physicians. This section describes the origins of the differential, and its extension into the current reimbursement system.

Customary, Prevailing, and Reasonable Payment

Prior to January 1992, Medicare reimbursed physicians on the basis of what it deemed to be reasonable charges. Medicare carriers determined reasonable or allowable charges for each service provided by a physician based on the individual's charge history subject to an areawide cap. The reasonable charge for a service was the lowest of the physician's actual charge, the customary charge (the amount a physician usually charges for a particular service based on historical billing data), or the areawide prevailing charge (based on the charges submitted by all physicians in an area defined by the carrier). Customary charges, determined for each individual physician, consisted of the 50th percentile of all charges for a service submitted by the physician during a base period. The areawide prevailing charge, which was the same for all physicians in an area, was defined as the 75th percentile of all customary charges for that service in the area.⁵ As a result of applying these fee screens, Medicare reduced the total actual charges of physicians by 26 percent in 1984 (Health Care Financing Administration, 1989).

The Medicare physician fee screens were calculated on a service-specific basis. Services were coded using the HCFA common procedure coding system (HCPCS), which is based on the American Medical Association Current Procedure Terminology (CPT-4) coding system. Both the customary and

⁵Several Medicare carriers (New York Empire Blue Cross/Blue Shield, Group Health Incorporated of New York, and Wyoming) develop separate prevailing charges for specialists and nonspecialists. Most carriers, however, use a single set of prevailing charge screens for all physicians in an area, regardless of specialty.

prevailing fee screens were updated annually (with exceptions during periods of congressionally mandated physician fee freezes) to reflect changes in physician charging practices. After June 1973, increases in prevailing charges were limited by the rate of increase in the Medicare Economic Index, an index designed to reflect changes in general earnings levels, general inflation, and physician practice costs.

The blueprint for the customary, prevailing, and reasonable (CPR) physician reimbursement system used by Medicare came from the payment practices of private insurers used at the time the Medicare program was enacted. Many Blue Shield plans and commercial insurance companies use a similar payment method, although the terminology may differ. For example, Blue Shield plans refer to this type of fee setting as usual, customary, and reasonable (UCR) reimbursement. The Blue Shield usual fee screen is equivalent to the Medicare customary fee screen and refers to the charge profile of individual physicians. Likewise, the Blue Shield customary fee screen is equivalent to the Medicare prevailing fee screen and refers to the charge profiles of all physicians in an area.

Medicare Participating Physician Program and Fee Freezes

Physicians may decide on a claim-by-claim basis whether to accept the Medicare approved charge, known as accepting assignment, or to bill the patient for the difference between the actual charge and the Medicare approved charge, a practice known as balance billing.⁶ Balance billing amounted to an average of 23.6 percent of approved charges for unassigned claims in fiscal year 1984 (Burney and Paradise, 1987). Under the Medicare Participating Physician option, enacted in 1984, a physician may agree to accept assignment on all claims for a twelve-month period. Physicians are rewarded for enrolling in the participation program: they are listed in a directory distributed to beneficiaries; they have higher prevailing charges than nonparticipating physicians; and no limits are placed on their actual charges (which determines the customary fee screen in subsequent years). Participating physicians accounted for 36.0 percent of Medicare-covered charges during the first year of the program beginning October 1, 1984. Nonparticipating physicians can continue to accept assignment for a portion of their claims. Overall, assigned claims accounted for 57.9 percent of Medicare-covered charges in fiscal year 1984 (Burney and Paradise, 1987).

⁶Regardless of whether the physician accepts assignment, patients are still responsible for paying deductible and co-insurance amounts.

Beginning in July 1984, Congress imposed a freeze on Medicare payments for physician services (Deficit Reduction Act of 1984). The freeze was imposed on customary and prevailing charges for all physicians and on the actual charges of nonparticipating physicians (thereby limiting the amount of balance billing by physicians not accepting assignment). To encourage physicians to enroll in the participation program, Congress allowed participating physicians to make normal increases in their actual charges to Medicare patients. These increases did not affect Medicare payments during the freeze but contributed to potential increases in Medicare payments (by increasing the customary charges) once the freeze ended (Health Care Financing Administration, 1989).

Congress extended the freeze for nonparticipating physicians through December 1986, but provided for updates in the customary and prevailing charges (maximum 4.15 percent increase) of participating physicians (Consolidated Omnibus Budget Reconciliation Act of 1985). Following removal of the freeze, Congress set limits on increases in the actual charges of nonparticipating physicians and established a 4-percent differential between the prevailing charges of participating and nonparticipating physicians (Omnibus Budget Reconciliation Act of 1986).⁷ The restrictions on actual charges of nonparticipating physicians, a maximum allowable actual charge (MAAC), were based on the prevailing charge for all nonparticipating physicians in an area. The MAAC is 1 percent if the previous year's MAAC is equal to or greater than 115 percent of the current year's prevailing charge. If the previous year's MAAC is less than 115 percent of the prevailing charge, then the MAAC is a specified fraction of the difference (Omnibus Budget Reconciliation Act of 1986).

Medicare Payment Differentials for New and Experienced Physicians

For purposes of setting Medicare payments, a new physician is one who has no billing history with Medicare. Medicare has developed rules for setting allowable charges for physicians with no previous charge profile. Prior to April 1988, the customary charges of new physicians were set at the 50th percentile of the customary charge distribution for all physicians in the locality, weighted by the relative frequency with which physicians performed the procedure in question. Payments to new physicians were subject to the same areawide cap (the prevailing charge limit) as were payments to all other physicians. Increases in the prevailing charge had been limited to the rate of growth in the Medicare

⁷The differential was increased to 4.5 percent in 1988 and 5 percent in 1989 by the Omnibus Budget Reconciliation Act of 1987.

Economic Index since June 1973, but no central controls were placed on customary charge updates. As a result, the prevailing charge was sometimes less than the 50th percentile of customary charges even though the prevailing charge was calculated as the 75th percentile of customary charges. These rules allowed reimbursements for new physicians to sometimes exceed those available to experienced physicians.

The Omnibus Budget Reconciliation Act of 1987 established a systematic differential in Medicare payments to new and experienced physicians. The mechanism for enforcing the payment differential consisted of a cap on the customary charge of new physicians during their first year in the Medicare program. The customary charge for new physicians was calculated in the same way as before, but a cap was established at 80 percent of the areawide prevailing charge. As a result of this cap, Medicare payments to new physicians were at least 20 percent less than payments to established physicians.

In addition to capping the new physician payment, the actual charges of new physicians who chose not to enroll in the Medicare participation program were subjected to limits as well (Omnibus Budget Reconciliation Act of 1986 and 1987). MAACs are set for all nonparticipating physicians. If a physician submitted no actual charges during the base period, the MAAC is set at the 50th percentile of customary charges (weighted by the frequency of the service) for all nonparticipating physicians in the locality during the twelve-month period ending June 30 of the previous year.

As a result of these provisions, Medicare payment to new participating physicians (except for primary care services and physicians in rural health personnel shortage areas) was set at 80 percent of the prevailing charge for experienced physicians. For new nonparticipating physicians, payment was the lower of 80 percent of the prevailing charge for all experienced physicians or the 50th percentile of customary charges for experienced nonparticipating physicians.

In January 1992, a new Medicare physician payment system was implemented, but the system has maintained the payment differential for new physicians. Under the RBRVS system, payment rates for new physicians are set at 80 percent of the fee schedule amount during their first year in the Medicare program. The experience differential is now gradually eliminated as a physician gains experience: the differential decreases by 5 percentage points per year over the first four years of practice experience, that is, the differential is 20 percent in the first year, 15 percent in the second year, 10 percent in the third year, and 5 percent in the fourth year.

In this study, we examine the extent to which payment differentials for new and experienced physicians exist in other market settings. Before doing so, we discuss the factors that may justify a rate differential between new and experienced physicians.

Conceptual Framework

Several factors could be used to justify the Medicare rate differential between new and experienced physicians. First, inexperienced physicians have less power in the physician services market because they do not have established practices. Advantages of an established practice include having a familiar clientele, a reputation, and a greater network of professional contacts serving as a source of new patients. New physicians lacking an established practice have less potential to substitute private patients for Medicare patients and may be more willing to treat Medicare patients at a lower rate than experienced physicians.

Second, some experience premium may be justified on productivity criteria. Experienced physicians may provide health services more efficiently than new physicians simply for having faced similar cases and many different health conditions many times. If, for example, experienced physicians perform fewer tests in diagnosing patient conditions than do new physicians, it would be inefficient to reimburse new and experienced physicians equally. In addition to greater productivity, experienced physicians may achieve better patient outcomes particularly if they have a sufficient practice base to perform particular procedures more frequently than new physicians. Studies of the effect of service volume on patient outcomes suggest that the frequency of performing a procedure has a positive effect on patient outcomes (Hughes et al. 1987, Luft et al. 1979, Farber et al. 1981).

Either increasing market power or productivity will generate a rising earnings profile for physicians with low levels of experience. With a rising earnings profile, inexperienced physicians will have a lower opportunity cost for treating Medicare patients and will accept lower reimbursement for their services. A Medicare reimbursement differential could therefore be justified on the premise that the opportunities available to new physicians are systematically worse than those available to experienced physicians.

3. Reimbursement Practices of Private Third-Party Payers

Medicare visits account for one-third of all physician visits and 23 percent of physician revenue (Moser, 1986), but private third-party payers as a group also represent a major source of physician payments. Blue Cross/Blue Shield (BC/BS) plans and commercial insurance companies accounted for 42 percent of physician reimbursements in 1986. Because private third-party payers account for such a large share of physician revenue, they constitute a significant force in shaping physician reimbursement policies. Indeed, the fee-for-service reimbursement structure based on customary, prevailing, and reasonable (CPR) charge screens adopted by the Medicare program was modeled in large part after the usual, customary, and reasonable (UCR) charge practices of private third-party payers. For purposes of this discussion, we use the Medicare terminology in describing the fee screens.

We investigated the reimbursement practices of a sample of private insurers in 1989 to determine whether they incorporated experience differentials in setting physician payment rates. Of interest was whether third-party payers have different allowable charges for new and experienced physicians. Because these payers have incentives to set charges that account for productivity differences between physicians, data on their allowed charges may provide insights into an appropriate differential between new and experienced physicians.

Our sample included both commercial carriers and BC/BS plans. We contacted four national commercial insurers (Aetna, Cigna, Prudential, and Travelers) and eight state BC/BS plans. Our BC/BS sample was drawn primarily from the plans that use UCR reimbursement.⁸ The selected plans consist of Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Western New York, and New York Empire Blue Cross/Blue Shield plans. We also included one plan

⁸Although some 20 BC/BS plans develop both customary and prevailing fee screens, other plans rely solely on prevailing maximums and do not calculate customary fees for individual physicians. We include both types of plans in our sample because differentials for physician experience can potentially be incorporated into either type of system (e.g., by setting payment rates for new physicians at some percentile of the prevailing rate). Another 15 plans pay physicians on the basis of established fee schedules for each procedure code. Payment consists of the lower of the actual charge or the fee schedule. According to the national Blue Cross/Blue Shield Association office, none of the plans that use a fee schedule distinguishes between new and experienced physicians.

(California BC/BS) that reimburses physicians according to a fee schedule based on a relative value scale.

Structured telephone interviews were conducted with a representative of each insurer. We directed our questions to the fee-for-service component of an insurer's medical care business and excluded any arrangements insurers made with capitated delivery systems. Information was collected on the method by which insurers calculated physician payment rates (CPR or fee schedules), the formula for calculating customary and prevailing fee screens if used, and whether payment differentials based on experience existed.

Findings

Table 3.1 summarizes the reimbursement practices of each insurer. All of the insurers contacted used some variant of UCR reimbursement with the exception of California BC/BS. Although most of the BC/BS plans calculated both customary and prevailing fee screens (with the exception of the two New York plans), none of the four commercial carriers we contacted calculated individual physician charge profiles (i.e., customary fee screens). Instead, the commercial carriers relied solely on prevailing fee screens, based on some percentile (ranging from the 80th to the 90th percentile) of charges submitted by all physicians for a given procedure in a given area. Physician payments by these carriers consisted of the lower of the actual submitted charge or the prevailing fee screen. The carriers calculated separate prevailing charges by area (although geographic boundaries varied by carrier). No distinctions were made in the prevailing charge by physician specialty.

Of the eight BC/BS plans contacted, five used both customary and prevailing fee screens, two used only the prevailing screens, and one used fee schedules rather than CPR reimbursement. The methods for calculating customary and prevailing fee screens varied by plan. To calculate individual physician customary screens, two plans selected the median charge for a given procedure, two plans selected the modal charge (the charge most frequently submitted by a physician for a given procedure), and one plan allowed the physician to choose the usual fee. The method for setting the prevailing charge varied as well. Four plans based the prevailing charge on some percentile (ranging from the 75th to the 90th percentiles) of all submitted charges, whereas other plans based it on some

Table 3.1
Summary of Physician Payment Methods by Selected Insurers, 1989

Insurance Company	Payment Approach	Area/ Specialty Differentials	Differential for New Physician
Aetna	UCR: payment based on prevailing charges set at the 85th percentile of actual charges	1st 3 digits of zip, no specialty	no
Cigna	Surgical based on UCR and nonsurgical based on FS-CRVS. ^a UCR payment based on prevailing charges set at the 80th percentile of actual charges	zip code areas, no specialty	no
Prudential	UCR: payment based on prevailing charges set at the 80th percentile of actual charges	area differential, no specialty	no
Travelers	UCR: payment based on prevailing charges at the 90th percentile	area differential, no specialty	no
California BC/BS	FS-CRVS: update FS with charge data at the 75th percentile	8 zip code areas, 5 service groups	no
Kentucky BC/BS	UCR: customary charges are based on physician choice of usual fee; also two types of prevailing charges at the 90th percentile	urban, rural, mixed; no specialty	no
Maryland BC/BS	UCR: customary charges are based on the modal charge and prevailing charges are set at the 75th percentile of actual charges	no area or specialty differentials	physicians with < 10 claims are reimbursed at the 50th% of charges
Massachusetts BC/BS	UCR: customary charges are based on the median charge and prevailing charges are set at the 90th percentile of weighted customaries	no area or specialty differentials, except for psych care	recently licensed receive the median of weighted customaries
Michigan BC/BS	UCR and FS-CRVS: customary charges are based on the modal charge; reimbursed at minimum of actual, FS, and customary	2 areas, no specialties	if licensed in last year or from another state, receive average of all customaries

Table 3.1 (continued)

Insurance Company	Payment Approach	Area/ Specialty Differentials	Differential for New Physician
Minnesota BC/BS	UCR: customary based on median charge and prevailing based on 85th percentile of customaries	no area or specialty differentials	no
NY Empire BC/BS	UCR: payment based on 95th percentile of actual charges	area and specialty differentials	no
Western NY Blue Shield	UCR: payment based on average of actual charges	no area or specialty differentials	no

^aFS-CRVS represents a fee schedule based on the California Relative Value Scale.

percentile of the customary fee screens (ranging from the 85th to the 95th percentile of customaries).⁹

None of the commercial insurance carriers recognized any distinction between new and experienced physicians in setting fee screens. Three of the eight BC/BS plans did so. These three plans established lower payment rates for new physicians by setting the customary at a level lower than the prevailing fee screen. For example, in Maryland, the prevailing charge equals the 75th percentile of all charges, whereas the customary charge for new physicians lacking a charge profile is set at the 50th percentile of all charges. BC/BS plans in Massachusetts and Michigan used similar methods to set lower payment rates for new physicians.

Those insurers that use only prevailing screens (or fee schedules) do not require the development of individual physician profiles. The determination of maximum payment rates is based on all charges submitted by physicians in a given area. Unlike payment systems that use both customary and prevailing fee screens, the maximum payment rate is the same for all physicians in a given area (and in a given specialty if such a distinction is made). New physicians would be subject to the same maximum payment rate. In the following year, their charge histories would be incorporated into the pool of all physician charges that would then determine the new period's prevailing screen. Of course, the decision to use only a prevailing screen does not preclude the option of developing differential

⁹The Massachusetts BC/BS plan weights the customaries based on the number of procedures performed by a physician.

payment rates that vary by physician experience. An insurer may simply decree that the maximum payment rate for new physicians is capped at some percentage of the areawide prevailing charge. However, none of the commercial carriers or BC/BS plans that base payment solely on the prevailing charges chose to set lower prevailing fees for new physicians.

In systems that use both customary and prevailing fee screens, the maximum payment rate may vary by physician. The prevailing still constitutes the ceiling. However, for those physicians with a customary charge that is lower than the prevailing charge on a given procedure, the maximum payment rate is set at the level of the customary. Because customary fee screens are calculated from the charge histories of individual physicians, they cannot be calculated for new physicians who lack billing data. Those plans that develop customary fee screens must either have some method for setting customary charges for new physicians or use only the prevailing fee screen for new physicians. Of the five BC/BS plans that use customary screens, two forego these screens when a physician has no charge history and three set separate customaries for new physicians.

In two of the three plans that set a customary for new physicians, the customary is always lower than the prevailing (and so determines the maximum payment), whereas in the third plan a prevailing fee is not calculated. In the Massachusetts BC/BS plan, the new physician customary is set at the median of all customaries weighted by the number of procedures, whereas the ceiling for experienced physicians (i.e., the prevailing) is the 90th percentile of weighted customaries. In the Maryland BC/BS plan, the maximum payment rate for new physicians is set at the 50th percentile of all charges, whereas the 75th percentile constitutes the maximum for experienced physicians. The Michigan BC/BS plan uses a combined UCR and fee schedule approach. It does not calculate a prevailing charge. Instead, the maximum payment rate for experienced physicians is the lower of the submitted charge, the customary (defined in this plan as the individual physician's most frequent charge submitted during the preceding period), or the fee schedule. For new physicians, the customary consists of the average of all customaries.

Although our sample of insurers was small, we included some of the largest commercial insurers and over one-fourth of the Blue Cross/Blue Shield plans that use UCR. Our findings indicate that payment discounts to new physicians are not a widespread practice among private insurers. For the most part (9 out of 12 plans sampled), payment rates for new physicians are subject to the same ceilings as payments to experienced physicians. To the extent that the actual

charges of new physicians are lower than the ceilings, these physicians will tend to receive lower reimbursement.¹⁰ However, few insurers have adopted policies that reduce payments to physicians by virtue of their newly practicing status. For the three insurers that establish a new physician differential, the differential exists only in the first year of practice. In the next section, we empirically examine the effect of experience on wages and incomes of physicians in private practice.

¹⁰The evidence from the Physician Practice Costs and Income Survey shows that there is no tendency for fees to increase with physician experience. If anything, there is some tendency for new physicians to charge *more* for given services than experienced physicians.

4. Empirical Analysis: Effect of Experience on Physician Fees and Wages

Data Sources

This study uses survey data collected in 1983–1984 by the national Physician Practice Costs and Income Survey (PPCIS). The survey, conducted by the National Opinion Research Center for the Health Care Financing Administration, collects data on physician practice characteristics, source and amount of income, office expenses, hours worked, and utilization patterns. It was supplemented with biographical data on physicians (age, year of most recent licensure, and board certification) obtained from the Physician Master File maintained by the American Medical Association (AMA) and with market demand variables obtained from the Area Resource File. The latter data set, prepared by the Bureau of Health Professions (Department of Health and Human Services), contains county-level characteristics, such as per capita income, poverty rate, and physician-population ratios, which were used to adjust for differences in demand across areas.

The sampling frame, designed to be nationally representative of non-federal patient care physicians, was drawn from the AMA Physician Master File. It includes both AMA members and nonmember physicians. Residents, inactive physicians, and physicians with unclassified specialties were excluded from the sample. The sampling design consisted of a random sample, stratified along three dimensions: specialty (17 strata), geographic region (4 Census regions), and degree of urbanization (metropolitan statistical area or not). Of the 6852 eligible cases, a total of 4729 physicians responded. For more information on sampling design and response rates by specialty, see Langenbrunner et al. (1988).

The next part of this section introduces some of the key variables for our analysis and provides a general overview of physician practice characteristics. The overview is followed by an analysis of the fees and wages of self-employed physicians and then the wage profiles of salaried physicians.

Definitions and Practice Characteristics

About 73 percent of the nation's physicians are self-employed or employed on a nonsalaried basis. The remaining 27 percent, employed on a salaried basis, are

disproportionately concentrated in some specialties. Salaried physicians constitute 18 percent of the surgical specialists as compared with 25 percent of the medical specialists, 45 percent of hospital-based specialists (anesthesiologists, pathologists, and radiologists), and 31 percent of psychiatric specialists. Within the medical specialties, salaried status is least common among general practice physicians and most common among pediatrics. Salaried status varies little across surgical specialties. Among hospital-based physicians, salaried status is most common for pathologists (62 percent) and least common for anesthesiologists (28 percent).

Several measures of physician practice experience are available from the PPCIS. Physician age (a measure used by several previous studies) is readily available from the AMA data, but age is an imperfect measure because physicians graduate from medical school at different ages and because they spend different amounts of time in specialty training. Years since licensure is a better measure of practice experience, because it reflects when physicians graduate from medical school. The PPCIS data show that over two-thirds of physicians are licensed by age 26 and over 90 percent are licensed by age 30. Initial licensure rules vary among states but physicians typically are licensed following completion of medical school and the first year of residency training (previously called internship). Because years since licensure does not account for the residency training period, it overstates the years of practice experience for physicians with long residencies.

For our analysis, we use years of post-residency experience as our estimate of physician practice experience. This measure adjusts years since licensure for the expected length of residency. The length of residency training depends on specialty and ranges from 3 years for general practitioners to 7 or 8 years in some surgical specialties. Post-residency experience was imputed from the time since licensure and average residency length by specialty (Marder and Willke, 1989; American Board of Medical Specialties, 1989).¹¹ The PPCIS does not contain information on individual residency length, so our imputed post-residency experience measure will overstate practice experience for some physicians and understate practice experience for others. The degree of error is likely to be no more than plus or minus one year, so post-residency experience should be a

¹¹Residency length is imputed by specialty as follows: 3 years for general practice and family practice; 4 years for internal medicine, pediatrics, obstetrics/gynecology, psychiatry, anesthesiology, and other non-medical and non-surgical subspecialties; 5 years for cardiovascular and other medical subspecialties, ophthalmology, pathology, and radiology; 6 years for general surgery; 7 years for orthopedic surgery, urological surgery, and other surgical subspecialties.

more reliable measure of practice experience than either age or time since licensure.

Table 4.1 shows the distributions of age, years since licensure, and post-residency experience for salaried and self-employed physicians.¹² The table shows that salaried physicians tend to be much younger and less experienced than self-employed physicians. About 10 percent of the salaried physicians are age 30 or less as compared with fewer than 2 percent of the self-employed physicians. Salaried physicians are also much more likely to have been licensed recently with 17 percent of salaried physicians licensed within the last 5 years as compared with only 4 percent of the self-employed physicians. Part of the age and licensure differences for the two groups reflect the disproportionate concentration of salaried physicians in non-surgical specialties with shorter residency requirements. Table 4.1 shows, however, that the concentration of less-experienced physicians in the salaried ranks remains even after adjusting for differences in residency length; nearly 25 percent of the salaried physicians are in their first three post-residency years of practicing medicine as compared with only 9 percent of the self-employed physicians.

In addition to physician experience, another factor likely to have an important bearing on physician earnings is the age of the medical practice with which the physician is affiliated. Self-employed (i.e., nonsalaried) physicians can be divided into three categories:

- started new practices after completion of residency programs and have remained in those practices,
- joined established practices either after completion of residency programs or after experience in another practice or salaried setting,
- started their current practices after experience in another practice or salaried setting.

The PPCIS does not contain information on how long physicians have been with their current practice, so we cannot differentiate the contributions to earnings of practice-specific experience versus overall years of experience. The PPCIS does contain information on practice age, however. A comparison of physician post-residency experience with the age of their current practice provides limited

¹²The PPCIS excluded physicians in residency, so these young physicians are not represented in the table.

Table 4.1
Three Measures of Physician Experience: Age, Years Since Licensure, and
Post-Residency Experience for Salaried and Self-Employed Physicians
(cumulative percentages)

Experience Measure	Salaried	Self-Employed
Age		
30	10.5	1.8
35	32.6	15.4
40	54.1	33.8
45	66.4	49.5
50	76.7	64.3
55	86.6	75.6
Years Since Licensure		
5	17.2	4.4
10	39.4	21.8
15	57.5	38.0
20	69.6	53.6
25	79.7	68.4
30	88.2	80.0
Years of Post-Residency Experience		
1	12.7	3.0
2	19.0	6.0
3	24.5	9.2
4	29.9	12.9
5	33.8	16.8
10	51.7	33.9
15	67.0	50.0
20	77.5	65.0
25	86.2	76.2
30	92.1	85.2

information with which to categorize physicians. If all self-employed physicians started or joined new practices after residency and remained in those practices, then physician experience and practice age would be coincident, and their effects on earnings would be indistinguishable. Table 4.2 shows that only 8 percent of all self-employed physicians appear to be in this group, as indicated by the equivalence of practice age and years of post-residency experience. Among self-employed physicians with less than 10 years of experience, 17 percent are in this group.¹³ Most self-employed physicians, then, have either joined existing practices or changed practices. Physicians whose experience is less than the age of their practice have joined an established practice, either immediately upon completing residency or at some point thereafter (e.g., some physicians may have

¹³The imputation of residency length is imperfect, so some physicians may have started in a practice a year or so before or after expected. The PPCIS data are inadequate to provide precise estimates of this nature, but the data do indicate that many physicians have joined existing practices and that many have had previous experience prior to joining their current practice.

Table 4.2
Comparison of Physician Experience and Age of Current
Practice for Self-Employed Physicians
(in percentages)

Difference Between Physician Experience and Practice Age (in years)	All Physicians	Physicians in Solo Practice	Physicians in Other Practices
All Years of Experience			
-2 or more	10	16	9
-1	7	10	5
0	8	11	7
1	7	11	6
2 or more	68	52	73
10 or Less Years of Experience			
-2 or more	18	17	20
-1	15	18	13
0	17	20	15
1	12	13	11
2 or more	38	32	41

initially taken a salaried position for several years and then joined an established practice). Physicians whose experience exceeds the age of their practice have presumably begun or joined new practices at some point following an initial venture in another practice or salaried setting.

Table 4.2 shows that most physicians have some medical experience prior to joining or starting their current practice: 68 percent have post-residency experience that exceeds the age of their current practice by two or more years.¹⁴ At least 52 percent of those in solo practices had two or more years of previous experience as compared with 73 percent of those in group practices. Less experienced physicians have had less opportunity to switch practices or switch from salaried to self-employed settings, so it is not surprising that fewer such physicians have had some medical experience prior to joining or starting their current practice. Even so, 38 percent of self-employed physicians with 10 or fewer years of experience have had some prior experience.

The remainder of this section examines physician earnings and fees in a multivariate model that controls for a variety of physician and market characteristics. The multivariate model allows us to isolate the effect of physician experience while controlling for other factors that affect earnings and fees.

¹⁴Some differences may reflect inaccuracies in the imputation of residency length, so our discussion concentrates on differences between practice age and physician post-residency experience that exceeds 2 years.

Before presenting the multivariate results, however, it is useful to consider the overall patterns in physician earnings and fees as described in Table 4.3. In nearly all experience groups, self-employed physicians have higher annual earnings and wage rates and greater weekly hours than salaried physicians (exceptions occur in the wages and earnings of the most experienced physicians). Earnings rise sharply for both self-employed and salaried physicians and peak for the 11- to 15-year experience group. Weekly hours of physicians decline monotonically with experience (with one exception). The wage profiles of self-employed physicians tend to be flatter than their earnings profiles and peak at earlier experience levels. Although hourly wage rates are lower for self-employed physicians with more than 5 years of experience relative to those with 3 to 5 years, they are nearly constant for salaried physicians grouped by experience for those practicing more than 5 years. Unlike wages and earnings, the fees of self-employed physicians do not systematically increase with physician experience; office fees fall with experience, and hospital fees rise slightly at low experience levels, but the least experienced group has hospital fees about the same as the overall average.

Table 4.3
Overall Patterns in Earnings, Wages, Hours, and Fees by Experience
for Salaried and Self-Employed Physicians, 1983-1984

Physician Experience (years)	Annual Earnings (\$1000s)	Wage Rate (\$/hour)	Weekly Hours	Usual Fee, Office Visit (\$)	Usual Fee, Hospital Visit (\$)
Self-Employed Physicians					
< 3	88	36	63	29	31
3 to 5	108	46	61	29	33
6 to 10	108	44	59	29	33
11 to 15	111	42	59	28	31
16 to 20	107	43	57	28	31
21 to 30	103	42	56	27	29
> 30	81	38	51	27	29
Salaried Physicians					
< 3	74	34	58		
3 to 5	94	40	55		
6 to 10	97	42	53		
11 to 15	104	42	53		
16 to 20	102	42	54		
21 to 30	98	42	52		
> 30	95	43	46		

NOTE: Physician fee information was not collected for salaried physicians in the PPCIS. Office fees refer to charges for an intermediate visit in the office with an established patient. Hospital fees refer to an intermediate follow-up visit in the hospital.

Fees and Wages of Self-Employed Physicians

A Medicare reimbursement differential for new physicians is premised on the belief that these inexperienced physicians earn lower fees or wages in the private sector than their more experienced counterparts. If new physicians have lower opportunity costs for treating Medicare patients than experienced physicians, then some reimbursement differential might be warranted. Without the differential, new physicians would have a relative earnings advantage in treating Medicare patients instead of other patients. First, consider the case without physician assignment where physicians bill the patient for that portion of fees not covered by Medicare reimbursement (an arrangement known as balance billing). With equal reimbursement, Medicare patients would have incentives to seek treatment from lower-cost new physicians because their out-of-pocket expenses would be less than for an experienced physician. Similarly, if new physicians had lower costs, they would be more likely to accept assignment than experienced physicians if reimbursement did not account for the differential cost.

If opportunity costs are not less for new physicians, then the reimbursement differential would discourage new physicians from treating Medicare patients. New physicians would be less likely to accept assignment because reimbursement would cover a relatively smaller share of costs than for experienced physicians. Without assignment, patients of new physicians would bear greater out-of-pocket expenses than those of experienced physicians, so Medicare patients would be discouraged from visiting new physicians.

Physician opportunity costs are a key factor in the provision of Medicare health services, but those costs are not readily discernible. Two measures of opportunity cost are available from the PPCIS: physician fees (usual fee for intermediate office and hospital visits) and wage rates. Both measures have shortcomings. At first glance, fees might seem like an ideal measure of the opportunity costs of providing services to a Medicare patient. About one-third of all physicians accept Medicare assignment, however, so their opportunity costs must be less than their usual fees. Another problem with fees is that observed office and hospital fees might be unrepresentative of physicians' overall fee schedules. Physicians provide many services, and the markups on some services might differ from those for routine visits.¹⁵ If so, differences between the fees of

¹⁵One pricing strategy would be to set office visit fees at low levels to attract business and then recoup costs with high prices on other services. The strategy is based on the belief that new patients can readily compare the prices of office visits but will not anticipate specific treatments that may be required later. Once these patients become established to the practice, they may be unwilling to switch physicians or search for lower priced services.

two groups of physicians may be due to different pricing strategies, although their overall price schedule and opportunity costs of providing medical services may be comparable. Another reason office fees might not reflect opportunity costs is because different physicians may be providing different quantities of health care per visit, such that the price per unit of health care may vary more or less than the price per office visit.

Physician wage rates are another measure of physician opportunity cost. The wage rate is estimated by dividing annual earnings by annual hours worked (annual weeks times usual weekly hours). The wage rate would be a good measure of opportunity costs if physicians performed piecework (hours), and all pieces could be sold at the same price (wage rate). In reality, physicians provide a lot of different services. They may command a higher premium per unit time for some services than for others, but they may be unable to specialize in these high premium services because of the size of their practices. The wage rate reflects average returns over a variety of services provided at a variety of prices per unit time. As a result, wage rate differences between two groups of physicians may not accurately reflect the marginal opportunity costs of each group in providing services to Medicare patients.

As illustrated, physician fees and wages are not ideal measures of physician opportunity cost. Nevertheless, they do provide the best empirical evidence of the likely effect of a reimbursement differential for new and experienced physicians. Neither measure is better a priori. If physicians provided only one service, then their fees would be perfectly correlated with their wages. In the PPCIS data, the simple correlation of physician wage with usual office and hospital fees is only 4 and 2 percent, respectively. Therefore, we use both wages and fees as dependent variables.

A multivariate regression model is used to examine how physician fees and wage rates vary with experience after controlling for physician practice type, specialty, physician attributes, and characteristics of the county in which the physician practices. The regression framework closely resembles previous research (Steinwald and Sloan, 1974; Kehrer, 1976; Sloan, 1982; Ohsfeldt and Culler, 1986; Willke, 1987; Marder and Willke, 1989), but this study focuses more directly on the relationship between experience and fees or wages at the start of physicians' careers. Another unique feature of this study is that comparable regression specifications are estimated for office fees, hospital fees, and wage rates, so we can readily compare coefficients across equations and assess whether a given characteristic has the same effect on fees and wage rates. The regression analysis was restricted to a group of fulltime physicians, that is, those working more than 45 weeks in the previous year and averaging more than 35 hours per week, so the

results would not be tainted by parttime physicians whose pricing and earnings history might be erratic.

The regression results for self-employed physicians are reported in Table 4.4. The results confirm the pattern observed in Table 4.3; fees vary little with physician experience, but physician wage rates do increase sharply at low experience levels. The wage results suggest that the wage rate of first-year physicians is almost 30 percent less than that of physicians with about 15 years' experience (the overall average). The gap between the wages of new and experienced physicians declines rapidly as experience increases. Other things equal, second-year physicians earn 17 percent less than the average physician with the gap declining to 5 and 2 percentage points for physicians with 5 and 10 years of practice experience, respectively.

The wage rate results from Table 4.4 suggest that first-year physicians may have lower opportunity costs for treating Medicare patients than experienced physicians. In the absence of a differential, new physicians would have relatively greater incentives to accept assignment or seek out elderly patients than experienced physicians. The incentive is mitigated by the fact that the cost differential declines with experience, so that the extra incentive for treating Medicare patients declines rapidly as the physician gains experience.

The results on physician fees present a much different picture, however. Other things equal, physician fees are invariant to experience, so a Medicare reimbursement differential for first-year physicians will provide substantial disincentives at the margin for these physicians to treat elderly patients. New physicians would be less likely to accept assignment than experienced physicians because reimbursement is relatively much lower in comparison with their usual fees. Among physicians not accepting assignment, elderly patients would be less likely to choose new physicians because these patients would bear larger out-of-pocket expenses than with an experienced physician.

The results for physician fees and wage provide contradictory evidence on the efficacy of a new physician reimbursement differential. Another approach is to consider the decisions of physicians themselves to accept Medicare assignment in the absence of a differential. A recent study of physician assignment decisions (Mitchell et al., 1988) shows that physician age (an alternative measure of experience) has no effect on assignment.¹⁶ Since Mitchell et al. control for physician age and not experience, we estimated a multivariate logistic model of physician assignment on the same set of variables reported in Table 4.4. The

¹⁶Mitchell et al. also rely on the PPCIS database.

Table 4.4
Regression Results for Self-Employed Physicians

Variable	ln(office fee)		ln(hospital fee)		ln(wage)	
Physician experience:						
1st year experience	-.02395	(-0.55)	-.02456	(-0.42)	-.20485	(-2.45)*
2nd year experience	.02779	(0.66)	-.04213	(-0.77)	-.09547	(-1.17)
Experience	.00070	(0.28)	.00001	(0.00)	.01070	(2.19)*
Experience squared	-.00001	(-0.15)	-.00004	(-0.51)	-.00029	(-2.47)*
Practice type:						
Age 3-5 years	-.02068	(-0.80)	-.01789	(-0.52)	.13988	(2.87)*
Age 6-10 years	-.06267	(-2.30)*	-.05091	(-1.38)	.17212	(3.32)*
Age 11-20 years	-.07002	(-2.41)*	-.07614	(-1.94)	.13836	(2.52)*
Age > 20 years	-.07929	(-2.29)*	-.07057	(-1.51)	.12969	(1.94)
Sole proprietorship	-.03126	(-1.24)	-.01611	(-0.48)	-.18889	(-3.75)*
Corporation	-.02257	(-0.93)	-.00888	(-0.27)	-.02527	(-0.52)
Participant in IPAs	-.01716	(-0.86)	-.04080	(-1.53)	-.07801	(-1.98)*
Participant in PPOs	.00479	(0.22)	-.05154	(-1.87)	.05514	(1.35)
Participant in HMOs	.05039	(2.45)*	.02867	(1.05)	.07470	(1.89)
Patient characteristics:						
% no insurance	-.00178	(-2.44)*	-.00225	(-2.32)*	-.00207	(-1.57)
% Medicare Part B	-.00037	(-0.85)	-.00188	(-3.18)*	.00101	(1.15)
% Medicaid	-.00245	(-3.41)*	-.00193	(-1.96)*	-.00050	(-0.35)
% Blue Shield	-.00098	(-1.96)*	-.00164	(-2.38)*	-.00020	(-0.21)
% of patients poor	-.00012	(-0.29)	-.00074	(-1.29)	-.00076	(-0.90)
Physician specialty:						
General practice	-.12002	(-3.78)*	-.01979	(-0.48)	-.24335	(-5.12)*
Family practice	-.11411	(-3.79)*	-.01626	(-0.42)	-.29628	(-6.97)*
Internal medicine	.06296	(2.20)*	.13837	(3.82)*	-.18489	(-5.00)*
Cardiovascular	.16777	(4.46)*	.19636	(4.11)*	.02434	(0.33)
Pediatrics	-.10887	(-3.18)*	.03153	(0.72)	-.16939	(-3.07)*
Other medical	.08351	(2.60)*	.19289	(4.71)*	.02918	(0.59)
General surgery	-.08053	(-2.53)*	-.04012	(-0.92)	.01735	(0.37)
Orthopedic surgery	.07142	(1.92)	-.04365	(-0.85)	.31957	(5.11)*
Ophthalmology	.16106	(4.32)*	.07952	(1.50)	.17096	(2.60)*
Urological surgery	-.04166	(-1.16)	-.00486	(-0.10)	-.00339	(-0.05)
Ob-gynecology	.13205	(4.20)*	.06303	(1.39)	.09831	(2.04)*
Other surgery	.00826	(0.22)	.03645	(0.73)	.18697	(3.08)*
Psychiatry	-.09189	(-0.63)	-.37633	(-1.77)	-.07612	(-1.58)
Anesthesiology	-.07925	(-0.32)	-.38543	(-1.31)	.34876	(6.82)*
Pathology	.19806	(1.86)	.14125	(1.01)	.16863	(2.17)*
Radiology	-.01834	(-0.10)	.11465	(0.53)	.24095	(3.74)*
Physician characteristics:						
Accepts assignment	.01256	(0.85)	.03428	(1.74)	.00770	(0.27)
Age at licensure	.00183	(0.70)	.00386	(1.08)	-.02162	(-4.27)*
Foreign med school	.02138	(0.99)	.05201	(1.83)	-.05590	(-1.34)
Married	-.00431	(-0.21)	.04372	(1.59)	.07144	(1.73)

Table 4.4 (continued)

Variable	ln(office fee)		ln(hospital fee)		ln(wage)	
Hispanic	.02098	(0.50)	.06557	(1.08)	-.19120	(-2.21)*
Black	.09462	(2.27)*	.08374	(1.54)	-.21736	(-2.62)*
Asian	.00419	(0.15)	.00430	(0.12)	-.07671	(-1.44)
Female	-.02217	(-0.70)	.04724	(1.12)	-.09875	(-1.75)
Board certification	.04066	(2.46)*	.01381	(0.62)	.02879	(0.93)
Market characteristics (county):						
Northeast	-.12440	(-5.54)*	-.11252	(-3.68)*	-.05089	(-1.17)
Northcentral	-.30150	(14.16)*	-.30667	(10.96)*	.06793	(1.67)
South	-.17761	(-8.96)*	-.17457	(-6.64)*	.02688	(0.71)
% urban	.00115	(3.04)*	.00243	(4.76)*	-.00058	(-0.78)
% in poverty	.00605	(3.33)*	.00608	(2.47)*	.00281	(0.81)
Per capita income	.00003	(6.23)*	.00003	(4.94)*	.00001	(1.51)
Physicians/ population	.01563	(1.78)	-.00798	(-0.62)	-.02260	(-1.40)
% over age 64	.00210	(1.03)	.00565	(2.03)*	-.00358	(-0.87)
Intercept	2.92266	(27.45)*	2.82644	(19.76)*	3.84318	(19.10)*
Mean Y	3.27194		3.34970		3.47270	
R-square	.4136		.3260		.2388	
Degrees of freedom	1560		1265		1735	
Sample size	1612		1317		1787	

NOTE: The reference categories are practice age 0 to 2 years, partnership, % of patients with private insurance other than Blue Shield, other specialties, whites, and West region. Starred entries are significant at the $\alpha = 0.05$ confidence level. The practice age and physician specialty variables are parameterized so that the coefficients for a particular group indicate whether the fees or wages of the group differ significantly from their overall averages. T-statistics are reported in parentheses.

results indicate that physician experience has no significant effect on the assignment decision (see Appendix B). In the absence of a reimbursement differential, first-year physicians were neither more nor less likely to accept Medicare assignment than experienced physicians. The old policy was providing comparable incentives for new and experienced physicians to treat the elderly, and an experience differential would apparently discourage new physicians from providing a similar level of care.

Other than physician experience, the results in Table 4.4 indicate that a number of factors affect physician office fees. New practices have office fees about 7 percentage points higher than practices that are more than 5 years old. This surprising result is consistent with the tabular evidence in Table 4.3. We had expected that new practices would have low fees to attract business and build an established clientele. Hospital fees do not vary significantly by practice age.

As expected from previous research (Steinwald and Sloan, 1974; Sloan 1982), insurance coverage of the patients has a significant effect on office fees. Physicians with a relatively larger share of their patients with no insurance or Medicaid coverage have lower fees than those with private insurance coverage. Fee reimbursement is most generous for patients with private insurance coverage, so it is not surprising that physician fees are positively associated with the percentage of patients covered by private insurance companies.

Office fees vary substantially by specialty. Other things equal, physicians in general practice, family practice, pediatrics, and general surgery have office fees that are 8 to 12 percentage points below average. The fees of internal medicine specialists are about 6 percentage points above average, while those of cardiologists, ophthalmologists, and obstetricians are about 15 percentage points above average.

Physician office fees vary little with physician characteristics but substantially with market characteristics. The only significant physician characteristics included in the model indicate that the fees of black physicians are about 9 percentage points higher than those of white physicians and that board-certified physicians charge fees about 4 percentage points higher than non-certified physicians. Fees differ substantially by region of the country with fees 30 percentage points lower in the Northcentral region than in the West. Office fees are positively related to the percentage of the population that is urban and poor and with per capita income.

The regression equation for hospital fees contains fewer significant variables but the pattern of coefficients is similar. Physician experience has little effect on either hospital or office fees. Hospital fees are also similarly lower in established practices than in new ones, although the difference is not significant. An increase in the share of the physicians' patients with Medicare Part B coverage is inversely associated with hospital fees.

Physician wages vary substantially with the age of their practice. Physician wages are 14 percentage points higher in a practice that is 3 to 5 years old than in a practice less than 3 years old. Wages rise another 3 percentage points for physicians in practices 6 to 10 years old and remain substantially above those of physicians in new practices. Physicians who are sole proprietors earn wages about 19 percentage points below those in partnerships.

Average wage rates of physicians, like their fees, differ substantially by specialty. The wages of physicians in general practice, family practice, internal medicine, and pediatrics are 24, 30, 18, and 17 percentage points below the average physician. Above-average wages are earned by orthopedists (32 percent),

ophthalmologists (17 percent), obstetricians (10 percent), and hospital-based specialties (ranging from 17 percent for pathologists to 35 percent for anesthesiologists).

A physician characteristic having an interesting effect on wages is age at first licensure. The regression results indicate that other things equal a physician's wage rate declines about 2 percentage points per year increase in age at licensure. Perhaps physicians who are licensed later have slightly lower skills, so they earn lower wage rates. Hispanic and black physicians' wages are 19 and 22 percentage points, respectively, below those of non-Hispanic whites. The results show that women's wage rates average about 10 percentage points below those of men, but the coefficient is not statistically significant.

The evidence from self-employed physicians provides little support for an experience differential in physician Medicare reimbursement. Physician fees are slightly higher for new physicians than for experienced physicians. A 20-percent differential in Medicare reimbursement means that the out-of-pocket expenses for a Medicare patient will be substantially greater if they see a new physician instead of an experienced physician.

Before the differential was enacted, new physicians were no more likely to accept assignment than experienced physicians. This suggests that the old policy was not overcompensating new physicians relative to experienced physicians, and we would expect that the 20-percent differential would provide new physicians with substantial disincentives to treat Medicare patients.

The wage rate evidence does show that first-year physicians earn substantially less than experienced physicians, but the wage evidence suggests that Medicare reimbursement should account for a variety of physician practice characteristics that have a substantial bearing on physician wages. If a new physician joins an established practice, his or her wage rate would be substantially above that of a new physician at a new practice (especially if the new practice is also a sole proprietorship). A single new physician differential gives first-year physicians in sole proprietorships or new practices substantially more incentive to provide care to the elderly than new physicians in other settings.

Wages of Salaried Physicians

The wage profile of salaried physicians also provides some insight into the relative productivity of new versus experienced physicians. Because institutions must compete for physicians, the institutional earnings profile will reflect any noninstitutional market premium for experienced physicians. Institutions will

also have incentives to pay experience premiums if experienced physicians can provide care more efficiently than new physicians.

Unfortunately, wage profiles of salaried physicians will not necessarily provide an accurate indication of relative physician productivity. The earnings differential between new and experienced institutional physicians may understate their productivity differences, because new physicians may be treating a relatively less skill-intensive case mix than experienced physicians. The administrative responsibilities of experienced physicians may also differ from those of new physicians in these institutional settings, so salary and wage differences may reflect more than skill involved in providing a unit of medical services.

A different sort of problem may occur because salaried physicians may be inherently quite different from self-employed physicians who provide fee-for-service care to the elderly. Some physicians may choose salaried positions because they have below-average opportunities in the fee-for-service market. Consequently, the experience differential among salaried physicians may not accurately reflect opportunities in the fee-for-service market. Nevertheless, there may be some probation effect in experience differentials among salaried physicians, because employers are initially unsure about physician quality and pay less until they find out.

The wage regression results for salaried physicians are reported in Table 4.5, along with the corresponding results for self-employed physicians previously reported in Table 4.4. The results show that the wages of salaried physicians similar to those of self-employed physicians rise rapidly at initial experience levels. Salaried physicians in their first year of medical practice earn wages about 45 percent less than those of the average salaried physician with about 12 years of experience. The differential falls to 25 percent in the second year, 7 percent in the third year, and only 4 percent in the fifth year. New salaried physicians start much further below average than their self-employed counterparts but their wages grow much more rapidly.

Wage rates also differ substantially for salaried physicians. Wages are 16 to 35 percentage points below average for specialists in general practice, family practice, pediatrics, and psychiatry. Above-average wages are earned by physicians in the hospital-based specialties of anesthesiology (28 percent), pathology (17 percent), and radiology (34 percent).

Table 4.5
Wage Regression Results for Self-Employed and Salaried Physicians

Variable	Self-Employed ln(wage)		Salaried ln(wage)	
Physician experience:				
1st year experience	-.20485	(-2.45)*	-.35432	(-4.79)*
2nd year experience	-.09547	(-1.17)	-.16492	(-1.99)*
Experience	.01070	(2.19)*	.01561	(2.23)*
Experience squared	-.00029	(-2.47)*	-.00029	(-1.51)
Practice type:				
Age 3-5 years	.13988	(2.87)*		
Age 6-10 years	.17212	(3.32)*		
Age 11-20 years	.13836	(2.52)*		
Age > 20 years	.12969	(1.94)		
Sole proprietorship	-.18889	(-3.75)*		
Corporation	-.02527	(-0.52)		
Participant in IPAs	-.07801	(-1.98)*		
Participant in PPOs	.05514	(1.35)		
Participant in HMOs	.07470	(1.89)		
Employer (salaried):				
Hospital			-.04847	(-1.18)
Clinic			-.04057	(-0.73)
HMO			.08284	(1.41)
Patient characteristics:				
% no insurance	-.00207	(-1.57)		
% Medicare Part B	.00101	(1.15)		
% Medicaid	-.00050	(-0.35)		
% Blue Shield	-.00020	(-0.21)		
% of patients poor	-.00076	(-0.90)		
Physician specialty:				
General practice	-.24335	(-5.12)*	-.34824	(-4.19)*
Family practice	-.29628	(-6.97)*	-.22596	(-3.57)*
Internal medicine	-.18489	(-5.00)*	-.01774	(-0.33)
Cardiovascular	.02434	(0.33)	-.06830	(-0.67)
Pediatrics	-.16939	(-3.07)*	-.17803	(-3.10)*
Other medical	.02918	(0.59)	-.04397	(-0.71)
General surgery	.01735	(0.37)	-.04148	(-0.50)
Orthopedic surgery	.31957	(5.11)*	-.05318	(-0.43)
Ophthalmology	.17096	(2.60)*	.24495	(1.95)
Urological surgery	-.00339	(-0.05)	.07420	(0.72)
Ob-gynecology	.09831	(2.04)*	-.03691	(-0.45)
Other surgery	.18697	(3.08)*	.32072	(3.24)*
Psychiatry	-.07612	(-1.58)	-.16363	(-2.76)*
Anesthesiology	.34876	(6.82)*	.27911	(4.18)*
Pathology	.16863	(2.17)*	.16521	(3.48)*
Radiology	.24095	(3.74)*	.33610	(5.71)*

Table 4.5 (continued)

Variable	Self-Employed ln(wage)		Salaried ln(wage)	
Physician characteristics:				
Accepts assignment	.00770	(0.27)		
Age at licensure	-.02162	(-4.27)*	-.00994	(-1.44)
Foreign med school	-.05590	(-1.34)	-.03892	(-0.71)
Married	.07144	(1.73)	.07593	(1.69)
Hispanic	-.19120	(-2.21)*	.01585	(0.13)
Black	-.21736	(-2.62)*	-.18565	(-1.52)
Asian	-.07671	(-1.44)	-.04287	(-0.69)
Female	-.09875	(-1.75)	-.04643	(-0.97)
Board certification	.02879	(0.93)	.02828	(0.65)
Market characteristics (county):				
Northeast	-.05089	(-1.17)	-.01659	(-0.31)
Northcentral	.06793	(1.67)	-.03061	(-0.60)
South	.02688	(0.71)	.01086	(0.20)
% urban	-.00058	(-0.78)	.00122	(1.22)
% in poverty	.00281	(0.81)	-.00203	(-0.47)
Per capita income	.00001	(1.51)	.00001	(0.40)
Physicians/population	-.02260	(-1.40)	-.01826	(-1.11)
% over age 64	-.00358	(-0.87)	.00501	(0.95)
Intercept	3.84318	(19.10)*	3.47881	(13.70)*
Mean Y	3.47270		3.49225	
R-square	.2388		.2474	
Degrees of freedom	1735		815	
Sample size	1787		855	

NOTE: The reference categories are practice age 0 to 2 years, partnership, % of patients with private insurance other than Blue Shield, other specialties, and employed by another physician or corporation (for salaried physicians). Starred entries are significant at the $\alpha = 0.05$ confidence level. The practice age and physician specialty variables are parameterized so that the coefficients for a particular group indicate whether the fees or wages of the group differ significantly from their overall averages.

5. Conclusions

The study provides little support for the existence of a Medicare reimbursement differential for new physicians. First, evidence from the established payment policies of private insurers reveals that experience differentials are the exception rather than the rule. The four large national carriers sampled make no such distinction. The Blue Cross/Blue Shield plans of three states (Maryland, Massachusetts, and Michigan) place limits on new physician customaries, but interviews with other state plans and with the national Blue Cross/Blue Shield Association indicate that experience differentials are not a common practice among most other Blue Cross/Blue Shield plans.

The empirical evidence for a payment differential between new and experienced physicians is contradictory, depending on the measure of opportunity costs. Three measures were used: the usual fee for an office visit, the usual fee for a hospital visit, and an annual wage rate. The study examined differentials in the earnings capabilities between new and experienced practitioners for both self-employed physicians and salaried physicians (only wage information is available for salaried physicians as they are not paid on a fee basis). Both office visit and hospital visit fees are invariant to experience (if anything, fees of new physicians tend to be higher than those of experienced physicians). Wage rates, however, do vary by experience levels, increasing sharply at low experience levels for both self-employed and salaried physicians, with first-year physicians having wage rates 30 percent and 45 percent lower, respectively, than physicians with 15 and 12 years of experience, the average level of experience for the self-employed and salaried sample, respectively.

The analysis on wage rates shows that there are other practice characteristics, such as practice age and solo versus group practice, that have a substantial bearing on physician wages. The current differential based solely on physician experience does not adequately account for differences in these practice characteristics. For example, if a new physician joins an experienced practice, his or her wage rate would be substantially above that of a new physician at a new practice, especially if the new practice is also a sole proprietorship. A single new physician differential gives first-year physicians in solo practice or new practices substantially more incentives to provide care to the elderly than new physicians in other settings. If the intent is to adjust for factors that affect the opportunity cost of physicians, it is not clear why Medicare should prefer a differential based

solely on individual physician experience and not on other relevant practice characteristics.

Another indication of the appropriateness of an experience differential is actual decisions of physicians to accept Medicare assignment before the differential was enacted. Under the assignment program, self-employed physicians agree to accept Medicare reimbursement as payment-in-full for services provided and not bill the patient for the difference between the actual charge and the Medicare approved charge (balance billing). If new physicians had systematically lower opportunity costs than experienced physicians, then they would have been more likely to accept assignment under the old regulations that did not include a reimbursement differential for experience. Our results show that first-year physicians were neither more nor less likely to accept Medicare assignment than experienced physicians. The old policy was providing comparable incentives for new and experienced physicians to treat the elderly, and an experience differential would apparently discourage new physicians from providing a similar level of care.

The evidence suggests that a 20-percent reimbursement differential for new versus experienced physicians is likely to discourage new physicians from treating Medicare patients. It is unlikely that new physicians would completely exclude Medicare patients from their practice, but they may limit the volume of such patients during the first year of their practice to the minimum necessary to qualify as an experienced physician for purposes of Medicare payment in future years.

Appendix A

Notes on Reimbursement Practices of Individual Insurers

The Health Insurance Association of America (HIAA) reports charge profile data for CPT-4 procedure codes by zip code area (listing the charge at various percentiles). Carriers, such as Cigna, use the HIAA charge profiles to set prevailing charges in areas where they do not have a sufficient volume of claims among their own subscribers to calculate a prevailing charge (e.g., Cigna relies on HIAA data if it has fewer than nine claims for a procedure in a zip code area). Each carrier adopts its own percentile level as its prevailing charge. The percentile levels for the prevailing charges noted in the tables reflect the general policy of each carrier. However, some employers request and receive lower prevailings (e.g., the prevailing may be set at the 70th percentile of all charges rather than the 80th percentile).

The California Blue Cross/Blue Shield plan pays the lower of the actual charge or the customary and reasonable charge. To set the customary and reasonable charge, unit values for each CPT-4 code are developed based on the 1974 California Relative Value Scale. Separate sets of unit values are set for each of five service types. Billed charge data are used to revise the unit values (based on a percentile of the submitted charges).

The Kentucky Blue Cross/Blue Shield plan pays the lower of the actual charge or the prevailing fee screen. The prevailing charge is set differently for participating and nonparticipating physicians (whereby participating physicians are defined as those who accept the Blue Cross prevailing as payment in full). For participating physicians (82 percent of the physicians that bill Blue Cross), an individual physician profile is developed that consists of the lower of a self-reported usual fee or the area/specialty prevailing. Participating physicians send in their usual fee for a set of procedures that they select. The prevailing consists of the 90th percentile of all charges for the area and specialty. The individual physician profile is updated at the request of the physician, not more than once a year.

For nonparticipating physicians, new physicians, and for procedures not in a participating physician's fee profile, the UCR pricing file is used. It is the 90th percentile of all charges submitted by all physicians in an area for a procedure.

No specialty differentiation is made for this prevailing file. It is updated once a year. Kentucky BC/BS is the only plan not to use CPT-4 or HCPCS procedure codes. It uses its own Blue Shield codes.

The Massachusetts Blue Cross/Blue Shield plan sets the prevailing at the 90th percentile of customaries (weighted by the number of procedures). The increase in the prevailing is capped and is limited to the increase in the CPI-W less medical care items. Because this cap has been in place a number of years, the effective maximum fee screen is no longer at the 90th percentile, but is lower. The customary for new physicians (50th percentile) is not capped. It could exceed the capped 90th percentile, so the maximum customary for new physicians is equal to the capped 90th percentile.

The Michigan Blue Cross/Blue Shield plan pays the lower of the actual charge, the customary, or a maximum fee screen (based on relative value units). The customary for experienced physicians is the mode of all charges submitted in the base year. The customary for new physicians is the average of all customaries. The new physician customary is based on the customaries for all physicians and not just the customaries for physicians within the same specialty. Experienced physicians that start to perform new procedures are paid the lower of the actual billed charge or the maximum relative value unit fee screen.

The New York Empire Blue Cross/Blue Shield plan calculates one prevailing charge for specialists and another prevailing charge for nonspecialists. To be considered a specialist, the physician must be board certified. Separate prevailing fee screens are developed by place of service (e.g., physician office or hospital outpatient department).

Blue Shield of Western New York calculates customary charges based on a physician's individual charge history only for highly specialized physicians who are the only ones that perform a particular procedure. The plan does not calculate customaries for most physicians and instead pays the lower of the actual billed charge or the prevailing charge. It updates prevailing charges only if the old prevailing falls below 80 percent of the average charge. The updates are decided on a procedure-by-procedure basis (based on the volume of procedures and number of physician complaints received).

Appendix B

The Decision to Accept Assignment Under Medicare

Table B.1
Logit Regression Results for Accepting Medicare Assignment

Variable	Probability of Accepting Assignment	
	Coefficient	T-Statistic
Physician experience:		
1st year experience	0.2900	0.86
2nd year experience	-0.4491	-1.29
Experience	0.0105	0.54
Experience squared	-0.0003	-0.54
Practice type:		
Age 3-5 years	-0.0496	-0.26
Age 6-10 years	-0.2472	-1.21
Age 11-20 years	-0.3897	-1.80
Age > 20 years	-0.3848	-1.46
Sole proprietorship	-0.2639	-1.33
Corporation	-0.0966	-0.51
Participant in IPAs	0.1022	0.67
Participant in PPOs	0.5257	3.34
Participant in HMOs	0.3605	2.39
Patient characteristics:		
% no insurance	0.0037	0.68
% Medicare Part B	0.0141	4.12
% Medicaid	0.0115	1.97
% Blue Shield	0.0053	1.35
% of patients poor	0.0150	4.72
Physician specialty:		
General practice	0.2770	1.50
Family practice	-0.5606	-2.97
Internal medicine	-0.1242	-0.85
Cardiovascular	-0.0318	-0.13
Pediatrics	-2.0989	-5.72
Other medical	0.0255	0.14
General surgery	0.7420	4.27
Orthopedic surgery	0.4465	1.92
Ophthalmology	0.0279	0.11
Urological surgery	-0.2932	-1.25

Table B.1 (continued)

Variable	Probability of Accepting Assignment	
	Coefficient	T-Statistic
Physician specialty (cont.):		
Ob-gynecology	0.4641	2.51
Other surgery	0.1105	0.49
Psychiatry	0.1797	0.90
Anesthesiology	-0.6291	-2.86
Pathology	1.0588	3.82
Radiology	0.8831	3.83
Physician characteristics:		
Age at licensure	0.0185	0.92
Foreign medical school	0.2793	1.71
Married	0.2713	1.71
Hispanic	0.5617	1.76
Black	1.1138	3.49
Asian	0.7004	3.45
Female	-0.0969	-0.41
Board certification	-0.0546	-0.43
Market characteristics (county):		
Northeast	0.5878	3.51
Northcentral	-0.0529	-0.33
South	-0.1698	-1.13
% urban	0.0056	1.84
% in poverty	-0.0302	-2.16
Per capita income	-0.0001	-1.94
Physicians/population	0.0149	0.23
% over age 64	-0.0340	-2.08
Intercept	-1.4162	-1.74
Mean Y	0.3317	
R-square	0.1297	
Degrees of freedom	2099	
Sample size	2150	

NOTE: The reference categories are practice age 0 to 2 years, partnership, % of patients with private insurance other than Blue Shield, other specialties, whites, and West region. Starred entries are significant at the $\alpha = 0.05$ confidence level. The practice age and physician specialty variables are parameterized so that the coefficients for a particular group indicate whether the fees or wages of the group differ significantly from their overall averages.

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