Variations in the use of physician services by Medicare beneficiaries

by Miron Stano and Sherman Folland

Variations in the utilization of physicians' services by Medicare enrollees in Michigan are examined in this article. Two measures of market-area utilization are estimated. One is the standard per capita utilization rate, which has been the common focus of many small area variation studies. The second measures the intensity with which physicians treat their patients and can be taken as an indicator of the so-called practice-style phenomenon. The results show that, although substantial intermarket variation in per capita utilization is found, the variations are not as large as one might expect and are considerably less than the variations in per capita utilization for Michigan's Blue Shield population. More important, the relationship between a market's per capita utilization and intensity of care of primary care physicians is insignificant. The relevance of these findings, especially within the context of the practice style hypothesis and policy proposals that would establish physician practice norms, are discussed.

Introduction

Numerous studies over the last two decades, in other countries as well as in the United States, have found wide variations in the per capita utilization rates of many medical and surgical procedures. Though many have contributed, this variations phenomenon has come to be most closely associated with the work of Wennberg and his coinvestigators (Wennberg and Gittlesohn, 1980; Wennberg and Gittlesohn, 1982; McPherson et al., 1982). Wennberg has argued that the substantial variations cannot be adequately explained by differences in population characteristics such as age or morbidity (Wennberg, 1987) and has proposed that the most important factor is the style of medical practice (Wennberg and Gittlesohn, 1982). A wide variety of acceptable practice style is made possible by the substantial uncertainty physicians face in diagnosing disease and prescribing appropriate treatment (Wennberg, Barnes, and Zubkoff, 1982). The proposition that variations in per capita utilization are important because of such factors may be referred to as the practice style hypothesis.

In a recent article, Stano examined Wennberg's practice style hypothesis by analyzing not only intermarket variations in per capita utilization, the standard measure in studies of this kind, but also variations in the intensity with which physicians treat their patients (Stano, 1986). For a large sample of procedures provided to regular Michigan Blue Shield subscribers in 1980, it confirmed the wide intermarket differences in per capita utilization rates that were expected on the basis of previous research. However, the study also revealed substantial intramarket variations in the intensity of care rendered by physicians to their patients. More important, no clear relationships were found between per capita utilization and either the average intensity at which physicians treat their patients or the degree of intramarket variation in this intensity. This evidence suggests that practice style may not be as important in explaining the variations phenomenon as has been advanced in the literature. The article also suggests that patients in high-care areas tend to see a higher number of providers, a potentially significant alternative factor in explaining differences in per capita utilization.

The present study applies the Stano (1986) methodology to data for Michigan's Medicare enrollees and further investigates the practice style hypothesis in the Medicare context. This analysis both illuminates the practice style issue and bears on public policy concerns over Medicare cost containment. With especially rapid rates of increase in health care spending by the elderly (Waldo and Lazenby, 1984)[1] and the consequent budgetary pressures on the Medicare program, the search for cost-saving strategies has led to a growing concern over the extent to which the variations phenomenon also applies to medical services provided to Medicare beneficiaries.

For example, a recent contribution on Medicare Part B utilization (Chassin et al., 1986) found wide variation between markets in the per capita utilization rates of many procedures. Across 13 large areas of 8 States, the per capita utilization rate in the highest use area was at least three times the rate in the lowest area for 67 of the 123 medical and surgical procedures that were examined. Not surprisingly, the variation between areas, as measured by the coefficient of variation[2], was high for many procedures. The value of this index was greater than 30 for 76 of the 123 procedures, and averaged 44 for the set of 117 procedures that excluded physician office visits.

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[1]Spending for hospital care increased at an annual rate of 16 percent between 1977 and 1984, and spending for physician services increased at an annual rate of 18 percent over the same period. Even after adjusting these values to a per capita basis, they are greater than the per capita increases for the rest of the population.

[2]This is defined as the standard deviation divided by the mean. The quotient here has been multiplied by 100.

The present study extends this line of research in several important ways. It uses geographic areas of analysis designed to represent physician market areas as opposed to the larger areas used in the Chassin et al. (1986) analysis. The per capita utilization variable is an aggregate across 311 procedures based on a relative value scale, which not only standardizes heterogeneous procedures into a single scale but also permits an assessment of the degree to which variations in individual procedures wash out in the aggregate. More importantly, in addition to per capita utilization, it presents direct evidence on variations in a practice style indicator—intensity of patient care. This intensity is measured by the average number of relative value units a physician provided per patient for those patients treated in 1980. This measure permits an assessment of the degree to which practice style accounts for variations in per capita utilization.

The results show that per capita utilization rates for Medicare Part B, when aggregated through a relative value scale, are more uniform than one might expect from the existing literature. The Medicare utilization rates are considerably more uniform than a comparable index of use by regular Blue Shield members. Moreover, as is the case for Blue Shield beneficiaries, there are substantial within-market variations in intensity of care. Finally, unlike the suggestions by Wennberg and others, we find that the relationship between intensity of care and per capita utilization is weak to insignificant.

Data and methods

To permit comparisons with the data reported in the Michigan Blue Shield study, we identified 311 Medicare procedures as being comparable in scope to the 424 high-frequency or high-charge procedures used in that analysis.[3] The Medicare files define groups of procedures somewhat differently from the Blue Shield files so that the 311 Medicare procedures represent the same set of procedures as the 424 Blue Shield procedures. Thus, the utilization rates for Medicare can be directly compared with those for Blue Shield. The 311 procedures were dominated by surgical procedures and accounted for 35 percent of all Medicare Part B charges in Michigan in 1980.

To standardize the heterogeneous services into a single measure, the 311 procedures were aggregated on the basis of relative value units (RVU's). By this method, an "office visit for an established patient-brief service" was chosen as the base unit and was arbitrarily assigned the value of 1. Then the weight for the *ith* procedure was taken as the statewide relative charge for the *ith* procedure. For example, a procedure whose average statewide charge was 10 times the charge for a brief office visit was given the weight of 10. Thus, the total RVU's in each utilization measure represents the total "brief office visit equivalents."

We examine this RVU aggregate, not because it is inherently always superior to analysis of individual procedures, but because it complements previous research in several useful ways. First, by reducing the data to a single measure, the data become easily understood and the index is readily applied to various analyses. Second, the data provide a basis for assessing the average cost implications of inter-area variations.[4] Finally, if an area tends to have higher than average utilization for one set of procedures but lower for another, the variation in RVU's (and consequently in expenditures) will be less than that reported for many individual procedures. Thus, the RVU measure permits some assessment of the tendency for variation in practice style to "wash out."

Two measures of utilization were derived using the 1980 RVU data. One measure, the per capita utilization, is defined as the total number of RVU's generated by physicians in an area for that year divided by the area's effective eligible population.[5] The second measure is the intensity of care. Intensity of care is derived for each physician in the data set. It is defined as the total number of RVU's the physician provided divided by the total number of different patients seen by the physician in that year. This figure represents the average number of RVU's provided by physicians to their patients in 1980. By computing this value for every physician in the sample, both the average intensity with which physicians render care in each area as well as the within-area variations in intensity can be estimated. The intensity measure is used in this study as an index of the standard of practice. Its intramarket variation is taken as an indicator of the extent to which that standard varies.

We stress that, although the two utilization measures derive from the same RVU data, they are not equivalent measures. Ceteris paribus, the per capita utilization rate will be a direct function of the average intensity of care, but it will also vary directly with the proportion of eligible enrollees that visit physicians and the average number of physicians that treat those patients who have sought care. Thus, when all things are considered, per capita utilization and intensity are not necessarily positively correlated.

The data for both measures are presented by physician market areas derived on the basis of the economics of location and adjusted for patient bordercrossing. To devise the market areas, data on patient origin and place of service were arrayed for each of Michigan's 83 counties forming an 83 x 83 matrix. The matrix recorded the percentage of relative value units the residents of each county received from every other county. Fifteen central places were identified through these data. The major weight in determining central places was placed on the ability of the county to serve its own patients. In most cases, the central place counties were those that provided at

[3]More detailed explanations of the procedures and the selection process are found in Velky, Stano, and Cromwell (1985).

[4]A discussion of the properties of relative value scales is found in Juba and Hadley (1985).

[5]Effective population is defined in the discussion on bordercrossing.

least 75 percent of the care received by patients originating from that county. Noncentral place counties were then assigned to contiguous central places based on the percentage of care provided in a manner that generated groups of counties identified as physician market areas. Each market area formed provided at least 80 percent of the patient visits originating from its own population.

In addition, a correction for patient bordercrossing was made by reassigning population to calculate each area's effective population. With this adjustment, if, for example, residents of market A received 10 percent of their RVU's in market B, the latter's effective population was increased by 10 percent of market A's population, and market A's population was correspondingly reduced. Thus, each market received 14 adjustments to account for net export (import) of services to the other market areas.

These bordercrossing adjustments, though sometimes ignored in area studies, are very important. Although there are exceptions, high-unadjusted-use areas tend to be net exporters of patient services. A method that ignores bordercrossing would seriously distort the utilization rates and indicate greater intermarket variation than actually exists. However, we did find that Medicare patients received a greater portion of their care in their own market areas than Blue Shield patients.

In each of the following analyses, the degree of variation is measured by the coefficient of variation (CV). This measure is the ratio of the standard deviation divided by the mean. We have also scaled the coefficient by multiplying the ratio by 100. In dividing by the mean, the coefficient standardizes the measure of variation to account for the scale of the series; thus, two series with different means may be compared. There is no fixed standard for what is a "low" or "high" CV. However, most area studies have reported the CV and that evidence offers some basis for comparison.

Variations in per capita utilization

Presented in Table 1 are the 15 market areas, their physician and Medicare populations, and their utilization rates for both Blue Shield subscribers and Medicare eligibles. The coefficient of variation for the two utilization series is also discussed in Table 1. As one would expect, Medicare utilization is substantially higher, 134 percent higher for the State, than the Blue Shield utilization. However, the patterns for both populations are similar, with the contiguous Detroit, Flint, Pontiac, and Warren markets showing substantially higher utilization than the rest of the State. The populations in these market areas have the highest per capita incomes and are among the most comprehensively insured in Michigan. Other medical resources, such as hospitals and physician specialists, are also concentrated in these areas.

The data also suggest that there are roughly two groups of utilization rates across the State. One is the approximately 19 RVU's per Medicare enrollee found in the high-use areas noted earlier. The other is the approximately 12-15 RVU range found for most of the remaining markets. A third low group might also be identified as including Marquette and St. Joseph. However, these two small population areas are probably anomalies in that they are the two areas in the State that are most sensitive to uncaptured out-of-state service.

Most noteworthy, the variation among the Medicare population is much smaller than the variation among the Blue Shield population. The coefficient of

Table 1

Comparison of Medicare Part B utilization with Blue Shield utilization, by market area: Michigan, 1980

Market area	Physicians per 10,000 population	Medicare population in thousands	Relative value units per effective population	
			Blue Shield	Medicare
Pontiac	22.8	102.2	8.07	18.69
Traverse City	16.9	15.8	4.53	13.01
Lansing	14.8	41.3	5.50	13.62
Ann Arbor	14.6	53.2	6.24	14.46
Detroit	13.2	358.4	7.93	19.86
Muskegon	12.3	23.7	4.71	15.20
Flint	11.9	48.1	7.73	18.84
Kalamazoo	11.3	64.6	4.35	13.16
Petoskey	11.3	25.6	4.36	12.24
St. Joseph	10.6	20.9	3.77	10.54
Grand Rapids	10.5	76.9	4.59	12.27
Saginaw	10.1	46.2	5.18	14.44
Warren	10.1	85.8	8.00	18.63
Marquette	9.4	41.0	2.80	9.83
Bay City	8.5	19.0	5.54	14.15
Weighted State mean	13.4	68.2	6.89	16.15

NOTE: The coefficient of variation for Blue Shield is 30.3; for Medicare, 21.3.

SOURCE: Blue Cross and Blue Shield of Michigan: Data from Blue Shield and Medicare Part B master files, 1980.

variation (CV) for Medicare is 30 percent lower than that for Blue Shield, i.e., 21.3 versus 30.3. The difference in variation shows up in the difference between the higher- and lower-use area. Excluding for the moment the anomalous Marquette and St. Joseph areas, Medicare utilization in the highest area (Detroit) is 62 percent higher than the utilization in the lowest area (Petoskey). By comparison, Blue Shield utilization in the highest area (Pontiac) is 86 percent higher than utilization in the lowest area (Kalamazoo). The result for Michigan suggests that the variations phenomenon may be less of a concern for the Medicare population than for the non-Medicare population.

The relatively lower level of variation for Medicare utilization also suggests that Michigan's Medicare enrollees have not been greatly disadvantaged by uneven access to care. It was possible that variations in Medicare utilization could be exacerbated by variations in the rates at which physicians accept assignment and variations in financial abilities of those patients whose physicians do not accept assignment. However, the relatively low coefficient of variation for Medicare utilization suggests this is not a problem. This result may reflect the relatively high assignment rates that exist in Michigan. Physicians accepted assignment on claims accounting for 73 percent of Medicare Part B charges in 1980, a figure that was much higher than the rates in most other States as well as the national average. In 1978, the national average was 49.6 (Ferry, 1980). In addition, Medicare fee discounts were not substantial. We estimated that Blue Cross payments per RVU were only 9 percent higher than Medicare payments per RVU. This figure is considerably less than the 20 to 30 percent differences found in one national study (Cromwell and Burstein, 1985). So the relative financial difference to physicians of treating Medicare versus Blue Shield patients was small.

Secondly, the coefficient of variation for the Medicare population appears relatively low in comparison to other reported figures. As noted previously, the coefficients of variation reported by Chassin et al. (1986) for Medicare patients for 117 individual procedures averaged 44. Although the differences could result from underlying differences in the populations and the physicians, another plausible explanation is at hand in the process of aggregation. If levels of utilization of individual procedures are not highly correlated, the variations will tend to be dampened in an aggregate measure. It has been reported elsewhere that areas that are high in one set of procedures tend to be low in others (Chassin et al., 1986). Thus, the aggregate RVU measure will be less volatile. In consequence, and to this degree, variations in average costs will tend to be less than might have been expected based on previous reports for individual procedures.

This result for RVU's helps to illuminate one aspect of the variations phenomenon, but it does not invalidate Wennberg's (1984) policy proposals aimed at curbing the degree of variation in individual procedures. If some procedures are indeed excessively used in some areas, a reduction in their utilization could be important for cost savings. However, we underscore Chassin's (1986) warning that the variations phenomenon is easily misinterpreted in this regard. It is too tempting to conclude that inappropriately high levels of care are being rendered in high-use markets. The observed differences might be explained by insufficient use in some markets, differences in the incidence of illness, or other unknown effects.

Variations in intensity of care

A unique feature of this data set is that it contains a direct indicator of practice style. As previously defined, intensity of care measures the number of RVU's provided to an average patient over a period of time by each physician. Variations in intensity may be interpreted as reflecting variations in a physician's propensity to utilize various medical procedures for a given set of indications, hence practice style. Because intensity is calculated for each physician, we can report variations in intensity not only between markets but within markets.

Intensity data for the 15 markets for both primary care physicians and general surgeons are reported in Table 2. The variation in intensity is measured by the coefficient of variation and is reported for both within markets (note the CV columns) and between markets (note the CV row). Sample sizes are reported in parentheses. The physician samples consist of all physicians and doctors of osteopathy who had practiced in the same market area from 1975 to 1980, provided at least 25 RVU's each year, and treated at least 5 different Medicare patients per year.

As is apparent in Table 2, variations in intensity within markets are quite substantial. Coefficients of variation for primary care range from a low of 18.1 to a high of 76.0. The figures for general surgeons are comparably high.

Variation in intensity between markets is relatively low, 14.8 and 18.9 for primary care physicians and general surgeons, respectively. That these coefficients of variation are lower than those for within market variation is to be expected because the market intensity values are themselves sample means. Nevertheless, the levels of between market variation are lower than expected.

Intensity and per capita utilization

The more important issue examined here is whether the differences in physician practice style account significantly for the observed intermarket variations in per capita utilization rates. This issue is pursued by conducting simple bivariate regressions with the dependent variable taken as the Medicare per capita utilization rate and the independent variable the intensity level. These estimates and regressions of

Table 2

Intensity with which physicians treated their patients, by market area

Market area	RVU's per capita Medicare	Intensity RVU's per Medicare patient: Primary care physicians	CV	General surgeons	CV
Pontiac	18.69	8.15 (282)	62.2	12.62 (69)	67.9
Traverse City	13.01	5.69 (42)	28.8	8.12 (13)	39.9
Lansing	13.62	5.57 (81)	54.4	9.68 (12)	48.1
Ann Arbor	14.46	6.15 (126)	42.1	8.08 (43)	43.5
Detroit	19.86	7.70 (550)	53.8	7.78 (157)	41.0
Muskegon	15.20	5.99 (59)	59.6	10.60 (9)	29.0
Flint	18.84	7.30 (163)	76.0	8.62 (38)	52.3
Kalamazoo	13.16	6.03 (108)	27.2	8.26 (42)	39.5
Petoskey	12.24	8.68 (22)	18.1	7.72 (9)	27.5
St. Joseph	10.54	6.59 (18)	26.0	8.33 (9)	36.4
Grand Rapids	12.27	5.82 (147)	38.5	9.50 (64)	68.9
Saginaw	14.44	7.50 (84)	62.2	8.66 (19)	46.5
Warren	18.63	7.02 (148)	43.3	12.80 (49)	86.4
Marquette	9.83	5.94 (51)	30.5	7.11 (18)	40.2
Bay City	14.15	5.86 (46)	27.7	8.05 (13)	30.3
Weighted State mean	16.15	7.22 (1927)	54.8	9.15 (564)	63.7
Coefficient of variation	21.3	14.8	—	18.9	—

NOTES: RVU's are relative value units; CV is the coefficient of variation. The values in the CV columns measure variation within markets. The values in the CV row measure variation between markets. Numbers in parentheses indicate sample sizes.

SOURCE: Blue Cross and Blue Shield of Michigan: Data from Blue Shield and Medicare Part B master files, 1980.

intensity level on the respective intramarket coefficient of variation are reported in Table 3.

For primary care physicians, the coefficient of the intensity variable is positive but the equation overall is not significant at the 5-percent level. Likewise, in the third regression, the primary care intensity level is not significantly related to the primary care intramarket coefficient of variation. Therefore, there is no clear evidence that a more intense style of practice by primary care physicians, the dominant specialty in terms of size, is associated with higher per capita utilization.

As argued elsewhere, higher per capita utilization rates must result from a higher proportion of beneficiaries who seek care, or larger numbers of physicians seen by a typical patient (Stano, 1985).[6] The insignificance of primary care intensity suggests a simple but clear warning that these other sources of variation should not be overlooked. Furthermore, these other sources of variation are not in any obvious sense physician-caused or practice style phenomena, and consequently suggest very different policy responses.

Because many variations studies have focused on surgical procedures, the results for general surgeons are of special interest. For general surgeons, the second and fourth regressions do achieve significance at the 5-percent level. Furthermore, the coefficient for general surgeon intensity (GSINT) is positive and significant as is suggested by the practice style hypothesis. This result should be treated with caution, however, for two reasons. First, sample sizes of general surgeons are somewhat small for some market areas. Second, and more important, the significance of the general surgeon equations is largely the result of two outlier observations, Pontiac and Warren. Both Pontiac and Warren have high per capita utilization that are not only the highest RVU's per patient, but also have higher values for the coefficient of variation of the intensity variable. Without these two observations, the F value for the regression of utilization on general surgeon intensity is only 0.26 and insignificant. Although there is no reason to

Table 3

Regression equations for utilization and intensity, by independent variables

Independent	Dependent variable: MCUT	MCUT	PCINT	GSINT
Constant	4.86	6.01	6.10	5.50
PCINT	1.46 (1.90)	—	—	—
GSINT	—	0.95 (2.21)	—	—
PCCV	—	—	0.01 (0.84)	—
GSCV	—	—	—	0.081 (3.89)
R^2	0.16	0.22	-0.02	0.50
F	3.60	4.91	0.70	15.14
Equation significant at 5-percent level	No	Yes	No	Yes

NOTES: t values are given in parentheses. The F value must equal or exceed 4.67 for the regression to be significant at the 5-percent level given 1 and 13 degrees of freedom. MCUT is Medicare per capita utilization; PCINT is primary care intensity; GSINT is general surgeons intensity; PCCV is coefficient of variation for primary care; GSCV is coefficient of variation for general surgeons.

SOURCE: Blue Cross and Blue Shield of Michigan: Data from Blue Shield and Medicare Part B master files, 1980.

[6]Stano (1985) argued that the second factor, more physicians per patient, is likely to be the more dominant.

exclude these observations, the dependence on so few observations for significance indicates that the relationship is tenuous. The same warning applies to the general surgeons intensity equation. When the two outliers are excluded, the equation F value drops from 15.14 to 0.70.

Finally, though not reported in Table 3, we also developed equations to predict the individual physician values of the intensity variable for both primary care and general surgeons. Independent variables included Medicare fees, a large set of market and economic and demographic variables, indicators of the health status of the population, the availability of physicians, and the availability of hospital beds. None of these variables was consistently significant at the 5-percent level. In particular, the average intensity with which general surgeons practiced was not related to the availability of general surgeons or hospital beds. The average intensity for primary care physicians also was unrelated to their availability or to the availability of other specialists and hospital beds.

Conclusions

We have examined the extent of intermarket variations in per capita utilization of physician services by Michigan's Medicare population. The analysis employed an aggregation of individual procedures by a relative value unit index that reflects relative costs. In addition, the analysis employs physician market areas devised through the economics of location with populations adjusted to reflect patient bordercrossing.

The methods permit comparisons with results reported previously for the Michigan Blue Shield beneficiaries. The results indicate that intermarket variation in utilization for Medicare is substantially less than that for Blue Shield. This suggests, for Michigan at least, that the variations phenomenon is less of a public policy worry for the Medicare population than for the non-Medicare population.

In addition, the level of variation in Medicare utilization is found to be relatively low. The coefficient of variation value of 21 for our aggregate of 311 procedures is less than one-half of the average value reported by Chassin et al. (1986) for coefficients of variation for 117 individual procedures. This result may derive in part from the process of aggregation. If utilization in an area is high for one set of procedures but low for others, the variations phenomenon will tend to wash out in the aggregate. Our result indicates that substantial washing out occurs so that variations in average costs will tend to be less than is suggested by reports on individual procedures. This result does not in itself invalidate policy designed to save costs by curbing variation. If in fact high utilization for some procedures in some areas is unnecessary, then substantial costs may be saved by curbing variation in individual procedures.

A relatively unique feature of our data set is that it contains a direct indicator of practice style. The indicator of practice style is the intensity with which physicians treat their patients, here measured as the number of relative value units each physician delivers to an average patient over a year. There are wide variations within markets in intensity for both primary care physicians and general surgeons. The within-market-area coefficients of variation for the two groups, respectively, had average values of 55 and 64 (although in each case it was less than its previously reported Blue Shield counterpart). The across-market-area coefficients of variation, in contrast, were relatively low, 15 and 19, respectively.

Perhaps the most wide-ranging issue addressed in this article is the relationship between intensity and per capita utilization. We found that primary care physician intensity is not significantly related to Medicare per capita utilization in Michigan. Furthermore, the relationship between general surgeons' intensity and Medicare utilization is only weakly significant and depends critically on two outlier observations. These results present the warning that the practice style hypothesis does not adequately account for the variations phenomenon, at least in Michigan.

Thus, the higher utilization of some market areas must be attributable to other factors, namely a higher proportion of eligible users who seek care or a larger number of physicians who provide care to patients who seek care. Because there is no way of determining from these data whether these factors are physician influenced or originate largely with patients, one cannot conclude that the practice style factor accounts for much of the observed per capita variations. One major influence on patients' decisions to seek care or to seek out more sources of care is likely to be the extent of the availability of medical resources. This accounts for the significant availability effects found in most aggregated studies of per capita utilization, e.g., the classic study by Fuchs and Kramer (1972).[7] Although the practice style factor may be an element of treatment decisions that increase the number of sources of care, as manifested by greater use of referrals to specialists, laboratories, and other diagnostic tests, this is distinct from Wennberg's concept of a largely random phenomenon where physicians have a predilection to practice more intensively in one market, and less so elsewhere. It is also distinct from the positive relationships between per capita rates of surgery and the availability of surgeons and hospital beds that Wennberg and others have found.

Our results do not imply that variations in physician utilization are unimportant. To the extent that one would expect higher per capita utilization of physician care, for whatever reason, to be accompanied by increases in the use of other medical resources, the study of physician care variations is

[7]More recent evidence is found in Stano et al. (1985). A discussion of differences in aggregated versus individual physician estimates of availability effects is given in Stano (1985) and Stano (1987).

especially important. Although physician care may substitute for other forms of care,[8] hospital utilization and physician utilization are likely to be related. With hospital costs for the elderly more than twice the expenditures on physician care (Waldo and Lazenby, 1984), variations in hospital costs resulting from variations in physician care will be magnified. The importance of this magnification is illustrated, for example, in one study of hospital utilization and costs that documented over threefold differences in contiguous markets in 1983 (Schramm, 1985).

Many, however, interpret the variations in per capita utilization as strong evidence of unnecessary utilization. We believe that those who have reached this conclusion, or use the evidence to support a policy of controls that would impose the standards found in the more moderate use markets to other areas, are ignoring the complexity of the issue.[9] In particular, the evidence we have provided indicates that the variations in per capita use in a set consisting of a large number of procedures are not closely related to an index of the practice style factor that was introduced here. Elsewhere, the practice style concept is itself not well defined so that it appears as a catchall for the residual variation in per capita use rates that has not been explained.

The results imply that alternative explanations should be explored more. These alternatives could include the number and types of providers seen, differences in consumer preferences with respect to physician and other forms of care, an uneven diffusion of medical technology, and the structure of public and private insurance programs. Controlling health care expenditures and reducing unnecessary utilization are legitimate priorities, but the focus on local medical standards, physician training, and other dimensions of practice style to explain the disparities in use rates has obscured the role of these potentially important factors.

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[8]Evidence on substitution of physician care for hospital care is provided in McCombs (1984).

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