CALIFORNIA HEALTHCARE FOUNDATION

Same Disease, Different Care:

How Patient Health Coverage Drives Treatment Patterns in California

ISSUE BRIEF

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Introduction

As shown in *The 2005 Dartmouth Atlas of Health Care*, end-of-life hospital use by chronically ill Medicare beneficiaries varies dramatically in California, both by hospital and by region.

In one comparison of traditional Medicare beneficiaries with similar medical conditions, patients at the state's highest-use medical center spent an average of 47 days in the hospital in their last two years of life, while patients at the lowest-use hospital spent only nine days. And Medicare patients in Los Angeles received substantially more hospital care than those in Northern California, averaging nearly 18 days in the hospital in the last six months of life, compared with those in Sacramento (11 days), and San Francisco (13 days).

However, this previous research has not explored whether these patterns of variation in care also occur among patients with other types of insurance coverage.

Do people with comparable medical conditions get different amounts of hospital care, depending on the type of insurance card they carry? Does the experience of HMO patients differ from those in PPOs, or fee-for-service (FFS) plans? And can patients, regardless of insurance type, expect divergent hospital care if they live in Los Angeles, as opposed to Sacramento, or San Francisco?

This issue brief examines hospital use among patient groups in key regions across California, with different types of insurance coverage, to see whether the variations seen among traditional Medicare beneficiaries hold true for them as well. The answer turns out to be yes, although the patterns are slightly different and the degree of variation tends to be less pronounced.

The analysis includes:

- Medicare FFS for beneficiaries who were age 67 or older at the time of death;
- Patients with private FFS or PPO coverage who were between the ages of 55 and 64 at the time of death;
- Medicare HMO patients who were age 67 or older at the time of death; and
- Private HMO enrollees who were between the ages of 55 and 64 at the time of death.

In addition, the analysis includes a separate, statewide comparison between HMO patients seen in Kaiser and non-Kaiser hospitals (see sidebar, pp. 4-5). This analysis covers both Medicare (age 67 or older at time of death) and non-Medicare enrollees (between ages 55 and 64 at time of death) for both Kaiser and non-Kaiser enrollees.

Both analyses took measure of similar patients who died, and who had one of 13 chronic illnesses. The analyses tracked the number of hospital days patients incurred in the last two years of life, as a measure of the intensity of the treatment they received.

Patient Conditions for Survey Comparisons

The study focused on patients with at least one of 13 key chronic illnesses. The conditions are:

- AIDS
- Cancer (solid tumors, leukemia and lymphomas)
- Congestive heart failure
- Coronary artery disease
- Dementia
- Diabetes with end-stage organ damage
- Functional impairment
- Liver disease (severe chronic)
- Nutritional deficiencies
- Peripheral vascular disease
- Pulmonary disease (chronic)
- Renal failure (chronic)

The experiences of these patients allowed for comparisons across California to evaluate the impact of a patient's insurance coverage and location on the amount and duration of their hospital care.

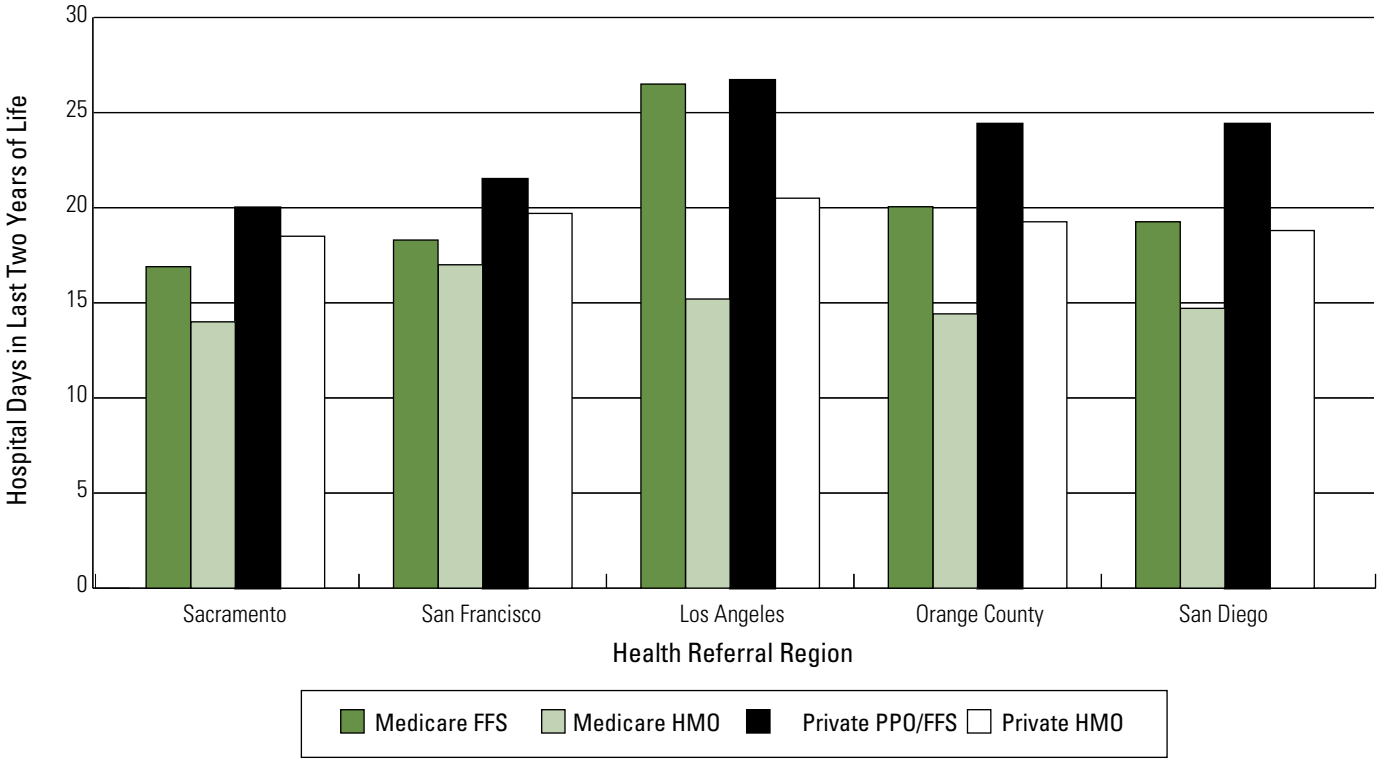
This analysis builds on the work of the Dartmouth Atlas Project. The project began in 1993 as a study of health care markets in the United States, measuring variations in health care resources and their utilization by geographic areas. More recently, the research agenda has expanded to reporting on the resources and utilization among patients at specific hospitals. For more information, see the Dartmouth Atlas Web site at www.dartmouthatlas.org.

Findings

To start, the analysis examined geographic variation across five of California's larger Hospital Referral Regions (HRRs): Sacramento, San Francisco, Los Angeles, Orange County, and San Diego.

As seen in previous research, there are substantial regional differences in hospital use among Medicare FFS patients, along a north-south axis (Figure 1). Patients in Los Angeles have the highest number of hospital days,

Figure 1: Hospital Days in Last Two Years of Life, Five-Region Comparison



Source: Author analysis of Jan. 1, 1999 to Dec. 31, 2003 hospital discharge records from the California Office of Statewide Health Planning and Development.

Table 1: Health Referral Regions

Hospital Referral Region	Number of Hospitals Included in Study, by Insurance Type			
	Medicare FFS	Medicare HMO	Private PPO/FFS	Private HMO
Orange County*	22	19	4	8
Bakersfield	13	7	3	3
Contra Costa County	8	6	2	3
Los Angeles*	95	67	15	26
Modesto	10	3	2	2
Alameda County	11	11	2	3
Sacramento*	25	16	6	9
San Bernardino	21	15	2	8
San Diego*	25	22	6	8
San Francisco*	19	12	3	6
San Jose	11	8	2	5
San Mateo County	7	6	3	3

* Hospital Referral Regions for the study's five-region analysis

Source: Author analysis of Jan. 1, 1999 to Dec. 31, 2003 hospital discharge records from the California Office of Statewide Health Planning and Development.

and patients in Sacramento the fewest. The ratio between average use in the highest and lowest regions here is about 1.6.

Patients in private FFS or PPO plans displayed similar hospital use patterns to the Medicare FFS group. Again, patients in Los Angeles had the highest levels of hospital use, and patients in Sacramento the lowest, though the ratio of highest to lowest was somewhat smaller (about 1.3).

The Sacramento-Los Angeles divide is primarily a FFS/PPO phenomenon. In contrast to the results for the FFS/PPO groups, both Medicare and private HMO patients showed much less regional variation in hospital use. In both HMO groups, the ratio of highest to lowest intensity of hospital use was smaller than that of the FFS/PPO groups (between 1.1 and 1.2), and the north-south variation was less pronounced.

The analysis then broadened the review, adding seven other HRRs to the original five (Table 1).

In this review, as in the first comparison, Medicare FFS beneficiaries again showed the highest levels of regional variation in hospital use, and private PPO/FFS patients closely tracked the Medicare FFS group.

There was also regional variation among all four patient groups, across the 12 HRRs, which confirmed previous findings among Medicare FFS patients exclusively (see Table 4, p.6).

Regional variation was most prominent for Medicare FFS patients, but not always. The clearest variations were for Medicare FFS patients, where there were large differences between the highest and lowest utilization HRR. The amount of variation for the other three insurance types tended to be smaller. However, when comparing the 90th and 10th percentiles for all 12 regions, the amount of variation was similar for all four insurance types.

And again, hospital use among both the Medicare and private HMO patient groups was substantially different from that of the FFS/PPO categories, and the usage patterns for both HMO groups were closely related to each other.

Kaiser Hospitals in California: Usage and Variation

Kaiser Permanente has developed one of the country's most tightly integrated and managed health care systems. In California, Kaiser cares for more than four million members. Its hospital capacity mirrors the distribution of its patients, who almost always receive services in Kaiser hospitals, under care regimens that are rigorously managed by Kaiser physicians.

Previous research in *The Dartmouth Atlas of Health Care* has documented major variations in hospital use among California's chronically ill Medicare beneficiaries, including dramatically higher hospital use in Los Angeles than in Northern California, and substantial discrepancies in usage among individual hospitals.

This suggests an interesting comparison. Would an analysis of Kaiser and non-Kaiser HMO enrollees show discrepancies in hospital use, and would Kaiser members statewide display the north-south divide found in non-HMO Medicare beneficiaries?

This statewide analysis compared variations in hospital use in the last two years of life by chronically ill Kaiser patients, both Medicare and non-Medicare, with that of HMO patients in non-Kaiser hospitals (Table 2). In both patient categories, Medicare HMO enrollees were age 67 at the time of death, and non-Medicare enrollees were between the ages of 55 and 64 at the time of death. The analysis used a set of 13 key chronic illnesses.

The findings showed that while there was some variation among Kaiser hospitals in end-of-life hospital use, the total variation was less, and in some measures far less, than that of non-Kaiser hospitals.

The variation in hospital use by Kaiser Medicare HMO enrollees ranged from 12 days to 18 days, a ratio of about 1.5. In non-Kaiser hospitals, that ratio was 3.4, more than double the Kaiser figures. A similar pattern emerged with private HMO patients, in which the ratio of the highest-use hospital to the lowest was about 1.7 for Kaiser members, and about 2.6 for non-Kaiser patients.

In examining regional variations among Kaiser hospitals, the north-south differences seen elsewhere did not show up as strongly as those of non-Kaiser hospitals (see Table 3, p. 5).

Table 2: Variations in Hospital Use, Kaiser and Non-Kaiser Hospitals

						Percentiles		
	Number of Hospitals	Mean Hospital Use	Lowest Use Hospital	Highest Use Hospital	Ratio Highest-Lowest	10th	90th	Ratio 90/10
Medicare HMO Patients Age 67 and Older								
Kaiser Hospitals	28	15.0	11.8	18.1	1.54	13.0	17.2	1.32
Non-Kaiser Hospitals	199	14.9	7.9	27.0	3.41	11.2	19.0	1.70
Non-Medicare HMO Patients Age 55-64								
Kaiser Hospitals	26	18.3	14.8	24.6	1.66	15.5	20.5	1.32
Non-Kaiser Hospitals	67	20.1	12.5	32.5	2.60	15.7	24.9	1.58

Source: Author analysis of Jan. 1, 1999 to Dec. 31, 2003 hospital discharge records from the California Office of Statewide Health Planning and Development.

Kaiser Hospitals in California: Usage and Variation (continued)

Kaiser's Northern and Southern California regions displayed similar hospital utilization rates and usage variation across individual hospitals. These results held for both Kaiser's Medicare and non-Medicare enrollees.

The research also compared Kaiser hospitals in Los Angeles County (seven facilities) to those in the San Francisco Bay Area (11 hospitals in San Francisco, San Mateo, Santa Clara, Alameda, and Contra Costa counties). While there was a slight tendency toward more hospital use in Los Angeles, the differences in utilization were not statistically significant.

These results indicate that hospital capacity and care integration systems could play a role in hospital use patterns. Previous research has shown that there was nearly a two-fold difference in use rates among traditional Medicare beneficiaries from the highest-use California hospital to the lowest. In this study, the ratio among non-Kaiser Medicare HMO patients was 1.7, and among Kaiser members, about 1.3.

One possible interpretation of these results is that greater care integration and hospital capacity play important roles in reducing regional variations of hospital use. It might be expected that care integration and capacity management would be somewhat higher in HMOs overall than in traditional Medicare. Kaiser, with its level of integration and capacity management, would appear to have further lowered—but not completely eliminated—the incidence of regional variation in its system.

Table 3: Regional Variations in Hospital Use, Kaiser Hospitals

					Percentiles	
	Number of Hospitals	Mean Hospital Use	Lowest Use Hospital	Highest Use Hospital	10th	90th
Medicare HMO Patients Age 67 and Older						
Northern CA Region	17	14.8	11.8	17.6	13.0	17.1
Southern CA Region	11	15.2	13.0	18.1	13.4	17.2
San Francisco Bay Area	10	15.5	13.8	17.6	13.9	17.3
Los Angeles	7	15.6	13.4	18.1	13.4	18.1
Non-Medicare HMO Patients Age 55-64						
Northern CA Region	15	18.0	15.0	20.9	15.5	20.5
Southern CA Region	11	18.8	14.8	24.6	16.7	20.3
San Francisco Bay Area	8	18.4	15.5	20.9	15.5	20.9
Los Angeles	7	19.3	16.7	24.6	16.7	24.6

Note: San Francisco Bay Area includes San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa counties. Los Angeles includes Los Angeles County.

Source: Author analysis of Jan. 1, 1999 to Dec. 31, 2003 hospital discharge records from the California Office of Statewide Health Planning and Development.

Conclusions

The analysis showed the clearest and largest regional variations among traditional Medicare beneficiaries. In most of the analyses, the amount of variation for the other three insurance groups tended to be smaller.

Because the patterns of variation differ for the HMO and non-HMO patient groups, the forces driving these variations may be closely related to differing levels of care integration.

Patients seeing many different providers, and receiving more fragmented care, are likely to end up in the hospital more often, and for longer periods of time. For example, previous research among Medicare FFS beneficiaries found that Los Angeles has many more patients who see ten or more physicians in the last six months of life than either Sacramento or San Francisco. If this happens less frequently in HMOs than with other types of insurance, that could contribute to the variations in the regional patterns.

The Kaiser findings also may help reinforce this explanation, given Kaiser's focus on systemic integration and care management, and its development of hospital capacity to reflect where its members live.

Some previous discussions have emphasized the role of system capacity in driving regional variations. The variations seen in this analysis suggest that these kinds of influences may not be the only factors in play. Regional capacity influences might be expected to affect an area's entire health care system in the same way, and create similar disparities among all types of insurance. However, it would still be possible that different plan types respond in alternate ways to the presence of large numbers of hospitals.

Table 4: Hospital Use Variations, 12-Region Comparison

	Mean Hospital Use	Lowest Use Hospital	Highest Use Hospital	Ratio Highest-Lowest	Percentiles		Ratio 90/10
					10th	90th	
Medicare FFS	19.7	16.5	26.6	1.61	18.2	22.1	1.22
Medicare HMO	15.3	12.8	17.0	1.33	14.1	16.5	1.17
Private PPO/FFS	22.8	20.0	26.8	1.34	20.6	24.5	1.19
Private HMO	19.7	16.6	22.4	1.35	18.6	21.6	1.16

Source: Author analysis of Jan. 1, 1999 to Dec. 31, 2003 hospital discharge records from the California Office of Statewide Health Planning and Development.

Methodology

The analysis used California Office of Statewide Health Planning and Development discharge abstracts, which are linked to death records, to identify all patients in this study who died between Jan. 1, 1999, and Dec. 31, 2003, and had at least one of 13 chronic illnesses.

Hospital stays for these patients were examined for two years before their deaths, to count the number of hospital days in all hospitals. Chronically ill patients who die are reasonably comparable from one hospital to another, and provide a useful basis for comparisons of resource use. In addition, adjustments were made for demographics and related patient characteristics.

Patients were assigned to the hospital in which they received most of their care during this period. The study took all patients assigned to each hospital, computed the average number of total hospital days, and compared the results. The study adjusted for demographics and related patient characteristics. Only hospitals with at least 50 deaths in a group were included in the analysis.

For the regional variation component of the study, averages were taken of hospital-specific patient use measures for all hospitals in each of the study's 12 Hospital Referral Regions (HRRs). The analysis included only HRRs with at least two hospitals.

In the Kaiser analysis, Kaiser Permanente has a number of "affiliated" contract hospitals, some of which provide only emergency services for Kaiser patients, and some of which provide other services as well. For the analysis, those hospitals were listed as "non-Kaiser" hospitals. Were those hospitals excluded from the analysis entirely, the results would not be affected.

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