Assessing the Effects of the Medicare Prospective Payment System on the Demand for VA Inpatient Services: An Examination of Transfers and Discharges of Problem Patients

Jeremiah Hurley, Daniel Linz, and Emmett Swint

An examination of patient data from three medical districts that vary in urban/rural composition and in their proportion of proprietary hospitals was undertaken to determine if high-cost patients whose illnesses place them in "problem" DRGs (diagnosis-related groups identified as "problems" through interviews with private hospital administrators and from information published by the Wisconsin Hospital Association) are being shifted from non-Department of Veterans Affairs (non-VA) hospitals to VA hospitals. Two outcome measures were employed to detect shifting: patient transfers between non-VA and VA hospitals and discharges of veterans in a sample of DRGs identified as unprofitable by private hospitals. A comparison of patient transfers for fiscal year 1982 and fiscal year 1984 (pre- and post-DRG implementation) revealed substantial increases in the number of transfers, but there appeared to be no concentration of transfers in particular DRGs. An examination of discharges for FY 1982 and FY 1984 within 21 problem DRGs showed average increases ranging from 27 percent to 41 percent among patients

---

This research was partially funded by the Ann Arbor Department of Veterans Affairs Health Services Research and Development (VA HSR&D) Field Program. Opinions expressed are the authors' own and do not necessarily reflect those of the Department of Veterans Affairs.

Address correspondence and reprint requests to Jeremiah Hurley, Ph.D., Department of Clinical Epidemiology and Biostatistics, Centre for Health Economics and Policy Analysis, Health Sciences Centre, Room 3H2, McMaster University, Hamilton, Ontario, Canada L8N 3Z5. Daniel Linz, Ph.D. is Associate Professor in the Communication Department, University of California-Santa Barbara; Emmett Swint is District Planner with the Department of Veterans Affairs (VA) Medical District 9, VAMC, Decatur, GA. This research was conducted while all three were at the Health Services Research Division, W. S. Middleton Memorial VA Hospital, Madison, WI.

aged 65 years or older. A comparison of discharges within a sample of 21 randomly selected DRGs showed either no increase or small decreases in discharges from FY 1982 to FY 1984. The possibility is discussed that some of the cost reductions (or slowing of the rise in costs) attributed to the prospective payment system are merely phantom savings. Hospitals may simply be shifting costs from Medicare to the VA system.

BACKGROUND

In response to rising expenditures for inpatient hospital care in the Medicare program, Congress passed the Social Security Amendments of 1983. These amendments changed the method of reimbursement to hospitals for treating Medicare beneficiaries from a retrospective, cost-based system, to a prospective payment system (PPS) based on diagnosis-related groups (DRGs). With the implementation of DRG-based reimbursement, the incentives faced by hospitals changed dramatically. Under PPS, private hospitals may find it in their interest to adjust their case mix of Medicare beneficiaries by encouraging the admission of patients whose cost of treatment is below the PPS reimbursement level and discouraging the admission of those for whom the cost of treatment exceeds the reimbursement level.

Because many veterans aged 65 or over are eligible for care under both the Medicare Part A insurance program and the program of benefits provided by the Department of Veterans Affairs (VA), the implementation of Medicare's PPS may have spillover effects on the demand for services offered by the VA. Historically, most of the aged veterans have received their care under the Medicare program (Friedman 1985), but as Friedman has noted: "Major changes in Medicare or Medicaid could affect VA admissions by several percentage points within a short period of time" (pp. 1-8).

In this article we analyze transfers from non-VA hospitals to VA hospitals as well as discharges from VA hospitals in three medical districts before and after the implementation of PPS to determine whether elderly veteran patients are being shifted into the VA health care system. The three VA districts chosen represent regions with differing demographic and health care market characteristics, allowing us to examine how the magnitude of the shift in demand varies in response to the degree of urbanization and the mix of for-profit and nonprofit hospitals.

INCENTIVES UNDER PPS

Under PPS, a hospital treating a Medicare beneficiary receives a fixed payment per inpatient episode based on the DRG in which the individual is classified. The Health Care Financing Administration has set the reimbursement level equal to an estimate of the average cost of treating a patient in each DRG so that, over the entire patient load, a hospital can expect to break even. If the cost of treating the patient exceeds the reimbursement level, the hospital must absorb the loss; if the cost of treatment is less than the reimbursement, the hospital may retain the surplus. From a financial perspective, then, a hospital has the incentive to encourage the admission of low-cost, profitable patients and to discourage the admission of high-cost, unprofitable patients (Newhouse 1983).

Two characteristics of the PPS program may provide a hospital with the incentive to behave in this manner. First, the reimbursement levels do not always reflect the true average cost of treatment, making certain DRGs either money losers or money makers on average. Hospital administrators may be motivated to identify these DRGs and, through their admitting physicians, adjust their case mix by encouraging admissions in profitable DRGs and discouraging admissions in unprofitable ones (Kohlmann 1984; Mendenhall 1985). Second, even if reimbursement is adequate on average, certain DRGs have a large variance in the type and amount of resources required to treat the patients classified within them (Berki, Ashcraft, and Newbrander 1984; ;Horn 1983a,b; Horn and Sharkey 1983; Matsui 1985; Smits, Fetter, and McMahon 1984). Through an analysis of past utilization records, a hospital may be able to identify patients with high-cost characteristics within a DRG and discourage their admission (Stern and Epstein 1985). Finally, even after admission, if a patient becomes a high-cost money loser, the hospital may attempt to transfer the patient to another hospital. Therefore, if patient shifting is occurring, it is probably taking place mainly in a limited number of these "problem" DRGs.

Patient shifting is an issue for the entire hospital health care sector, but VA may be particularly vulnerable to its effects. Considerations of profitability may carry more weight in deciding whether or not to admit a high-cost veteran. Because a veteran has access to care at VA hospitals, a private hospital may be more willing to shift a high-cost veteran than a nonveteran who has no alternative means of obtaining care.

It might also be expected that the amount of shifting varies with

demographic and market characteristics of the region in which the hospital is located. Patient shifting may be more prevalent in regions characterized by a large proportion of for-profit, short-term care hospitals. A for-profit hospital may be more responsive to PPS economic incentives because the administrators are able to exert more control over the physician staff. Patient shifting is also likely to be more prevalent in highly urbanized regions in which there is easier access to public hospitals, both VA and non-VA.

HYPOTHESES

We attempted to isolate the effect that Medicare's PPS has had on the demand for VA inpatient services by testing four hypotheses; the first involves patient transfers, and the second, third, and fourth involve patient discharges:

Hypothesis 1. *On average, between 1982 and 1984, patient transfers of veterans from non-VA to VA hospitals increased and this increase will have occurred predominantly in the set of problem DRGs.*

Hypothesis 2. *Discharges of veterans aged 65 and over from VA hospitals increased significantly more in a set of problem DRGs compared to discharge increases in a set of randomly chosen DRGs.*

Hypothesis 3. *Because only persons 65 years or over are eligible for Medicare, discharges of veterans under age 65 in the problem DRGs have not increased as much as discharges of those aged 65 or over in the problem DRGs.*

If some factor other than Medicare is driving the observed difference in the rate of growth of discharges between the problem DRGs and the randomly selected DRGs, then we would expect this other factor to affect the discharges of *all* veterans classified in the problem DRGs. Therefore, to determine if veterans over age 65 in the problem DRGs are being differentially affected, we test a final hypothesis:

Hypothesis 4. *Within each of the two sets of DRGs (problem and random), comparing the change in discharges of veterans over 65 with the change in discharges of those under 65, in the problem DRGs discharges of older veterans will have increased more relative to discharges of young veterans, than in the randomly chosen DRGS.*

That is, we use the discharges of veterans aged under 65 as a control group to show not only that discharges of elderly veterans in the problem DRGs increased at a faster rate than discharges of elderly veterans in a group of randomly chosen DRGs (hypothesis 2), but that they also increased faster than discharges of veterans aged under 65 classified in the same DRGs. All of these hypotheses will be tested across three medical districts to determine if the level of patient shifting is sensitive to the proportion of for-profit, short-term hospitals in the district.

METHODS

DISTRICT TRANSFER AND DISCHARGE DATA

First, a record of all transfers of persons aged 65 and over in FY 1982 (one year before Medicare PPS was implemented) and in FY 1984 (one year after PPS was implemented) was obtained from VA medical districts 12, 16, and 17. Second, from these same districts, two samples of VA discharge records—one from FY 1982 and one from FY 1984—were obtained.

Medical districts 12, 16, and 17 were chosen because the demographic characteristics of each allowed us to test hypotheses regarding the effect of the presence of proprietary hospitals and of a high degree of urbanization on patient shifting. District 12 encompasses much of Florida, a state with a rapidly growing elderly population and the second highest proportion of for-profit hospitals in the country (*Hospital Statistics* 1985). District 17, mainly made up of the metropolitan Chicago area, is a highly urbanized district. District 16 includes most of Wisconsin, as well as parts of Illinois and Michigan, and is a more rural district with no for-profit hospitals and a stable elderly population. The average non-VA hospital occupancy rate in each district in 1984 ranged from 65 percent in Wisconsin to 69 percent in the Chicago metropolitan area, making the districts similar in this respect.

A set of 21 problem DRGs was developed based on 1984 profitability rankings published by the Wisconsin Hospital Association (1985), and on discussions with local hospital administrators. Many of the changes in the delivery of care during the 1982–1984 period both inside VA and outside VA could have affected the number of VA discharges similarly for both problem and randomly selected DRGs. Therefore, the set of randomly selected DRG controls for exogenous factors other than PPS that could also have affected the number of discharges. The DRGs selected for the analysis are listed in Table 1.

Table 1: Selected DRGs

DRG	Description
Problem	
14	Specific cerebrovascular disorders, except transient ischemic attack (TIA)
39	Lens procedures
79	Respiratory infections and inflammations, age > 70 and/or cc
88	Chronic obstructive pulmonary disease
89	Simple pneumonia and pleurisy, age > 70 and or cc
96	Bronchitis and asthma, age > 70 and/or cc
110	Major reconstructive vascular procedures, age > 70 and/or cc
117	Cardiac pacemaker replacement and revisit except pulse gen. repl. only
123	Circulatory disorders with acute myocardial infarction (AMI), expired
127	Heart failure and shock
138	Cardiac arrhythmia and conduction disorders, age > 70 and/or cc
140	Angina pectoris
148	Major large and small bowel procedures, age > 70 and/or cc
182	Esophagitis, gastroenteritis, and miscellaneous digestive disorders, age > 70 and/or cc
209	Major joint procedures
210	Hip and femur procedures except major joint, age > 70 and/or cc
243	Medical back problems
426	Depressive neurosis
428	Disorders of personality and impulse control
430	Psychoses
438	Alcohol and substance-induced organic mental syndrome

Continued

Although the 21 problem DRGs represent only about 5 percent of the 468 possible DRGs a patient can be classified in, they account for 22–24 percent of all discharges in the three districts sampled for the analysis. In each district all discharges classified in the 21 problem DRGs and the 21 randomly selected DRGs were included in the sample.

The dependent variable is the rate of increase in the number of discharges between 1982 and 1984 in each set of DRGs. It is specified in two ways. The mean percentage change in discharges was calculated for the 21 DRGs in each group. However, because the percentage change in discharges in DRG depends on the number of discharges in that DRG in the base year, those DRGs with few discharges in 1982 had an inordinate influence in the calculation of the mean percentage change. Therefore, to adjust for the sensitivity of the mean to these DRGs, a weighted percentage change was calculated. For each DRG, the weighted percentage change is equal to the percentage change multiplied by the proportion of all discharges in the set of DRGs classified in that DRG:

Table 1: Continued

DRG	*Description*
Random	
12	Degenerative nervous system disorders
42	Intraocular procedures except retina, iris, and lens
82	Respiratory neoplasms
92	Interstitial lung disease, age ≥ 70 and/or cc
102	Other respiratory diagnosis, age < 70
112	Vascular procedures except major reconstruction
122	Circulatory disorders with acute myocardial infarction without cardiovascular cc, discharged alive
132	Atherosclerosis, age ≥ 70 and/or cc
142	Syncope and collapse, age < 70 without cc
162	Inguinal and femoral hernia procedures, age 18–69, without cc
172	Digestive malignancy, age ≥ 70 and/or cc
182	Esophagitis, gastroenteritis, and miscellaneous digestive disorders, age ≥ 70 and/or cc
192	Minor pancreas, liver, and shunt procedures
202	Cirrhosis and alcoholic hepatitis
222	Knee procedures, age < 70, without cc
332	Other kidney and urinary tract diagnoses, age 18–69 without cc
342	Circumcision, age ≥ 18
352	Other male reproductive system diagnoses
412	History of malignancy with endoscopy
432	Other diagnoses of mental disorders
462	Rehabilitation

$$WP_i = P_i(n_i/N_j)\ i = DRG,\ j = problem,\ random,\ i \epsilon j$$

where:

WP_i = weighted percent change in discharges in the ith DRG.

P_i = unweighted percent change in discharges in the ith DRG.

n_i = number of discharges in 1982 in the ith DRG.

N_j = total number of discharges in all DRGs in the jth set of DRGs.

Two measures of change can be calculated from this distribution of weighted percentage changes. The first is a weighted average, which can be used for a descriptive analysis of the data. The second is the mean of the weighted percentage changes, which can then be used in formal tests of the hypotheses.

DATA ANALYSIS

First, a simple descriptive analysis of transfers from non-VA hospitals into VA hospitals was conducted to test hypothesis one. Second, analysis of variance (ANOVA) was applied to the discharge data. The analysis was conducted separately for each of the three VA medical districts. A discussion and formal restatement of hypotheses 2 and 4 are given below.

Hypothesis 2: If PPS has resulted in the shifting of veterans from non-VA hospitals to VA hospitals, it is expected that, on average, discharges of those aged 65 or over from VA facilities will have increased more in the problem DRGs than discharges of those aged 65 or over in the random DRGs. The hypothesis can be stated:

$$H_0: X_p = X_r$$
$$H_A: X_p > X_r$$

where

X_p = the mean weighted percentage change in discharges of veterans aged 65 or over in the problem DRGs.

X_r = the mean weighted percentage change in discharges of veterans aged 65 or over in the random DRGs.

Hypothesis 4: Even if the above null hypothesis were rejected, it would not preclude the possibility that some exogenous change other than PPS has affected discharges of both young and old veterans in the problem DRGs. If PPS has been the driving force, it will have affected only discharges of those aged 65 or over. Therefore, compared to discharges of individuals aged under 65, discharges of elderly veterans are expected to have increased more in the problem DRGs than in the random DRGs. The hypothesis can be stated:

$$H_0: (X_{po}-X_{pu}) = (X_{ro}-X_{ru})$$
$$H_A: (X_{po}-X_{pu}) > (X_{ro}-X_{ru})$$

where

X_{po} = mean weighted percentage change in discharges of those aged 65 or over in the problem DRGs.

X_{pu} = mean weighted percentage change in discharges of those aged under 65 in the problem DRGs.

X_{ro} = mean weighted percentage change in discharges of those aged 65 or over in the random DRGs.

X_{ru} = mean weighted percentage change in discharges of those aged under 65 in the random DRGs.

The results in each district were compared to determine if patient shifting is more prevalent in District 12, with its high proportion of for-profit hospitals, or in District 17, the more urbanized district, than in District 16.

RESULTS

Table 2 displays the changes in transfers from non-VA hospitals to VA hospitals between 1982 and 1984 for the three districts. In each district the number of transfers of those aged 65 or over increased both in absolute terms and as a percentage of all transfers. However, when transfers were disaggregated by DRGs, it was not found that the transfers in 1984 were more concentrated in problem DRGs, as had been expected. The small number of transfers indicates that even if patient shifting is occurring through the transfer of high-cost patients, the magnitude of the problem is small enough to discount.

Table 3 lists the two sets of DRGs and the corresponding distributions of percentage changes in the number of discharges of veterans aged 65 or over for the period 1982–1984. A descriptive analysis lends support to the hypotheses discussed above. Focusing only on the direction of the change in discharges, we see that in District 12 discharges increased in 20 of the 21 problem DRGs but in only 8 of the 21 randomly selected DRGs; in District 16, discharges increased in 14 of the problem DRGs and in 11 of the randomly selected ones; and in District 17, discharges increased in 18 of the problem DRGs but in only 9 of the randomly selected DRGs. In each of the districts the weighted average percentage increase (equal to the sum of the weighted percentage change) for the problem DRGs was positive and substantial: 32.6, 27.2, and 41.1 percent, respectively, for Districts 12, 16, and 17. In each district the weighted average change is negative for the random DRGs.

Table 4 lists the percentage change in discharges for patients

Table 2: Transfers of Individuals Aged 65 or over

	1982		*1984*	
	Number	*Percent of All Transfers*	*Number*	*Percent of All Transfers*
District 12	0	0	37	32
District 16	85	29	117	32
District 17	8	22	53	50

Table 3: Percentage Change in Discharges, 1982–1984, Age 65 or over

	District 12		*District 16*		*District 17*	
DRG	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*
Problem						
14	6	0.50	21	1.38	13	1.10
39	34	3.04	-11	-0.91	67	5.53
79	52	1.20	83	1.60	48	1.18
88	7	1.68	24	4.22	40	6.34
89	75	4.32	310	7.79	36	2.31
96	24	0.32	33	0.57	48	0.98
110	89	1.39	38	0.71	50	1.11
117	133	0.14	-33	-0.19	200	0.25
123	48	0.75	50	0.58	92	0.74
127	46	4.13	74	5.24	42	7.02
138	106	4.00	57	2.83	65	2.24
140	183	4.49	197	4.31	276	4.93
148	5	0.13	33	0.76	20	0.54
182	25	2.45	8	0.91	52	3.98
209	60	1.45	-5	-0.18	10	0.31
210	20	0.40	-20	-0.45	-23	-0.37
243	11	0.45	27	1.34	0	0.00
426	55	0.82	-30	-0.69	20	0.25
428	50	0.11	-56	-0.32	0	0.00
430	31	1.35	15	1.17	40	2.59
438	-18	-0.67	-41	-3.43	1	0.05
Mean:	49.6	1.55	36.9	1.30	52.2	1.96
Weighted mean:	32.6		27.2		41.1	

Continued

under age 65. Comparing Tables 3 and 4, we see that in each case the difference in the weighted average change in discharges of elderly veterans and veterans aged under 65 is larger in the problem DRGs. For example, in District 16, discharges of veterans 65 or over in the problem DRGs increased 33.9 percent faster than discharges of veterans under age 65 [27.2 - (-6.7)], but in the randomly selected DRGs the difference was approximately zero [(-3.9) - (-3.5)].

Tables 5 and 6 list the results of the analysis of variance (ANOVA) carried out on discharges in the two groups of DRGs. In two of the three districts, the mean weighted percentage change (i.e., the mean of the weighted percentage changes) in the number of discharges of elderly veterans is significantly larger in the problem DRGs, and in the third district (District 16), the *F*-statistic is just below the critical value

Table 3: Continued

	District 12		*District 16*		*District 17*	
DRG	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*
Random						
12	-10	-0.73	-14	-1.29	-8	-0.99
42	63	1.08	-14	-0.18	3	0.07
82	3	0.63	-1	-0.19	3	0.57
92	-21	-0.41	42	0.73	23	0.25
102	-30	-0.12	-33	-0.18	0	0.00
112	69	0.88	28	0.64	-38	-0.83
122	64	1.84	121	3.19	55	1.67
132	-38	-10.68	-50	-12.66	-64	-12.58
142	54	0.24	-17	-0.09	550	0.92
162	-4	-0.13	26	0.80	-5	-0.25
172	-28	-2.08	52	4.02	-31	-3.58
182	25	2.74	8	1.29	52	5.44
192	0	0.00	50	0.09	0	0.00
202	-28	-0.79	11	0.27	17	0.52
222	17	0.04	125	0.45	0	0.00
332	-8	-0.08	-18	-0.18	-37	-0.84
342	-12	-0.07	8	0.09	-43	-0.25
352	-14	-0.18	-67	-1.10	40	0.51
412	-88	-6.14	-91	-2.65	-92	-4.04
432	-40	-0.08	-50	-0.09	-50	-0.17
462	1033	1.23	850	3.09	1000	0.84
Mean	47.9	-0.61	46.0	-0.19	65.5	-0.61
Weighted mean		-12.8		-3.9		-12.7

at the 10 percent level of significance. The ranking of the *F*-statistics is also consistent with our expectations. Evidence for shifting is strongest in District 12, which has the highest *F*-value. District 17, the highly urbanized district, ranks second, and District 16 shows the weakest evidence. These findings are strengthened by the results listed in Table 6. The difference between elderly veterans and veterans under age 65 in the mean weighted percentage change in discharges was significantly larger in the problem DRGs than in the randomly selected DRGs. That is, compared to the randomly selected DRGs, discharges of elderly veterans in the problem DRGs increased significantly more than discharges of younger veterans. This suggests that some factor has been responsible for the increase in discharges of elderly veterans in the problem DRGs that has not been affecting veterans under age 65 in these DRGs.

Table 4: Percentage Change in Discharges, 1982–1984, Age under 65

	District 12		*District 16*		*District 17*	
DRG	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*
Problem						
14	-9	-0.28	2	0.06	26	1.22
39	-1	-0.04	2	0.05	37	1.44
79	21	0.24	-8	-0.05	-24	-0.77
88	-5	-0.64	-3	-0.22	8	0.79
89	31	0.56	39	0.63	27	0.78
96	5	0.04	33	0.17	39	0.43
110	60	0.45	-8	-0.05	10	0.15
117	83	0.06	200	0.10	50	0.02
123	29	0.12	25	0.07	4	0.02
127	21	0.73	97	1.81	27	2.17
138	79	0.94	37	0.48	39	0.47
140	37	1.06	132	2.46	148	3.21
148	19	0.18	15	0.10	24	0.25
182	48	1.31	14	0.45	34	1.92
209	8	0.08	-27	-0.51	36	0.47
210	110	0.26	-23	-0.13	83	0.25
243	1	0.06	-4	-0.32	4	0.23
426	13	0.74	24	1.17	60	3.27
428	20	0.74	22	0.45	-13	-0.74
430	-13	-4.00	-8	-2.69	2	1.14
438	-32	-5.24	-46	-10.76	10	3.72
Mean:	25.0	-0.12	24.5	-0.32	30.0	0.94
Weighted mean:		-2.6		-6.7		20.4

Continued

DISCUSSION

In our analysis we found no evidence of increases in the direct transfers of patients in problem DRGs after the implementation of the Medicare PPS. We did find that discharges of veterans aged 65 or over—the population affected by Medicare—increased significantly more in the problem DRGs between 1982 and 1984 than discharges in the randomly selected DRGs. The analysis strategy employed allowed us to control for factors that may have affected discharges in all DRGs as well as for factors that may have affected discharges of all individuals classified in the problem DRGs. While these results do not establish a direct causal link between the implementation of PPS and the increase

Table 4: Continued

	District 12		*District 16*		*District 17*	
DRG	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*
Random						
12	-31	-1.41	-15	-1.03	-22	1.59
42	-19	-0.33	17	0.12	-9	-0.16
82	-28	-7.32	-20	-4.32	15	2.72
92	122	0.85	25	0.17	-26	-0.35
102	50	0.50	26	0.28	-12	-0.15
112	14	0.24	36	0.68	-35	-0.82
122	-3	-0.16	32	1.80	41	1.47
132	-25	-3.54	-58	-8.13	-51	-4.53
142	-12	-0.23	0	0.00	-4	-0.08
162	-19	-1.84	9	0.84	6	0.64
172	-20	-0.78	4	0.18	-19	-0.98
182	48	2.41	14	1.04	34	2.96
192	175	0.15	0	0.00	83	0.19
202	-35	-3.31	-17	-1.34	-9	-1.13
222	59	0.92	24	1.21	-16	-0.40
332	-35	-1.37	100	1.38	-51	-2.68
342	-24	-0.26	0	0.00	-56	-1.05
352	-20	-0.58	-64	-1.84	63	1.39
412	-90	-3.82	-99	-2.10	-87	-2.57
432	60	0.33	-55	-0.92	35	0.39
462	866	1.71	465	8.55	800	0.93
Mean	49.2	-0.85	20.2	-0.16	35.7	-0.12
Weighted mean	-17.8		-3.5		-2.6	

in the number of discharges, they are strongly consistent with the hypothesis of patient shifting.

Some shortcomings of the analyses should be noted. First, all of the analyses were conducted with aggregate data. Ideally, one would like to be able to analyze individual patient records in order to identify specific cases in which the patient was told by health care personnel at a non-VA institution to seek care at a VA facility. However, this is obviously a formidable task both because obtaining and coding patient records is difficult and because there is no guarantee that this information will appear on the chart. In fact, our failure to find differences in the number of transfers from non-VA to VA hospitals in problem DRGs would suggest that shifting is not occurring through this mechanism. Second, to the degree that we have not controlled for exogenous

Table 5: Mean Weighted Percentage Change in Discharges of Individuals Aged 65 or Over, 1982–1984

	Problem DRGs	*Random DRGs*	F*
District 12			
Unweighted	49.6	47.9	0.00
Weighted	1.55	-0.61	9.14†
District 16			
Unweighted	36.9	46.0	0.04
Weighted	1.30	-0.19	2.80
District 17			
Unweighted	52.2	65.5	0.10
Weighted	1.96	-0.61	8.62†

*In each district the Hartley test of equal variances for the distributions of weighted observations in the two sets of DRGs was not rejected at the 95 percent level.

†Significant at .01 level.

Table 6: Mean Percentage Difference in the Change in Discharges of Veterans Aged 65 or over and Veterans Aged under 65, 1982–1984

	Problem DRGs	*Random DRGs*	F*
District 12			
Unweighted	24.6	-1.3	1.82
Weighted	1.68	0.24	4.32†
District 16			
Unweighted	12.4	25.8	0.23
Weighted	1.62	-0.03	5.32†
District 17			
Unweighted	22.2	29.8	0.26
Weighted	1.02	-0.49	3.86†

*See Table 5.

†Significant at .10 level.

factors other than Medicare that may be responsible for the observed discharge patterns, our conclusions are weakened.

It should be emphasized that because the analysis reported here utilized data from the 1984 fiscal year, the first year of PPS, our results may represent a lower bound of the extent of patient shifting. The program began on October 1, 1983, but individual hospitals became subject to regulation at the beginning of the hospital's fiscal year that began on or before October 1, 1983. The result of this time lag is that many hospitals were reimbursed prospectively for only part of the year.

Similarly, the fact that the program was phased in over a period of years may also mean that the evidence presented here is a conservative estimate of shifting. During the first year, the formula used to calculate the level of reimbursement was based 75 percent on the hospitals' own costs. Over time, as the program has become more stringent and hospitals have had a chance to become more sophisticated in their analysis of utilization data, the amount of patient shifting may have increased.

For the Department of Veterans Affairs, patients shifted into its hospitals represent an unanticipated source of demand at a time of tightening budgets and increasing demand for services from a rapidly growing elderly veteran population. Furthermore, regions where the growth in proprietary hospitals has been the fastest and where such shifting may be the most prevalent, the South and the West, are also regions where the elderly population is growing rapidly (U.S. Congress 1985; U.S. Veterans Administration 1984). The 21 problem DRGs analyzed represent almost one-quarter of all VA admissions, but the impact of shifting on utilization may even be proportionately larger since it is likely to occur in a limited number of DRGs, straining resources allocated to those departments. In addition, the individuals shifted are likely to be high-cost patients requiring an above-average amount of resources.

These results are also important to those outside the VA system of health care facilities. If patients are, in fact, being shifted into VA, then nonveteran patients are most likely also being shifted into other public hospitals from private care institutions. These hospitals are already burdened with high-cost and indigent care patients, and it would appear inequitable that only public hospitals should be bearing this burden of costly patients. They are already experiencing great financial strain in many cities, and such shifting can only exacerbate their problems. In addition, selective admission policies limit access to care for some elderly individuals. This, ironically, is precisely the problem Medicare was designed to solve.

Finally, from a national health care perspective the practice of patient shifting into VA hospitals implies that some of the expenditure reductions (or slowing in the growth of expenditures) attributed to PPS do not represent real savings, but rather are the result of a shifting of costs from the Medicare program to VA. Evaluators of the effect of PPS on the utilization of hospital services must take this into account in judging the efficacy of the program.

CONCLUSION

In passing the amendments changing Medicare reimbursement to a prospective system, Congress was aware of the incentive it created for hospitals to adjust their case mix and to shift unprofitable patients to other hospitals. The requirement that each hospital contract with an approved Peer Review Organization (PRO), responsible for monitoring admissions, was an attempt to prevent these practices (U.S. Senate 1985). However, because of inadequate funding, the effectiveness with which the PROs have been able to carry out their duties is questionable (U.S. Senate 1985).

This article has presented preliminary results supporting the hypothesis that Medicare PPS has resulted in a shifting of patients into the VA and has discussed the implications of such a finding. Other work in progress (e.g., Wolfe 1989) samples from all 28 VA medical districts and employs multivariate regression to test more precisely for the presence of and magnitude of patient shifting into the VA system. The larger sample also allows a more detailed analysis of how demographic and market conditions influence the level of patient shifting.

REFERENCES

Berki, S. E., M. Ashcraft, and W. Newbrander. "Length of Stay Variations Within ICDA—8 Diagnostic Related Groups." *Medical Care* 22, no. 2 (1984):126-42.

Friedman, B. "Likely Effects of the Medicare Prospective Payment System on the Veterans Administration." Paper prepared for *Medicare's Prospective Payment System: Strategies for Evaluation Cost, Quality, and Medical Technology*. Office of Technology Assessment, U.S. Congress, July 1985.

Horn, S. D. "Does Severity of Illness Make a Difference in Prospective Payment?" *Healthcare Financial Management* 37, no. 5 (1983a):49-53.

———. "Measuring Severity of Illness: Homogeneous Case-Mix Groups." *Medical Care* 21, no. 1 (1983b):14-30.

Horn, S. D., and P. D. Sharkey. "Measuring Severity of Illness to Predict Patient Resource Use Within DRGs." *Inquiry* 20, no. 4 (1983):314-21.

Hospital Statistics: 1985. Chicago, IL: American Hospital Association, 1985.

Kohlmann, H. "Determining a Contribution Margin for DRG Profitability." *Healthcare Financial Management* 38 (April 1984):108, 110.

Matsui, R. T. "Editorial." *Journal of the American Medical Association* 254, no. 17 (1985):2454-55.

Mendenhall, S. "DRG Winners and Losers Affect Profits Under Prospective Payment." *Healthcare Financial Management* 39, no. 1 (1985):62-68.

Newhouse, J. "Two Prospective Problems with Prospective Payment of Hospi-

tals, Or It's Better to be a Resident Than a Patient With a Complex Problem." *Journal of Health Economics* 2, no. 2 (Spring 1983):269-74.

Smits, H., R. B. Fetter, and L. McMahon. "Variations in Resource Use Within DRGs: The Severity Issue." *Healthcare Financing Review* Supplement (1984):71-78.

Stern, R., and A. Epstein. "Institutional Responses to Prospective Payments Based on Diagnostic Related Groups: Implications for Cost, Quality, and Access." *New England Journal of Medicine* 312, no. 10 (1985):621-27.

United States Congress. *Aging Veterans Healthcare Issues*. Joint Hearing Before the Committee on Veterans Affairs and the Select Committee on Aging, April 23, 1985.

United States Senate. *Impact of Medicare's Prospective Payment System on the Quality of Care Received by Medicare Beneficiaries*. Staff Report, Special Committee on Aging, September 26, 1985.

United States Veterans Administration. *Caring for the Older Veteran*. Washington, DC: Government Printing Office, 1984.

Wisconsin Hospital Association. *General Memo*, No. 97-85. Madison, WI, August 1985.

Wolfe, B. "Assessment of the Effect of Medicare's Prospective Payment System on the Demand for VA Inpatient Services: An Examination of a Public Policy." Mimeograph, November 1989.