
Comparison of Rural and Urban Skilled Nursing Facility Benefit Use

Lisa C. Dubay

In this article, differences in use of Medicare's skilled nursing facility (SNF) benefit in urban and rural areas are examined. Using SNF benefit bills from 1987, the study finds that there appear to be systematic differences by residential location both in the level of use of the benefit and in whether enrollees are admitted to nursing homes and hospital swing beds. Rural Medicare enrollees use the SNF benefit at a rate that is 15 percent higher than the rate for urban enrollees. Furthermore, the swing-bed program appears to play a critical role in providing access to post-acute care for the rural elderly. In rural areas, almost 29 percent of all SNF benefit admissions are to swing beds.

INTRODUCTION

Recent closings of rural hospitals, anecdotal evidence of rural elderly persons having difficulty gaining access to health services, and the large and growing number of elderly persons living in rural areas have renewed concern about access to care for elderly persons living in rural areas. There is also reason to believe that the supply and array of post-acute services available in rural versus urban areas makes it more difficult for rural beneficiaries to gain access to appropriate post-

acute care. Despite the fact that rural areas have more nursing home beds per population than urban areas, the supply of both SNF and Medicare-certified beds is lower in rural areas. In 1986, rural areas had 6.31 SNF beds per 1,000 Medicare beneficiaries, while urban areas had 11.32. (Both urban and rural areas had 16.93 beds per 1,000 beneficiaries certified to provide SNF or intermediate care facility [ICF] care.) Rural areas have only 10.15 Medicare-certified nursing home beds per 1,000 beneficiaries compared with 15.26 in urban areas (Dubay, 1990). At the same time, rural home health agencies (HHAs) are much less likely than urban agencies to provide medical social services and occupational, speech, and physical therapy (Kenney, 1991a). As a result, rural beneficiaries use Medicare-covered home health services at a lower rate than their urban counterparts, other factors equal (Kenney, 1991b).

If nursing homes are also unable to serve Medicare patients needing post-acute services, access to appropriate post-acute care for rural beneficiaries may be a problem. This article documents differences in the use of the Medicare SNF benefit as a first step in examining whether residential differences in access may exist, and highlights the importance of the swing-bed program in rural areas.

The Medicare nursing home benefit has specific limits on eligibility and covered services. Under Part A, Medicare enrollees are eligible for the SNF benefit if

Support for this research was provided by Health Care Administration Grant Number 99-C-98526/1-06 to Brandeis University Health Policy Research Consortium. The author is with The Urban Institute, and any opinions expressed are those of the author and not necessarily those of the Health Care Financing Administration, The Urban Institute, or its sponsors.

they have been hospitalized for at least 3 consecutive days, are admitted to a SNF within 30 days of discharge from the hospital, and require daily skilled nursing or rehabilitation services resulting from the condition for which they were hospitalized. In 1987, Medicare accounted for 1.4 percent of expenditures on nursing home services (Letsch, Levit, and Waldo, 1988).

In an effort to increase access to nursing home care for the rural elderly and to help small rural hospitals provide both acute and post-acute care, the Omnibus Reconciliation Act of 1980 (Public Law 96-499) authorized the use of hospital swing beds to provide post-acute care to Medicare and Medicaid enrollees. Prior to 1983, SNF benefit recipients could only be admitted to Medicare-certified SNFs. Beginning in 1983, rural hospitals with fewer than 50 beds, and larger hospitals that meet certain anticompetitive standards, were allowed to participate in the swing-bed program. Both hospital participation in the swing-bed program and the Medicare-covered use of swing beds for post-acute care increased substantially throughout the mid-1980s (Silverman, 1990).

DATA SOURCES

Data on nursing home use were derived from the 1987 bills for all Medicare-covered nursing home stays. Medicare beneficiary numbers were derived from the Health Insurance Skeleton Eligibility Write-Off file for 1987. Enrollees having both Part A and Part B coverage or only Part A coverage were used to analyze nursing home use, while baseline characteristics were provided for all Medicare enrollees (including those who have only Part B coverage).

For the purpose of this article, the effects of residential location are examined in two ways. The first defines counties as rural if they were not included in a metropolitan statistical area (MSA) in 1987. The second builds on the Human Resource Profile Code (HRPC) county classification system, in which counties are classified into nine categories. Metropolitan counties are divided into three categories: The first combines core and fringe counties in MSAs with 1 million or more population, the second includes counties in medium-size MSAs (with populations between 250,000 and 1 million), and the third is for counties in small MSAs (with populations under 250,000). Non-metropolitan (or rural) counties are categorized by the size of their urban population and by whether the county is adjacent to a metropolitan area. The definitions of each county category are given in Kenney, 1993. (Metropolitan and non-metropolitan are used interchangeably with urban and rural although technically the definitions are not synonymous. For a discussion of the differences, see Hewitt [1990].) HRPC codes have the advantage of allowing counties to be ranked by degree of urbanization. This is useful because of the heterogeneity that exists with rural and urban areas in both the supply and use of nursing homes. Some analyses contained in this article use the metropolitan/non-metropolitan classification, while others use the HRPC system. When the HRPC system is used, figures are also presented for the aggregated metropolitan and non-metropolitan areas. In administering the swing-bed program, the Health Care Financing Administration (HCFA) uses an urban and rural classification system based on the census. This system is al-

most identical to the classification system used for this analysis.

MEDICARE ENROLLEES—A DESCRIPTION

Although almost 28 percent of Medicare enrollees reside in rural counties, the majority live in urban areas.¹ Concern about access is probably greatest for the elderly living in isolated rural areas. While only 3.4 percent of Medicare enrollees live in these areas—thinly populated counties both adjacent and non-adjacent to an MSA—they number more than 1.1 million persons.

Rural enrollees are slightly older than their urban counterparts—40 percent of rural enrollees are 75 years of age or over versus 38 percent of urban enrollees. Rural enrollees are more likely to be male and of the white race. Fifty-six percent of the rural enrollees are female, versus 58 percent in urban areas. In rural areas, 89 percent of the Medicare population is of the white race compared with 86 percent in the urban areas.

The rural elderly are more dependent in both activities of daily living (ADLs) and instrumental activities of daily living (IADLs) (Agency for Health Care Policy and Research, 1990). More than 13 percent of the rural elderly have at least one ADL limitation compared with 9.4 percent in large metropolitan areas and 11.1 percent in small metropolitan areas; more than 20 percent have at least one IADL limitation compared with 14.9 percent in large metropolitan areas and 17.5 percent in small metropolitan areas.

It has been shown that the risk of any nursing home admission increases with

age and ADL dependencies (Liu, Coughlin, and McBride, 1989). Risk of nursing home placement has also been shown to be greater for males relative to females and for the white race relative to all other races. Whether these associations are applicable to Medicare-covered nursing home admissions is untested. Because virtually no work has been done on the risk of Medicare-covered institutionalization, a priori expectations about how these demographic differences will affect the use of the SNF benefit are not strong. However, it is hypothesized that the greater age and disability of the rural elderly population could result in a greater demand for the SNF benefit in rural areas. Because prior hospitalization is a precondition to using the SNF benefit, higher rural hospital discharge rates may also contribute to greater use rates by rural enrollees. In addition, the lower levels of Medicare-covered home health use in rural areas may also increase the demand for the SNF benefit (Kenney, 1991c). Whether this greater demand translates into greater use of the SNF benefit is dependent on other factors such as the supply of HHAs and nursing home beds, and nursing homes' willingness to admit Medicare SNF benefit patients.

SKILLED NURSING FACILITY BENEFIT USE

As mentioned earlier, Medicare enrollees can be admitted to both certified SNFs and hospital swing beds under the SNF benefit. Table 1 shows total Medicare SNF benefit admissions, Medicare-covered nursing home admissions, and Medicare-covered swing-bed admissions per 1,000 enrollees. When all admissions are considered—that is, admissions to

¹This section summarizes tables which appear in Kenney (1991c).

Table 1
Medicare SNF Benefit: Admissions per 1,000 Part A Enrollees, by Demographic Area

Demographic Area	All Admissions	Nursing Home Admissions	Swing-Bed Admissions
Total	10.2	9.3	1.0
Urban	9.8	9.7	0.1
Large Metropolitan	10.5	10.5	0.1
Medium Metropolitan	8.7	8.5	0.2
Lesser Metropolitan	9.4	9.1	0.3
Rural	11.3	8.0	3.2
Urbanized Adjacent to MSA	8.8	8.2	0.6
Urbanized Non-Adjacent to MSA	10.2	8.5	1.7
Less Urbanized Adjacent to MSA	11.2	8.7	2.5
Less Urbanized Non-Adjacent to MSA	12.3	7.4	4.8
Thinly Populated Adjacent to MSA	10.0	7.4	3.6
Thinly Populated Non-Adjacent to MSA	14.5	6.8	7.8

NOTES: SNF is skilled nursing facility. MSA is metropolitan statistical area.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

both nursing homes and hospital swing beds—there are 9.8 Medicare SNF benefit admissions per 1,000 enrollees in urban areas, and 11.3 admissions per 1,000 enrollees in rural areas; rural enrollees are admitted at a rate 15.3-percent greater than urban enrollees. Enrollees living in thinly populated counties that are not adjacent to an MSA appear to have the highest admission rates overall.² Medicare enrollees in large metropolitan areas appear to have the highest admission rates among urban areas. Although there is some variation in admission rates among the different types of urban areas, ranging from 8.7 in medium metropolitan counties to 10.7 in large metropolitan counties, the variation is small compared with that among the rural areas. Within rural areas, admission rates range from 8.8 in urbanized counties that are adjacent to an MSA to 14.5 in thinly populated counties that are not adjacent to an MSA.

²Admission rates refer to admissions per 1,000 enrollees.

When only nursing home admissions are considered, the picture is quite different, with rural enrollees having 17.5 percent fewer admissions per 1,000 enrollees. The figures in Table 1 illustrate that as counties become increasingly rural, Medicare-covered admissions to nursing homes decline. The nursing home admission rate ranges from 8.2 in the most urban rural counties (those that are urbanized and adjacent to an MSA), to 6.8 in the most rural counties (those thinly populated and not adjacent to an MSA).

In contrast, as the rural areas become increasingly rural, swing-bed admission rates increase dramatically. Urbanized counties adjacent to MSAs have swing-bed admission rates of 0.6, while the thinly populated counties that are non-adjacent to MSAs have swing-bed admission rates of 7.8.

With enrollees in rural areas having higher rates of Medicare SNF benefit admissions, the swing-bed program plays a pivotal role in assuring them access to

Medicare-covered services. Table 2 shows the percentage of all admissions in each category that are attributable to nursing home admissions and swing-bed admissions. In urban areas, 98.7 percent of all SNF benefit admissions are to nursing homes, while in rural areas only 71.4 percent of such admissions are to nursing homes. This table also graphically demonstrates the increasing role the swing-bed program plays as areas become more rural: In thinly populated areas that are not adjacent to an MSA, more than 50 percent of all Medicare-covered admissions are to swing beds.

There is considerable statewide variation in the use of both the Medicare SNF benefit and the swing-bed program, as shown in Table 3. The table also illustrates the range in levels of SNF and Medicare-certified beds by State. In terms of the overall use of the Medicare SNF benefit, Utah, Montana, Iowa, North Da-

kota, and California have the highest admission rates, while Georgia, Delaware, the District of Columbia, Maryland, and Massachusetts have the lowest admission rates. The range in admission rates is large—from a high of 23.9 admissions per 1,000 enrollees in Utah to a low of 3.4 admissions per 1,000 enrollees in Massachusetts. There appear to be striking geographic patterns. States with the highest admission rates are located in the Pacific, Mountain, and East North Central Regions; States with the lowest admission rates are located in the South Atlantic, Middle Atlantic, and New England Regions.

When these rates are decomposed into urban and rural statewide rates, some interesting patterns appear. First, there is considerable variation in the use of the SNF benefit across rural and urban areas. For the most part, States with the greatest use of the SNF benefit by rural enrollees tend to be those with a majority of enrollees residing in rural areas. These States include Montana, North Dakota, Utah, Iowa, and Kansas, with rural SNF benefit admission rates of 25.8, 25.0, 24.6, 23.9, and 23.5, respectively. These rates are more than twice the national rural rate. In contrast, rural admission rates for Maine, Delaware, Georgia, Maryland, and Massachusetts are 3.3, 3.2, 2.2, 1.6, and 0.8, respectively. Utah, Nebraska, Iowa, California, and Colorado have the highest urban admission rates with 23.6, 21.6, 19.5, 19.1, and 15.9 admissions per 1,000 enrollees respectively. Massachusetts, the District of Columbia, New Hampshire, Mississippi, and South Dakota have the lowest with admission rates of 3.6, 3.6, 3.0, 1.9, and 1.4, respectively.

Second, variation in the degree to which admissions to swing beds contrib-

Table 2
Percent of Admissions Attributable to Nursing Homes and Swing Beds, by Demographic Area: 1987

Demographic Area	Nursing Home Admissions	Swing-Bed Admissions
Total	90.7	9.3
Urban	98.7	1.3
Large Metropolitan	99.5	0.5
Medium Metropolitan	98.2	1.8
Lesser Metropolitan	96.5	3.5
Rural	71.4	28.6
Urbanized Adjacent to MSA	93.5	6.5
Urbanized Non-Adjacent to MSA	83.2	16.8
Less Urbanized Adjacent to MSA	77.9	22.1
Less Urbanized Non-Adjacent to MSA	60.6	39.4
Thinly Populated Adjacent to MSA	67.1	32.9
Thinly Populated Non-Adjacent to MSA	46.4	53.6

NOTE: MSA is metropolitan statistical area.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

Table 3

SNF Beds and Medicare Certified Beds per 1,000 Beneficiaries, 1986, and Urban and Rural Medicare SNF Admissions per 1,000 Part A Enrollees and Percent of Rural Admissions to Swing Beds, 1987, by State

State	1986		1987			Percent of Total Admissions to Swing Beds
	SNF Beds per 1,000 Beneficiaries	Medicare Beds per 1,000 Beneficiaries	Total Admissions	Urban Admissions	Rural Admissions	
Total	24.5	13.6	10.2	9.8	11.3	28.1
Alabama	26.8	19.4	11.1	10.6	12.0	11.7
Alaska	25.3	6.6	4.7	3.8	5.3	26.9
Arizona	34.7	3.5	9.2	9.3	8.7	13.4
Arkansas	38.6	4.6	7.9	5.4	9.0	25.3
California	33.9	2.3	18.8	19.1	14.3	8.4
Colorado	35.6	8.9	16.7	15.9	19.3	23.8
Connecticut	45.0	4.1	8.3	8.3	7.8	0.0
Delaware	22.2	2.0	3.7	4.0	3.2	0.0
District of Columbia	6.6	6.6	3.6	3.6	0.0	—
Florida	21.6	8.4	6.5	6.7	5.2	3.2
Georgia	42.4	9.0	3.7	4.9	2.2	12.1
Hawaii	15.9	15.9	7.7	6.2	11.8	10.4
Idaho	35.2	21.5	12.3	9.4	12.8	20.4
Illinois	31.6	5.5	10.4	9.5	13.5	17.0
Indiana	15.5	13.8	12.7	12.2	13.6	3.7
Iowa	2.1	2.0	22.3	19.5	23.9	6.0
Kansas	8.8	3.0	18.6	11.7	23.5	70.1
Kentucky	7.3	7.2	9.5	7.5	11.0	8.5
Louisiana	7.1	6.7	14.1	14.3	13.8	30.5
Maine	2.3	2.0	3.9	4.5	3.3	0.6
Maryland	21.1	21.1	3.5	3.7	1.6	0.0
Massachusetts	23.9	7.6	3.4	3.6	0.8	0.0
Michigan	29.5	19.2	11.7	11.3	12.9	0.3
Minnesota	57.3	16.6	12.9	12.2	13.8	33.4
Mississippi	33.7	1.0	7.3	1.9	9.0	91.3
Missouri	27.1	7.1	15.6	13.4	18.8	30.8
Montana	33.9	19.4	23.2	14.2	25.8	23.5
Nebraska	13.7	4.6	18.5	21.6	16.8	69.1
Nevada	21.1	19.0	9.2	8.7	11.0	12.4
New Hampshire	4.9	3.4	5.2	3.0	9.3	33.0
New Jersey	31.1	12.7	3.7	3.7	0.0	—
New Mexico	2.6	2.6	7.0	7.3	6.8	43.7
New York	30.2	30.0	8.7	8.9	6.8	0.0
North Carolina	12.7	11.3	4.9	4.5	5.3	2.6
North Dakota	48.1	35.0	21.1	11.2	25.0	54.7
Ohio	26.9	26.9	8.1	8.1	8.1	4.7
Oklahoma	1.1	0.8	9.6	10.1	9.0	17.6
Oregon	5.1	3.2	10.3	10.1	10.6	2.4
Pennsylvania	20.1	14.8	10.6	10.4	11.2	0.4
Rhode Island	14.8	12.8	7.5	7.5	0.0	—
South Carolina	19.8	19.5	6.2	5.7	6.8	20.6
South Dakota	43.6	2.1	9.7	1.4	11.1	84.2
Tennessee	6.7	6.6	13.3	12.0	15.1	25.0
Texas	7.7	4.9	8.4	7.5	10.6	26.4
Utah	19.5	4.9	23.9	23.6	24.6	21.1

See footnotes at end of table.

Table 3—Continued

SNF Beds and Medicare Certified Beds per 1,000 Beneficiaries, 1986, and Urban and Rural Medicare SNF Admissions per 1,000 Part A Enrollees and Percent of Rural Admissions to Swing Beds, 1987, by State

State	1986		1987			Percent of Total Admissions to Swing Beds
	SNF Beds per 1,000 Beneficiaries	Medicare Beds per 1,000 Beneficiaries	Total Admissions	Urban Admissions	Rural Admissions	
Vermont	8.8	8.0	4.9	4.6	4.9	23.0
Virginia	3.4	3.4	5.3	5.7	4.5	6.7
Washington	44.8	5.0	8.7	8.3	10.2	17.4
West Virginia	10.2	10.2	6.7	7.6	6.2	29.7
Wisconsin	70.1	9.6	9.5	8.3	11.3	38.8
Wyoming	34.1	4.2	10.1	5.4	12.1	66.1

NOTE: SNF is skilled nursing facility.

SOURCE: Medicare and Medicaid Automated Certification Files.

ute to the rural admission rate is large. In Mississippi, swing-bed admissions account for 91.3 percent of all rural SNF benefit admissions, and in South Dakota they account for 84.2 percent. In Connecticut, Delaware, Maine, Maryland, Massachusetts, Michigan, New York, and Pennsylvania, admissions to swing beds comprise less than 1 percent of rural SNF benefit admissions. Finally, the regional patterns that characterize the use of the Medicare SNF benefit hold true when statewide rates are decomposed into urban and rural rates.

Table 4 presents Medicare SNF benefit use rates for the five most commonly occurring diagnosis-related groups (DRGs). (These DRGs include fractures of the hip and pelvis, DRG 236; specific cerebrovas-

cular disorders except transient ischemic attack (TIA), DRG 014; rehabilitation, DRG 462; degenerative nervous system disorders, DRG 012; and other factors influencing health status, DRG 467.) Use rates for hip fracture and degenerative nervous system disorders are 18.5- and 14.3-percent lower in rural versus urban areas, respectively. Admission rates for some patients (DRG 014) are roughly similar. Rural admission rates are more than 100-percent higher than urban admission rates for rehabilitation and other factors relating to health status. So while rural enrollees have lower use rates for some of the most commonly occurring DRGs, they have substantially higher use rates for other DRGs.

Table 4

Demographic Area of Admission Rates per 1,000 Medicare Beneficiaries, by Selected DRGs: 1987

DRG Code	Description	Urban	Rural	Percent Difference
DRG 236	Fractures of the Hip and Pelvis	1.46	1.19	- 18.49
DRG 014	Cerebrovascular Disorders Except TIA	1.37	1.35	- 1.46
DRG 462	Rehabilitation	0.30	0.68	126.67
DRG 012	Degenerative Nervous System Disorders	0.35	0.30	- 14.29
DRG 467	Other Factors Influencing Health Status	0.24	0.56	133.33

NOTES: DRG is diagnosis-related group. TIA is transient ischemic attack.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

Table 5
Medicare SNF Benefit Covered Days for Nursing Home and Swing-Bed Admissions, by Demographic Area: 1987

Demographic Area	All Admissions	Nursing Home Admissions	Swing-Bed Admissions
Total	22.2	23.1	13.3
Urban	23.7	23.8	13.9
Large Metropolitan	23.8	23.8	13.2
Medium Metropolitan	24.9	25.1	14.6
Lesser Metropolitan	21.0	21.2	13.6
Rural	18.6	20.7	13.2
Urbanized Adjacent to MSA	20.9	21.3	15.0
Urbanized Non-Adjacent to MSA	20.1	21.1	14.8
Less Urbanized Adjacent to MSA	19.0	20.7	13.1
Less Urbanized Non-Adjacent to MSA	17.4	20.3	13.0
Thinly Populated Adjacent to MSA	18.9	21.6	13.2
Thinly Populated Non-Adjacent to MSA	16.6	20.8	13.0
Percent Difference Between Urban and Rural	-21.5	-13.0	-5.0

NOTES: SNF is skilled nursing facility. MSA is metropolitan statistical area.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

MEDICARE-COVERED LENGTH OF STAY

Table 5 illustrates the average Medicare-covered length of stay per admission. First, it should be noted that swing-bed admissions are much shorter than nursing home admissions—13.3 days compared with 23.1 days nationally. This difference is consistent with work done by Shaughnessy, Schlenker, and Silverman (1988) which showed that Medicare swing-bed patients had substantially shorter stays and greater rehabilitation potential than did Medicare patients admitted to nursing homes. Lengths of stay for swing-bed admissions in rural areas are highest in urbanized areas, both adjacent and non-adjacent to an MSA, with averages of 15.0 and 14.8 covered days respectively, while other rural areas have averages around 13.1 days.

The shorter swing-bed stays pull down the rural average length of stay when admissions to nursing homes and swing beds are combined. Average Medicare-covered length of stay for all admissions is 23.7 days in urban areas and 18.6 days in rural areas—a 21.5-percent difference. When only admissions to nursing homes are considered, rural covered lengths of stay are still considerably shorter than urban covered stays—20.7 days for rural stays compared with 23.8 days for urban stays.³ This variation could be due to differences in the mix of diagnoses, in case mix within diagnoses, in the overall health

³Even though the swing-bed program is restricted to rural hospitals, Medicare SNF bill files indicate that almost 3,000 patients living in urban areas were admitted to hospital swing beds. Because use of the swing-bed program by urban beneficiaries is such an anomaly and is likely to arise under unusual circumstances, no comparisons between the urban swing-bed admissions and rural swing-bed admissions are made. Data for these admissions are, however, presented in the tables. They could be due to data errors, definitional differences, or urban enrollees being admitted to swing beds in rural areas.

of enrollees, or in other factors. Although there is some variability in average covered days for nursing home admissions within the urban and rural areas, no definite patterns emerge.

To further explore this phenomenon, the lengths of stay for the five most frequently occurring DRGs were compared. These are fractures of the hip and pelvis, DRG 236; specific cerebrovascular disorders except TIA, DRG 014; rehabilitation, DRG 462; degenerative nervous system disorders, DRG 012; and other factors influencing health status, DRG 467. As can be seen from Table 6, even after controlling for DRG, the pattern of longer lengths of stay in urban areas still holds.

ADMITTING DIAGNOSIS

Another possible explanation for differences in lengths of stay between urban and rural admissions and between nursing home and swing-bed admissions is the mix of diagnoses being treated. To determine whether the mix of diagnoses differed between urban and rural SNF benefit admissions and between swing-bed and nursing home SNF benefit admissions, the 10 most frequently occurring DRGs in urban nursing home admissions, rural nursing home admissions, and rural swing-bed admissions were analyzed. The most frequent DRGs for nursing

home admissions are almost identical in urban and rural areas (Table 7). The top 10 DRGs account for 54.5 percent of all urban nursing home admissions and 52.0 percent of all rural nursing home admissions. There are, however, differences in the importance of each of the 10 DRGs by geographic location. Strokes and hip and pelvis fractures account for 29.2 percent of all urban nursing home admissions and for only 25 percent of all rural nursing home admissions. Three DRGs, all of which are included in major diagnostic category 23 (Factors Influencing Health Status and Other Contacts with Health Services), account for a greater proportion of rural nursing home admissions than urban nursing home admissions. These three DRGs—rehabilitation, aftercare, and other factors influencing health status—comprise more than 12 percent of all rural nursing home admissions and less than 8 percent of urban nursing home admissions. These differences are even more pronounced in swing-bed admissions. In swing-bed admissions, rehabilitation, aftercare, and other factors influencing health status account for 20.8 percent of all admissions, while strokes and hip and pelvis fractures account for only 15.9 percent of all admissions.

So while the principal diagnoses treated under the SNF benefit are compa-

Table 6
Length of Covered Stay in Days for Selected DRGs for Urban Nursing Home, Rural Nursing Home, and Rural Swing-Bed Admissions: 1987

DRG Code	Description	Urban Nursing Home	Rural Nursing Home	Rural Swing Bed
DRG 236	Fractures of the Hip and Pelvis	23.35	22.14	15.79
DRG 014	Cerebrovascular Disorders Except TIA	27.61	25.38	15.13
DRG 462	Rehabilitation	17.86	14.11	13.74
DRG 012	Degenerative Nervous System Disorders	32.86	28.61	18.68
DRG 467	Other Factors Influencing Health Status	21.61	18.35	12.76

NOTES: DRG is diagnosis-related group. TIA is transient ischemic attack.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

able in each of the three categories previously discussed, their relative importance varies across categories. Whether this accounts for the disparity in lengths of stay is not clear. However, it does demonstrate that the populations served by the SNF benefit in rural and urban areas are different.

DEMOGRAPHIC CHARACTERISTICS OF USERS

The age distribution of Medicare SNF benefit users is detailed in Table 8. Only slight differences in age exist between ur-

ban and rural users, and virtually none exist between swing bed and nursing home users. Almost 75 percent of the users are 75 years of age or over in urban areas, and about 72 percent are 75 years of age or over in rural areas. It is surprising that the rural users are slightly younger than the urban users given that rural Medicare enrollees are slightly older than urban enrollees. This pattern may indicate that the rural elderly are being institutionalized earlier than their urban counterparts and may explain, in part, the shorter lengths of stay by rural enrollees.

Table 7

10 Most Frequent Admitting Diagnoses for Medicare-Covered Urban Nursing Home Admissions, Rural Nursing Home Admissions, and Rural Swing-Bed Admissions: 1987

DRG Code	Description	Number of Admissions	Percent of All Admissions
Urban Nursing Home Admissions			
236	Fractures of Hip and Pelvis	35,068	15.1
014	Specific Cerebrovascular Disorders, Except TIA	32,818	14.1
470	Ungroupable	11,491	4.9
012	Degenerative Nervous System Disorders	8,480	3.6
271	Skin Ulcers	8,205	3.5
462	Rehabilitation	7,258	3.1
089	Simple Pneumonia and Pleurisy, Age > 17 with CC	7,127	3.1
467	Other Factors Influencing Health Status	5,772	2.5
127	Heart Failure and Shock	5,679	2.4
320	Kidney and Urinary Tract Infections, Age > 17 with CC	4,979	2.1
Rural Nursing Home Admissions			
014	Specific Cerebrovascular Disorders Except TIA	9,256	13.0
236	Fractures of Hip and Pelvis	8,551	12.0
467	Other Factors Influencing Health Status	3,305	4.7
462	Rehabilitation	3,200	4.5
470	Ungroupable	2,393	3.4
089	Simple Pneumonia and Pleurisy, Age > 17 with CC	2,234	3.1
466	Aftercare without History of Malignancy as Second Diagnosis	2,154	3.0
012	Degenerative Nervous System Disorders	2,060	2.9
127	Heart Failure and Shock	2,024	2.8
271	Skin Ulcers	1,789	2.5
Rural Swing-Bed Admissions			
462	Rehabilitation	2,809	9.9
014	Specific Cerebrovascular Disorders Except TIA	2,614	9.2
236	Fractures of Hip and Pelvis	1,883	6.7
467	Other Factors Influencing Health Status	1,621	5.7
466	Aftercare without History of Malignancy as Second Diagnosis	1,459	5.2
089	Simple Pneumonia and Pleurisy, Age > 17 with CC	1,226	4.3
127	Heart Failure and Shock	912	3.2
243	Medical Back Problems	614	2.2
012	Degenerative Nervous System Disorders	594	2.1
296	Nutritional and Miscellaneous Metabolic Disorders, Age > 17 with CC	587	2.1

NOTES: DRG is diagnosis-related group. TIA is transient ischemic attack. CC is complications or comorbidities.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

Table 8
Distribution of Medicare SNF Benefit Users, by Demographic Characteristics: 1987

Demographic Characteristic	All Admissions	Nursing Home Admissions	Swing-Bed Admissions
		Percent	
Age			
Total:			
Less Than 65 Years	3.51	3.56	3.40
65-69 Years	8.34	8.31	8.68
70-74 Years	14.15	14.04	15.22
75-79 Years	19.98	19.92	20.59
80-84 Years	22.64	22.80	23.04
85 Years or Over	31.37	31.61	29.06
Urban:			
Less Than 65 Years			
65-69 Years	3.47	3.46	4.00
70-74 Years	8.06	8.05	9.45
75-79 Years	13.72	13.71	14.44
80-84 Years	19.66	19.65	19.89
85 Years or Over	22.64	22.63	23.38
Rural:			
Less Than 65 Years			
65-69 Years	3.62	3.73	3.34
70-74 Years	9.01	9.17	8.60
75-79 Years	15.17	15.11	15.30
80-84 Years	20.75	20.78	20.66
85 Years or Over	22.66	22.52	23.01
Race			
Total:			
White	89.89	89.69	91.81
Black	6.41	6.53	5.31
Other	1.08	1.14	0.54
Unknown	2.62	2.64	2.34
Urban:			
White	89.05	89.01	91.46
Black	7.14	7.16	5.76
Other	1.20	1.21	0.61
Unknown	2.61	2.62	2.17
Rural:			
White	91.90	91.92	91.84
Black	4.67	4.43	5.26
Other	0.80	0.91	0.54
Unknown	2.63	2.74	2.36
Sex			
Total:			
Male	32.89	32.43	37.30
Female	67.11	67.57	62.70
Urban:			
Male	31.45	31.40	35.31
Female	68.55	68.60	64.69
Rural:			
Male	36.32	35.84	37.51
Female	63.68	64.16	62.49

NOTE: SNF is skilled nursing facility.

SOURCE: Urban Institute analysis of 1987 SNF bill files.

Table 8 also presents the distribution of SNF benefit users by race. Rural users are slightly more likely to be of the white race than urban users, with 92 percent of all users being of the white race in rural areas and 89 percent being of the white race in urban areas. When users are compared with all Medicare enrollees, in both urban and rural areas the percent of white users is higher than the percent of white enrollees.

The distribution of users by sex is also presented in this table. Sixty-four percent of rural users are female, while 69 percent of urban users are female. These percentages are substantially higher than the percentage of female enrollees in both rural and urban areas and probably reflects a greater risk of institutionalization under the SNF benefit for females relative to males.

CONCLUSIONS

There appear to be systematic differences in SNF benefit use by residential location. Rural Medicare enrollees have SNF benefit admission rates that are 15-percent higher than their urban counterparts. In addition, the swing-bed program appears to play a pivotal role in guaranteeing access to post-acute care in rural areas. In rural areas, almost 29 percent of SNF benefit admissions are to swing beds. The swing-bed program has the greatest impact in the most rural counties, where admissions to swing beds account for more than 50 percent of all SNF benefit admissions. It has been argued that hospital swing-bed programs are in fact better suited to caring for some Medicare patients than are rural nursing homes, which are oriented towards patients requiring intermediate-level care

(Silverman, 1990). Unfortunately, no data exist documenting geographic differences in SNF benefit use prior to the implementation of the swing-bed program.

Medicare SNF benefit admissions to nursing homes are 17 percent lower in rural than in urban areas. Because most rural nursing home residents have intermediate care needs (Dor et al., 1990) and only a small percentage of rural nursing home beds are certified to provide skilled nursing care, many rural nursing homes may not be appropriately staffed to care for Medicare patients who tend to need heavier skilled nursing care. So while 19 percent of rural nursing home beds are certified to provide care to Medicare patients (Dubay, 1990), the rural elderly may have more difficulty gaining Medicare-covered placements in nursing homes than their urban counterparts.

Although this article highlights some important and surprising patterns in SNF benefit use, it is unable to draw conclusions regarding whether urban and rural differences in use reflect differences in access. The higher rural use rates may be explained by a number of factors. Non-institutionalized rural residents have been shown to be more debilitated than their urban counterparts (Agency for Health Care Policy and Research, 1990). Rural Medicare enrollees are also older than urban enrollees. It has been shown that the ability of HHAs to serve the elderly may be lower in rural areas than in urban areas (Kenney, 1991a). This may result in the rural elderly entering nursing homes less disabled than the urban elderly and could explain the lower level of debility found in the rural institutionalized population (Dor et al., 1990). Although not necessarily offsetting, Medicare-covered

home health use is 17-percent lower in rural areas (Kenney, 1991c) compared with urban areas, while Medicare-covered nursing home use is 15-percent higher. If this picture is accurate, the demand for Medicare-covered nursing home services is likely to be higher in rural areas. Consequently, the higher use of the Medicare SNF benefit found in rural areas may not indicate that the rural elderly who need care have greater access to care. Forthcoming analysis on nursing home use that controls for factors such as nursing home bed supply, the age distribution of the elderly, as well as the supply of alternative types of care, should greatly increase the knowledge concerning the relative access of rural and urban elderly persons to Medicare-covered nursing home care.

In addition, changes in the nursing home industry that resulted from the Medicare Catastrophic Coverage Act, HCFA's reclassification of SNF benefit guidelines, and the elimination of the SNF and ICF distinction, may have made nursing homes more willing to admit heavy-care Medicare patients. If these changes affect urban and rural nursing homes' ability or willingness to admit Medicare patients differently, residential differences in use may have changed. Analysis of later data would illuminate whether the results reported in this article still hold.

ACKNOWLEDGMENTS

The author gratefully acknowledges the helpful comments of Genevieve M. Kenney. Lydia Taghavi and Chad Abrams provided excellent research assistance.

REFERENCES

Agency for Health Care Policy and Research: *Functional Status of Non-Institutionalized Elderly: Estimates of ADL and IADL Difficulties*. Research Findings 4. U. S. Department of Health and Human Services. Washington, DC. 1990.

Dor, A., Dubay, L.C., Kenney, G.M., and Perozek, M.: The Characteristics of Nursing Home Residents: An Urban-Rural Comparison. Working Paper 3971-01. The Urban Institute. Washington, DC. October 1990.

Dubay, L.C.: The Provision of Nursing Home Services: Is There a Problem in Rural Areas? Working Paper 3971-06. The Urban Institute. Washington, DC. November 1990.

Hewitt, M.: Defining Rural Areas: Impact on Health Care Policy and Research. Office of Technology Assessment. U.S. Congress, Washington, DC. 1990.

Kenney, G.M.: The Provision of Home Health Services: Is It a Problem in Rural Areas? Working Paper 3971-02. The Urban Institute. Washington, DC. May 1991a.

Kenney, G.M.: Access to Home Health Services: Is It a Problem for the Rural Elderly? Working Paper 3971-05. The Urban Institute. Washington, DC. May 1991b.

Kenney, G.M.: Home Health Use Patterns in Rural and Urban Areas: Are They Different? Working Paper 3971-04. The Urban Institute. Washington, DC. May 1991c.

Kenney, G.M.: Rural and Urban Differentials in Medicare Home Health Use. *Health Care Financing Review* 14(4):39-57, Summer 1993.

Letsch, S.W., Levit, K.R., and Waldo, D.R.: National Health Expenditures, 1987. *Health Care Financing Review* 10(2):109-122, Winter 1988.

Liu, K., Coughlin, T., and McBride, T.: Nursing Home Utilization: Risks and Length of Stay. Working Paper 3876-02. The Urban Institute. Washington, DC. December 1989.

Shaughnessy, P.W., Schlenker, R.E., and Silverman, H.A.: Evaluating the National Swing-Bed Program in Rural Hospitals. *Health Care Financing Review* 10(1):87-94, Fall 1988.

Silverman, H.A.: Swing-Bed Services Under the Medicare Program, 1984-87. *Health Care Financing Review* 11(3):99-106, Spring 1990.

Reprint requests: Lisa C. Dubay, Research Associate, The Urban Institute, 2100 M Street, NW., Washington, DC 20037.