HEALTH SERVICES

Use of Medicare Services by Elderly Residents of Puerto Rico

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Objectives. **We describe hospitalization rates among Medicare beneficiaries resident in Puerto Rico compared to beneficiaries in the mainland U.S., in 1999.**

Methods. **A cross-sectional analysis using Medicare Denominator and hospitalization files.**

Results. **The rate ratio (PR/U.S.) of age, gender-adjusted hospitalizations among elderly Medicare beneficiaries with Part A coverage was 0.78, compared with 0.92 among beneficiaries with both Part A and Part B coverage. Among the latter, the rate ratios were 0.78 for surgical admissions, 1.08 for low-variation medical conditions, and 0.97 for high variation medical conditions. They were higher for younger elderly beneficiaries.**

Conclusions. **Rates of hospitalization in Puerto Rico may be lower, the same or exceed those of the mainland U.S. depending on the age of the beneficiary and the type of hospitalization.**

Key words: Puerto Rico, Medicare, Health service utilization, Elderly

Medicare administrative data have been used to understand the access to, and use, of health services, (1-5) the impact of the Medicare program policy, (6-8) as well as the health of Medicare beneficiaries (9-12). Publications that have reported information on geographically defined populations have generally not presented information about the residents of the Commonwealth of Puerto Rico. For example, *The Dartmouth Atlas of Health Care* (1) and the comprehensive reports of the use of hospital services by the Health Care Financing Administration (HCFA) (13-15) did not include services rendered to residents of Puerto Rico (16). The National Inpatient Sample (NIS) of the Healthcare Cost and Utilization Project (HCUP) of the Agency for Health Care Research and Quality (AHRQ) includes 22 states, but not the Commonwealth of Puerto Rico (16). Even when information regarding Puerto Rico residents is included, the data may be aggregated with other data, limiting its utility. For example, in the Health Care Financing Review's annual "Medicare and Medicaid Statistical Supplement" a small amount of information is presented regarding Medicare beneficiaries residing in Puerto Rico. For 1998, the last year for which information has been published, information on the annual rate of hospitalization for Puerto Rico residents is combined with Guam, Virgin Islands, residence unknown, and published as "Outlying Areas" (17).

One of the major goals of the Department of Health and Human Service's *Healthy People 2010* initiative is to eliminate disparities among different gender, race, ethnic or other special groups by the year 2010 (18). Unless information is gathered and presented, there will be a continued lack of understanding of the needs of these groups, including Hispanic or Latino populations. In addition to understanding and addressing the differences seen between the majority population and Hispanics or Latinos, policy makers, as well as health and public health practitioners need to know about similarities and differences within the Hispanic or Latino community. Wagner and Grundelman have reported similar "entry into the health care system", volume of health care received, and hospitalization rates for Puerto Ricans, Cuban-Americans, Mexican-Americans, and "other Hispanic groups" (19). However, they also found differences between these Hispanic groups in the use of emergency services and of preventive services (19).Burnette and Mui, using the 1988 National Survey of Hispanic Elderly People found that Cuban Americans and Puerto Ricans were 2.3

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and 2.6 times as likely to have seen a physician in the past year, respectively, than were Mexican-Americans (20). Thus, it is important that we conduct policy-relevant health and health services research about each of these distinct and different groups. However, it is also important to note that neither the Commonwealth Fund Minority Health Survey used by Wagner and Guendelman nor the 1988 National Survey of Hispanic Elderly People used by Burnette and Mui included Puerto Ricans living in Puerto Rico in their samples.

The availability of health and health services information regarding the residents of the Commonwealth of Puerto Rico is improving. The Linked Birth/Infant Death file from 1986 and 1987 available from the National Center for Health Statistics includes births for all of the United States including the District of Columbia and Puerto Rico. Using this file, Albrecht and Miller reported that Cuban-American and Puerto Rican women were more likely to obtain adequate prenatal care than were Mexican-American women or women of Central/South American origin (21). Information regarding Puerto Rican residents' health and health behaviors have been reported by the National Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS) since 1996 (22). The Office of Clinical Standards and Quality of the Centers for Medicare and Medicaid Services (CMS), has recently reported on the quality of medical care delivered to elderly Medicare beneficiaries (23). Among the 23 process of care indicators measured by the Medicare program among residents of the 50 states, the District of Columbia and Puerto Rico, Puerto Rico residents received the lowest quality of care, overall. Puerto Rico was ranked 52nd for 16 of the 23 quality indicators including such low-cost interventions as influenza immunization, mammography, and hemoglobin A1c determination in persons with diabetes. This information highlights the potential special nature of the health status and use of health services by the elderly population of Puerto Rico. Analyses of Medicare administrative data should include this population, so that important differences that could be addressed by new health policies or other interventions directed specifically at the elderly population of Puerto Rico are not overlooked.

The purpose of this paper is to present enrollment information for 1999 found in the Medicare administrative data for about all Medicare beneficiaries residing in Puerto Rico, and their use of Medicare reimbursed short stay hospital services by the elderly. This information is compared with the Medicare population living in the 50 United States and the District of Columbia, hereafter called "mainland US". We hope that this information will provide a basic understanding about this special population and encourage additional research regarding Puerto Rican residents using the Medicare administrative data files.

Methods

The 1999 Medicare Denominator file and the short stay Medicare Provider Analysis and Review (MedPAR) file were used. In addition to basic demographic information (age, gender, race, and state and county of residence), the Denominator file includes Medicare Part A, Part B and managed care enrollment information by month The Medicare program has traditionally described persons with Part A coverage as having "Hospital Insurance" or HI. Beneficiaries who purchase Part B coverage, or have it purchased for them, are described as having "Supplemental Medical Insurance" or SMI. (24,25). However, Part A, benefits also include care provided by skilled nursing facilities, long-term care hospitals, home health agencies and hospice. Part B benefits include physician services, other provider services (including laboratory), hospital out-patient services and durable medical equipment. The short stay MedPAR file for 1999 contains one record for each hospitalization with a discharge date between January 1 and December 31, 1999. Each record includes the same demographic information as the Denominator files, as well as the Diagnostic Related Group (DRG) assigned to each hospitalization by CMS.

Initial analysis focused on the characteristics of the Puerto Rico residents who were enrolled in the Medicare program in 1999 and their categories of enrollment. Subsequently, overall rates of hospitalization, as well as rates of hospitalization for low and moderate variation, high variation and surgical DRG's, (1) (See Appendix, p.118) were calculated per 1,000 elderly (65 years of age and older) Medicare beneficiaries residing in Puerto Rico and the mainland U.S. These rates were calculated for all elderly beneficiaries with Part A coverage; for those elderly beneficiaries with Part A coverage, only; and for those elderly beneficiaries with both Part A and Part B coverage. The rates were calculated using person-years of coverage during 1999. Prior to calculating these rates, we followed the practice of other researchers using Medicare administrative of excluding those elderly beneficiaries who were enrolled in a managed care plan at any time during the year (1-5,10-12). We also followed the *Dartmouth Atlas of Health Care* convention of excluding persons over 99 years of age (1). Puerto Rican residents were assigned to one of seven administrative regions defined by the Puerto Rico Department of Health: Arecibo, Bayamón, Caguas, Mayagüez, Metropolitan East (the Fajardo health sub-region located east of San Juan and Carolina), Metropolitan West (which includes the San Juan and Carolina health

areas) and Ponce. Rates were standardized to the June 1999 100% U.S. Medicare population with Part A and Part B coverage.

Results

In June 1999, 494,446 residents of Puerto Rico had Medicare Part A coverage, or Medicare Part B coverage, or both. Of these, 125,915 (22.5%) had only Part A, 439 (0.09%) had only Part B, and 368,092 (74.2%) had both (Table 1). The percent of the Medicare population with only Part A in 1999 varied markedly by age. Among Puerto Rican beneficiaries less than 65 years of age, 38.8% had only Part A coverage. Among beneficiaries 65 years of age and older the percent with only Part A coverage was 20.9% and the age-group-specific ratios (P.R /mainland U.S.) range from 2.6 to 14.2.

In 1999, among elderly Puerto Rico residents with Part A coverage, the overall rate of acute care hospitalizations, 260.6/1,000 beneficiaries, was 78% of the rate for the mainland U.S. (336.2/1,000) (Table 2). As expected, the rates of hospitalization increased with age. On the other hand, the ratios (Puerto Rico/mainland U.S.) of the rates of hospitalizations for beneficiaries 65 years of age and older decreased with age. The ratios of the rates of hospitalization for low and moderate variation medical DRGs was consistently higher than for the high variation medical DRGs and the surgical DRG's.

The lower rates of hospitalization among Puerto Rican residents compared with the rest of the United States, and

Table 1. Number and Percent of Medicare Fee-for-Service Beneficiaries Enrolled in Medicare Part A and/or Part B in Puerto Rico and the Mainland U.S., 1999

Demographic characteristic	Puerto Rico						Mainland U.S.				
	Number and Percent of beneficiaries with Part A, only		Number and Percent of beneficiaries with Part B, only		Number and Percent of beneficiaries with Part A & Part B		Total	Percent of beneficiaries with Part A, only	Percent of beneficiaries with Part B, only	Percent of beneficiaries with Part A & Part B	Ratio of beneficiaries with Part A, only (P.R./ Mainland U.S.)
	Number	Percent	Number	Percent	Number	Percent					
< 65 years	48,674	38.8	< 11	0.00	76,812	61.2	125,495	11.8	0.0	88.2	3.3
65 - 69 years	26,210	27.2	69	0.07	70,177	72.8	96,456	10.3	1.2	88.5	2.6
70 - 74 years	17,976	19.2	88	0.09	75,535	80.7	93,599	4.7	1.5	93.8	4.1
75 - 79 years	14,481	18.9	86	0.11	62,162	81.0	76,729	2.5	1.6	95.9	7.6
80 - 84 years	8,359	16.4	82	0.16	42,495	83.4	50,936	1.3	1.6	97.2	12.6
≥85 years	10,215	19.9	105	0.20	40,911	79.9	51,231	1.4	1.7	96.9	14.2
≥65 years	77,241	20.9	430	0.12	291,280	78.9	368,951	3.8	1.5	94.1	5.5
≥65 years, male	40,458	24.2	101	0.06	126763	75.8	167,322	6.3	1.2	92.5	3.8
≥65 years, female	36,783	18.2	329	0.16	164517	81.6	201,629	3.1	1.8	95.2	5.9
Total	125,915	22.5	439	0.09	368,092	74.5	494,446	5.4	1.3	93.3	4.2

For the population 65 through 84 years of age, there was a decrease in the percent with only Part A coverage with increasing 5-year age group, from 27.2% to 16.4%. Men 65 years of age and older were 33.0% more likely than women to have only Part A coverage (24.2% in men and 18.2% in women). Among mainland U.S. residents, 5.4% of all Medicare beneficiaries had only Part A coverage. It was 11.8% in those less than 65 years of age and 3.8% in the elderly. Among the elderly, the range was from 10.3% in those 65 through 69 years age to 1.3% and 1.4% in those beneficiaries 80 years of age and older. Comparing the two populations, the percentage of elderly beneficiaries with only Part A is 5.5 times greater among all Puerto Rican Medicare beneficiaries compared with the mainland U.S., the large percentage of Puerto Rican Medicare beneficiaries with only Part A coverage led us to compare the rates of hospitalization among beneficiaries who had only Part A coverage to the rates of hospitalization among beneficiaries who had both Part A and Part B (Table 3). The rate of hospitalization among Puerto Rican residents with Part A coverage was 12.8/1,000 beneficiaries; it was 9.8/1,000 beneficiaries for mainland U.S. residents. For both Puerto Rican and mainland U.S. residents, Medicare beneficiaries with only Part A coverage are extremely less likely, 3.9% and 2.8%, respectively, to have a hospitalization paid for by the Medicare program than those with both Part A and Part B. Very low rates of hospitalization among Medicare beneficiaries with only

Table 2. Rates of Hospital Discharges per 1,000 Elderly Medicare Fee-for-Service Beneficiaries in Puerto Rico and the Mainland U.S.

Beneficiaries with Medicare Part A coverage	Puerto Rico				Mainland U.S.				Ratio: Puerto Rico / Mainland U.S.			
Demographic characteristic	Low/mod variation medical DRGs	High variation medical DRGs	Surgical DRGs	Total	Low/mod variation medical DRGs	High variation medical DRGs	Surgical DRGs	Total	Low/mod variation medical DRGs	High variation medical DRGs	Surgical DRGs	Total
65 - 69 years	12.5	107.4	53.8	173.6	12.5	123.3	74.2	209.9	1.00	0.87	0.73	0.83
70 - 74 years	18.0	141.2	60.9	220.1	17.7	159.8	91.3	268.8	1.02	0.88	0.67	0.82
75 - 79 years	24.0	177.7	67.7	269.3	25.7	213.0	105.5	344.3	0.93	0.83	0.64	0.78
80 - 84 years	34.3	230.1	68.0	332.4	37.0	281.8	108.5	427.2	0.93	0.82	0.63	0.78
≥85 years	41.5	264.0	62.7	368.3	52.7	373.8	98.2	524.8	0.79	0.71	0.64	0.70
Males	25.3	157.2	67.1	249.6	27.5	204.1	104.9	336.5	0.92	0.77	0.64	0.74
Females	23.1	187.1	58.0	268.2	26.0	222.6	87.4	335.9	0.89	0.84	0.66	0.80
Total	24.0	174.8	61.7	260.6	26.6	215.0	94.5	336.2	0.90	0.81	0.65	0.78
Beneficiaries with Medicare Part A and Part B coverage												
65 - 69 years	16.8	143.5	71.9	232.2	13.8	136.9	82.4	233.1	1.22	1.05	0.87	1.00
70 - 74 years	22.1	173.5	74.4	270.0	18.5	167.6	95.8	281.9	1.19	1.04	0.78	0.96
75 - 79 years	29.3	217.7	83.0	330.0	26.3	218.4	108.2	352.9	1.11	1.00	0.77	0.94
80 - 84 years	40.9	274.2	80.8	396.0	37.5	285.3	109.8	432.6	1.09	0.96	0.74	0.92
≥85 years	51.8	329.2	78.3	459.3	53.5	379.2	99.6	532.3	0.97	0.87	0.79	0.86
Males	33.1	205.1	87.1	325.3	29.3	217.6	111.8	358.7	1.13	0.94	0.78	0.91
Females	28.1	226.2	69.9	324.2	26.8	229.5	90.1	346.5	1.05	0.99	0.78	0.94
Total	30.1	217.7	76.8	324.6	27.8	224.7	98.8	351.4	1.08	0.97	0.78	0.92

Rates for males and females are age group-adjusted to the U.S. elderly fee-for-service population

Part A coverage for all three categories of hospitalizations were also seen among both Puerto Rican residents, as well as among residents of the mainland. The ratios of the hospitalization rates for the three different categories of hospitalizations (Beneficiaries with only Part A / Beneficiaries with Part A and Part B) were between 0.025 and 0.055).

When we restricted our analysis to only those elderly beneficiaries with both Part A and Part B coverage, the differences in the rates of total hospitalizations between Puerto Rican and mainland U.S. beneficiaries became much smaller (Table 2). The elderly population of Medicare beneficiaries who were Puerto Rico residents were now only 8% less likely to have a hospitalization paid for by Medicare (rate ratio for all hospitalizations = 0.92). The rates of total hospitalization among the younger elderly Puerto Rican residents were much closer to the U.S. mainland residents than the rates among older elderly residents; only 4% lower in beneficiaries 65-59 years of age. However, they were 14% lower in those 85 years of age and older. Looking at the low and moderate variation medical DRGs, elderly Puerto Rican residents were 8% more likely to be hospitalized than mainland U.S. residents. This was true for all but the oldest age group. For high variation medical DRG's, elderly Puerto Rican residents were only 3% less likely to be hospitalized than residents of the mainland U.S. The younger age groups living in Puerto Rico were more likely to be hospitalized for these

Table 3. Rates of Hospital Discharges per 1,000 Fee-for-Service Elderly Medicare Beneficiaries Enrolled in Medicare Part A, Only, or in Both Medicare Part A and Part B in Puerto Rico and in the Mainland U.S., 1999

Enrollment	Low and moderate variation medical DRGs	High variation medical DRGs	Surgical DRGs	Total
Puerto Rico				
Part A, only	0.8	7.9	4.2	12.8
Both Part A & B	30.1	217.7	76.8	324.6
Rate ratio (A, only/A &B)	0.027	0.036	0.055	0.039
Mainland U.S.				
Part A, only	0.7	5.7	3.5	9.8
Both Part A & B	27.8	224.7	98.8	351.4
Rate ratio (A, only/A &B)	0.025	0.025	0.035	0.028
Total	26.6	214.4	94.1	335.0

Rates are age group-, gender-adjusted to U.S. elderly Medicare population in 1999

Table 4. Rates of Hospital Discharges per 1,000 Elderly Medicare Fee-for-Service Beneficiaries with Part A and Part B Coverag in Puerto Rico, by Region, 1999.

Region	Low and moderate variation medical DRGs	High and moderate variation medical DRGs	Surgical DRGs	Total
Arecibo	34.6	294.7	78.3	407.7
Bayamón	26.1	200.8	76.1	303.0
Caguas	34.3	232.9	74.6	341.7
Mayaguez	28.8	182.8	69.4	281.0
Metro East	27.7	204.2	72.9	304.8
Metro West	23.2	185.8	70.6	279.6
Ponce	38.5	253.0	98.1	389.5
Total	30.1	217.7	76.8	324.6
Ratio (Highest region/Lowest region)	1.66	1.61	1.41	1.45

Rates are age group-, sex-adjusted to U.S. elderly Medicare fee-for-service population discharged from the hospital in 1999.

DRGs, and the older were less likely. The consistently biggest differences between Puerto Rican residents and mainland U.S. residents was seen for the surgical DRGs. Puerto Rican residents were only 78% as likely to be hospitalized for a surgical DRG than mainland U.S. residents. Table 4 presents the rates of hospitalization among elderly Medicare beneficiaries with Part A and Part B coverage for the seven regions of Puerto Rico. Arecibo had the highest overall rate of hospitalization (407.7/1,000 beneficiaries). The lowest rate of overall hospitalizations occurred in the Metro West region (279.6/1,000 beneficiaries). The ratio of the region with the highest overall rate of hospitalization to the region with the lowest rate was 1.45. Interestingly, the ratio was greater for the low and moderate variation medical DRGs (1.66) than for either the high variation medical DGRs (1.61) or the surgical DRGs (1.41).

Discussion

The most important observation regarding the Puerto Rican enrollment information is the large percentage of beneficiaries (22.5% of all Medicare beneficiaries and 20.9% of the elderly Medicare beneficiaries) who have only Part A coverage compared with mainland U.S. (5.8% for all, and 3.8% for the elderly) (Table 1). The District of Columbia is the only jurisdiction in the mainland U.S. in which more than 10% of the elderly Medicare beneficiary population had only Part A coverage in 1998 (10.8%). (Data not shown but can be calculated from http://www.hcfa.gov.stats/en798agd.htm. Data are not yet available for 1999.) Three states had rates between 5% and 10%: HI = 6.4; AK = 6.0, and MD = 5.1. In all other states less than 5% of the elderly beneficiaries had only Part A coverage. In the mainland U.S. population, it is felt that most of the elderly beneficiaries with only Part A coverage have other health care coverage, primarily from the person's current or past employer. Because most of these people are thought to have employer-based coverage, it is expected that the percent of beneficiaries with only Part A coverage would decrease with age. This trend is clearly present in Table 1, except for the slight (mainland U.S.) to modest (Puerto Rico) increase among persons 85 years of age and older. Other possible sources of care described for persons with Medicare coverage are the Department of Veterans Affairs (VA), the Indian Health Service (IHS), and the Department of Defense (DOD) (26-28). There is no IHS program in Puerto Rico. However, the VA provides health services to resident veterans in Puerto Rico. In 1999, there were 8,411 hospitalizations and 28,383 different elderly persons seen in the outpatient clinics at the San Juan VA hospital (these numbers include an unknown number of veterans from the U.S. Virgin Islands), plus an unknown number of persons seen at other VA clinics in other parts of Puerto Rico. (Roberto Cordero, IMS Office, VAMC, San Juan, personal communication, March 2002.)

An additional important source of health care coverage in Puerto Rico is the Seguro de Salud del Estado Libre Asociado de Puerto Rico (Health Insurance of the Commonwealth of Puerto Rico) created by the Commonwealth Legislature in 1993 and administered by the Administration de Seguros de Salud de Puerto Rico (29). It provides capitated managed care insurance for those who are eligible because they are medically indigent (monthly individual income of < $400 or family income < $800). The comprehensive coverage provided includes hospital inpatient care, physician care, other ambulatory services, mental health benefits, and pharmacy benefits. In July 1999, there were 216,316 Puerto Ricans of all ages enrolled in the Health Insurance of Puerto Rico program who also had Medicare coverage. Among them, 43,864 had only Part A coverage, and 172,452 had both Part A and Part B coverage. Thus, 35% of the 125,915 beneficiaries with only Part A coverage (Table 1) have Health Insurance of Puerto Rico coverage. This means that between the VA system and the Health Insurance of Puerto Rico coverage we can hope that there is an appropriate rate of hospitalization among the beneficiaries with only Part A coverage. Unfortunately, we cannot know this with certainty until information is shared and merged by the agencies involved.

Because a much larger percentage of Medicare beneficiaries who are residents of Puerto Rico have only Part A than on the mainland U.S., it is important for researchers planning to study the use of health services by residents of Puerto Rico that they either limit their investigations to only those persons who have both Part A and Part B coverage, or stratify their analysis into coverage groups that make sense for their analysis The same advice could be given to researchers studying health care use in the mainland US Medicare population because of the very low rates of hospitalization among persons with only Part A, 9.8/1000 beneficiaries (Table 3). However, the error introduced by not excluding, on average, the 3.8% of elderly Medicare beneficiaries with only Part A coverage, will be much smaller than in Puerto Rico (Table 1).

Once beneficiaries with only Part A coverage were removed from the denominator, the ratio of the rates of overall hospitalization among Puerto Rican residents with Part A and Part B coverage compared with beneficiaries with similar coverage in the mainland U.S. was 0.92 (Table 2). However, as highlighted earlier, the rate ratios vary importantly and interestingly by age-group and type of hospitalization. It is only the oldest old Puerto Rican residents who are not hospitalized at a greater rate for low and moderate medical DRGs than their mainland U.S. counterparts. Also, Puerto Ricans 65 through 74 years of age were hospitalized at slightly higher rates than residents of the remainder of the United States for high variation medical DRGs. Although the rates of hospitalization for surgical DRGs are consistently lower than for the mainland U.S., the highest rate ratios are in the younger elderly beneficiaries. Because of these findings, it is possible that the overall rates of hospitalization in Puerto Rico and the mainland U.S.will approximate each other as the younger cohort becomes older. This is already seen in the two Puerto Rican regions with the highest rates of hospitalization, Arecibo (407.7/1,000 beneficiaries) and Ponce (389.5/1,000 beneficiaries) that had higher rates of hospitalization than the mean for the mainland U.S. by 16.0 % and 10.8%, respectively (Tables 2 and 4).

Due to a presumed greater homogeneity of health needs and health service resources in the Puerto Rico population compared with the mainland U.S., the range in the rates of hospitalizations between the seven regions of Puerto Rico is much lower than for the mainland U.S. In 1994-95, the ratio of the rates of discharges among elderly Medicare beneficiaries for the 306 Hospital Referral Regions in the Dartmouth Atlas of Health Care for surgical DRG's varied by a factor of slightly less than two, from 64.4 discharges/ 1,000 to 119.8/1,000 (1). For all Medical DRG's the rates varied by approximately a factor of three, from 122.3/1,000 elderly beneficiaries to 353.5/1,000 elderly beneficiaries. In Puerto Rico, Ponce was the region with the highest rate of hospitalization for surgical DRGs, 98.1/1,000 and Arecibo was the region with the highest rate of hospitalization for all medical DRGs, 329.3/1,000. However, these rates were only 1.41 and 1.58 times greater than the rates for the lowest region; Mayagüez for the surgical DRGs, and Metro West (which includes San Juan and Carolina) for the medical DRGs.

We have made no attempt to determine the need for hospitalization among residents of Puerto Rico compared with the mainland U.S, or adjust for possible differences. This is an important line of research to follow because certain risk factors and disease patterns may differ between the two populations. For example, the CDC's BRFSS results for 1999 indicate an approximately 2-fold higher rate of self-reported diabetes among elderly Puerto Rican residents (26.0%) than the total U.S. elderly population (13.6%) (22). In addition, in 1999, only 8.6 % of elderly Puerto Rican residents report their general health to be excellent or very good, compared with 38.3% of the elderly population nationwide (22). On the other hand, the BRFSS reported a small differences, no difference or reduced risk among elderly Puerto Rican residents for other health indicators: hypertension awareness (P.R = 53.5% vs. median U.S. state = 48.2%); history of an elevated cholesterol (P.R. = 40.8.0% vs. median U.S. state 41.7%); current smoking (P.R. = 5.8% vs. median U.S. state = 10.3%) (22).

It is important that further steps be taken to more completely understand the use of Medicare services by Puerto Rican beneficiaries. Additional years of MedPAR files should be examined to determine if there are any important trends in the rates of hospitalization, as well as for specific procedures and diagnoses. The previously unreported similarity in the rates of hospitalization among Puerto Rican residents and residents of the mainland U.S. who have both Part A and Part B coverage means that analyses of the entire United States can and should be done, including Puerto Rico as a separate geographic unit. Other Medicare administrative databases such as the Standard Analytic Files that contain the claims for hospital outpatient services, physician and other supplier services, home health agency and hospice care should also be analyzed using the appropriate denominator, also.

Resumen

Se describen las tasas de hospitalización de los beneficiarios del Programa Medicare residentes en Puerto Rico comparadas con las tasas de los beneficiarios en los Estados Unidos en el año 1999. Se utilizó el análisis

transversal utilizando archivos electrónicos de denominadores y hospitalizaciones del Programa Medicare. La razón de tasas (PR/EU) de hospitalizaciones ajustadas por edad y género en beneficiarios de edad avanzada del Programa Medicare con cobertura de la Parte A fue 0.78, comparada con 0.92 entre beneficiarios con coberturas de Parte A y Parte B. Las razones de tasas en estos beneficiarios con ambas coberturas fueron 0.78 para admisiones quirúrgicas, 1.08 para condiciones médicas de baja variación y 0.97 para condiciones médicas de alta variación. Estas razones de tasas fueron mayores para los beneficiarios mas jóvenes dentro del grupo de edad avanzada. Las tasas de hospitalización en Puerto Rico pueden ser menores, similares o mayores que las de los Estados Unidos dependiendo de la edad del beneficiario y del tipo de hospitalización.

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Appendix 1

Classification of CMS Diagnostic Related Groups

Category of hospitalization	DRGs
Low and moderate variation medical	174, 175, 14, 121-123
High variation medical	9-13, 15-35, 43-48, 64-74, 78-102, 124-145, 172-173, 176-190, 202-208, 235-256, 271-284, 294-301, 316-333, 346-352, 366-369, 372, 373, 376, 378-391, 395-399, 403-405, 409-414, 416-423, 425-437, 444-457, 460, 462-467, 473, 475, 487, 489, 490, 492
Surgical	1-8, 36-42, 49-63, 75-77, 103-108, 110-120, 146-171, 191-201, 209-234, 257-270, 285-293, 302-315, 334-345, 353-365, 370, 371, 377, 392-394, 400-402, 406-408, 415, 424, 439-443, 458, 459, 461, 468, 471-472, 476-486, 488, 491, 493, 494, 495