Findings Brief:

USING THE MEDICARE CURRENT BENEFICIARY SURVEY FOR ANALYSIS OF RURAL HEALTH POLICY ISSUES

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OVERVIEW

The Medicare Current Beneficiary Survey (MCBS) is a longitudinal survey of a nationally representative sample of approximately 14,400 aged and disabled persons eligible for Medicare. The MCBS may be used by researchers to assess Medicare beneficiaries' health care status, needs, access to services, and use of services. While the MCBS as a whole is nationally representative, estimates for other subgroups such as rural populations may be problematic because of the sample distribution. This Findings Brief provides an assessment of:

◆ The distribution of the MCBS sample by the Economic Research Services (ERS) Rural-Urban Continuum Code,

◆ The distribution of the counties and individuals sampled relative to the population across the ERS Rural-Urban Continuum code

◆ An analysis of the probability of hospitalization across the code to illustrate the implications of small sample sizes for some area designations.

The data are from the 1992 MCBS Cost and Use File, which represents all Medicare beneficiaries who were ever enrolled at any point during 1992. A more detailed monograph (available by request) extends this assessment to six other county area designations frequently used by rural health researchers: metropolitan status, census division, percent urbanized, the urban influence code, Health Provider Shortage Areas (HPSAs) and Medically Underserved Areas (MUAs).

FINDINGS

In contrast to the metropolitan portion of the sample, the non-metropolitan sample comes from a limited number of geographic areas. Although only four states had no sample members (Alaska, Delaware, Hawaii, and Montana), among states with non-metropolitan counties, no persons in these areas were selected in Connecticut, Massachusetts, Maryland, Nevada, and New Hampshire. Nineteen other states have fewer than 10 sample members in non-metropolitan areas.

In reviewing the distribution of the sample for each indicator, we consider both the number of counties from which the sample is drawn and the sample size (both in total and for persons age 65 or older). While the distribution of persons is important for characteristics which are measured at the individual level, the distribution across counties is also of interest, as researchers often assign county characteristics to the individual who resides in that county. Student t-tests are used to assess whether the sample distribution with respect to a given sub-group is significantly different from the overall distribution.

Table 1 presents this information for the USDA ERS Rural-Urban Continuum Code. Non-metropolitan counties are significantly underrepresented in four of the six categories, while metropolitan counties are significantly overrepresented in all of the categories. In contrast, the percent of population age 65 and up represented is relatively greater for most of the non-metropolitan areas and lower for the metropolitan areas. The comparisons for the percent of population age 65 and up represented are not statistically significant, however, except that sample members in counties not adjacent to a metropolitan area and having an urban population less than 2,500 are significantly underrepresented.
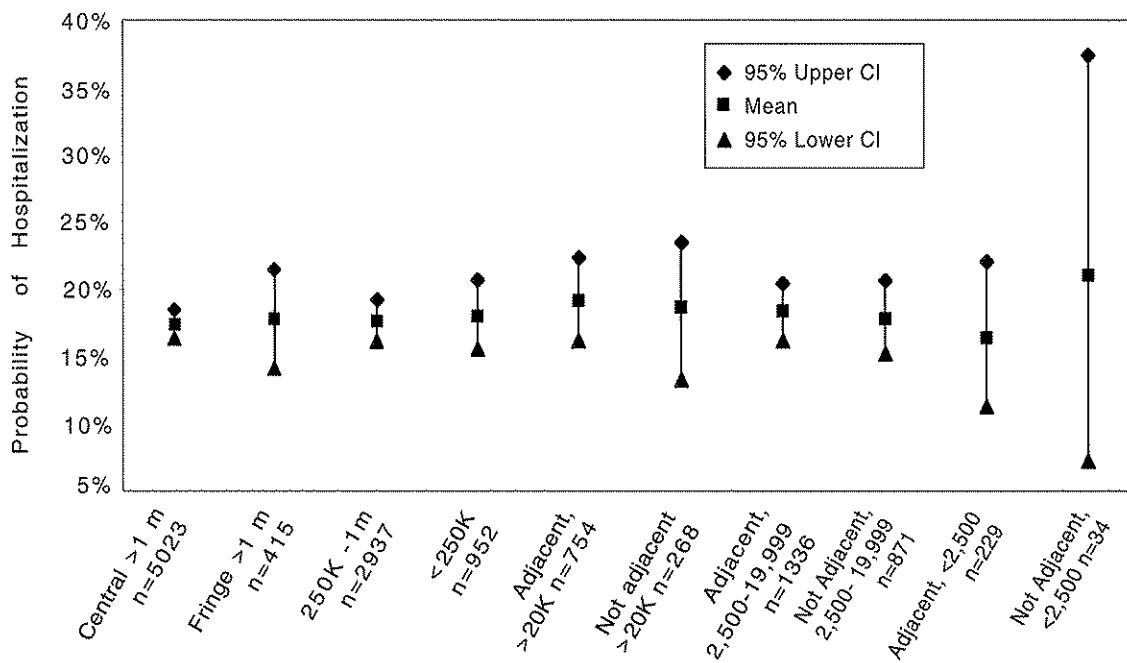
The implications of limited sample size for statistical analysis are illustrated by estimating the probability of an individual having one or more hospital stays in 1992, stratified by the ERS Rural-Urban Continuum Code. The confidence intervals for the estimates overlap either substantially or entirely for the measures (Figure 1), though from this bivariate analysis it is not possible to tell whether the lack of differences across areas is due to underlying differences in the population that are not controlled for or due to a true lack of difference. While the estimated probability of hospitalization for Medicare beneficiaries in

Table 1: ERS Rural-Urban Continuum Code

	MCBS Number of Counties	Percent of Counties Represented	MCBS Number of Individuals	MCBS Number of Individuals 65 and Over	Percent of Population 65 and Over Represented
Metropolitan					
Central > 1 million	138	82.1%(* +)	5,023	4,160	0.0294%
Fringe > 1 million	51	38.6%(* +)	415	339	0.0298%
250,000-1million	117	36.8%(* +)	2,937	2,361	0.0309%
< 250,000	48	24.2%(* +)	952	790	0.0288%
Nonmetropolitan					
Adjacent, urban pop. > 20,000	28	21.1%	754	586	0.0414%
Not adjacent, urban pop. > 20,000	18	16.4%	268	218	0.0257%
Adjacent, urban pop. 2,500-19,999	69	11.3%(* -)	1,336	1,124	0.0445%
Not Adjacent, urban pop. 2,500-19,999	64	10.0%(* -)	871	687	0.0342%
Adjacent, urban pop. < 2, 500	19	7.7%(* -)	229	194	0.0484%
Not adjacent, urban pop. < 2, 500	9	1.7%(* -)	34	23	0.0037%(* -)
Total or Overall Average	561	18.2%	12,819	10,482	0.0313%

* Difference from overall average is significant at α=.05
+ overrepresented   - underrepresented

extremely rural areas (counties not adjacent to a metropolitan area and having an urban population less than 2,500) is greater than the probability for any other ERS category, the estimate is so imprecise (indicated by the large confidence interval) that it is not useful for policy purposes. Instead, the category should be combined with other categories for analytic purposes.

Figure 1: Probability of Hospitalization by ERS Rural-Urban Continuum Code

SUMMARY: USING THE MCBS FOR RURAL HEALTH POLICY RESEARCH

In total, the MCBS is a useful tool for rural health policy analysis. Although the non-metropolitan counties selected for the MCBS sample represent a small proportion of total non-metropolitan counties, the proportion of the population represented is similar to that for the overall sample. However, the sample distribution by degree of rurality means that regional differences in access and service use can be best assessed using multiple regression analysis that control simultaneously for other factors (e.g., age, health status, income, etc.). Although this approach will not solve all the limitations of the MCBS (e.g., lack of representation of some areas), it will help enable determination of true differences in access and resource use across geographic regions.

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