
Choosing to Convert to Critical Access Hospital Status

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The authors profile facilities converting to critical access hospitals (CAHs) from 1998-2000, comparing characteristics of their communities, operations, and finances to those of other small rural providers. Counties where CAHs are located are more sparsely populated, but do not have substantially different sociodemographic profiles than other rural counties. Converting hospitals' acute daily census averaged well below the statutory limit of 15, but over one-half reduced unused bed capacity to meet CAH size limitations. The average case-mix adjusted Medicare cost per case was 16-percent higher for CAH converters than for other small hospitals and their financial ratios were substantially worse, although many other operating characteristics were similar.

INTRODUCTION

CAHs are a new class of Medicare providers, introduced through the Medicare Rural Hospital Flexibility Program (Flex Program) as part of the Balanced Budget Act (BBA) of 1997. Recognizing that many of the smallest rural hospitals were finding it difficult to recover their Medicare costs under the prospective payment system (PPS) rates, policymakers created the new designation of CAH, under which small, isolated facilities could meet Medicare's conditions of participation as a hospital with slightly less stringent staffing and ser-

vice requirements, and could receive cost-based reimbursement for inpatient and outpatient services delivered to Medicare beneficiaries. Under cost-based reimbursement these facilities would be paid an interim rate throughout the year, based on each hospital's expected costs per inpatient day or the allowable outpatient cost-to-charge. After the close of their fiscal year (FY) they would receive retrospective settlements from the Medicare Program for the difference between interim payments received and total allowable cost as documented on the Medicare Cost Report.

States were required to develop comprehensive rural health plans and submit them for CMS approval before any of their hospitals could become eligible for CAH designation. Federal legislation also made new grant monies available to the rural health agencies that are managing Flex Programs, including \$24 million per year for 5 years, to help underwrite the costs of developing and implementing these plans, with some additional startup grant funding for eligible States (Public Law 105-33; *Federal Register*, 1997; 1998).

CAHs are described as limited service hospitals, permitted to operate no more than 15 acute-care beds, plus an additional 10 if these are used as swing beds for long-term care (LTC) patients. In the original 1997 legislation, individual patient stays were limited to 96 hours. To qualify for CAH status a hospital needed to be classified as non-metropolitan for Medicare PPS payment purposes, be under government or not-for-profit control, and be located at least 35 road miles (15, in mountainous areas) from the nearest short-term general

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hospital. Individual States could, however, override the distance criterion by defining their own class of “necessary provider” using criteria set forth in their approved rural health plan. The Balanced Budget Refinement Act of 1999 subsequently expanded CAH eligibility by allowing for-profit hospitals to participate, and by including facilities that were identified as rural by their own State regulations, even if they were located in counties contained within metropolitan statistical areas (MSAs). The 1999 legislation also replaced the patient-level 96-hour length of stay (LOS) limit with a much less restrictive requirement, that the annual average LOS could be no more than 4 days.

CAHs were designed to expand on two earlier limited-service hospital models that had been permitted as Medicare demonstration programs in eight rural States, called Montana Medical Assistance Facilities (MAFs) and rural primary care hospitals (RPCBs). The requirements for participation in the earlier programs were more restrictive, as RPCBs were permitted a maximum of only 6 acute care beds (12 if they were approved for swing bed use), and their patients had either to be discharged or stabilized and transferred within 72 hours of admission (*Federal Register*, 1993). As with the Flex Program, MAFs and RPCBs were cost reimbursed. After the BBA was passed, former demonstration hospitals were allowed to convert to CAH status at the time that their respective State rural health plans were approved, and the State’s demonstration programs were discontinued.

CAH status has proven to be a very popular option among qualifying hospitals. By the end of 2001, 545 hospitals in 43 States had received this designation—1 of every 9 non-Federal, short-stay hospitals in the Medicare Program. By the end of 2002 this number had risen to 723, or about 1 of

every 7 hospitals, and nearly 1 of every 3 hospitals located in non-metropolitan areas. Although the number of CAH conversions has grown more rapidly than may have been expected by lawmakers, the participants are, by design, among the smallest hospitals in the country. In 1998 the converting facilities profiled in this article accounted for no more than 2 percent of the acute care bed complement and 1 percent of Medicare-covered acute days of care.

CAH status is voluntary, and the advantages are chiefly reimbursement related. From the pool of small, isolated hospitals that are potentially eligible as CAHs, the program incentives are such that conversion is likely to be most attractive to hospitals with higher than expected costs, given their case mix and wage levels. Because of the small size of the CAH participants, the resulting changes in Medicare payments will have little impact on the Medicare budget, but the program alters the reimbursement incentives for a substantial portion of rural providers. This could have a strong influence on rural hospital management and finances.

In writing this article we start from the premise that the legislative intent for offering a cost based alternative to PPS was to protect a subset of small, financially vulnerable facilities that might be essential for protecting access in rural communities. The legislation established its own criteria for “essential” that equated it with “isolated,” but it also offered States the opportunity to override these with their own definitions. Our study takes a systematic look at the State-level criteria that have been applied, and at the facilities that have chosen CAH designation, to determine how well the program has targeted isolated or vulnerable communities and hospitals. We compare CAH designees with other rural providers to see how they differ along several dimensions, including their community demographics,

their operating characteristics, their overall finances, and their previous Medicare reimbursement profiles. Because the Flex Program is relatively new, most of the available secondary data reflect the period immediately before the facilities were designated as CAHs. Our analyses, therefore, focus on community and facility characteristics at the time that the decision to participate was being made. Insights into the effects of converting to CAHs status on either the patient care or the financial health of these institutions will be possible only as national-level data become available over the next few years.

In the early years of the Flex Program, individual States had a large influence on CAH participation. Because States in the Midwest and Northwest regions were the first to file their rural health plans and among the most enthusiastic in promoting the program, their hospitals had greater opportunity to participate. For some characteristics, average differences between converting and non-converting low-volume hospitals reflected regional as much as hospital-level phenomena. There were insufficient numbers of low-volume hospitals to examine our data separately by State, but in several instances we have tried to control for the State-level timing effect by adding a second analysis that examines differences between converters and non-converters within each of the four census regions.

DATA AND METHODS

For our study populations of hospitals and counties, we identified CAH participants from the beginning of the Flex Program through December 2001. Data were obtained from the Rural Health Flexibility Tracking Project, under a cooperative agreement funded by the Federal Office of Rural Health Policy. State-level eli-

gibility criteria were obtained from the individual rural health plans. The population of short-term, non-Federal, acute care facilities was identified from CMS' Online Survey and Certification Reporting System File. County-level economic and demographic data were merged from the Bureau of Health Professions' Area Resource File as released in 2002, which contains population estimates from the 2000 census. Operating and financial data were obtained from the Hospital Cost Report Information System for the Federal FY 1998. Because of the way in which CMS groups its data, the 1998 Hospital Cost Report Information System File includes reports for facilities with accounting years ending as early as September 1998 and as late as August 1999. Other hospital information was extracted from CMS' Provider Specific Files for 1999 and 2000, and from the PPS Impact File for 2001.

Of the population of 4,863 short-term acute care hospitals identified in Online Survey and Certification Reporting System File, there were cost report records for 4,408 (91 percent). We had cost reports for 482 out of 545 hospitals designated as CAHs by the end of 2001, 48 of which were for earlier demonstration hospitals that had been receiving cost-based reimbursement for several years prior to becoming a CAH. The remaining 434 were for hospitals that converted to CAH during or after FY 1998. Data for this group, therefore, cover periods during which the hospitals were still paid under Medicare PPS for inpatient services, and under the old mixture of fee screens and discounted cost for outpatient services.

Of 2,220 hospitals that are located in non-metropolitan counties, 2,013 (91 percent) had cost report records. A low-volume rural comparison group was constructed that includes all hospitals with cost report data showing an average daily census of no more than 15 acute patients

Table 1
Sample Sizes for Critical Access Hospital (CAH) Group and Comparison Groups: 2001

Hospital Group	Population of Non-Federal PPS Hospitals		Hospitals with FY 1998 Cost Report Records
	Number of Counties	Number of Facilities	
CAHs (All)	545	508	482
Type			
Demonstration Hospitals	51	50	48
PPS Converters and New CAHs	494	458	434
Region			
Northeast	26	21	24
Midwest	281	260	241
South	137	133	123
West	101	94	94
Low Volume Comparison Group ¹	676	622	676
Other Rural Hospitals	886	777	886

¹ Low volume is defined as average daily census no more than 15, plus average daily swing-patient census no more than 10.

NOTES: PPS is prospective payment system. FY is fiscal year.

SOURCES: Centers for Medicare & Medicaid Services Hospital Cost Report Information System, 1998 and Rural Hospital Flexibility Program Tracking Project, Cecil G. Sheps Center for Health Services Research, Chapel Hill, NC, 2002.

and 10 swing patients, a group most likely to resemble CAH designees in size and scope of operations. Data were also summarized for the remaining facilities located in non-metropolitan counties that had an average acute patient census of no more than 200 patients (only 10 rural hospitals were excluded from the study sample because they exceeded this threshold). In all tables, we present unweighted average values computed across facilities or counties within each of the four comparison groups. Statistical significance is reported only for the differences between mean values in the CAH converting group and those in the other rural low-volume group. Analyses for some characteristics are extended to compare average values between comparison groups within regions as well as for the Nation as a whole. Any mention of statistically significant differences between groups by region refers to results from one-way analysis-of-variance, where the threshold for significance in all cases is set at $p < 0.05$.

Table 1 summarizes the group sample sizes and cost report data availability. A column is also included to show the number of unduplicated counties within each

group. Summary measures of county-level data have been computed across the counties of location for the hospitals within each comparison group, without duplicating data where there was more than one hospital within the county. Some counties may, however, be duplicated across groups. For the community-level analyses, all rural counties with a study hospital are included, regardless of whether cost report data were available. A small number of CAHs are located in rural pockets of metropolitan counties. As these counties also include larger urbanized areas, the county-level data are less likely to represent the characteristics of the local community where the CAHs are located. The 39 metropolitan counties that included CAHs were excluded from community-level analyses, in order to maintain comparability with the two rural comparison groups.

FINDINGS

Eligibility and Participation

Since 1998, 47 States have filed rural health plans with CMS. Of these, only one State (Maryland) retained the original

Table 2
State Rural Health Plan Criteria for Designating Hospitals as Necessary Providers: 2001

Common Qualifying Criteria	Number of State Plans that Include Criterion	Percent Out of 47 State Plans
Shortage Area (HPSA, MUA, or by Physician to Population Ratios)	38	81
High Proportion Residents Age 65 or Over (County or Service Area)	32	68
High Proportion Population Below Poverty or Low Income (County or Service Area)	32	68
High Unemployment Rates (County or Service Area)	25	53
High Medicare/Medicaid Utilization (Hospital)	10	21
Only Hospital in County	6	13
Located in Frontier County (Less than 6 Persons per Square Mile)	4	9
Poor Health Status (Specific Mortality/Morbidity Rates and Other Indicators, by County or Service Area)	9	19
Hospital Serves Special Population	4	9
Hospital at Financial Risk and/or Has High Indigent Care Loads	6	13
Alternative Distance or Travel-Related Criteria	12	26
None—Federal Criteria Retained	1	2

NOTES: HPSA is health professions shortage area. MUA is medically underserved area.

SOURCE: Technical Assistance and Service Center, National Rural Health Resource Center, Duluth, MN, August 2001.

Federal criteria for geographic isolation. Most States' qualifying criteria for status as a necessary provider are fairly inclusive, and provide a set of indicators such as those listed in Table 2, to identify at-risk communities and/or at-risk institutions. The plans tend to allow a facility to qualify if it meets at least some of these criteria—often only one, but rarely more than three. Each State reports its own estimate of the number of facilities that might qualify for CAH status on the basis of eligibility criteria defined in the State's plan. In December 2001, these estimates came to a total of 1,412, considerably higher than estimates published in the earliest reviews of the program (Reif and Ricketts, 1999; Blanchfield, Franco, and Mohr, 2000; Dalton, Slifkin, and Howard, 2000)

New CAH designations began slowly, but gained momentum as States' rural health plans received Federal approval (Figure 1). CMS granted plan approvals for 17 States in 1998, 16 in 1999, 12 in 2000, and 2 in 2001. By July 2001, the only States without approved plans were Rhode Island, New Jersey, and Delaware, none of which have intentions of participating in the Flex Program. The pace of conversions should slow as each State's initial bolus of eligible

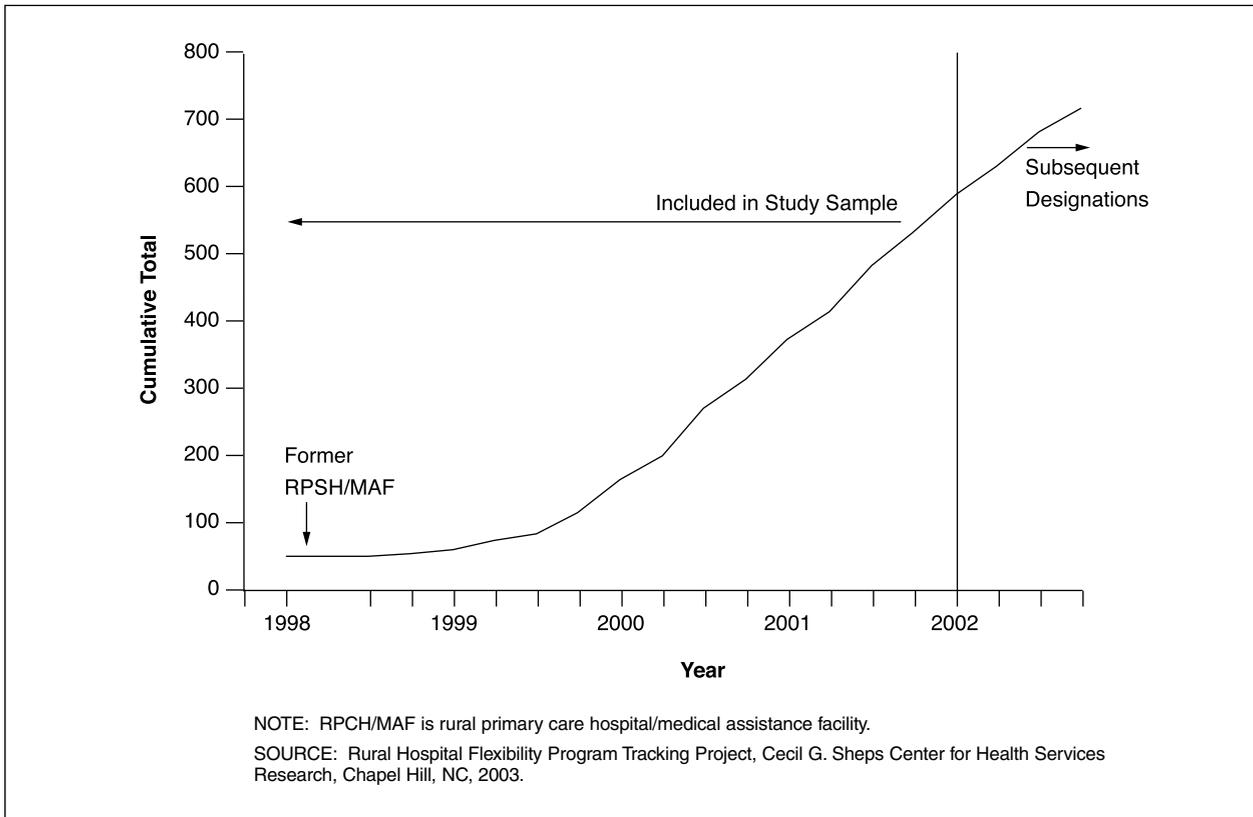
hospitals is processed during the year or two following plan approval, after which new participation may be primarily influenced by changes in PPS payment regulations.

The distribution of CAHs across the U.S. is shown in Table 3. Most CAHs are clustered in the middle of the country. At the time that the study sample was identified, one-third were located in Nebraska, Kansas, Texas, Iowa, and South Dakota. Forty-four CAHs in the study sample (8 percent) were located within non-urbanized sections of metropolitan counties.

Participation rates rise sharply with the county's level of ruralness as measured by the Department of Agriculture's 1995 Rural-Urban Continuum Codes classification scheme (Butler and Beale, 1994). Forty-two percent of the study CAHs were located in counties where less than 2,500 residents live in towns, constituting more than one-half of all hospitals located in these areas. By contrast, study CAHs constituted only 6 percent of hospitals in rural counties where 20,000 or more residents live in cities or towns.

Frontier counties, defined as those with six or fewer persons per square mile, are sometimes used as an indicator of rural

Figure 1
Critical Access Hospital Designations: Calendar Years 1998-2002



isolation (Ricketts, Johnson-Webb, and Randolph, 1999). Twenty-eight percent of the study CAHs are located in frontier counties, compared with 13 percent of rural hospitals as a whole. Several low population density States in the Central, North, and Midwestern regions were among the first to receive approval for their State rural health plans, and these have the largest concentration of designated hospitals. Even within these areas, however, CAH conversions are still more likely to be found in the most sparsely populated counties.

COMMUNITY AND MARKET CHARACTERISTICS

Table 4 summarizes sociodemographic and health care supply measures across non-metropolitan counties, by comparison

group. The most common State criteria for designating hospitals as necessary providers are that they are located in a health professional shortage area, or that they serve an area with a high proportion of elderly, a high proportion of low-income individuals, or a high unemployment rate. Yet these do not appear to be the defining characteristics of CAH communities.

The earlier demonstration programs included facilities from the most sparsely populated areas. These tended to be more medically underserved, though not more economically disadvantaged, than other rural counties. CAHs also tend to be located in counties with fewer total residents and fewer residents per square mile, as compared to non-CAH rural counties, and a slightly greater proportion of their residents are age 65 or over. However, as with the areas where the earlier demonstration

Table 3
Critical Access Hospital (CAH) Participation, by State: 2002

State	CAHs Designated through 12/31/2002		CAHs as Percent of Total Hospitals	CAHs in Study Sample as of 12/31/2001	
	Non-Metropolitan	Metropolitan		Non-Metropolitan	Metropolitan
Total	654	70	14.9	500	43
Nebraska	57	0	66.3	53	0
Kansas	51	0	38.1	42	0
Iowa	44	1	38.5	32	1
Minnesota	40	5	33.6	22	2
Montana	32	0	56.1	22	0
Texas	30	5	9.5	21	4
South Dakota	28	0	50.0	23	0
North Dakota	27	1	62.2	23	1
Georgia	26	2	18.2	20	2
Wisconsin	21	5	21.5	15	3
Illinois	19	3	11.6	15	2
Washington	19	2	24.4	9	1
Arkansas	17	0	21.0	15	0
Idaho	18	1	45.2	18	1
Michigan	16	0	10.8	14	0
Oklahoma	16	7	19.3	14	3
Colorado	15	2	25.8	10	2
Kentucky	13	2	15.3	11	2
Missouri	13	0	11.4	13	0
Indiana	12	3	13.5	9	2
Ohio	12	4	9.7	5	2
West Virginia	12	0	21.4	11	0
Mississippi	9	0	9.1	3	0
North Carolina	9	4	10.9	7	1
Oregon	9	2	18.6	7	1
California	8	6	3.6	5	3
Florida	7	1	4.4	6	1
Maine	7	1	22.2	6	0
New York	7	1	3.7	7	0
Tennessee	6	0	5.0	6	0
Alaska	5	0	27.8	4	0
Arizona	5	2	11.9	5	1
Hawaii	5	1	26.1	4	1
New Mexico	6	0	17.6	2	0
Wyoming	6	0	23.1	4	0
Louisiana	4	5	7.7	4	3
Nevada	4	1	18.5	4	1
New Hampshire	4	0	15.4	2	0
Pennsylvania	3	3	3.1	3	3
Vermont	3	0	21.4	2	0
Virginia	3	0	3.3	1	0
Massachusetts	2	0	2.7	0	0
Utah	2	0	4.7	0	0
Alabama	1	0	1.0	1	0
South Carolina	1	0	1.6	0	0
Connecticut	0	0	0.0	0	0
Delaware	0	0	0.0	0	0
Maryland	0	0	0.0	0	0
New Jersey	0	0	0.0	0	0
Rhode Island	0	0	0.0	0	0

SOURCE: Rural Hospital Flexibility Program Tracking Project, Cecil G. Sheps Center for Health Services Research, Chapel Hill, NC, 2003.

program facilities were located, the mean income and employment statistics for counties with converting CAHs were significantly better than those of other rural counties in the low-volume comparison group or in the other rural counties. We found this to be largely due to the concen-

tration of conversions in the higher income States of the Midwest and West. When we looked at comparison groups within each of the four regions, we found that there were no statistically significant differences between CAH communities and non-converting low-volume facilities with respect

Table 4
Characteristics of Counties with Critical Access Hospitals (CAHs) Compared with Counties with Other Rural Hospitals: 2001

Characteristic	Rural CAH Counties		Low-Volume Rural Comparison Counties	Other Rural Hospital Counties
	Former RPCH or MAF	Converting from PPS		
Number of Unduplicated Non-MSA Counties ¹	50	420	622	777
Demographics				
Total Population (1999)				
Mean	14,391	**17,161	23,072	42,663
Median	4,697	11,794	17,141	36,616
Population per Square Mile				
Mean	17.2	**24.3	36.4	78.2
Median	5.8	18.2	23.4	55.0
Percent Population Age 65 or Over	18.1	**16.6	15.4	14.3
Percent Non-White	7.8	**11.5	15.2	16.0
Percent Below Poverty (1997)	16.0	**14.8	16.3	16.1
Mean Unemployment Rate (1999)	4.8	**4.9	5.5	5.6
Local Health Care Market				
Health Workforce Shortage Areas				
Percent Full County Designation	5.2	32.4	30.2	12.7
Percent Partial County Designation	26.0	31.0	31.5	45.6
Percent with No Shortage Designation	22.0	36.7	38.3	41.7
Mean Ratio of Physicians per 100,000 Population	63.7	70.9	75.4	119.2
Mean Hospital Beds per 1,000 Population ²	4.0	3.7	3.7	4.0
Percent of Counties with Only One Hospital	6.0	*2.9	1.0	0.8
Mean Number Miles to Nearest Hospital ^{3,4}	22.0	21.5	20.6	17.3

¹ Counties are unduplicated within group but may appear in more than one comparison column.

² Short-term, general, non-Federal hospitals only, using certified beds reported in the Online Survey and Certification Reporting System File.

³ For this measure only, the unit of observation is the individual hospital rather than the county.

⁴ Air miles, computed from ZIP-code centroid to ZIP-code centroid.

* $p < 0.05$

** $p < 0.01$, that the difference is zero between group means of converting PPS and other rural low-volume hospitals only (other groups not compared). Two-tailed *t*-test with unequal variances used on continuous measures, chi-square on proportions.

NOTES: RPCH is rural primary care hospital. MAF is medical assistance facility. MSA is metropolitan statistical area. PPS is prospective payment system.

SOURCES: Bureau of Health Professions Area Resource File (2001) and Centers for Medicare & Medicaid Services Online Survey and Certification Reporting System File, 2001.

to unemployment rates, the percent population living under poverty or the percent of minority residents. CAH counties still tended to be smaller and to have a higher proportion of elderly residents.

Rural counties with CAHs score slightly worse than the low-volume comparison group counties on several health service supply measures, but the differences are not statistically significant except for the higher proportion of counties in which there is a single hospital. Converting CAH counties average 70.9 physicians per 100,000 residents, compared with 75.4 in

the comparison group (and 119.2 in counties with larger rural hospitals), but there is a great deal of variability within the comparison groups. Counties where CAHs are located are nearly three times as likely as other rural counties to have only one hospital, but this does not necessarily imply greater geographic isolation. The mean distance to the next acute care hospital for both the CAH and the low-volume comparison hospitals is approximately 21 miles (measured as “the crow flies”—actual driving distances are often substantially longer). We also found regional differences in this

indicator, from a high of an average of 31 miles for CAHs in the West to a low of 17 miles for CAHs in the South. Within regions, there are no significant differences between CAHs and other low-volume hospitals except in the Midwest (20.3 miles compared to 17.8). Interestingly, the mean distance to the nearest hospitals for CAHs in metropolitan counties (not shown) is nearly as high, at 18.5 miles. This suggests that the States' eligibility criteria have been sufficiently well designed to target the more isolated facilities within urban counties.

HOSPITAL OPERATING CHARACTERISTICS

The two demonstration programs that served as models for the Flex Program targeted facilities that were very limited in their scope of secondary care services. As is evident from the summary data in Table 5, the group that has subsequently taken advantage of the limited service hospital model is more similar to the population of other rural hospitals, though they still tend to be smaller. Among PPS hospitals that later converted to CAHs, the average reported capacity on the FY 1998 cost reports was 30 open beds (defined as available for patient care). Of those hospitals, 54 percent had to reduce acute-care capacity in order to meet the statutory requirements for participating in the program. At 4.6 patients per day, the average acute-care census for converting CAHs was considerably higher than the 1.1 patients found in the former RPCH/MAF facilities, but it was still well below the statutory limits of 15 patients; thus, the administrative decision to convert to CAH status should not have motivated a reduction in admissions.

Compared to other low-volume hospitals, the CAH converters had fewer acute patients but were more likely to participate in LTC by using acute capacity as swing

beds. In all other respects the scope of services reported on their 1998 cost reports was more limited than that reported by other low-volume or larger rural facilities. CAH converters tended to have lower Medicaid utilization, which is to be expected both because of their regional location and their relatively low participation in obstetrics. Hospitals in all of the comparison groups had very similar utilization rates for the non-Medicare/non-Medicaid population, but since cost report data do not indicate how much of this patient group is privately insured and how much is self-pay or medically indigent, we cannot conclude anything about the insurance status of their private patients.

Only 16 percent of converting hospitals had an average all-patient LOS more than 4 days during FY 1998, but one-third had a Medicare LOS more than 4 days. Conditions of participation for a CAH require that the annual average LOS be kept at or below 96 hours. The 72-hour limitation on RPCHs was not strictly enforced (U.S. General Accounting Office, 1998) and it is not yet clear how strictly the LOS requirement will be implemented for CAHs. Adhering to a 4-day limit is likely to require some adaptation in clinical practice or referral patterns, in some facilities.

A surprisingly large proportion of converting CAHs as well as other low-volume hospitals reported that they maintained an inpatient unit that met Medicare's requirements for critical care designation, and the average LOS was longer in facilities that had critical care units than in those that did not. It seems plausible that many of these critical care beds would be eliminated as part of any capacity reduction when converting to a CAH, and that this move might be associated with a reduction in average stay.

Assuming that there are no substantial increases in demand in the period after converting to CAH status, converting

Table 5
Pre-Conversion Operating Characteristics for Critical Access Hospitals (CAHs) Compared to Other Hospitals: Fiscal Year 1998

Characteristic	Designated CAHs		Rural Low-Volume Comparison Group	Other Rural Hospitals
	Former PCH/MAF	Former PPS		
Number of Hospitals ¹	48	434	676	886
Mean Acute Care Capacity				
Beds Available for Use at End of Period	12	**30	36	96
Percent with Acute Capacity More than 25 Beds	0	**59	72	79
Mean Daily Census				
Acute Patients Only	1.1	**4.6	7.6	43.6
Swing Patients	2.3	**2.6	1.8	1.4
All Patients in Acute Care Units	3.4	**7.2	9.4	45.0
Mean Occupancy—including Swing Patients (Percent)	25	**24	28	45
Mean Acute-Care Length of Stay				
Medicare	2.9	**3.8	4.1	5.0
Medicaid	2.2	2.8	4.9	3.9
All Patients	2.7	3.4	3.5	3.9
Percent with Acute Care Length of Stay More than 4 Days in 1998				
	0.0	16.1	18.1	42.3
Mean Inpatient Payer Utilization Including the Swing Patients				
			Percent	
Medicare	68	63	61	56
Medicaid	5	**8	10	14
Other	27	29	29	30
With Swing Beds	77	**83	75	33
With Long-Term Care Units				
Skilled Nursing Facility	35	27	24	46
Other Nursing Facility	23	15	15	8
With Home Health Agency	21	*24	30	32
With Hospital-Based RHC or FQHC	6	8	10	9
With Psychiatry Subprovider	0	**4	11	29
With Obstetrical Services	8	**44	58	87
With a Critical Care Unit	0	**20	32	90

¹ Sample is restricted to those facilities with cost report records in 1998.

* $p < 0.05$.

** $p < 0.01$, that the difference is zero between group means of former PPS hospitals and other rural low-volume hospitals only (other groups not compared). Two-tailed *t*-test with unequal variances used for continuous measures and chi-square for proportions.

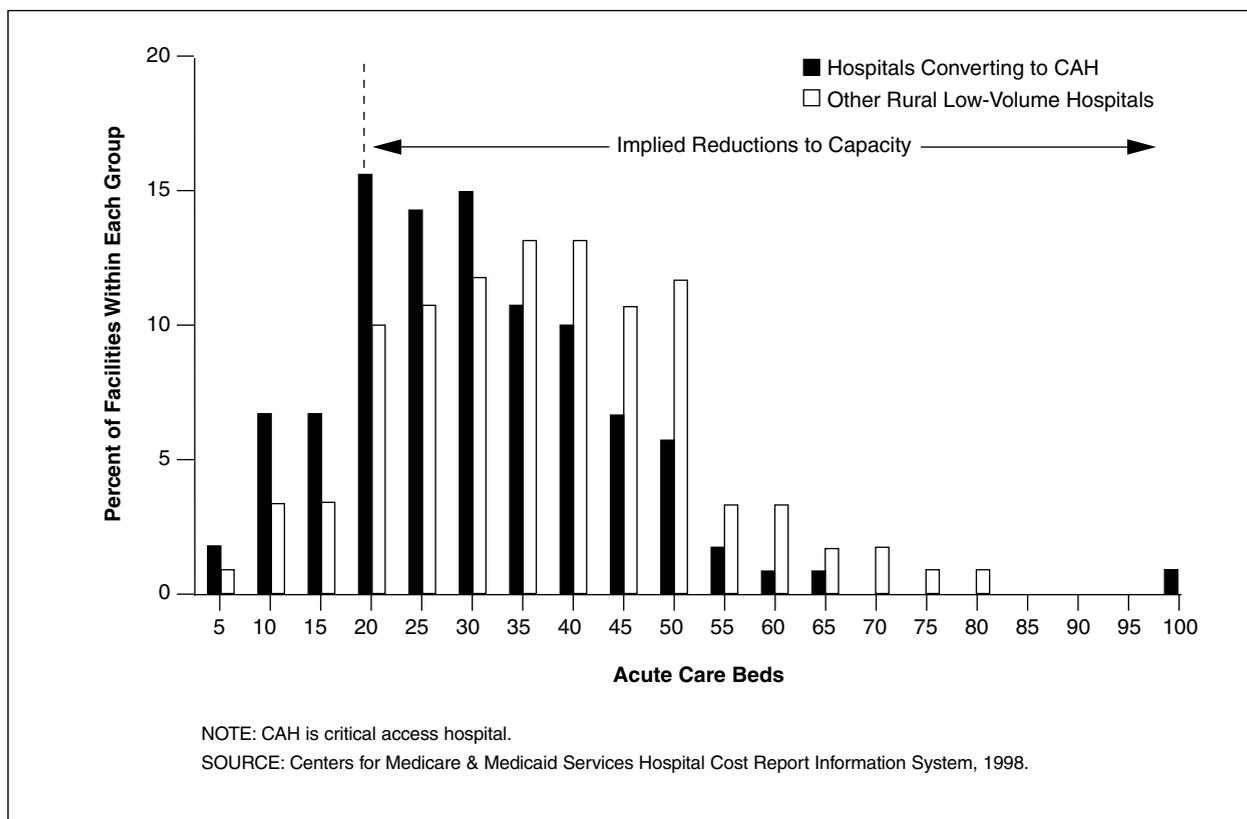
NOTES: PCH is primary care hospital. MAF is medical assistance facility. PPS is prospective payment system. RHC is rural health clinic. FQHC is federally qualified health center.

SOURCE: Centers for Medicare & Medicaid Services Hospital Cost Report Information System, 1998.

CAHs will still operate with considerable unused capacity. Three-fourths of them had an average census of less than ten acute or swing-bed patients during the FY 1998 reporting period and only a few of them had aggregate acute patient days that exceeded what could have been accommo-

dated within the size restrictions imposed by the statutory limits for CAHs. The ratio of aggregate patient days (including swing patients) to bed-days available would still have averaged only 0.33, had each of these facilities been operating at their applicable 15- or 25-bed limit.

Figure 2
Distribution of Bed Capacity in Hospitals Converting to CAH Compared to Other Low-Volume Hospitals: Fiscal Year 1998



It is reasonable to assume that encouraging hospitals to reduce unneeded capacity was at least a secondary policy objective of the Flex Program. Based on reported capacity at the end of the FY 1998 period, the program has been successful in this regard (Figure 2). For the group of CAH converters in our sample that filed FY 1998 cost reports, 3,013 out of a total of 13,025 non-nursery beds will have been closed by the time each hospital received its designation as a CAH—a 23-percent reduction in their aggregate capacity. It is possible that some of the beds identified in the cost reports may have been licensed, but never open (even though cost report instructions request that hospitals report only the number of beds that are open and available for patient care, some hospitals may report licensed capacity instead). The effect that capacity reductions will have on

CAHs' average costs will ultimately depend on how many of the empty beds had actually been staffed, and on the use to which the former inpatient space is put.

There seems to be little evidence that the statutory limit on the maximum allowable bed capacity acts as a major barrier to CAH participation. Facilities in the low-volume comparison group were more likely than CAHs to have operated in the 30- to 50-bed range (Figure 2), but since by definition none of the comparison group had an average daily acute census greater than 15, clearly they were retaining a great deal of unused capacity. A hospital's average annual census does not give any indication of how often it might face a daily demand in excess of a given limit. However, three-fourths of the low-volume comparison group had an average acute census of 12 or

Table 6
Pre-Conversion Financial Overview, Critical Access Hospitals (CAHs) Compared to Other Rural Hospitals: Fiscal Year 1998

Characteristic	Designated CAHs		Low-Volume Rural Comparison Group	Other Rural Hospitals
	Former RPCH/MAF	Former PPS		
Number of Hospitals ¹	48	434	676	886
			(in Millions)	
Mean Net Revenue from Patient Services (Annualized)	\$2.50	**\$5.90	\$8.10	\$35.20
Operating Margins				
Mean	-25.9	-16.2	-8.9	-0.2
Percent with Negative Operating Margins	96.0	**89.0	74.0	50.0
Total Margins				
Mean	-5.2	-3.0	5.0	4.5
Percent with Negative Total Margins	56.0	**60.0	42.0	21.0
Non-Operating Revenue Sources				
			Percent	
Reporting Public Appropriation ²	46.0	40.0	34.0	15.0
Proportion of Total Revenue	0.11	0.08	0.08	0.03
Reporting Grants/Contributions ²	54.0	42.0	38.0	43.0
Proportion of Total Revenue	0.0	*0.03	0.0	<0.01
Reporting Investment Income ²	52.0	63.0	63.0	73.0
Proportion of Total Revenue	0.02	0.02	0.01	0.02

¹ Sample restricted to facilities with cost report records in 1998. In addition, observations for which values of financial variables were missing or inconsistent were excluded from some measures.

² Limited to facilities receiving at least \$10,000 in each category.

* $p < 0.05$.

** $p < 0.01$, that the difference is zero between group means of former PPS hospitals and other rural low-volume hospitals only (other groups not compared). Two-tailed *t*-test with unequal variances used for continuous measures and chi-square for proportions.

NOTES: RPCH is rural primary care hospital. MAF is medical assistance facility. PPS is prospective payment system.

SOURCE: Centers for Medicare & Medicaid Services Hospital Cost Report Information System, 1998.

less, making it very unlikely that the additional capacity was being maintained to cover peak demand periods. Some non-converting low-volume facilities may be located in vacation areas with predictably higher seasonal demand, and some very isolated facilities may experience occasional peaks in demand for which they believe it is necessary to maintain additional standing capacity. But for most hospitals in the comparison group, if the CAH size limitations were a major factor in their decision not to participate in the Flex Program, it would not be because of specific operational constraints.

FINANCES

We assessed several profitability indicators to determine if hospitals that chose to convert were in different financial condi-

tion from those that did not (Table 6). Operating margins were derived from cost report data, defined as operating surplus (which is net revenue less expenses for all patients) expressed as a percentage of net patient revenue. Total margins are similar in computation to operating margins, but they include revenue from all activities including investments, donations, grants, and public subsidies, as well as income and expenses from non-patient care activities. In both measures, a negative value for an individual hospital indicates a loss. The group measures presented in this article are simple (unweighted) averages.

Facilities that convert to CAH status are among the most financially at-risk hospitals in rural America. Ninety-six percent of the former RPCH/MAFs and 89 percent of new CAH converters reported negative operating margins during FY 1998. A sub-

Table 7

Pre-Conversion Medicare Reimbursement Summary, Critical Care Hospitals (CAHs) Compared to Other Rural Hospitals: Fiscal Year 1998

Characteristic	Designated CAHs		Low-Volume Rural Comparison Group	Other Rural Hospitals
	Former RPCH/MAF	Former PPS		
Number of Hospitals ¹	48	434	676	886
Mean Medicare Discharges (Annualized)	104	**287	422	1,795
Mean Inpatient PPS Payments Received (Annualized)	N/A	**\$1.1 Million	\$1.7 Million	\$9.0 Million
Mean Inpatient PPS Payments as Percent Net Revenue	N/A	*22	23	27
Percent of Group with Payments Below Cost	N/A	**62	33	35
Percent Getting Special Payments as Sole Community Hospitals or Medicare Dependent Hospitals	N/A	*20	26	19
Percent Receiving Diagnosis-Related Group Payments with Disproportionate Share Adjustments	N/A	**8	16	28
Mean Case-Mix Index (from Fiscal Year 1998 Discharges)	N/A	**0.999	1.028	1.194
Mean Applicable Wage Index	n/a	0.806	0.799	0.830
Mean Medicare Allowable Cost per Inpatient Day	\$1,537	**\$1,142	\$963	\$916
Mean Inpatient Payment Per PPS Discharge	N/A	**\$3,797	\$4,012	\$4,783
Mean Case-Mix Adjusted Cost per PPS Discharge	N/A	**\$4,286	\$3,703	\$3,756
Mean PPS Payment Ratios (PPS Payments/PPS Cost)	N/A	**0.95	1.11	1.09

¹ Sample restricted to facilities with cost report records in 1998. In addition, observations for which values of financial variables were missing or inconsistent were excluded from some measures.

* $p < 0.05$.

** $p < 0.01$, that the difference is zero between group means of former PPS hospitals and other rural low-volume hospitals only (other groups not compared). Two-tailed t -test with unequal variances used for continuous measures and chi-square for proportions.

NOTES: RPCH is rural primary care hospital. MAF is medical assistance facility. PPS is prospective payment system. NA is not applicable.

SOURCE: Centers for Medicare & Medicaid Services Hospital Cost Report Information System, 1998.

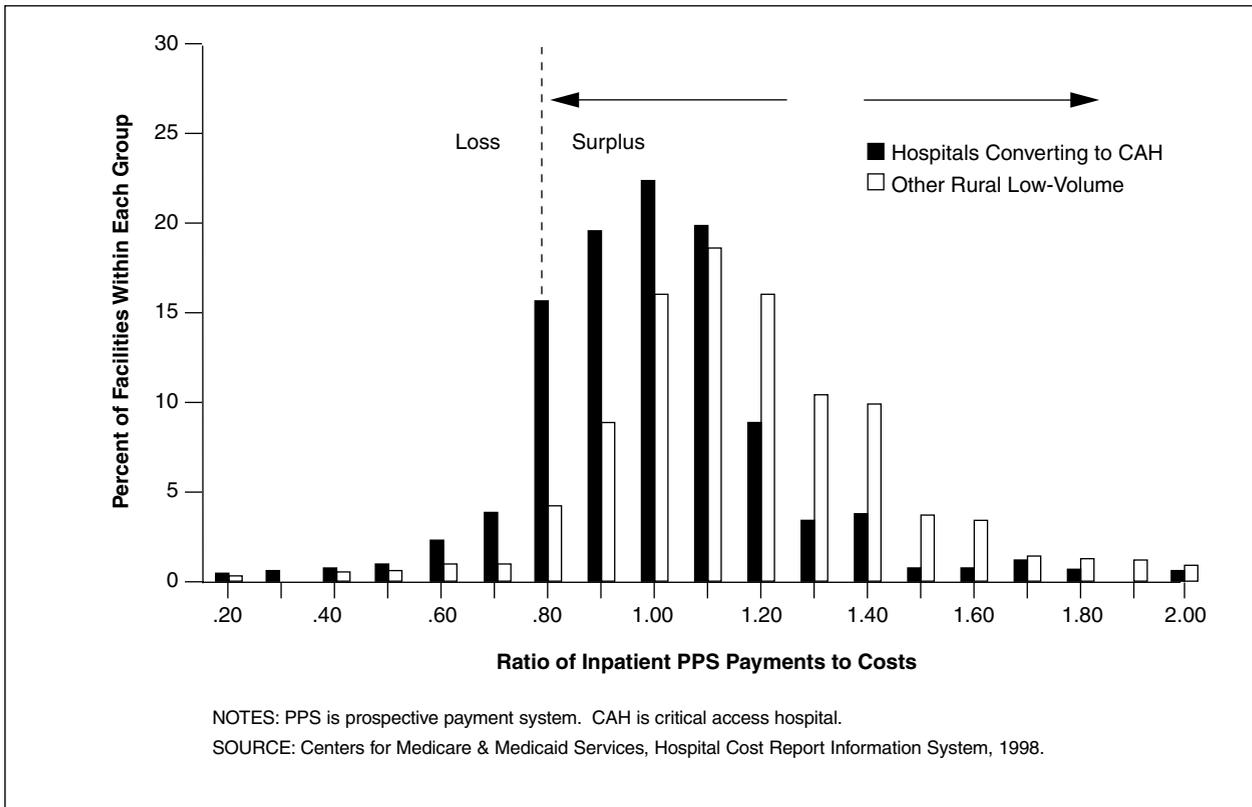
stantial portion of all U.S. hospitals showed net operating losses in this year, including one-half of the larger rural facilities (and also 60 percent of all urban hospitals), but CAHs had the lowest average operating margins of all of our comparison groups. Facilities in the CAH groups had slightly better access to external sources of support, particularly grants and contributions. Of the converting CAHs, 40 percent received in excess of \$10,000 in that year in public appropriation, and for that subgroup, public support averaged 8.1 percent of their total revenue. The measure of public support was highly variable within groups, however, and the differences between CAHs and other low-volume hospitals were not statistically significant. Even with their sources of non-operating

revenue, 60 percent of the hospitals in the CAH groups still reported negative total margins, compared to 42 percent of other low-volume facilities and only 21 percent of the larger rural hospitals.

Small rural hospitals tend to be heavily Medicare dependent, and their overall financial condition can be heavily influenced by their Medicare reimbursement. The indicator for Medicare inpatient profitability presented in Table 7 is the PPS payment ratio, computed as total PPS payment amounts due (before accounting for deductibles, coinsurance, or Medicare bad debt recoveries) divided by total allowable inpatient PPS costs. A ratio of 1.05 would indicate that payments were 5 percent above costs, while a ratio of 0.95 would indicate that payments were 5 percent below cost.

Figure 3

Distribution of Inpatient PPS Profitability in Hospitals Converting to CAH Compared to Other Low-Volume Hospitals: Fiscal Year 1998



Hospital Cost Report Files do not include complete information on Part B outpatient services, nor do they provide the payment data needed to compute similar reimbursement indicators for skilled nursing or home health care. This is unfortunate for our analysis, because such services comprise a substantial part—sometimes even the majority—of small rural hospitals’ business. However, it is also true that Medicare’s payment systems in these settings have changed radically since 1998, and margins computed from this earlier data would not have reflected the reimbursement climate faced by hospitals as they weighed their cost-based alternatives.

PPS payments averaged only 95 percent of costs for hospitals opting to convert to CAH status compared to 111 percent of costs in other low-volume hospitals.

Conversion to CAH status is primarily a reimbursement-driven decision, and we should expect to find systematic differences between converting and non-converting low-volume hospitals in Medicare profitability measures, regardless of how similar or dissimilar the two groups may be along other dimensions. However, the distribution of the PPS ratios for CAH converters and other low-volume hospitals shows a surprising amount of overlap (Figure 3). The difference in the averages between the two groups is consistent with the reimbursement incentives that are intrinsic to CAH participation, but both the proportion of CAH converters that were earning PPS surplus, and the proportion of non-converters that were operating at a loss, are greater than might have been expected.

Sixty-two percent of the converting hospitals were paid less than allowable inpatient costs in 1998, compared to just over one-third of other rural hospitals. The fact that 38 percent of converting hospitals were earning a surplus on their inpatient Medicare business prior to converting to cost-based reimbursement still raises some questions. Converting facilities may have understood that their inpatient margins were going to deteriorate as a result of reduced PPS rates in future years. Medicare margins can be quite volatile, particularly in the low-volume hospitals where inpatient demand tends to fluctuate widely. Given the timing of our study data (generally 1, sometimes 2 years prior to the decision to convert), it may be that these facilities experienced losses in subsequent years, or that 1998 was an unusually good year. Hospital outpatient reimbursement may also be as important or more important in the conversion decision than inpatient PPS. While most of these facilities will not have had experience with the new outpatient PPS rates at the time of their decision to become a CAH, the rates paid for Medicare outpatient services under CMS' previous blend of fee schedules and discounted costs resulted in payments that were almost always below cost, for all hospitals. Among CAH converters with historically favorable inpatient PPS margins, we must assume that the projected gains from cost-based outpatient reimbursement may have been more than any amounts that they expected to sacrifice by losing the inpatient PPS surplus.

We were interested in identifying the extent to which the lower average inpatient PPS payment ratios of converting facilities reflected differences in payment status, or differences in cost structure (Table 6). As a group, the CAH converters appear to have had less access to Medicare's various special payment adjustments, such as the

disproportionate share payments available to hospitals serving higher shares of low-income patients or the hospital-specific exception payments available to sole community or Medicare-dependent hospitals. PPS payments per case for the CAH designees averaged 5 percent lower than those for the low-volume comparison group, even though the applicable wage index values for both groups were similar and the average case-mix index of converting facilities was only 2.8 percent lower.

Most of the difference in PPS profitability between these groups is attributable to differences in cost. The average cost per PPS case for CAH converters was 12 percent higher than that of the low-volume comparison group, even though their stays were somewhat shorter. If we adjust for case mix (by dividing each hospital's cost per case by its average diagnosis-related group weight) the difference jumps to 16 percent. In the West and Midwest CAHs' adjusted costs per case averaged 27 and 16 percent higher, respectively, while in the South it averaged 12 percent higher. The exception was in the Northeast, where it was 18 percent lower for CAH converters than for other low-volume facilities, but due to the small number of hospitals in either category, the difference was not statistically significant.

DISCUSSION AND POLICY IMPLICATIONS

The only substantive operating restriction among the Federal criteria for designation as a CAH facility is the limitation on bed capacity; regardless of State standards for necessary providers, a converted hospital may have no more than 25 acute care beds if it admits swing patients, or 15 acute care beds if it does not. All but one of the 46 States participating in the Flex Program have alternative criteria for low-volume

hospitals to qualify as necessary providers, that substitute for the Federal restrictions related to geographic isolation. The alternative criteria vary from State to State, but they are generally not restrictive. They tend to focus on socioeconomic and health supply measures rather than location. In spite of this, we find that, after controlling for regional effects, substantive differences between the CAH communities and those from the low-volume comparison group relate to population size and density rather than socioeconomic characteristics. Even though State criteria focusing on geographic isolation are less common than those focusing on economics, CAH conversions still tend to take place in smaller and more sparsely populated areas. This is true even when they are located within the boundaries of MSAs.

In comparing hospital characteristics, we found many of the differences that one would expect between smaller and larger rural hospitals. Within the set of all low-volume hospitals, the CAHs are the smallest of the small—that is, they come from the lower end of the range of all facilities meeting the Federal size limitations for program participation. CAHs had lower average occupancy rates, tended to provide fewer specialty services, and they were more dependent on swing-bed patients. They also had significantly worse measures than other low-volume rural facilities had, on almost every financial and reimbursement indicator. Our findings indicate that after hospital size, the effective selection criterion for CAH participation is financial difficulty associated with having higher Medicare costs per case, relative to other low-volume providers. It may be that small size, high unit costs, financial stress, and rural isolation are all sufficiently correlated to produce this result, but had the Federal criteria been restricted simply to the 15- or 25- bed limit and location in a

non-urbanized area—with no further requirements for geographic isolation or necessary provider status—the pool and profile of CAH participants might have looked no different.

The fact that converting low-volume hospitals are distinguished primarily by higher unit costs rather than by at-risk community characteristics should not detract from the value of the CAH option, in particular, the positive impact that cost reimbursement is likely to have on the finances of a group of facilities that were at severe financial risk. The Flex Program was designed to offer relief to small, geographically isolated facilities that were—for systematic rather than short-term reasons—unable to recover their costs from the PPS rates on Medicare patients. The policy action was to grant reimbursement relief to this set of providers, rather than seek ways in which those costs might be reduced. This may well have been Congress' intent, for the program is very popular across the predominantly rural States and yet the relief afforded to these hospitals comes with a very small price tag.

From the 1998 cost report settlement data we computed that total PPS payments to the group of converting CAH facilities in FY 1998 were only \$467 million (0.6 percent of inpatient PPS total dollars) and their allowable costs were \$480 million. Paying this group at cost during this year would have increased Medicare's inpatient hospital payments by less than two-tenths of 1 percent. For a minimal investment in Federal dollars, we have a program that helps to preserve beneficiaries' access to local providers in the Nation's smallest communities. Yet it is unlikely that Congress or CMS envisioned that participation would be as widespread as it promises to be.

The option to receive cost-based reimbursement from Medicare has strong attraction for hospitals that struggle to

provide care at or below the expected costs implied by the national standardized rates of the various PPSs, but policy analysts should consider what the high participation rates reflect about the adequacy and equity of the Medicare PPS. Prospective payment rates are designed to cover the cost of care delivered in an appropriate setting by an efficient provider, while creating incentives for further efficiency by allowing lower-cost facilities to earn and retain a surplus on their Medicare patients. Allowing more than two-thirds of rural low-volume hospitals to return to cost-based reimbursement and give up the possibility of ever earning that surplus seems to be an acknowledgment that a system based on national standard rates cannot be fairly applied to very small facilities. The Medicare Payment Advisory Commission (2001; 2003) has recommended adding a low-volume adjustment to the inpatient PPS formula to address what they found to be a systematic shortcoming in the rates. Yet there may no longer be sufficient numbers of low-volume providers remaining under PPS to make the regulatory change worthwhile.

It is possible that the program has been oversubscribed. We assume that CAH participation is governed by a rational selection process—that is, that hospitals conduct reimbursement impact studies before making the decision to convert to cost-based reimbursement and that they are able to factor in changes in their own operations as well as the likelihood of future PPS rate changes. In the face of demand uncertainty, rate and regulatory uncertainty, and changing cost structures, however, it may be especially difficult for these smallest of facilities to evaluate the long-term reimbursement impact of the CAH decision. The financial difficulties of low-volume providers may be structural, relat-

ing both to greater unpredictability in demand and high fixed costs. But, is it reasonable for nearly one-third of all rural providers to assume that they could never operate successfully under a national mean-based rate system? Rural policy analysts should make it a priority to review claims and cost report data from CAHs over the next several years, as post-conversion reimbursement comparisons become possible, and keep an open mind about the best long-term reimbursement strategy for this group of hospitals.

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