
Future Financial Viability of Rural Hospitals

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Policymakers are concerned that some rural hospitals have suffered significant losses under the Balanced Budget Act (BBA) of 1997 and that access to inpatient and emergency care may be at risk. This article projects that the median total profit margin for rural hospitals will fall from 4 percent in 1997 to between 2.5 and 3.7 percent after the BBA, Balanced Budget Refinement Act (BBRA) of 1999, and Benefits Improvement and Protection Act (BIPA) of 2000 are fully implemented in 2004. The Critical Access Hospital (CAH) Program is expected to prevent reductions in inpatient and outpatient prospective payments from causing an increase in rural hospital closures.

INTRODUCTION

Providers and policymakers are concerned about how BBA, BBRA, and BIPA will affect the financial viability of rural hospitals. Franco (1999) and Dalton, Howard, and Slifkin (2000) suggest that rural hospitals have an unusually high exposure to the BBA due to low patient volumes and a high level of dependence on home health, skilled nursing care, and outpatient payments.

An earlier study of the BBA by HCIA (1999) predicts that small rural hospital total profit margins will decline by 9.8 percent from 1998 to 2002. The study did not factor in the impact of the CAH Program,

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and was conducted before the BBRA was passed. After the BBRA was passed, the Lewin Group (2000a) evaluated the impact of post-BBRA Medicare payment policies, predicting that the BBRA will provide some relief for rural hospitals, but that rural hospitals will still suffer losses on their Medicare patients. One of the limitations of the Lewin report and earlier studies is that they did little to evaluate how hospital behavior might change given the new Medicare policies.

The objectives of this article are threefold. First, we use a simulation model to project the median total profit margins of rural hospitals through 2004. Second, we simulate how many hospitals will suffer significant losses unless they restructure their operations. Third, we discuss whether financially troubled hospitals will be able to avoid closure by restructuring their operations.

METHODOLOGY

The total profit margins of rural hospitals during 1999-2004 are estimated by adjusting historical cost report data for changes in Medicare payment policies. We estimate the impact of Medicare payment policies on total margins rather than Medicare margins because we want to examine the impact of the Medicare changes on rural hospitals' overall financial viability. In this article, we assume non-Medicare margins do not change. Since Medicare patients represent approximately one-half of rural hospital admissions and one-third of rural hospital revenue, a change in Medicare policy that has a

1-percent change in total margins would have roughly a 3-percent change in Medicare margins.

To estimate how Medicare payments and overall margins will change, cost report data from 1996, 1997, and 1998 are adjusted for 13 types of changes in Medicare payments that are stipulated in the BBA, BBRA, and BIPA. Each of the 3 years serves as a different base year resulting in three different sets of projected margins for each rural hospital. The median of the three projections for each hospital is then used as that individual hospital's projected total profit margin. The median data over the 3-year period is used rather than a single year's data to minimize the influence of outliers and limit the impact of any potential errors in the Medicare cost reports.

The median profit margin for all rural hospitals is estimated by taking the median of the 1,778 projected total profit margins for the rural hospitals in the sample. In addition to median values, we report the number of hospitals that will suffer significant losses under current Medicare payment policies. We chose to look at overall margins since they represent a hospital's overall financial health.

The impact of the 13 individual policy changes on hospital total profit margins is outlined in Table 1. While no single change in Medicare payment policy is expected to have a dramatic effect on rural hospitals, the aggregate effect of the changes has been significant. Before the aggregate effect of the changes is presented, the methodology used to estimate the impact of the changes is discussed.

Change 1—The CAH Program

The BBA requires that Medicare start to pay skilled nursing facility (SNF) and outpatient services based on a prospective payment schedule rather than based on

costs. However, if a rural hospital elects CAH status, it will receive cost-based Medicare reimbursement for inpatient and outpatient care, skilled nursing care in swing beds, laboratory services, and on-call payments made to physicians who cover the emergency room during nights and weekends. Medicare payments on-call coverage can be a strong incentive to convert to CAH status since traditional hospitals do not receive any Medicare payments for on-call coverage.

To qualify for CAH status, a hospital must maintain no more than 15 acute care beds (25 total beds including swing beds). CAH hospitals must also be either located more than 35 miles (15 miles by secondary road) from all other hospitals or be designated a "necessary" hospital by the State in which the hospital is located (Wynn and Cade, 1997). Small isolated rural hospitals are given special payment provisions due to a belief that lower volume hospitals may not have the economies of scale necessary to keep costs below Medicare's prospective payment rates.

In our simulations, we assume that hospitals with an average daily census less than 15 will become CAHs if conversion will increase the hospital's Medicare payment rates, and assume that hospitals with a census of more than 15 will not convert to CAH status. This implies that hospitals will not substantially reduce inpatient admissions in order to become CAHs, and therefore may underestimate the number of CAHs. Sensitivity analysis was conducted and the average-daily-census criterion for conversion was allowed to vary from 10 to 25. Changing the criteria did not significantly change projected margins. Changing conversion criteria has a modest effect on average margins because hospitals with a census under 10 have the greatest economies of scale problems and tend to benefit the most from the critical access hospital program. We also ignore the potential

Table 1
Impact of Changes in Medicare Payment Policies

Policy Change	Magnitude of the Change	Projected Impact on Rural Hospitals' 2004 Overall Total Profit Margins ¹
CAH Program	Dependent on each hospital's cost of care.	Percent 0.5 to 1.1 increase
Inpatient Payment Rates		
Reduced Inpatient Rate Increases	No inflationary increase in 1998 and increases that are 1.9, 1.8, 0, 0.55 and 0.55 percent below the market basket in 1999 to 2003. Market basket increases in 2004.	0.1 reduction
Reduced Inpatient Capital Payments	A 15.68 percent reduction in 1998 to 2004 with an additional 2.1 percent reduction in 1998 to 2002.	0.3 reduction
Outpatient Payment Rates		
Outpatient Prospective Payment	Dependent on hospital costs.	0.5 reduction
Eliminate Formula Driven Overpayment	Dependent on the difference between Medicare rates and hospital charges.	0.4 reduction
Post-Acute Care Provisions		
Prospective Home Health Payments	Dependent on costs and behavioral changes.	No change
Prospective Payment for Skilled Nursing Care	Dependent on costs, case mix, and behavioral changes.	0.0 to 0.3 reduction
Swing-Bed Payments Based on Prospective Skilled Nursing Facility Rates	Dependent on costs of care and regulations still to be issued. CAHs retain cost-based payments.	0.0 to 0.2 reduction
Transfer Provision	Dependent on the number of admissions and type of discharge for 10 specific DRGs.	0.0 to 0.3 reduction
Other Changes		
Reduced Payments for Bad Debts	Reduced by 25 percent in 1998, 40 percent in 1999, 45 percent in 2000, and 30 during 2001 to 2004.	0.1 reduction
Improving DSH Payments to Rural Hospitals with High Proportions of Low Income Patients	Hospitals with a DSH percentage of 15 percent or higher qualify for DSH payments that are usually between 3 percent and 10 percent of DRG payments.	0.3 increase
Reduced Indirect Medical Education Payments	Phases in a 28.6-percent reduction in payments through 2002.	.01 reduction
Reduced Variation in Direct Medical Education Payments	Dependent on current payments per resident.	No change

See notes at end of table.

benefits of Medicaid cost-based payments in certain States, which could also cause a slight underestimate of CAH conversions. The distance criterion is ignored in our projections of CAHs since States have the ability

to declare a hospital a necessary provider and nullify federally mandated distance requirements. Since the awarding of necessary provider status does not place a financial burden on States (unless the State pays cost-

Table 1—Continued
Impact of Changes in Medicare Payment Policies

Policy Change	Magnitude of the Change	Projected Impact on Rural Hospitals' 2004 Overall Total Profit Margins ¹
Aggregate Impacts		
BBA and BBRA's Impact on Projected Median Total Profit Margins in 2004 ²	Aggregate Impact	1.3 to 2.4 reduction
BIPA's Impact on Median Total Profit Margins in 2004	Aggregate Impact	1.0 to 1.1 increase
BBA, BBRA, and BIPA's Combined Impact on Median Total Profit Margins in 2004	Aggregate Impact	0.3 to 1.5 reduction

¹ Changes in profit margins are calculated by comparing hospital profits in 1997 to profits under post-BBRA/BIPA regulations in 2004. Certain changes in Medicare payment (such as SNF and swing-bed payments) only affect a subset of rural hospitals. In these cases, the impact reflects the mean effect of the new Medicare policy on all 1,778 hospitals in the sample even if the policy change has no effect on some of the hospitals in the sample.

² (Stensland, Moscovice, and Christianson, 2002.)

NOTES: CAH is Critical Access Hospital. BBRA is Balanced Budget Refinement Act of 1999. BIPA is Benefits Improvement and Protection Act of 2000. DRGs is diagnostic-related groups. DSH disproportionate share hospital. BBA is Balanced Budget Act of 1997.

SOURCE: Stensland, J., Project Hope, Moscovice, I., and Christianson, J., University of Minnesota, 2002.

based Medicaid reimbursement to CAHs), states have tended to set liberal criteria for determining which hospitals are necessary providers. In many States, all rural hospitals could qualify as necessary providers. State governments and CMS may deny applications from hospitals that are less than 15 miles from a provider, but those cases are expected to be extremely rare or non-existent.

With these assumptions, we project that 46 percent of the 1,778 rural general and surgical hospitals in our data set could qualify for CAH status without significantly reducing admissions; 154 were already designated CAHs by January 1, 2001.¹ For hospitals that are expected to become CAHs, but were not as of January 2001, we assume conversion occurs during the hospital's 2001 fiscal year. Assuming a more gradual conversion process would not substantially alter the analysis.

A hospital with an average daily census of less than 15 is assumed to choose CAH status if the hospital could increase its

Medicare revenue by converting to critical access hospital status. For purposes of predicting CAH conversions, the increase in Medicare revenue is estimated as: the sum of changes in inpatient revenue, the benefit of avoiding outpatient prospective payments, less lost disproportionate share payments, plus the value of payment for on-call physicians covering the emergency room, plus the benefit of receiving cost-based reimbursement for laboratory services. The benefits of receiving cost-based payments for patients for in swing beds are not evaluated when projecting CAH conversions. Therefore, the projected number of CAH conversions will be conservative.

As is discussed in the outpatient and inpatient methodology sections, inpatient, outpatient, and disproportionate share data is available from Medicare cost reports. We do not have historical data on laboratory payments or on-call physician payments for all the hospitals in this study. Due to the lack of hospital specific data for on-call payments and laboratory payments, we create some lower and upper bounds on how the on-call and laboratory provisions of the BIPA will affect CAH. On-call payments currently vary widely from hospital to hospital. While most rural hospitals use locum tenens

¹ When data was compiled for this study in January 2001, a total of 303 hospitals had been converted to CAH status. Of these, we have complete historical financial data on 154. By December 1 2001, 511 rural hospitals had converted to CAH status and 141 CAH applications are pending. Given current trends, this articles' prediction of 818 conversions appears reasonable.

physicians or unpaid local physicians, a significant minority (25 percent) pay physicians \$100 or more per day to be on call (Williamson, Rosenblatt, and Hart, 1992; Wakefield et al., 1994; American Medical Association, 1999). For example, one critical access hospital in our data set pays their local physicians \$120,000 per year. Over 50 percent of this hospital's patients are Medicare patients, the on-call provision of the BIPA is expected to add over \$60,000 directly to the hospital's bottom line. Looking forward, we can expect an expansion of on-call payments since they are now much more affordable for hospitals.

Laboratory services may also change once laboratory payments become cost based. An examination of individual hospital financial statements and an informal survey of certified public accountants that evaluate CAH conversions suggest that cost-based laboratory payments alone will increase Medicare payments by approximately \$40,000 to \$80,000 per year.

Since we lack hospital specific data on on-call payments and cost-based laboratory payments, we have created a range of potential benefits of the on-call and laboratory payment provision. The lower-bound estimate of CAH profitability ignores the benefit of these two provisions placing their value at \$0. As an upper bound we use a more realistic estimate of \$100,000 per hospital. The lower-bound estimate and the \$100,000 estimate will be used to project a range of potential critical access hospital profits in future years.

In our simulation model, we assume that conversions to CAH status will not have any effect on the hospital other than changing Medicare payments. In the discussion section, we comment on how the results may differ from our simulation results if rural hospitals use more aggressive CAH conversion strategies than those used in our simulation model.

Change 2—Inpatient Operating Payment

The BBA froze 1998 payment rates for inpatient operating costs at 1997 levels. Therefore, operating profits would have fallen in 1998 by an amount equal to a hospital's increase in input prices less productivity gains. To estimate changes in productivity, we follow the methodology of the Medicare Payment Advisory Commission (1998) and assume that productivity improvements reduce the cost of care by 1 percent in each year due to reductions in length of stay and other efficiency gains. Given that input prices rose by 2.9 percent in 1998, it is estimated that the inpatient operating profits on Medicare patients fell by 1.9 percent in 2000. During 1999-2003, the BIPA stipulates that Medicare inpatient prices will increase by 1.9 , 1.8 , 0, 0.55 percent and 0.55 percent below the anticipated inflationary increase in the cost of hospital inputs. For 2004, the simulation assumes a full market basket increase in Medicare inpatient payments.

Change 3—Inpatient Capital

Inpatient capital payments were reduced by 15.68 percent in 1998 and by another 2.1 percent for the years 1999-2002. We assume the 2.1 percent reduction in capital payments will be restored in 2003.

Change 4—Prospective Outpatient Payments

Starting in 2000, hospitals with less than 100 beds will be paid based on a prospective fee schedule. Rural hospitals with less than 100 beds have the option of receiving cost-based reimbursement through 2003. The effect of transitioning to prospective payment was simulated by CMS using 1996 cost data. These estimates have sev-

eral limitations. Since hospitals may be more careful about outpatient coding when their revenue depends on coding, CMS may have overestimated rural hospital losses from outpatient services. It is also possible that CMS underestimated losses due to not estimating losses for visits with missing data. Nevertheless, the CMS analysis is considered the best available data and was used to project how prospective payment will affect hospitals.

Change 5—Formula Driven Overpayment

In addition to the effect of prospective payment, the BBA reduces outpatient payments by eliminating the formula driven overpayment for ambulatory surgery, radiology, and other diagnostic services. Prior to the BBA, Medicare payments were reduced to account for patient's coinsurance by subtracting an amount equal to 20 percent of the Medicare fee schedule payment. However, the patient's copayments often were based on charges rather than Medicare payments, therefore, there was usually a formula driven overpayment to hospitals. When projecting future Medicare payments the simulation model assumes deductions for Medicare copayments will be equal to the copayments made by Medicare beneficiaries rather than being equal to 20 percent of the Medicare fee schedule. Medicare data for charges that take place after October 1, 1997, already reflect the BBA mandated correction for the formula driven overpayment. Therefore the adjustment for 1997 is pro rated based on the percentage of days in the hospitals fiscal year that are prior to October 1, 1997. No adjustment is needed when using 1998 as the base year in the simulation model.

Change 6—Home Health Care

Home health care payments were originally based on the cost of care and, from 1990 to 1997, payments to home health agencies (HHAs) grew from \$3.7 to \$17.8 billion, with the average number of visits per beneficiary doubling from 36 to 73 (Health Care Financing Administration, 1999). The BBA introduced an interim payment system that set per visit and per beneficiary limits on reimbursement and made it difficult for HHAs to operate profitably. In an October 2000 survey of 400 rural hospitals, 13 percent of hospital-owned HHAs had closed between 1997 and 2000. Fifty-two percent of the remaining hospital-owned HHAs were operating at a loss (Stensland and Moscovice, 2001).

In our simulation model, optimistic and pessimistic bounds for the profitability of rural HHAs in 1999 and 2000 are estimated. The optimistic scenario assumes that HHAs break even during 1999 and 2000, while the pessimistic scenario assumes they close. If a home care agency is closed, fixed costs that were previously allocated to home care may have to be absorbed by the hospital. Hence, in the pessimistic scenario, we subtract the HHA's historical level of fixed costs from the hospitals' projected profits.

On October 1, 2000, CMS began paying hospitals based on a prospective payment system, with the hospital receiving a fixed payment for each 60-day episode of care. This will give hospitals an incentive to reduce the number of visits and the cost of care, and allow hospitals to accrue profits from home health patients if they can keep costs below historical levels. BIPA also increased payments to rural HHAs by 10 percent from April 2001 to April 2003 to account for longer travel distances in rural areas.

The National Association for Home Care has suggested that prospective payments for home health care will allow HHAs to become profitable and that we are now entering the “golden age” of home care (Halamandaris, 2001). With this in mind, our simulation model assumes hospital-owned HHAs are projected to break even from 2001 to 2004.

Change 7—Skilled Nursing Care

Hospitals began a transition to prospective payment for skilled nursing services starting on July 1, 1998. CMS projected that hospital-based rural SNFs would, on average, face an 18 percent reduction in their Medicare payments in the first year of the transition to the prospective payment system and a 30-percent reduction by the time the system was fully implemented (*Federal Register*, 1999). However, due to a concern that the prospective rates did not adequately compensate providers for high-cost cases, the BBRA increased rates by 20 percent for 15 categories of high-cost patients starting in April 2000. Then, in December 2000, BIPA removed the 20 percent increase and put in place a 6.7-percent increase in payments for patients in a broader range of rehabilitation groups. BIPA also increased the nursing component of all SNF payments by 16.6 percent from April 2001-September 2002. The intent of Congress was that the 16.6 percent increase in the nursing component would allow for higher staffing levels. Given the temporary nature of these adjustments and uncertainty regarding how payments will affect staffing levels, it is difficult to project the future profitability of SNF services, so again we use optimistic and pessimistic scenarios.

The optimistic scenario assumes no change in SNF profitability and the pessimistic scenario assumes that hospitals face a \$60-reduction in their per diem Medicare payments. Given CMS’s upper estimate of a 30-percent loss in SNF revenue, and the approximately \$200 per diem revenue that was reported on the Medicare cost reports of hospitals in our sample, a reduction of \$60 per day appears to be a reasonable upper bound on BBA induced losses. It is similar to the \$50 per diem decrease from 1998 to 1999 that was found in a survey conducted by Muse & Associates (1999) for The American Health Care Association, and the approximately \$60 decline 1998-1999 reported by CIBC Oppenheimer (1999). The loss of \$60 per day is viewed as a pessimistic estimate since BIPA has given back some of the reduction in SNF payments that occurred between 1998 and 1999.

Change 8—Swing Bed Payments

Although only 35 percent of rural hospitals in our sample have SNFs, 59 percent have swing beds. BBA requires that a system for prospective payment for swing beds be developed by 2001. Until that time, swing bed rates equal the sum of costs for ancillary services plus “...the average Medicare rate per patient day for routine services provided in freestanding SNFs in the region where the swing-bed hospital is located” (*Code of Federal Regulations*, 1999). Since swing bed payments at most hospitals are expected to be equal to SNF payments in the region, we use \$60 per day as the upper bound on the reduction in profitability of caring for Medicare swing bed patients. Note that CAHs are immune to changes in swing-bed payment rates since they receive cost-based payments.

Change 9—Disproportionate Share Adjustments

Disproportionate share hospital (DSH) payments are intended to help pay for the costs of serving indigent patients. Under BIPA, rural hospitals with a DSH percentage more than 15 percent will receive additional Medicare payments. The DSH percentage is equal to the sum of Medicaid inpatient days as a share of total inpatient days plus Medicare beneficiaries eligible for Supplemental Security Income (SSI) as a percentage of total Medicare days. Using SSI data from CMS and Medicaid inpatient data from the Medicare cost reports, we project each hospital's future disproportionate share payments.

Changes 10-13—Other Provisions

Our simulation accounts for the 30-percent reduction in Medicare payments for bad debts. Our pessimistic estimates of margins assume a 1.5-percent reduction in diagnostic-related group payments due to the transfer provision of the BBA while the optimistic estimates assume discharging patients to swing beds can mitigate the effects of the transfer provision. Our simulation also accounts for the reduction in indirect medical education payments and the change in direct graduate medical education payments. Changes in medical education payments only have a significant impact on a few rural hospitals.

RESULTS

The net effect of the BBA, BBRA, and BIPA is a reduction in rural hospitals' median total profit margin of approximately 1 percent. The median total profit mar-

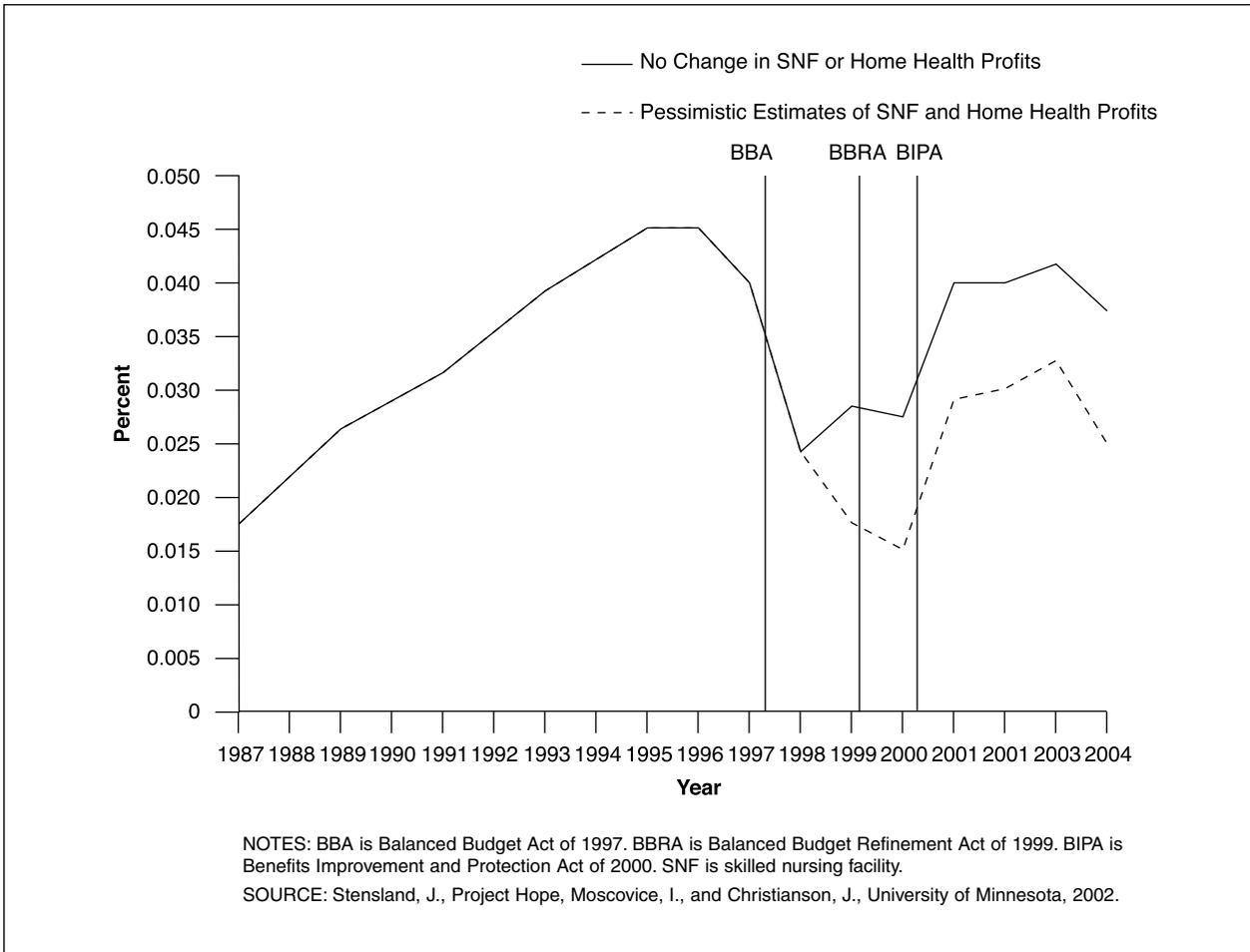
gin is projected to fall from approximately 4 percent in 1997 to between 2.5 to 3.7 percent in 2004. A similar analysis of BBA and BBRA legislation indicates that the net decline in hospital margins would have been roughly 2 percent if BIPA had not been enacted (Stensland, Moscovice, and Christianson, 2000).

BIPA's greatest benefit for rural hospitals occurs through the disproportionate share program. We project that an additional 23 percent of rural hospitals will receive Medicare DSH payments averaging approximately \$200,000 per year. However, the beneficial impact of the DSH changes, combined with the beneficial impact of the CAH conversion, do not overcome the impact of BBA mandated reductions in inpatient and outpatient payments (Table 1).

Profit margins fell significantly from 1997 to 1998 (Figure 1). They are projected to make a partial recovery by 2001 as the benefits of BIPA are felt and as more hospitals become CAHs. In 2002 and 2003, productivity improvements are expected to be large enough to cause a small increase in margins. In 2004, total profit margins are expected to fall again due to the implementation of outpatient prospective payment for all non-CAH hospitals.

By the time the BBA is fully implemented in 2004, total profit margins are projected to be in the range of 2.5 to 3.7 percent. The optimistic estimate of 3.7 percent ignores the transfer provision and assumes no change in SNF, swing bed, or home health profitability. It also assumes CAHs will gain significant (\$100,000) benefits from the on-call payment provision and the cost-based laboratory payment provisions of BIPA. The pessimistic estimate of 2.5 percent includes projections of how SNF, swing bed, transfer provisions, on-call payments, and cost-based laboratory

Figure 1
Median Profit Margins for Rural Hospitals: 1987-2004



payments will affect profitability. Median total profit margins of 2.5 to 3.7 percent are similar to the profit margins for rural hospitals in the early 1990s.

In this article, we have focused on total profit margins to examine the sustainability of rural hospitals. This differs from the methods used by the Lewin Group (2000b) which focuses purely on Medicare margins. To determine whether our results are comparable to the Lewin report, we examined the projected Medicare margins in our model using 1995-1997 data and ignoring the BIPA changes.

Using 1995-1997 data, we predicted that the mean Medicare margin for rural hospitals would be between +0.9 percent and -2.5

percent in 2004 using our assumptions. The Lewin Group estimated that, if productivity reduces the cost of care by 1 percent per year, rural hospitals' profit margins on Medicare patients would fall to a mean of -3.3 percent in 2004. One major difference between our approach and the Lewin simulation is that our approach is dynamic in the sense that it allows for future conversions to CAH status. The Lewin model accounts for hospitals that were already CAHs, but does not allow for future conversions to CAH status. If our model ignored the potential for additional CAH conversions, the projected mean Medicare margin would range from -1.7 to -5.4 percent. Given the Lewin Group's pro-

jection of a -3.3- percent Medicare margin, a static version of our model (that ignored the BIPA changes) yields similar results to those in the Lewin report.

FINANCIALLY TROUBLED HOSPITALS

While the median rural hospital may still be profitable in 2004, many rural hospitals will suffer significant losses unless they increase private-payer prices or restructure their hospital. We use our approach to predict how many hospitals will suffer losses of more than than 1 percent of their revenues when the hospitals are paid based on post-BIPA regulations, assuming no change in private-payer or Medicaid profits. If the hospital is projected to lose more than 1 percent of its revenues when using 2 of the 3 base years (1996-1998), the losses were deemed persistent (that is not the result of unusual circumstances faced in a single year). We also examined the extent of the loss relative to hospital financial reserves, as measured by total fund balances (i.e. equity). If the hospital is expected to lose more than 5 percent of its equity per year, the losses were deemed substantial in relation to the hospital's ability to absorb losses. Losses that are projected to be persistent and substantial are deemed significant in relation to the hospital's revenue and equity.

To provide a point of historical comparison, we also calculated the percentage of hospitals that have historically suffered significant losses during the period 1987-1998 (Figure 2). During that period, losses were deemed significant if they were more than than 1 percent of the hospital's revenue in 2 of 3 years and averaged more than 5 percent of equity over a 3-year period. This definition is used to reduce the

impact of one-time events and to make historical results comparable to projected losses.

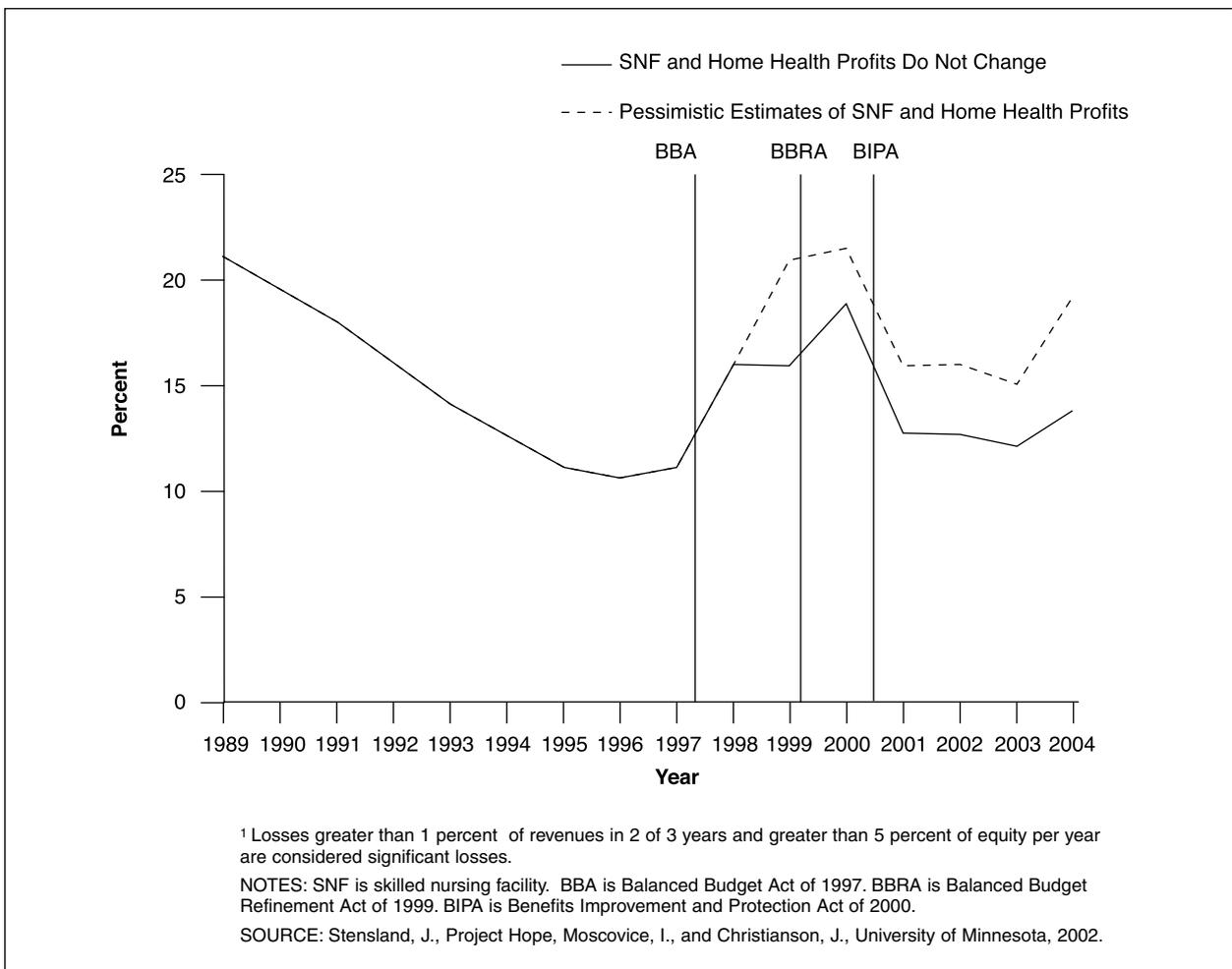
To evaluate whether our measure of significant losses is appropriate, we tested the measure's ability to predict hospital closure. Medicare cost report data from 128 rural hospitals that closed during the period 1989-1996 was compared with data from 2,175 rural hospitals that remained open during that same period. First, we tested whether significant losses were a sensitive predictor of whether a hospital would close. We found that 58 percent of hospitals that closed during the period 1989-1996 had suffered what we term significant losses during the period 1987-1989. Next, we tested whether significant losses were a phenomenon found specifically in hospitals that closed. Of the hospitals that remained open, only 3 percent suffered significant losses during the 1987-1989 timeframe. Other definitions of significant losses were tested, but this definition appeared to have a desirable combination of specificity, sensitivity, and intuitive appeal.

Figure 2 illustrates that the number of hospitals suffering significant and persistent losses is expected to change from 16 percent in 1995-1997 to between 14 and 19 percent in 2004 if the profitability of non-Medicare patients does not change.

AT RISK HOSPITALS

Table 2 compares the pre-BBA and post-BIPA profits of various categories of hospitals. The BBA will not cause many large rural hospitals to suffer significant losses, and may help some small hospitals that qualify for CAH status. The negative impact of the BBA will fall hardest on small hospitals that would not benefit from CAH conversion. By 2004, we project that between 21 and 25

Figure 2
Percent of Rural Hospitals Suffering Significant¹ Financial Losses: 1989-2004



percent of non-CAH hospitals with an average daily census of less than 15 patients will suffer significant losses unless they restructure their operations. Despite the benefits of CAH conversion, 21 to 32 percent of CAHs are projected to suffer significant losses in 2004 unless they increase private-payer prices or reduce operating costs.

LIMITATIONS

Our approach does not model potential changes in private payer profitability or changes in Medicaid policy. We cannot predict the degree to which local hospital boards will choose to restructure their operations by increasing private-payer

rates and/or reducing staffing levels. Also, we ignored the potential for hospitals to game the system by sending patients with high ancillary costs to swing beds. Finally, we ignored some other aspects of BBA and BBRA (such as rebasing costs for sole community hospitals and unified billing for SNFs) that were not significant enough to warrant inclusion in the simulation model.

DISCUSSIONS

We project that rural profit margins will be slightly lower in 2004 than they were in the mid-1990s. More importantly, falling Medicare payments could result in 14 to 19 percent of rural hospitals suffering signifi-

Table 2
Rural Hospitals that will Suffer Significant Losses Unless They Restructure Their Operations

Type of Rural Hospital	Suffering Significant Losses (1996-1998)	Projected to Suffer Significant Losses in 2004	
		Optimistic Estimate ¹	Pessimistic Estimate ²
	Percent		
Larger rural hospitals that are projected to have more than 100 beds and an average daily census more than 80. This category of hospitals is expected to have the greatest economies of scale (n=119).	3(n=4)	3(n=4)	3(n=4)
Rural hospitals that are expected to have fewer than 100 beds but have an average daily census of more than 15 and will be reluctant to become CAHs (n=842).	8(n=66)	9(n=73)	11(n=95)
Rural hospitals with an average daily census of less than 15, but have positive post-BBA Medicare margins and are not expected to be CAHs (n=305).	18(n=56)	21(n=65)	25(n=77)
Rural hospitals that are expected to be CAHs (n=512). ³	33(n=167)	21(n=105)	32(n=165)
Full sample of rural hospitals (n=1778).	16(n=293)	14(n=247)	19(n=341)

¹ The optimistic estimate assumes that hospital profits are not reduced by prospective payment for skilled nursing care, and the post-acute care transfer provision of the BBA.

² The pessimistic estimate assumes a \$60 per diem reduction in skilled nursing facility and swing bed profits. These estimates also assume that hospitals are not able to avoid the impact of the transfer provision through the use of swing beds. They also ignore the benefit of cost-based payments for laboratory services and on-call physician payments at CAHs.

³ CAH profits in 2004 may be underestimated because changes in Medicaid payments and the prospect for increasing private payer rates are not considered in the analysis.

NOTES: BBA is Balanced Budget Act of 1997. CAHs are critical access hospitals.

SOURCE: Stensland, J., Project Hope, Moscovice, I., and Christianson, J., University of Minnesota, 2002.

cant losses. The question remains whether these financially troubled hospitals will be able to restructure and avoid closure.

Most of the hospitals suffering significant losses will be hospitals with an average daily census of under 15. If these hospitals with a census under 15 do not raise prices or cut costs, we project that between 21 and 30 percent of them will suffer significant losses. We expect that once these hospitals do start to suffer significant losses, they will consider raising prices, reducing services, and converting to CAH status if they have not already done so. The process of downsizing may be painful for hospital employees and administrators, but we expect the CAH conversion process coupled with necessary increases in prices and reduction in costs will keep the vast majority of rural hospitals open.

One major benefit of CAH conversion is that cost-based Medicare payments per admission will usually increase when

patient volumes decline and Medicare patients become a larger percentage of the hospital's total patient base. This makes the process of downsizing and possibly raising private payer prices a more financially viable response for CAHs than for non-CAH hospitals. The hospitals that still have a significant risk of closure after CAH conversion are likely to be hospitals in economically troubled communities where profits on private payer patients and non-patient revenues are less than the costs of charity care and bad debts. In contrast, if a CAH can fund the cost of charity care and bad debts with non-patient revenue, it has a very low probability of closure since it can set private payer prices above the cost of care and Medicare will reimburse the hospital for the cost of caring for Medicare patients.

Traditional hospitals receive DSH payments from Medicare to help defray the cost of caring for indigent patients, but CAHs are not eligible for disproportionate

share payments. Therefore, policymakers should consider having Medicare pay a portion of non-Medicare bad debt expenses and charity care costs at CAHs. This could help assure access to care for Medicare patients by preventing the closure of hospitals in communities where local government and charitable contributions are not sufficient to cover the cost of charity care. Research on potential rural hospital closures should focus on hospitals in communities with insufficient local resources to pay for indigent care.

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