

Effect of Swing Bed Use on Medicare Average Daily Cost and Reimbursement in Critical Access Hospitals

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OVERVIEW

The Medicare Payment Advisory Commission (MedPAC) has expressed concern that cost-based reimbursement has led to more rapid cost growth among Critical Access Hospitals (CAHs) as compared to other rural hospitals, with much of the growth driven by disproportionately high payments for post-acute skilled care services provided in swing beds.¹ For CAHs, that receive 101% of allowable costs for most Medicare patients, the concern is that the Medicare program pays more per day for a skilled nursing patient in a hospital swing bed than for a similar patient who is in a skilled nursing facility (SNF). Although direct comparison of the cost of skilled care across multiple settings is quite complex and is thus beyond the scope of this study, this brief computes the daily cost of swing beds.

However, the daily cost to Medicare of a swing bed patient in a CAH is not known, as the cost of swing bed care is not reported separately on hospital cost reports. CAHs are only required to report costs aggregated across both acute and swing bed patients; therefore, the average daily cost for inpatient care (acute and swing combined) is likely an understatement of the cost of care for acute patients, and an overstatement of the cost of care for skilled patients in swing beds. To the extent that fixed costs² drive the cost of providing skilled care in swing beds, then any savings to Medicare from reduced swing bed utilization would be offset by higher costs per day for acute patients in hospitals receiving cost-based reimbursement. In this analysis, the terms “net” cost and “net” expenditures are used to refer to Medicare expenditures on swing bed care, net of increases in Medicare spending on acute inpatient days if swing bed days are reduced. The overall effect of swing bed days on Medicare expenditures is influenced both by the effect of swing bed days on the inpatient (acute and swing) cost per day, and by the percent of inpatients (in both acute and swing beds) that are covered by Medicare. This analysis estimates the average net cost to Medicare of a SNF swing day by simulating the elimination of all Medicare SNF swing bed days in CAHs in 2009.

KEY FINDINGS

- **Of the 1,228 CAHs included in our study sample, 99 hospitals (8.1%) in 2009 had no SNF-type swing bed days and would be unaffected by any changes to Medicare reimbursement for swing bed days.**
- **Medicare reimbursement for SNF-type swing bed days represented 3.6% of total inpatient revenue reported by the 1,228 CAHs in 2009.**
- **For CAHs with any SNF-type swing bed days in 2009, the inpatient operating cost per diem used to calculate Medicare reimbursement would increase by an estimated 42.7% on average if Medicare swing bed days were eliminated. The median increase was estimated to be 25.3% and the range of increase was estimated to be between 0.7% (approximately \$7 per day) and 785% (approximately \$4,769 per day).**
- **Net Medicare expenditures on swing bed days in 2009 were estimated to be \$483.3 million for 829,104 days, or about \$582.91 per day on average.**
 - **Medicare’s average expenditure on SNF swing bed days per CAH in 2009 was estimated to be \$393,558.**
 - **The estimated expenditure per swing bed day varied widely across CAHs from \$274 to \$4,587.**
- **The cost to Medicare of alternative treatment strategies for these patients – such as stays in Skilled Nursing Facilities – is unknown and may be more or less than this amount.**

¹ MedPAC. (2005). Report to the Congress: Issues in a Modernized Medicare Program, Chapter 7, Critical Access Hospitals, June.

² Fixed costs are costs that do not change with increases or decreases in patient volume. For example, over a relevant range of patient volume, fixed costs may include nursing salaries, capital and utility costs, and management salaries.

APPROACH

Data for this analysis were drawn from the Medicare Cost Reports for CAHs over the period 2000 to 2009. For each hospital, cost reports for the years after conversion to CAH status were included in the sample. Of the 1,306 CAHs included in the dataset in 2009, 55 were dropped because of missing/erroneous data (9) or because the cost reporting period was less than 360 days (46). Another 23 CAHs (approximately 6%) were eliminated from the simulation because the inpatient operating cost per diem reported in the Medicare cost report could not be replicated. Since the actual cost of a swing bed day is not known, we estimated the marginal cost of a swing bed day using longitudinal data. The regression estimate for the marginal cost of a swing bed day was used, along with the reimbursement formula used by the Centers for Medicare and Medicaid Services in the Hospital Cost Report, to simulate the effect of eliminating Medicare swing bed days on inpatient operating costs and Medicare reimbursement to CAHs in 2009. We set Medicare swing bed days to zero in order to understand the average Medicare reimbursement for swing bed days that were actually provided, and to avoid assumptions regarding hospitals' capacity to increase numbers of acute and swing patients; this approach thus provides the Medicare cost for the "average" swing day.

RESULTS

Swing Bed Utilization and Cost in CAHs in 2009

Table 1 shows the distribution of CAHs by their percentage of swing days relative to inpatient days. Approximately 8% of CAHs provided no swing days. Swing days were less than 50% of total inpatient days (including swing and acute, but excluding special care, nursery and observation days) for another 71% of CAHs. Including CAHs that did not provide any swing days, 94% of CAHs had less than 70% of total inpatient days coming from swing.

Table 1. Distribution of CAHs by Percentage of Days Coming from Swing

Percentage	Number of CAHs	Percent of CAHs	Cumulative Percentage
Zero	99	8.06%	8.06%
<50%	872	71.01%	79.07%
50-59%	115	9.36%	88.44%
60-69%	72	5.86%	94.40%
70-79%	38	3.09%	97.39%
80-89%	21	1.71%	99.10%
90-100%	11	0.90%	100.00%
Total	1,228		

Simulating the Elimination of Medicare Swing Beds from CAHs

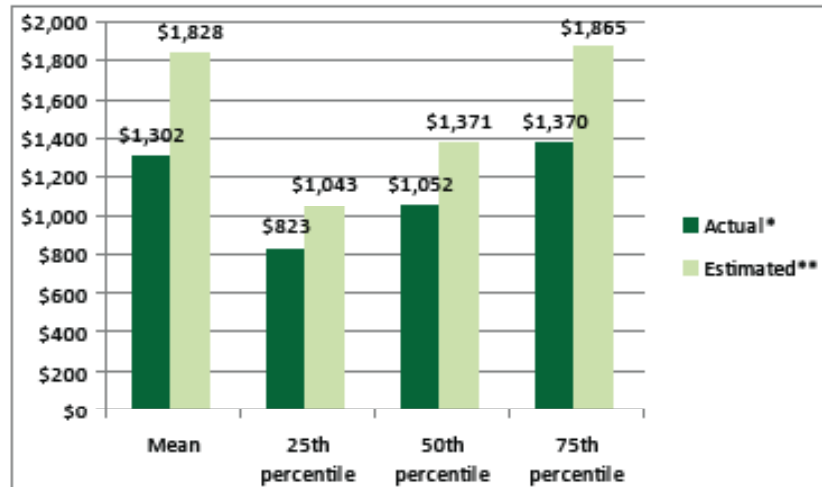
Ignoring minor adjustments, Medicare reimburses CAHs the product of the inpatient cost per diem and the number of Medicare inpatient days. A change in the number of Medicare SNF-type swing days affects both of these terms. The relative contribution of each of these changes determines the net effect on Medicare reimbursement.

As a simple illustration, consider a hospital with \$1 million in fixed inpatient cost, 1000 Medicare acute days, 1000 Medicare SNF swing days, and 2000 non-Medicare inpatient days (acute or swing). Medicare would reimburse \$1 million / 4000 days, or \$250 per day in fixed cost. For the 2000 Medicare inpatient days (1000 acute, 1000 SNF swing), Medicare would thus pay $\$250 * 2000 = \$500,000$. However, if Medicare SNF swing days were eliminated, then the Medicare per diem cost increases to $\$1\text{million} / 3000$ or \$333. Medicare pays for 1000 of these days, so $\$333 * 1000 = \$333,333$. Thus, for the 1000 SNF swing days Medicare pays $(\$500,000 - \$333,333) / 1000$ SNF swing days, or \$166 per day in net cost.

Regression analysis was first used to estimate the marginal cost of a swing bed day; the model estimated that a swing bed day increases a CAH's costs by \$265.56 per day. With Medicare SNF-type swing bed days simulated at zero, the implied mean and median inpatient operating cost per diem (after subtracting $\$265.56 * \text{number of Medicare SNF swing days}$ from the total inpatient cost and eliminating Medicare SNF swing days from total inpatient days) were estimated to be \$1,828 and \$1,371, respectively (Figure 1). This represents a mean increase of 42.7% and a median increase of 25.3%. The increase in the cost per diem results from the presence of fixed costs; when swing bed days are eliminated, only a portion of the costs are eliminated.

In 2009, the mean and median inpatient cost per diem, calculated as total inpatient operating cost divided by the sum of acute days, SNF-type swing days, and observation bed days as reported in the Medicare cost report, \$1,302 and \$1,052, respectively (Figure 1).

Figure 1. Inpatient Operating Cost Per Diem: Actual and Simulated With No Swing Days



Simulated Cost to the Medicare Program of SNF Swing Bed Days

The mean estimated increase in Medicare reimbursement per CAH resulting from swing bed days was \$393,558, ranging from a low of \$579 for CAHs with relatively few Medicare-covered swing bed days to a high of \$3,177,694 for CAHs with a large number of Medicare-covered swing bed days. Total net expenditures by the Medicare program for swing bed days in 2009 were estimated to be \$483.3 million; dividing by the total number of SNF swing days yields an average daily rate of \$582.91, less than half of the average Medicare inpatient per diem reimbursement of \$1,302. Thus, using the per diem as the measure for SNF swing bed day reimbursement yields misleading conclusions.

Both the decrease in the estimated inpatient operating cost per diem resulting from the presence of swing bed days, and the estimated Medicare expenditure were higher at CAHs with more swing bed days (Table 2). The reduction in Medicare’s share of total inpatient days had a greater effect on reimbursement than the allocation of higher total inpatient operating costs to acute and observation bed days; therefore, the net effect of eliminating swing bed days was estimated to be savings to Medicare assuming that Medicare swing bed days are not replaced with other Medicare covered days either in the CAH or another post-acute setting.

Estimated Effect of Eliminating Medicare Swing Beds on CAH Revenue

The intent of the swing bed program was to increase access to post-acute skilled care for rural Medicare beneficiaries and to maximize the efficiency of small and rural hospital operations.³ Many rural hospitals created swing bed programs as a strategy to survive financially and to manage coordination of care following the institution of the CAH program in the Balanced Budget Act of 1997.^{4,5} Medicare reimbursement for SNF-type swing bed days represented 3.6% of total patient revenue reported by the 1,228 CAHs in 2009. Summary statistics describing CAHs by quartile of estimated Medicare net expenditures on swing bed days are presented in Table 2 on the following page.

³ MedPAC. (2005). Report to the Congress: Issues in a Modernized Medicare Program, Chapter 7, Critical Access Hospitals, June.

⁴ Angelelli J, Fennell ML, Hyatt RR, McKenney J. (2003). Linkages in the rural continuum: the balanced budget act and beyond. *Gerontologist*. Apr; 43(2):151-7.

⁵ Fennell ML, Campbell SE. (2007). The regulatory environment and rural hospital long-term care strategies from 1997 to 2003. *The Journal of RuralHealth*. Winter; 23(1):1-9.

Table 2. Summary Statistics by Quartile of Net Medicare Expenditure on Swing Bed Days

	Mean or Proportion [25th percentile, 75th percentile]			
	Quartile			
	1	2	3	4
Medicare Expenditure (thousands)*	\$61 [0 - 121]	\$252 [214 - 292]	\$431 [377 - 484]	\$829 [606 - 904]
Acute Days	2,357 [968, 3,662]	1,606 [519, 2,493]	1,602 [782, 2,236]	1,776 [956, 2,467]
SNF-type Swing Days	111 [0, 192]	446 [331, 544]	772 [587, 958]	1,525 [1,021, 1,889]
Medicare Acute days	1,237 [493, 1,870]	979 [354, 1,467]	967 [503, 1,306]	1,094 [570, 1,491]
Medicare SNF-type Swing Days	98 [9, 172]	419 [304, 524]	733 [555, 907]	1,451 [959, 1,780]
Average Daily Census (ADC)	8 [3.3, 12.8]	6.9 [3.4, 9.8]	8.1 [5.2, 10.7]	10.7 [7.8, 13.6]
Acute ADC	6.5 [2.7, 10.1]	4.4 [1.4, 6.8]	4.4 [2.1, 6.1]	4.9 [2.6, 6.8]
SNF Swing ADC	0.3 [0, 0.5]	1.2 [0.9, 1.5]	2.1 [1.6, 2.6]	4.2 [2.8, 5.2]

* Medicare expenditure in this analysis is equivalent to the estimated net Medicare expenditure on swing bed days, simulated by estimating the reduction in Medicare reimbursement if Medicare swing bed days = 0

CONCLUSIONS

These results suggest that eliminating Medicare swing bed days would result in net savings in Medicare reimbursement to CAHs. The average net cost to Medicare for a SNF-type swing day is \$583, roughly half of the average per-diem inpatient reimbursement, but more than the PPS rate for most types of SNF stays.⁶ The extent to which there would be offsetting increases from higher numbers of acute days in CAHs, or other spending through freestanding and hospital-based skilled nursing facilities is unknown.

Although elimination of Medicare swing bed days may result in lower Medicare reimbursement to CAHs, it would also put financial pressure on CAHs and reduce access to post-acute skilled care for rural Medicare beneficiaries. Swing beds are more likely to be the only option for post-acute skilled care in the most rural areas of the United States⁷, frequently served by CAHs. How patients admitted to CAH swing beds differ clinically from those admitted to freestanding SNFs is not known, but anecdotal reports indicate that patients admitted to CAH swing beds may be sicker and require a level of care not available at the SNF. In addition, CAH administrators have reported that they use swing beds only when a short-term stay is predicted. Thus, changes to swing bed reimbursement policy to address financial concerns may have unintended consequences on access and outcomes for beneficiaries.

Finally, this brief should NOT be used as evidence of the relative cost of skilled care in various settings due to complexities not considered. For example, reimbursement for SNF varies by RUG, which is unknown in swing bed patients. The length of stay may vary across settings, and this could exacerbate or attenuate difference in per diem costs. Long term costs are not known (e.g. do readmission rates vary across settings?). This issue is complex and this brief addresses only one aspect.

⁶ PPS rates vary by the particular Resource Utilization Group (RUG). For rural SNFs, only five RUGs have total rates higher than \$582.91. These five are projected to comprise 1.55 percent of all SNF stays. (Medicare Program; Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities; Disclosures of Ownership and Additional Disclosable Parties Information. Federal Register, Vol. 76, No. 88. Friday, May 6, 2011)

⁷ Reiter KL, Freeman VA. Trends in Skilled Nursing Facility and Swing Bed Use in Rural Areas Following the Medicare Modernization Act of 2003. NC Rural Health Research & Policy Analysis Center, FR#101, April 2011.

