SECTION 2D

Skilled nursing facility services

R E C O M M E N D A T I O N S

2D-1 The Congress should eliminate the update to payment rates for skilled nursing facility services for fiscal year 2009.

COMMISSIONER VOTES: YES 15 • NO 0 • NOT VOTING 0 • ABSENT 2

2D-2 The Congress should establish a quality incentive payment policy for skilled nursing facilities in Medicare.

COMMISSIONER VOTES: YES 10 • NO 3 • NOT VOTING 2 • ABSENT 2

2D-3 To improve quality measurement for skilled nursing facilities, the Secretary should:

- add the risk-adjusted rates of potentially avoidable rehospitalizations and community discharge to its publicly reported post-acute care quality measures;
- revise the pain, pressure ulcer, and delirium measures currently reported on CMS's Nursing Home Compare website; and
- require skilled nursing facilities to conduct patient assessments at admission and discharge.

COMMISSIONER VOTES: YES 15 • NO 0 • NOT VOTING 0 • ABSENT 2

SECTION 2D

Skilled nursing facility services

Section summary

Our indicators of the adequacy of Medicare payments to cover the costs of skilled nursing facility (SNF) services to beneficiaries are generally positive. Beneficiaries continue to have good access to these services. The supply of SNFs remained essentially constant—increasing 0.3 percent over 2006. Covered days increased just over 4 percent and covered admissions increased almost 3 percent per fee-for-service enrollee between 2005 and 2006. Case mix continued to shift to higher payment case-mix groups—the ultra and very high rehabilitation groups and the rehabilitation plus extensive services case-mix groups. While access was good for most beneficiaries, those needing expensive services may experience delays in being placed in SNFs. Two quality measures for SNFs showed mixed trends. Rates of discharge to the community continued to increase to the level last reached in 2000 (indicating improved quality), while rates of potentially avoidable rehospitalizations continued to increase (indicating worse quality). Access to capital was good until late summer, when trends in the broader lending market made borrowing more expensive and more restrictive. Although access to capital is expected to be tighter, this is

In this section

- Are Medicare payments adequate in 2008 and how should they change in 2009?
- Update recommendation
- Paying for performance in SNFs
- Pay-for-performance recommendation
- Improving the measurement of skilled nursing facility quality
- Quality measures recommendation

related to changes across the capital market and is not a reflection of the adequacy of Medicare payments. Medicare continues to be a preferred payer.

For the sixth consecutive year, aggregate Medicare margins for freestanding SNFs were above 10 percent: In 2006, the aggregate margin was 13.1 percent. Medicare margins are estimated to be 11.4 percent in 2008. Because all access indicators are positive and SNF payments appear to be more than adequate to accommodate anticipated cost growth, MedPAC recommends that the Congress eliminate the update to payment rates for SNF services for fiscal year 2009.

Recommendation 2D-1

The Congress should eliminate the update to payment rates for skilled nursing facility services for fiscal year 2009.

COMMISSIONER VOTES:
YES 15 • NO 0 • NOT VOTING 0 • ABSENT 2

The Commission has analyzed the readiness of this setting for value-based purchasing and concluded that, for certain measures, CMS should move forward with quality-incentive payments. Two measures—rates of community discharge and potentially avoidable rehospitalization—capture key goals for SNF patients (to be discharged back to the community and to avoid rehospitalization), are well accepted, have robust risk adjustment, and avoid the numerous problems associated with the measures CMS currently reports on its Nursing Home Compare website. Using rehospitalization rates as one performance measure represents a step toward having multiple providers and settings mutually accountable for lowering the number of potentially avoidable rehospitalizations. We expect CMS to add to the two measures over time to reflect other aspects of SNF care. However, until patient assessment information is gathered at discharge, CMS should avoid measures based on changes in patient condition, which, due to the timing of the data collection, misses many patients.

The Congress should establish a quality incentive payment policy for skilled nursing facilities in Medicare.

Recommendation 2D-2

COMMISSIONER VOTES:
YES 10 • NO 3 • NOT VOTING 2 • ABSENT 2

We also recommend that CMS improve the public reporting of the post-acute care quality indicators on its Nursing Home Compare website. For the past several years, the Commission has used two measures—rates of community discharge and potentially avoidable rehospitalization—to track the quality of SNF care. The Commission has not relied on CMS's publicly reported measures because of their considerable limitations, including the bias in the data underlying the measures and problems with the way the measures are defined. We recommend that CMS add the rates of community discharge and potentially avoidable rehospitalization to their publicly reported indicators. So that the currently reported measures are more accurate, we also recommend that CMS improve the definitions of the measures of pain, delirium, and pressure sores. Finally, so that the quality measures based on patient assessment information reflect the care furnished to all SNF patients (and not just the smaller subset who stay long enough to have a second assessment completed for them), the Commission recommends that CMS require SNFs to conduct patient assessments at admission and discharge. ■

To improve quality measurement for skilled nursing facilities, the Secretary should:

- *add the risk-adjusted rates of potentially avoidable rehospitalizations and community discharge to its publicly reported post-acute care quality measures;*
- *revise the pain, pressure ulcer, and delirium measures currently reported on CMS's Nursing Home Compare website; and*
- *require skilled nursing facilities to conduct patient assessments at admission and discharge.*

Recommendation 2D-3

COMMISSIONER VOTES:
YES 15 • NO 0 • NOT VOTING 0 • ABSENT 2

Background

Beneficiaries who need short-term skilled nursing or rehabilitation services on an inpatient basis are eligible to receive covered services in skilled nursing facilities (SNFs). Per spell of illness, Medicare covers up to 100 days of SNF care after a medically necessary hospital stay of at least three days.[1] Covered SNF services include skilled nursing care, rehabilitation services (physical and occupational therapy and speech–language pathology services), and other ancillary services such as respiratory therapy and medications.[2] For services to be covered, the SNF must meet Medicare's conditions of participation and agree to accept Medicare's payment rates.[3] For beneficiaries who qualify for a covered stay, Medicare pays 100 percent of the payment rate for the first 20 days of care—after that point, beneficiaries are responsible for copayments (in 2008 the copayment will be $128 per day). Each year, about 3 percent of beneficiaries use SNF services at least once.

The most common diagnosis for a SNF admission in 2005 was a major joint and limb reattachment procedure of the lower extremity (typically a hip or knee replacement (Table 2D-1). The 10 most frequent conditions accounted for about 37 percent of all SNF admissions. Freestanding, hospital-based, for-profit, and nonprofit facilities had the same top 10 diagnoses, although the rank orderings of the top 4 conditions differed slightly. Freestanding and for-profit facilities treated more cases with pneumonia and heart failure and shock than patients recovering from hip and knee replacements.

Medicare spending on skilled nursing facility services

In fiscal year 2007, spending for SNF services was $21 billion, up more than 9 percent from 2006 (Figure 2D-1, p. 146). This rate of growth was slightly slower than the average annual growth of 10.8 percent between 2000 and 2007. Total spending has slowed in part because fee-for-service (FFS) enrollment has declined, while enrollment in Medicare Advantage plans, whose spending on SNFs is not included in this total, has expanded.[4] When put on a per-FFS-enrollee basis, spending since 2005 increased faster than overall program spending rates. Between 2006 and 2007, spending per FFS enrollee increased from $539 to $595.[5]

Between 2006 and 2007, the pace of total program spending on SNF services increased, due in part to implementation in 2006 of nine new highest-paying case-mix groups for patients with rehabilitation and extensive service care needs. Modest volume growth also contributed to the increase.

TABLE 2D–1

Ten most common diagnoses among Medicare SNF patients account for more than a third of SNF admissions in 2005

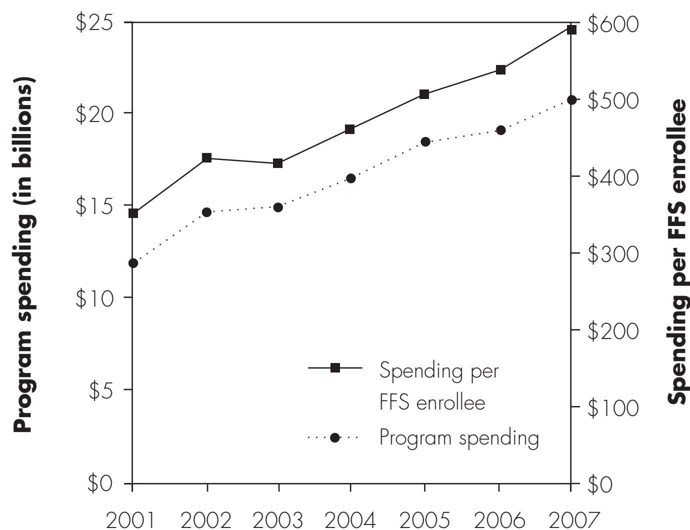
Diagnosis code from hospital stay	Diagnosis	Share of SNF admissions
209	Major joint and limb reattachment of lower extremity	5.6%
089	Simple pneumonia and pleurisy, age >17, with CC	5.3
127	Heart failure and shock	4.9
210	Hip and femur procedures except major joint, age >17, with CC	3.8
014	Intracranial hemorrhage and stroke with infarction	3.6
416	Septicemia, age >17	3.6
320	Kidney and urinary tract infection, age > 17, with CC	3.2
296	Nutritional and miscellaneous metabolic disorders, age > 17, with CC	2.6
079	Respiratory infections and inflammations, age > 17, with CC	2.4
316	Renal failure	2.2
	Total	37.2

Note: SNF (skilled nursing facility), CC (complication or comorbidity). The diagnosis code from the hospital stay is the discharge diagnosis.

Source: MedPAC analysis of DataPRO file from CMS, 2005.

FIGURE 2D–1

Skilled nursing facility payments continue to grow



Note: FFS (fee-for-service). Years are fiscal years.

Source: CMS, Office of the Actuary, 2007.

How does Medicare pay for SNF services?

Medicare's prospective payment system for SNFs pays to cover the per day costs of nursing, ancillary services, and capital.[6] The base rates are updated annually for inflation based on the projected increase in the SNF market basket index, a measure of the national average price for the goods and services SNFs purchase to provide care.[7] Each daily payment has three components:

- a nursing component intended to reflect the intensity of nursing care and nontherapy ancillary services that patients are expected to require;
- a therapy component to reflect the physical and occupational therapy and speech–language pathology services provided or expected to be provided; and
- a component to cover room and board, administrative, and other capital-related costs.

For each day, the three components are summed.

Daily payments are adjusted up or down from the base rate using case-mix weights that reflect the provision of certain services and patient characteristics. A classification system called resource utilization groups (RUGs) classifies patients into 53 categories based on the number and type of minutes of therapy used or expected to be used, the use of certain services (e.g., respiratory therapy and specialized feeding), certain clinical conditions (e.g., pneumonia or dehydration), the need for assistance to perform activities of daily living (e.g., eating and toileting), and, in some cases, signs of depression. Information gathered from the standardized patient assessment instrument, the Minimum Data Set (MDS), is used to group patients. The nursing and therapy components have separate base rates and case-mix weights to reflect their relative resource requirements; the other component is a fixed amount per day for all patients.[8]

The nursing and therapy weights have not been recalibrated with new data since the prospective payment system (PPS) was first implemented in 1998. CMS is in the process of analyzing recently collected data on staff time and other resources used to provide care from a sample of freestanding and hospital-based facilities that treat Medicare and Medicaid patients. Depending on the results of its analysis, it may incorporate at least some of the findings into the proposed rule expected to be issued in the spring of 2008 and make additional revisions in 2009.

The Commission has discussed two problems with the SNF PPS (MedPAC 2007a, 2007b, 2006). First, the RUG classification system does not adequately adjust payments to reflect the variation in providers' costs for nontherapy ancillary (NTA) services (e.g., respiratory therapy and medications), which average 16 percent of daily costs. The system includes NTA costs with nursing costs and distributes payments based on the expected amount of nursing care, even though NTA costs are not necessarily associated with nursing costs and vary considerably more across patients. For example, payments are the same for patients who require equivalent nursing care even though some patients also require expensive drugs or respiratory therapy services. As a result, payments are too low for many beneficiaries who use these services and too high for those who do not. Hospital discharge planners and hospital administrators have reported problems placing patients who need intravenous antibiotics, expensive drugs, or ventilator care (Liu and Jones 2007, OIG 2006).

The second key problem with the PPS is that payments vary with the amount of therapy delivered, creating a financial incentive to furnish therapy services. Facilities are paid for providing therapy even when a patient's need for and benefit of therapy have not been demonstrated.

TABLE 2D–2

A growing share of Medicare stays and payments go to freestanding SNFs and for-profit SNFs

	Facilities			Medicare-covered stays			Medicare payments		
Type of SNF	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
Freestanding	91%	92%	92%	85%	87%	89%	92%	93%	94%
Hospital-based	9	8	8	15	13	11	8	7	6
Urban	67	67	67	79	79	79	81	81	81
Rural	33	33	33	21	21	21	19	19	19
For profit	67	68	68	65	66	67	71	72	73
Nonprofit	28	28	28	31	30	29	25	25	24
Government	5	5	5	4	4	4	3	3	3

Note: SNF (skilled nursing facility). Totals for each subset may not sum to 100 percent due to rounding.

Source: MedPAC analysis of the Provider of Services and Medicare Provider Analysis and Review files, 2004–2006.

Over time, the number of beneficiaries receiving therapy and the amount they receive have increased (MedPAC 2007b). For stays grouped into rehabilitation RUGs (groups used to categorize patients receiving at least 45 minutes of therapy a week), the therapy payment makes up 16 percent to 60 percent of the total daily payments, depending on the RUG.

In its June 2007 Report to the Congress, MedPAC described CMS-funded research that examined ways to establish and separately pay for NTA services and to base payments for therapy services on predicted care needs, not service provision (MedPAC 2007a). On the basis of this work, we concluded that the current PPS could be designed to (1) better target payments for NTA services, and (2) improve providers' incentives by paying for therapy based on predicted care needs rather than on the services delivered. Reforms that base payments on predicted care needs rather than on service use could, as with any PPS, encourage providers to stint on needed services. Implementing pay-for-performance for SNFs, as we recommend later in this chapter, would help counter this incentive. The Commission has contracted with the Urban Institute to refine possible designs for paying for NTA and therapy components; we will report on this work in 2008.

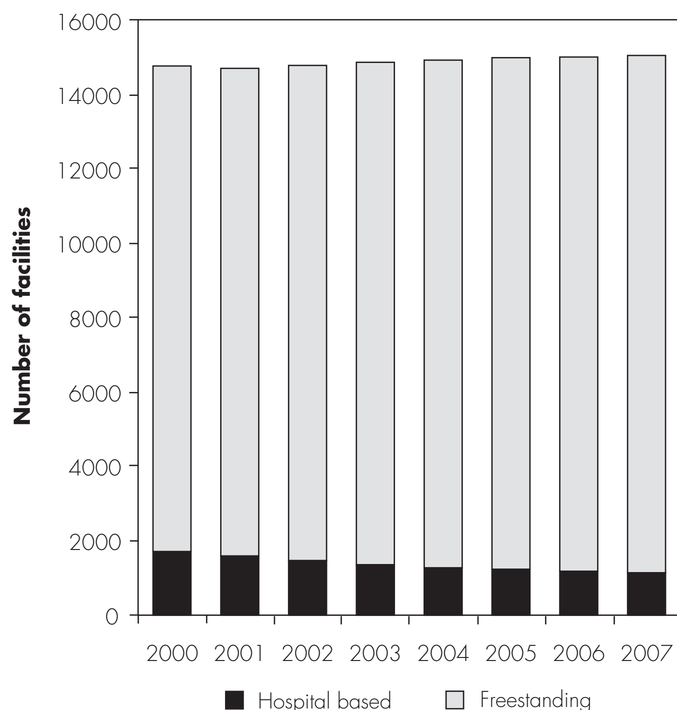
Providers of skilled nursing facility care

SNF services may be furnished by hospital-based or freestanding facilities. In 2006, 92 percent of facilities were freestanding. A growing share of Medicare-covered stays and payments went to freestanding SNFs and for-profit SNFs (Table 2D-2). Freestanding facilities treated 89 percent of Medicare stays (up 4 percentage points since 2004) and accounted for 94 percent of spending (up 2 percentage points since 2004). For-profit SNFs' shares of Medicare-covered stays and payments each increased 2 percentage points between 2004 and 2006. Almost all SNFs (94 percent) are part of nursing homes that also care for long-stay patients, which Medicare does not cover.

Patients in a freestanding facility for a Medicare-covered SNF stay are typically a small share of the total patient population in a Medicare-participating SNF. At the median, Medicare-covered SNF days made up just over 12 percent of total patient days in freestanding facilities in 2006—a sizable increase over the Medicare shares in 2005. Still, SNFs with large Medicare shares are the minority. In 2006, only 10 percent of freestanding SNFs had Medicare shares of 31 percent or more. Hospital-based facilities typically have considerably higher shares of Medicare patients (in 2004, the median was 73 percent) and treat few long-term care residents. The remaining patients in hospital-based facilities are either non-Medicare skilled nursing patients or long-term care residents.

FIGURE 2D–2

The number of Medicare-certified skilled nursing facilities has remained stable, with fewer hospital-based and more freestanding providers



Source: MedPAC analysis of data from the Certification and Survey Provider Enhanced Reporting on CMS's Survey and Certification Providing Data Quickly system for 2000–2007.

Are Medicare payments adequate in 2008 and how should they change in 2009?

Our analysis of the adequacy of Medicare payments evaluates beneficiary access to care, the supply of providers, the volume of services, the quality of care, provider access to capital, and changes in payments and costs. As required by the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, we consider an update appropriate for an efficient provider.

Indicators of payment adequacy are generally positive for SNFs. Beneficiaries have good access to services, although those who need certain expensive services may experience delays while awaiting placement in a SNF. The number of providers remained virtually constant in 2006. Volume, as measured by SNF days and admissions per 1,000 FFS enrollees, increased between 2005 and 2006. The two quality measures that MedPAC analyzes show mixed results: Risk-adjusted rates of discharge to the community continue to increase (indicating improved quality), while rates of potentially avoidable rehospitalizations continue to increase (indicating poorer quality). SNFs' access to capital was good for most of 2007 but tightened in the fall, reflecting the general lending market, not the adequacy of Medicare payments. All signs indicate that Medicare continues to be a preferred payer.

Beneficiaries' access to care

Most Medicare beneficiaries appear to experience little or no delay in accessing SNF services, especially if they need rehabilitation services. Market analysts and investor reports consistently note that successful SNFs typically increase their overall volume of Medicare patients and shift their mix toward patients who are classified into higher paying case-mix groups. While access is good, placement of some patients with complex care needs can be difficult and result in longer hospital stays as discharge planners seek willing or able SNF providers to take them. Interviews with hospitals in the spring of 2007 indicated that medically complex patients—such as those requiring complex wound care, ventilator care, or intensive intravenous antibiotics—could be hard to place (MedPAC 2007a). Some hospital administrators said that placement of such patients could improve if the SNF PPS were revised to more accurately pay for the care these patients need.

Supply of providers

The number of SNFs was almost the same in 2007 as in 2006, increasing by 0.3 percent, or 42 facilities (Figure 2D-2). The number of SNFs has hovered close to 15,000 since 2004, with a slight increase since 2001. The share of hospital-based units continued to decline; they made up 8 percent of all SNFs in 2007. However, a small number (11) of new hospital-based units opened in 2007. Equal shares of freestanding and hospital-based facilities in 2007 were new (about 1 percent).

Volume of services

Between 2005 and 2006, admissions declined slightly (–0.2 percent) and the number of days covered increased (1.7 percent), resulting in longer average stays (Table 2D-3). However, because during this period more beneficiaries participated in Medicare Advantage plans (whose volume is not included in the measures), admissions and days per FFS enrollee increased. From

TABLE 2D–3

SNF admissions and covered days

	2004	2005	2006	Change 2005–2006
Total SNF volume				
Covered admissions	2,419,943	2,549,408	2,543,133	–0.2%
Covered days (in thousands)	62,364	66,002	67,143	1.7
Covered days per admission	25.8	25.9	26.4	1.9
Volume per 1,000 fee-for-service enrollees				
Covered admissions	67	70	72	2.9
Covered days	1,732	1,817	1,892	4.1

Note: SNF (skilled nursing facility). Data include 50 states and DC.

Source: Calendar year data from CMS, Office of Research Development and Information.

2005 to 2006, admissions per 1,000 FFS beneficiaries increased 2.9 percent and days per 1,000 FFS enrollees increased 4.1 percent.

Some of the growth in FFS admissions and days may also be explained by a shift in the site of care from inpatient rehabilitation facilities (IRFs) to SNFs as IRFs begin to comply with the 75 percent rule for IRFs.[9] Of the top 10 hospital diagnosis related groups with IRF destinations, the share of patients going to SNFs increased for 8 of the 10 diagnosis related groups between 2003 and 2006. The shifts were largest for patients recovering from heart failure and shock, hip and knee replacements, and medical back problems, conditions generally not counted toward the 75 percent rule.

In 2006, CMS implemented nine new RUGs for patients who qualify for both rehabilitation and extensive services, adding them at the top of the classification hierarchy.[10] These highest payment RUG categories accounted for 26 percent of all RUG days in 2006, taking cases out of the rehabilitation-only groups (Figure 2D-3, p. 150). In 2005, rehabilitation RUGs accounted for 83 percent of RUG days; in 2006, their share had declined to 60 percent. Rehabilitation and rehabilitation plus extensive services, together, however, accounted for 86 percent of all days, reflecting a continued increase in the intensity of services furnished to SNF patients.

As reported in previous years, the distribution of rehabilitation days continued to shift toward the highest therapy groups (Figure 2D-4, p. 150). The ultra high and very high groups made up 59 percent of the rehabilitation days in 2006, up 7 percentage points from the previous year, while the share of days grouped into high, medium, and low categories declined. These changes could be a function of shifts in the site of service from other settings or could reflect the payment incentives to furnish the services necessary to get patients classified into the higher-paying rehabilitation RUGs.

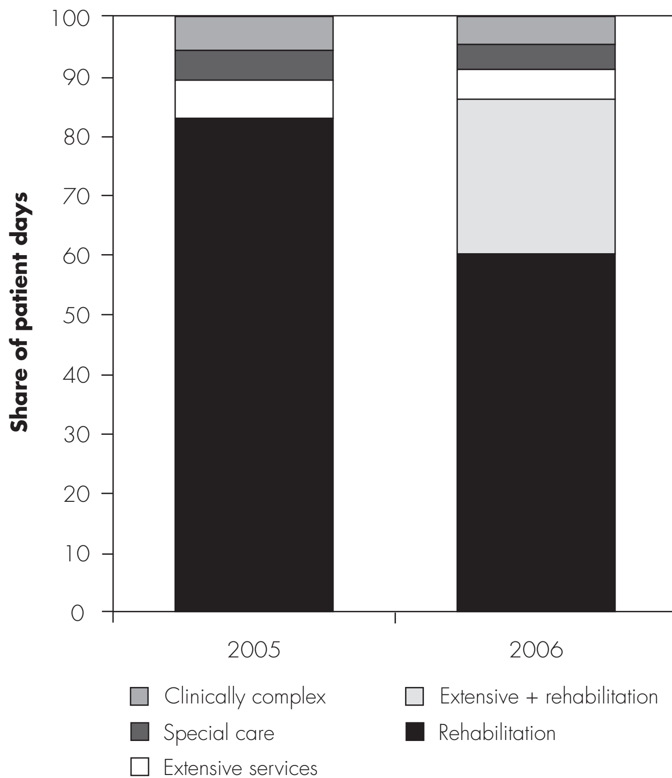
The continued expansion of patients classified into rehabilitation RUGs and the increasing intensity of the services furnished underscore the importance of assessing the value of therapy services. The Commission previously recommended that CMS collect patient assessment information at discharge so that the changes in functional status can be measured for all patients (MedPAC 2006, 2005).

Quality of care

Risk-adjusted measures of the quality of care furnished to patients during a Medicare-covered SNF stay show mixed results.[11] Rates of community discharge within 100 days are almost at the same level as five years ago, having declined and then improved during the past two years (for a description of the measures, data sources, and their calculation see Kramer et al. 2008). The mean risk-adjusted facility rate of community discharge in 2005, the most recent year available, was 33.7 percent (Figure 2D-5, p. 151). The rates of rehospitalization within 100 days for 5 conditions (congestive heart failure, respiratory infection, urinary tract infection, sepsis, and electrolyte

FIGURE 2D–3

Case mix in freestanding SNFs shifted toward extensive plus rehabilitation RUGs and away from other broad RUG categories, especially rehabilitation groups



Note: SNF (skilled nursing facility), RUGs (resource utilization groups). The clinically complex category includes patients who are comatose; have burns, septicemia, pneumonia, internal bleeding, or dehydration; or receive dialysis or chemotherapy. The special care category includes patients with multiple sclerosis or cerebral palsy, those who receive respiratory services seven days per week, or are aphasic or tube fed. The extensive services category includes patients who have received intravenous medications or suctioning in the past 14 days, have required a ventilator or respiratory or tracheostomy care, or have received intravenous feeding within the past 7 days. Days are for freestanding skilled nursing facilities with valid cost report data.

Source: MedPAC analysis of freestanding SNF cost reports.

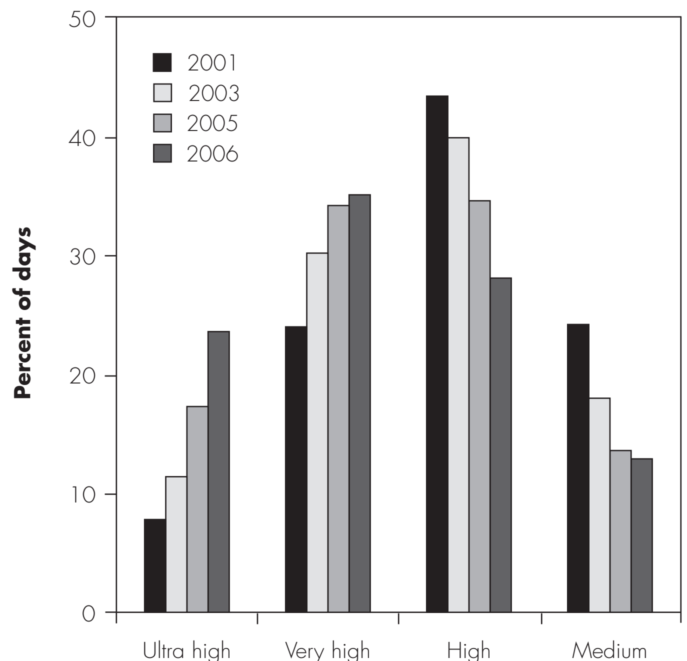
imbalance) have steadily increased throughout the period (indicating worsening quality), averaging increases of almost 9 percent per year. In 2005, the mean risk-adjusted facility rate for the five potentially avoidable rehospitalizations was 17.8 percent, compared with 11.7 percent in 2000.

We use these measures to assess the quality of care provided by SNFs to short-stay patients rather than the measures currently reported on CMS's Nursing Home Compare website (facility rates of delirium, pain, and pressure sores) for short-stay patients because the publicly reported measures have serious limitations (see discussion, p. 162). The rates of community discharge and potentially avoidable rehospitalization capture two important goals for SNF patients. Particularly for patients receiving rehabilitation therapy, recovering prior function and being discharged to the community are fundamental goals of their SNF stay. Avoiding hospitalization is important for any beneficiary but particularly those recovering from prior medical or surgical problems that prompted their SNF stay. Reducing rehospitalizations for any of the five conditions requires SNF staff to use preventive measures, detect potential signs of worsening patient condition, and provide prompt medical intervention when needed.

The risk-adjusted results for the quality measures continued to differ by facility type and ownership.[12] Hospital-based facilities had community discharge rates

FIGURE 2D–4

Case mix in freestanding SNFs continues to shift toward higher intensity rehabilitation RUGs



Note: SNF (skilled nursing facility), RUGs (resource utilization groups). Days are for freestanding SNFs with valid cost report data.

Source: MedPAC analysis of freestanding SNF cost reports.

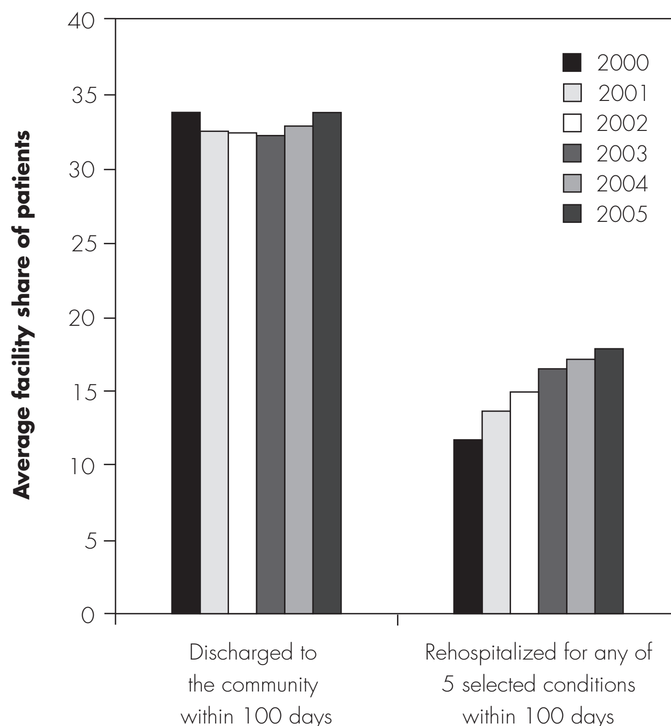
more than 14 percentage points higher (indicating higher quality) and potentially avoidable rehospitalization rates 4.5 percentage points lower (indicating higher quality) than those for freestanding facilities, after controlling for differences in case mix, ownership, and location. Hospital-based SNFs may have lower rehospitalization rates in part because their close proximity to the hospital facilitates physician visits. For-profit facilities had higher community discharge rates (0.7 percentage point)—indicating higher quality—but also higher potentially avoidable rehospitalization rates (1.4 percentage points)—indicating poorer quality—compared with nonprofit SNFs after risk adjustment.

Staffing ratios also affected these quality measures. After controlling for differences in case mix, one additional hour of licensed nurse time per resident day increased the community discharge rate (by 3.9 percentage points) and lowered the rehospitalization rate (by 1.2 percentage points). An additional hour of certified nurse aide time also was associated with a small increase in the community discharge rate (1.4 percentage points) and a small decrease in the rehospitalization rate (0.4 percentage point). After controlling for facility type and ownership, which are correlated with staffing levels, the effects of staffing and being hospital based decreased but remained significant. Thus, part of the quality differences across facility types is due to differences in staffing level.

Unmeasured differences in case mix and other factors that were not accounted for (e.g., staffing turnover and experience, the availability of IRFs and long-term care hospitals, and facility practice patterns) could also explain some of the differences in quality measures by facility type.

FIGURE 2D–5

Mixed quality results for SNFs between 2000 and 2005



Note: SNF (skilled nursing facility). The five selected conditions include congestive heart failure, respiratory infection, urinary tract infection, sepsis, and electrolyte imbalance. Increases in rates of discharge to community indicate improved quality; declines in rehospitalization rates for the five conditions indicate improved quality. Rates are calculated for all facilities with more than 25 stays.

Source: Kramer et al. 2008.

Access to capital

The vast majority of SNFs are small parts of larger nursing homes that seek capital for construction and capital improvements. Medicare provides a small share of most homes' revenues, but because it is seen as a preferred payer, the ability of the homes to maintain or increase their Medicare shares influences how attractive a nursing home is to investors (see text box on Medicaid payment effects on nursing facility margins, p. 152). Analysts told us that investors view homes treating an above-average share of Medicare patients more favorably than other homes because Medicare's generous payments are used to subsidize Medicaid payments.

SNF access to capital was good during most of 2007. One measure of the rising value of nursing homes is the price paid per bed for nursing homes sold during the year. Between 2005 and 2006, the share of facilities that sold for more than $50,000 per bed increased from 28 percent to 39 percent, while the share (11 percent) of homes that sold for under $20,000 per bed was the lowest since 1999 (Irvin Levin Associates 2007). Smaller homes also had better access to capital in 2006 than in 2005. Lending that is insured by the Department of Housing and Urban Development (HUD) increased during 2006.[13] In fiscal year 2006, HUD insured mortgages for 222 projects with 24,945 beds/units, totaling $1.3 billion (HUD 2007). This represented a 58 percent increase over its lending in fiscal year 2005.

Medicaid payment effects on nursing facility margins

The Commission considers the Medicare margin, rather than the total facility margin, to guide its update recommendation for skilled nursing facilities (SNFs) because our primary responsibility is to advise the Congress on Medicare payment policy. Industry representatives contend that the Commission should consider total margins, including Medicaid payments and costs, rather than the Medicare margin. However, if we were to evaluate total facility margins, we would implicitly accept that Medicare should cross-subsidize other payers' payments, in large part Medicaid payments.

There are several reasons why Medicare cross-subsidization is not advisable policy for the Medicare program. On average, Medicare payments accounted for 21 percent of revenues to freestanding SNFs in 2006. As a result, the policy would use a minority of Medicare payments to subsidize a majority of Medicaid payments. If Medicare were to pay still higher rates, facilities with high shares of Medicare payments—presumably the facilities that need revenues the least—would receive the most in subsidies from the higher Medicare payments. In other words, the subsidy would be poorly targeted. Given the variation among states in the level and method of nursing home payments, the impact of the subsidy would be highly variable; in states where Medicaid payments were adequate, it would have no positive impact. In addition, increasing Medicare's payment rates could encourage states to reduce Medicaid payments further and, in turn, result in pressure to again raise Medicare rates. It could also encourage providers to select patients based on payer source or to rehospitalize dual-eligible patients so that they qualified for a Medicare-covered, and higher payment, stay. ■

Analysts told us that investment has slowed considerably since August 2007, reflecting general lending conditions. They further stated that nursing homes will continue to have access to capital but that it will be more expensive and the terms are likely to be more restrictive. This tightening of capital markets is related to lending and real estate trends and does not reflect the adequacy of Medicare payments. Single homes and small chains are likely to use local or regional lenders, while large mergers and acquisitions have been postponed or canceled as lenders take stock of the capital markets. The National Investment Center, a nonprofit research organization providing information about business strategy and capital formation for the senior living industry, reported that early in 2007 lending to nursing homes and assisted living facilities had continued the record-breaking trends of 2006 (NIC 2007b). However, by summer, lending had slowed and was likely to remain sluggish due the credit crunch nationwide (NIC 2007a). Marcus and Millichap Real Estate Investment Services reported a major slowdown in the construction of nursing homes in the past year (Cain Brothers 2007a). Although new bed construction is down 28 percent compared with the same period last year, 2,600 new beds are being built.

Industry analysts and annual reports of several publicly traded companies indicated that SNFs use two Medicare-related strategies to improve their financial performance. Most notably, facilities expand their Medicare and private payer shares as ways to generate more revenue per occupied bed. They also focus on patients in high rehabilitation and extensive services plus rehabilitation RUGs. Reflecting this increase in case mix, companies can increase their reported revenues per bed by 5 percent to 8 percent a year.

Another strategy that nursing home companies reportedly use to improve their financial performance is to expand into related service lines such as hospice and outpatient rehabilitation as a way to gain a larger share of post-acute care expenditures. The largest chains continue to expand the number of holdings and diversification into other post-acute care services, including hospice, outpatient rehabilitation, assisted living, specialized rehabilitation units within SNFs, and long-term care hospitals. Some of the publicly traded companies note that, because SNFs represent the low-cost setting for institutional post-acute care, they want to be well positioned to expand their share of this care.

TABLE 2D–4

Freestanding SNF Medicare margins

Type of SNF	2001	2002	2003	2004	2005	2006
All	17.6%	17.4%	10.8%	13.7%	12.9%	13.1%
Urban	17.4	16.8	10.0	13.0	12.4	12.7
Rural	18.4	20.0	14.1	16.5	15.3	14.5
For profit	19.9	20.0	13.9	16.6	15.7	16.0
Nonprofit	10.1	9.0	1.5	4.2	4.3	3.1
Government	4.9	3.1	–7.1	–3.0	–5.0	–5.9

Note: SNF (skilled nursing facility). Government-owned providers operate in a different context from other providers, so their margins are not necessarily comparable.

Source: MedPAC analysis of freestanding SNF cost reports.

Analysts report an increasing division within the nursing home market between homes focusing on Medicaid patients and those that also treat Medicare and private pay patients. Homes that treat above-average shares of Medicare beneficiaries will have better access to capital than those that almost exclusively treat Medicaid patients. Analysts report that homes that are relatively more focused on Medicare are making investments in equipment, physical plant, and staff to handle patients with greater care needs. Some nursing homes are also using capital to update their facilities so they are more attractive to Medicare patients. Analysts told us that homes that can increase their Medicare census by 5 percent are seen as very attractive.

Analysts also told us that the large nursing home transactions by private equity firms are likely to be far less common over the coming year. Private equity ownership is a relatively recent trend (the past three years or so), with 7 of the largest 10 chains now owned by private groups. This investment reflected the growing market for health services generally, the aging population's demand for services, and the attractive real estate market. In addition, nursing homes are seen as having relatively stable cash flows with growth potential (Cain Brothers 2007b). However, some analysts told us they expect few large private equity takeovers of nursing homes in the future because the relatively inexpensive capital that fueled this trend is no longer available.

Researchers and policymakers have raised concerns about the increased investment of private equity firms in nursing homes, including the lack of transparency of ownership, the corporate reorganization to limit litigation exposure, and the highly leveraged financing of some chains (Duhigg 2007, Stevenson et al. 2006). The impact of these changes on the quality of care furnished in nursing homes or SNFs is unknown.[14] The Government Accountability Office has been asked to examine how private equity ownership has affected the quality of care in homes.

Payments and costs for 2007

Although aggregate Medicare margins for freestanding SNFs have varied over the past six years, they have exceeded 10 percent every year (Table 2D-4). In 2006, the aggregate Medicare margin for freestanding SNFs was 13.1 percent. This margin increased slightly from 2005 (12.9 percent), reflecting slower cost growth and higher payments for the new RUG categories. We estimate the Medicare margin for freestanding SNFs will be 11.4 percent in 2008.

Financial performance among freestanding SNFs continues to vary widely. The aggregate Medicare margin in for-profit SNFs was 16 percent compared with just over 3 percent in nonprofit facilities. Nonprofits had higher daily costs after adjusting for case mix and, between 2005 and 2006, had higher cost growth than for-profit facilities.[15] In aggregate, rural facilities continued to have higher Medicare margins than their urban counterparts.

Examining the distribution of Medicare margins, one-half of freestanding SNFs had Medicare margins of 14.7 percent or more, while a quarter of them had Medicare margins at or below 4 percent. The top quartile of freestanding facilities had Medicare margins of at least 23.3 percent. Comparing freestanding SNFs in the top and bottom quartile of Medicare margins, we found that high-margin SNFs had case-mix-adjusted costs per day

TABLE 2D–5

SNFs in top quartile of Medicare margins in 2006 had much lower costs but similar mix of days

Characteristic	Top quartile	Bottom quartile
Case-mix adjusted costs per day	$206	$304
Case-mix adjusted ancillary costs per day	$87	$121
Percent for profit	85%	53%
Percent urban	68%	73%
Medicare share of days	12%	11%
Length of stay (in days)	37	32
Average daily census (patients)	86	73
Share of clinically complex, special care, or extensive service days	9%	11%

Note: SNF (skilled nursing facility). Values shown are medians for the quartile. Top quartile SNFs were in the top 25 percent of the distribution of Medicare margins. Bottom quartile SNFs were in the bottom 25 percent of the distribution of Medicare margins. Standardized costs have been adjusted for case mix using the facility's nursing case-mix index.

Source: MedPAC analysis of freestanding cost reports.

that were one-third lower, higher average daily census, and longer stays (Table 2D-5). SNFs in the top margin quartile had slightly lower shares of patients in the clinically complex, special care, or extensive services compared with SNFs in the bottom margin quartile. The lower daily costs of high-margin SNFs are partly explained by the fact that they are bigger (with the accompanying economies of scale) and have longer stays (over which to spread their fixed costs) compared with low-margin SNFs. Unmeasured differences in patient mix could also explain some of the cost differences.

In modeling 2008 payments and costs with 2006 data, we consider policy changes that went into effect in 2007 and 2008. Except for accounting for full market basket updates for each year (3.1 percent and 3.3 percent in 2007 and 2008, respectively), there were no other policy changes to consider.

Our modeling of future year costs also considers recent cost growth for freestanding SNFs. Between 2005 and 2006, SNF cost growth (unadjusted for case mix) slowed, averaging 4.6 percent compared with 5.4 percent for the previous year (Figure 2D-6). Nonprofit facilities experienced higher cost growth on average between 2005 and 2006 than for-profit SNFs. In 2006, nonprofits also had higher daily costs than for profits (11 percent higher), after adjusting for case mix, which could be due to unmeasured differences in case mix.

Hospital-based facilities continued to have very negative margins (–83.8 percent), in large part reflecting their higher daily costs and shorter stays (their stays are less than half those of freestanding facilities). Per diem costs for hospital-based SNFs are about double those of freestanding facilities. Their higher routine costs are a function of higher staffing levels, a larger mix of professional staff, and generally higher wage rates (hospital-based SNFs typically pay their SNF staff the same rates as their hospital employees) (MedPAC 2007a). Hospital-based SNFs also have higher NTA costs that may capture unmeasured case-mix differences and the test-ordering practices of physicians managing the SNF care. We previously noted (p. 151) the differences in staffing and quality measures between freestanding and hospital-based facilities. Finally, hospital-based SNFs have higher overhead costs than freestanding SNFs. Because hospital-based facilities are small, their administrative costs are spread over fewer patients; further they carry some overhead from their host hospital. These factors raise these costs relative to those of freestanding facilities.

The Commission continues to be concerned about the differences in financial performance between hospital-based and freestanding facilities and between for-profit and nonprofit facilities. Our ongoing research examining alternative designs for the SNF PPS attempts to better target payments to patients with high NTA costs and to base therapy payments on care needs rather than service provision. We expect these reforms would change the distribution of payments, which, in turn, would narrow the differences in performance.

Update recommendation

SNFs should be able to accommodate cost changes in 2009 with the Medicare margin they have in 2008.

RECOMMENDATION 2D-1

The Congress should eliminate the update to payment rates for skilled nursing facility services for fiscal year 2009.

RATIONALE 2D-1

The evidence indicates that Medicare beneficiaries continue to have access to SNF services. Under policies

in current law for 2007, 2008, and 2009, we project the Medicare margin for freestanding SNFs to be more than 11 percent in 2008. SNF payments appear more than adequate to accommodate cost growth; thus, no update is needed.

IMPLICATIONS 2D-1

Spending

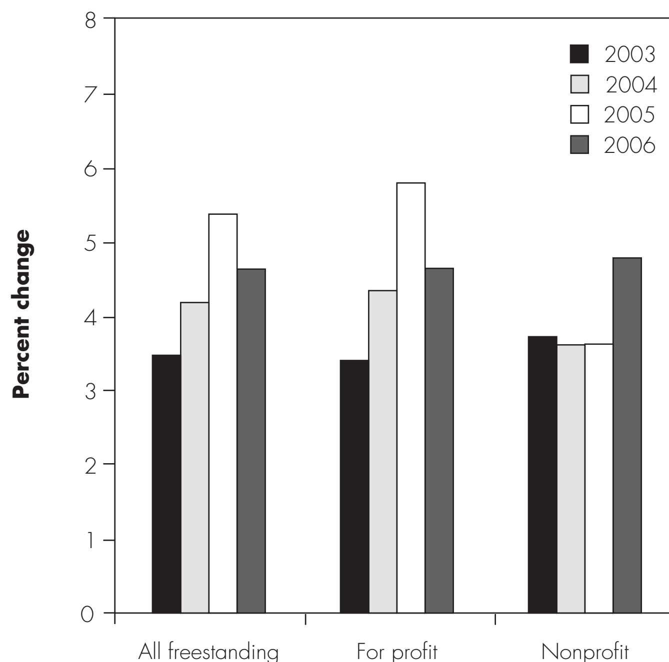
- This recommendation would lower program spending relative to current law by $250 million to $750 million for fiscal year 2009 and by $1 billion to $5 billion over 5 years.

Beneficiary and provider

- No adverse impact on beneficiary access is expected. This recommendation is not expected to affect providers' willingness or ability to care for Medicare beneficiaries.

FIGURE 2D–6

Growth in freestanding SNFs' cost per day slowed except for nonprofits



Note: SNF (skilled nursing facility). Costs per day are unadjusted for case mix.

Source: MedPAC analysis of SNF cost reports.

Paying for performance in SNFs

In addition to evaluating the level of SNF payments, the Commission considered the readiness of this setting to have a portion of its Medicare payments tied to the value of the care it purchases. When the Commission and the Institute of Medicine reviewed the settings that were ready for linking payments to quality, SNFs were not among them (IOM 2006, MedPAC 2005). However, this was in large part a reflection of the measures that were available. The publicly reported quality measures for short-stay patients in use at the time did not reflect the care experience of most beneficiaries and could reflect care that was not, in fact, furnished during their SNF stays. However, since that time, the Commission has evaluated two measures—rates of community discharge and potentially avoidable rehospitalization—and concluded that they are suitable for a pay-for-performance program.

Linking Medicare's SNF payments to patient outcomes is desirable for several reasons. First, paying for performance could help improve quality of care, which has been a persistent problem for some providers. Despite considerable congressional focus over the past 18 years, a small but substantial share of nursing homes continue to have serious quality-of-care problems. For example, in 2006, almost one in five homes was cited for survey deficiencies that caused actual harm or placed residents in immediate jeopardy (GAO 2007). We found that rehospitalization rates in 2005 varied more than fourfold across SNFs, while community discharge rates varied more than sevenfold.[16] Given this large variation in quality, it makes sense to have Medicare vary its payments to reflect the product it purchases.

Second, paying for outcomes would encourage providers to consider the benefits and costs of services furnished to patients. The current PPS does not require providers to assess the value of additional services furnished or the costs to the program and the beneficiary of delivering poor quality of care. Providers currently have an incentive to furnish therapy services without considering whether the additional services improve beneficiary outcomes. As we consider reforms that divorce SNF payments from the provision of therapy services, the risk of stinting on needed services increases, as it does with any PPS. With such reforms, there is even more reason to consider tying some portion of provider payments to patient outcomes.

Last, paying for performance—using potentially avoidable rehospitalization rates as a measure—is one step in the path of holding multiple providers accountable for

reducing the number of unnecessary rehospitalizations. The Commission has explored bundling payments around a hospitalization and including care furnished during some time period beyond it as a way to align incentives across providers to reduce avoidable readmissions. It has also discussed reducing payments for potentially avoidable readmissions, separate from bundling payments. SNF pay for performance complements these policy ideas because it reinforces the desired outcome by making multiple providers accountable for lowering rehospitalization rates. It also could be implemented in a shorter time period than bundled payments.

Design features

The Commission previously developed principles to guide the design of pay-for-performance programs (MedPAC 2005). First, the program should reward high-performing providers (those that furnish high-quality care) and those that improve. This principle aims to encourage many providers to participate in the program to improve quality for as many beneficiaries as possible. Second, the program should be funded by a small set-aside of current payments (1 percent to 2 percent) from every provider, not from new spending. The program is intended to shift the incentives of payment, not the level, and should be budget neutral. Thus, the system would be funded by redistributing payments from SNFs that provide poor quality of care to SNFs with high quality and improving quality. Third, the pooled dollars should be fully distributed to providers that meet the reward criteria at the end of the year. Last, a process should be established to develop, validate, and update the measure set.

The design would need to consider two unique features of the SNF industry. Medicare accounts for a small share of the business at most SNFs and may not, on its own, be able to influence provider behavior, even as a preferred payer. Further, SNF margins on Medicare patients have been relatively high for the past five years, which may dampen the impact of a reward or penalty of a pay-for-performance program. For example, the cost to a provider of making the improvements to score better on the performance measures may exceed the financial reward obtained from the pay-for-performance program. In this case, providers could elect not to invest in changes that might be necessary to improve their quality. Given the relatively high margins and the low Medicare shares, the pay-for-performance program may need to be designed with a larger set-aside than the 1 percent to 2 percent generally considered appropriate for other provider settings. On the other hand, because Medicare is a preferred payer, given its relatively high payments, facilities may pay close attention to how they can increase their payments from Medicare.

Performance measures

The Commission has also developed criteria for the measures to distinguish between providers with high- and low-quality performance.

- The measures should be well accepted by quality experts and familiar to providers, and they should be evidence based.
- The measures should not impose undue data collection or analysis burdens on providers or CMS. When possible, the measures should rely on data that are currently available.
- The risk adjustment for outcomes-based measures should be sufficient so that providers do not have incentives to avoid patients who might lower their quality score.
- Most providers should be able to improve their quality performance. The measures should capture aspects of care over which providers have control, and the measures should be related to important aspects of quality that need improvement. The measures should be relevant to a wide range of beneficiaries and the care furnished so that the pay-for-performance program has its greatest impact.

Rates of community discharge and potentially avoidable rehospitalization as pay-for-performance measures

Over the past two years, the Commission has carefully evaluated the measures it uses to assess SNF quality—rates of community discharge within 100 days and potentially avoidable rehospitalization for 5 conditions within 100 days—and found that both measures meet MedPAC's criteria for pay-for-performance measures.[17] Both measures are evidence based and accepted as quality indicators. Experts we interviewed thought both measures, along with improvement in functioning (discussed on p. 159), would provide better information on whether patients benefit from SNF care and whether patient goals were attained compared with the current MDS-based measures (MedPAC 2005). Rehospitalization rates are used as quality measures in the post-acute and ambulatory care settings and are publicly reported for home health agencies on CMS's Home Health Compare website.

Rates of community discharge are frequently used to evaluate rehabilitation care and have been associated with functional recovery as measured by a range of functional measures.[18] Given that more than three-quarters of beneficiaries receive rehabilitation services, this measure reflects the care furnished to a large share of beneficiaries.

Both measures use data that are readily available and, because they do not rely on information from the second assessment, they avoid the sampling and accuracy issues associated with the MDS-based post-acute measures. Although about 10 percent of stays were not counted in the measures (due to short stays, deaths, and missing assessments), this attrition rate is far lower than the 45 percent of stays that are currently lost because patients do not stay long enough to be assessed on day 14, which is required to calculate currently reported measures.

Rates of community discharge and potentially avoidable rehospitalizations are measures upon which most SNFs can improve. Because most SNF patients are expected to improve and recover their maximum functioning, both measures capture key goals for SNF care: to be discharged back to the community and avoid rehospitalization. Both measures consider the care furnished to all beneficiaries and are not limited to specific conditions. In addition, improvement is within the control of providers. Preventive measures, early detection, prompt intervention, and the application of skilled rehabilitation and nursing services will improve a SNF's performance. Finally, there is wide variation in both rates across providers, leaving ample improvement opportunities for all SNFs.

The Commission sponsored research to assess three technical aspects of the measures: the risk-adjustment methodology, the number of cases needed for the measures to be stable, and the time period considered by the measures.[19] The researchers found that a robust risk-adjustment method was feasible using administrative data, a relatively small sample size was needed for stable measures at the facility level, and measures evaluating 100 days of care were preferable to those that considered 30 days (Donelan-McCall et al. 2006). These findings led us to conclude that the measures are ready for pay for performance and public reporting.

Measures include a robust risk-adjustment methodology

Sufficient risk adjustment is critical so that providers are not penalized for treating sicker patients or patients who are not expected to improve. Adequate risk adjustment also counters incentives providers may have to select patients who are relatively more profitable (or less likely to result in financial losses). Such selection is particularly worrisome when the characteristics that influence the profitability of a case are easily known before the patient is admitted. In addition, without good risk adjustment, SNFs could be unfairly disadvantaged when they appropriately transfer patients who need hospital services.

The risk-adjustment models for the rates of community discharge and potentially avoidable rehospitalizations control for clinical, facility, and community factors that could influence these quality measures. The risk adjustment considers 26 patient-level case-mix factors including patient age, the presence of advance directives, the Barthel index (a measure of functional independence), the cognitive performance scale (a measure of cognitive impairment), patient assessment items (bowel incontinence, indwelling catheter, feeding tube, and parenteral or intravenous feeding), a weighted comorbidity index, 12 diagnostic categories (from the qualifying hospital stay), and the length of stay of the qualifying hospitalization (Kramer et al. 2007b). The models also include staffing levels, facility characteristics, geographic region, and market area characteristics (including Medicare managed care penetration rates and the availability of home health agencies and hospital, nursing home, and SNF beds).

Yet, even good risk adjustment may not always adjust for all the potential risk factors. For example, the community discharge model does not include a measure of community support available to the patient (e.g., a willing and able caregiver at home), which may influence whether a patient is discharged home. The model also does not consider the relative advantage that continuing care retirement communities (those with SNF units) may have in managing their community discharge rates to improve their scores.[20] Both models consider whether a facility is hospital based, which may affect the level of physician involvement in managing patient care and the availability of ancillary services. However, other aspects of physician care, such as whether effective communication has taken place, may affect both measures but have not been considered. Nevertheless, it is fair to hold the facilities accountable on the two measures—rehospitalization and community discharge—as they provide the nursing care that has been shown to influence these outcomes.

While not adjusting for every factor, the risk adjustment associated with the measures is very good. By including measures of functional status and cognitive status, which are strong predictors of whether a patient had

been residing in a nursing home, the risk-adjustment methodology accounts for the share of patients who may have a smaller chance of being discharged to the community.[21] The risk-adjustment models explain 70 percent of the variation in community discharge rates and 54 percent of the variation in rehospitalization rates across facilities (Kramer et al. 2007b). At the patient level, the c-statistic for predicting whether a patient will go home was 0.78, while the c-statistic for whether a patient would be rehospitalized was 0.72.[22] Because the models are highly predictive, we conclude that robust risk adjustment is possible for both measures. Even with this good risk adjustment, CMS should monitor SNF mortality rates as a check that SNFs are not inappropriately holding onto patients who should have been transferred to the hospital.

Unfortunately, even good risk adjustment on a pay-for-performance program cannot counter the incentives of the current PPS to select certain types of patients over others. A much more effective way to counter patient selection is to revise the PPS so that SNFs have little financial incentive to discriminate against some patients, such as those with high NTA care needs. The Commission has work under way with researchers from the Urban Institute to revise the therapy component and to add an NTA component. These reforms would better match payments to patient care needs. Without such reforms, patient selection is likely to continue. The Commission will report on these reforms in the spring of 2008.

Minimum number of stays for stable measures is small

Because Medicare patients comprise a small part of most nursing homes' total patient mix, we wanted to know the minimum number of cases a facility would need to treat during the year to make the measures stable and accurate and allow valid comparisons across facilities. If the minimum case count needed for stability and validity were too high, a pay-for-performance or public-reporting program using these measures would exclude many SNFs.

Researchers found that only 25 stays were necessary for the measures to be stable. This minimum would result in about 10 percent of SNFs being excluded from the measure (accounting for only 1 percent of stays). This attrition rate is far lower than the almost 45 percent of stays that are not considered in the MDS-based measures.

We also explored extending the reporting period (from one year to 18 or 24 months) to see how many additional facilities would be included in the measures. Extending the period to 24 months still excluded 6 percent of facilities. We concluded that the advantage of including 4 percent more facilities was outweighed by the disadvantage of reflecting care that had been provided up to two years in the past. Such dated information was not considered helpful to either consumers or SNFs trying to improve their performance.

Given the small numbers of Medicare patients in most SNFs, and the low incidence of any one of the five conditions (congestive heart failure, respiratory infection, urinary tract infection, sepsis, and electrolyte imbalance), we also wanted to assess the feasibility of a composite measure of potentially avoidable rehospitalizations. The five conditions account for more than three-quarters of rehospitalizations. The contractor found that the composite measure adequately represented the condition-specific rehospitalization rates and was more stable over time than the individual measures (Donelan-McCall et al. 2006).

A 100-day time period is preferred to a 30-day measure

Last, we evaluated the duration of the period considered by the two measures—shorter periods, such as 30 days, or a longer period coinciding with the SNF benefit (100 days). Considering rehospitalizations within 30 days of SNF discharge is likely to reflect care that was within the SNF's control; on the other hand, it could result in providers delaying appropriate rehospitalizations until after 30 days in order to improve performance. A 30-day community discharge measure may create inappropriate incentives for SNFs to discharge beneficiaries. The 100-day measures are consistent with the SNF benefit and are less likely to result in premature discharges or delays in necessary rehospitalizations. On the other hand, the longer time frames may capture factors not within influence of the SNF.

We found that the risk-adjustment models were similar for both measures, suggesting that the populations were similar. The 100-day measures had empirical and conceptual advantages. The longer measure was more stable over time, was more normally distributed, and had fewer facilities with zero rates (the events did not occur). Because it aligns with the SNF benefit, it prevents inappropriate incentives that might occur with the 30-day rates—such as delaying hospitalizations until after 30 days or premature discharging of patients before day 30 to avoid detection in the measures and improve performance. Because almost all patients are discharged before 100 days (the 99th percentile length of stay is 100 days), the 100-day measure is unlikely to result in inappropriate discharges.

Other performance measures

Over time, the Commission would like other measures that capture important aspects of SNF care to be added to the two starter-set measures (rates of community discharge and rehospitalization). MedPAC previously noted that an entity charged with vetting possible performance measures should be established as a way to increase the credibility, efficiency, and effectiveness of pay-for-performance programs.

The five post-acute measures currently reported on CMS's Nursing Home Compare website are not suitable for pay for performance. For the reasons discussed in the quality section (p. 162–163), three of the measures (pain, delirium, and pressure sores) need to be modified so they are more accurate. Most importantly, because almost half of SNF patients do not stay long enough to have a second assessment, the measures do not capture the care furnished to most SNF beneficiaries and result in measures that are systematically biased. This attrition rate presents a major impediment to using any MDS-based measure that requires a second assessment. In addition, the measures require assessors to consider a patient's condition over the previous 14 days, so the measures can reflect the care furnished during the prior hospitalization. However, once assessments are required at discharge for all patients and no longer include information about preceding hospital stays, valid MDS-based measures may be considered. The other two post-acute measures, rates of flu shot and pneumonia vaccinations, do not capture the main goals for post-acute SNF care and therefore are not good candidates for a starter measure set.

Because more than three-quarters of beneficiaries are grouped into rehabilitation payment groups, indicators of the changes in their physical functioning and ability to perform activities of daily living (ADLs) would be an ideal set of pay-for-performance measures. Experts we spoke with thought measures of improved functioning would be good quality indicators for SNFs (MedPAC 2005). CMS's planned pay-for-performance demonstration for nursing homes will use two ADL measures—percent of patients with improved level of ADL functioning and percent of patients whose mid-loss ADL function (transferring and locomotion) improves—to gauge the improvement in the physical functioning of post-acute patients. Both measures have been criticized, however, for the time period they consider, the way the functional levels are defined, and their lack of sensitivity; neither measure was endorsed by the National Quality Forum. CMS should consider improving these measures of change in functional status.

Given the high share of SNF patients who experience some pain, pain management should also be considered as a pay-for-performance measure. Last year when we explored potential process measures, experts told us that an important dimension to consider was how well providers managed the pain of their patients (MedPAC 2006). CMS's publicly reported pain measure is inadequate and should not be used until it is revised (the discussion on p. 163 provides more detail). Several pain measures have been validated; it will be important to select one that best measures differences in how well facilities manage the pain of their patients and not differences in providers' abilities to assess pain (Abt 2006).

Measures that consider care beyond the post-acute stay could be used to assess the long-term care furnished by nursing homes to beneficiaries who no longer qualify for a stay covered under Part A. However, long-stay measures do not gauge the value of Medicare's purchases, since the program does not cover nursing home care. CMS's demonstration (described below) has the broad goal of improving the care furnished to beneficiaries residing in nursing homes and, therefore, includes both short- and long-stay measures.

CMS's pay-for-performance demonstration

CMS is planning a pay-for-performance demonstration to improve the quality of care furnished to beneficiaries in nursing homes (see text box, p. 160). The program will consider the care furnished to beneficiaries in Medicare-covered (short) and noncovered (long) nursing home stays (CMS 2007a).[23] CMS will measure nursing home quality performance using a composite score covering four domains—staffing, potentially avoidable rehospitalizations, MDS-based measures, and results from nursing home inspection (see text box for description of the measures). The program will reward homes that attain the highest scores and those that have the most improvement in their total scores. Savings accrued from avoided hospitalizations and subsequent SNF stays will finance the demonstration and determine the size of the reward pools.

Several of the demonstration's features meet MedPAC design criteria, while others do not. The program demonstration will reward high-performing providers and those that made the largest improvements, consistent with encouraging many providers to raise their quality.

Design features of CMS's pay-for-performance demonstration

The goal of CMS's nursing home value-based purchasing demonstration is to improve the quality and efficiency of care furnished to Medicare beneficiaries. CMS will select up to five states to host the three-year demonstration, and facility participation will be voluntary and open to hospital-based and freestanding facilities. Participating providers (about 50 per state) will be randomly assigned to experimental and control groups and compared.

The planned demonstration will calculate a composite score for each participating home based on:

- Staffing (RN hours per resident day, total hours per resident day, and turnover rates), for a maximum total of 30 points;
- Potentially avoidable rehospitalizations, with separate conditions for long- and short-stay patients, for a maximum total of 30 points;
- Minimum Data Set quality measures (20 points):
    - Long-stay patient measures: percent of patients whose need for help with activities of daily living (ADLs) increased, percent of patients whose ability to move around a room declined, percent of high-risk patients with pressure sores, percent of patients who were physically restrained, and percent of patients who had a catheter inserted and left in.
    - Short-stay (post-acute) patient measures: percent of patients with improved ADL functioning, percent of patients with improved mid-loss ADL functioning (transfer and locomotion) or who remained completely independent in these activities, and percent of patients with failure-to-improve bladder incontinence.
- The nursing home's inspection survey results, with deficiencies weighted by their severity (20 points). Homes with one or more serious survey deficiencies will not be eligible for a reward.

Nursing homes with scores in the top 20 percent and homes with the top 20 percent improvement will be eligible for a reward.

The program will be financed by savings accrued from avoided hospitalizations and subsequent stays in skilled nursing facilities. State-specific savings pools will be calculated based on the difference in the growth in risk-adjusted Medicare expenditures between homes in the experimental and control groups. Spending on services furnished during the nursing home stay and within three days after discharge from the nursing home will be included in the spending comparisons.

Although CMS planned to have begun this demonstration in 2008, it is still in the process of obtaining clearance for the demonstration from the Office of Management and Budget, delaying the solicitation of participants. CMS had hoped to have the states identified and participating homes identified by fall 2008, but funding constraints make its timeline uncertain. ■

The measures are familiar to providers, within providers' control, and reflect important dimensions of quality that apply to a broad range of providers and long- and short-stay patients. Yet, until an assessment is required at discharge, the MDS-based measures will be systematically biased, which will be particularly problematic for homes that treat above-average shares of short-stay patients. In addition, concerns have been raised about some of the measures. CMS has identified measures that it plans to consider in year 2 of the demonstration—such as community discharge rates and measures of the resident-care experience and end-of-life care—indicating that the initial measure set will be expanded.

Adequate risk-adjustment methods applied to the outcomes measures will be critical to ensuring that the demonstration measures do not encourage homes to select certain types of patients over others. For example, without adequate risk adjustment, some of the measures could disadvantage homes that treat patients who are unlikely to regain physical function. Given the large differences

between long- and short-stay populations, the risk adjusters for the potentially avoidable rehospitalization measures are likely to require separate models. CMS plans to adjust the total nursing staffing measure for differences in case mix so that homes with higher acuity would be expected to have higher staffing levels. Given the different staffing levels of hospital-based and freestanding facilities, the adjustment also helps make fair comparisons between facilities.

The way the performance pool is established and reward payments are determined does not meet MedPAC's design principles. The pool is funded not by set-aside payments but from savings that accrue as a result of lower spending for the homes in the experimental pay-for-performance group compared with homes in the control group. Because a portion of payments is not set aside, there may not be a pool to disburse—payments are a function of savings that may or may not be achieved. Thus, even high-performing providers may not be rewarded if there are no savings. While this financing provides the incentive to improve quality at facilities with poor performance, it may discourage participation since even good performance does not guarantee a reward. Because the pools are established on a statewide basis, rewards are not directly tied to an individual home's actions, and a home will not have much control over whether it will receive a payout.

Almost all the pay-for-performance measures proposed for use in the demonstration are readily available from administrative data collected by CMS, with one exception—the staffing measure. The limitations of the staffing data currently collected in the self-reported Online Survey, Certification, and Reporting (OSCAR) database are widely acknowledged (Abt 2004). As a result, development work on the pay-for-performance design did not consider using the OSCAR data; instead, the demonstration will require nursing homes to submit staffing data. The data required to calculate the performance measures—hours worked by job category and numbers of employees during a reporting period—are captured by the payroll system of all nursing homes. Studies have examined the feasibility of requiring nursing home payroll data as part of a value-based purchasing system (Abt 2006, 2004, 2001). A study conducted for CMS concluded that while there is variability in payroll systems, homes would be able to provide accurate information needed for these measures and that the information could be made uniform (University of Colorado and the Colorado Foundation for Medical Care 2004). Interviews with nursing homes that are not part of chains indicated that they would be able to report the information needed to calculate the hours per resident day and nurse staffing turnover measures. Thus, while the demonstration will require homes to submit new data, this requirement is not considered to be unduly burdensome and is not expected to limit the participation of homes in the demonstration.

Some states have adopted, or plan to implement, pay-for-performance programs for nursing home services. Over the coming year, MedPAC plans to review these programs to gather insights about design features and measures for consideration in a SNF pay-for-performance program.

Pay-for-performance recommendation

Because paying for performance could help improve quality of care and encourage providers to consider the benefits and costs of services furnished to patients, Medicare payments to SNFs should be linked to patient outcomes. Rates of community discharge and potentially avoidable rehospitalizations are readily available to comprise a starter set of measures.

RECOMMENDATION 2D-2

The Congress should establish a quality incentive payment policy for skilled nursing facilities in Medicare.

RATIONALE 2D-2

A pay-for-performance program for SNFs should be established to tie payments to patient outcomes. Two well-accepted measures—risk-adjusted rates of community discharge and potentially avoidable rehospitalization—should be included in a starter measure set, with other measures added over time. The two measures capture important goals for most SNF patients. By avoiding measures that require a second patient assessment, the measures will reflect the care furnished to most beneficiaries. In addition, the measures do not rely on indicators that consider care furnished during the prior hospitalization. The measures use data that are readily available: CMS currently collects the administrative data required to derive these measures. Over time, additional indicators should be added to the starter measures set to provide a multidimensional view of the care furnished to Medicare beneficiaries.

IMPLICATIONS 2D-2

Spending

- This recommendation would not affect federal spending relative to current law.

Beneficiary and provider

- This recommendation is expected to improve the quality of care for beneficiaries. It is expected to result in higher or lower payments for individual providers depending on the quality of their care.

Improving the measurement of skilled nursing facility quality

CMS currently reports five quality measures for short-stay post-acute patients on its Nursing Home Compare website. Experts have raised serious questions about the reliability and validity of three of these measures. Because of the limitations of these measures, the Commission has opted to use two alternative measures to track the quality of SNF care: rates of potentially avoidable rehospitalization and community discharge. Both measures reflect the clinical goals of most SNF patients. After extensive analysis of the two measures, the Commission has concluded that CMS should publicly report these measures on its Nursing Home Compare website. Further, to improve the accuracy of the measures it currently reported, CMS should revise the measures that use patient assessment information and require providers to conduct patient assessments at admission and discharge.

Problems with the publicly reported post-acute measures

CMS currently gathers information on five post-acute measures and publicly reports them on CMS's Nursing Home Compare website. These measures include:

- Percentage of patients with delirium representing a departure from usual functioning on a 14-day assessment;
- Percentage of patients at the 14-day assessment with moderate pain at least daily or horrible/excruciating pain at any frequency;
- Percentage of patients who develop a pressure ulcer between the 5-day and 14-day assessment or percentage of patients who had any stage pressure ulcer at the 5-day assessment that worsened by the 14-day assessment;
- Percentage of patients given influenza vaccinations during flu season; and
- Percentage of patients assessed and given pneumonia vaccinations.

There are several problems with the delirium, pain, and pressure ulcer measures that undermine their accuracy. Most importantly, there is sample bias inherent in the way the data are collected (Donelan-McCall et al. 2006; MedPAC 2006, 2005). Because SNFs are not required to assess patients at discharge, almost half of SNF patients are not included in these measures since they do not stay long enough to have an assessment conducted on day 14 of their stay. The exclusion of these short-stay patients systematically biases the measures and means that the quality measures do not reflect the care furnished to all SNF patients. The "admission" assessment is also problematic because very few patients are actually assessed at admission.[24] As a result, even for the sample of patients who are assessed twice, differences in patients' conditions may be the result of actual patient differences or of the timing of the assessments. CMS recognizes the importance of a discharge assessment and is evaluating the possibility of developing a discharge MDS in conjunction with the transition of the MDS in fiscal year 2010.

A further complication with the measures is that the patient assessment questions ask about care during the past 7 and 14 days, which can extend back to the preceding hospital stay.[25] For the first assessment, these "look back" periods confound care furnished by the SNF with that provided by the hospital. Until the patient assessment tool is modified, these data may include care that the SNF did not provide. Several sections of the draft revisions to the MDS differentiate between care furnished before and after the SNF admission (CMS 2008). Final decisions about revisions to the MDS have not been made. CMS plans to introduce the transition to the new assessment instrument in its proposed rule for fiscal year 2009 (late spring 2008). A transition will include a blended use of the old (MDS 2.0) and new (MDS 3.0) beginning in October 2009 and full transition to the new tool beginning October 2011 (CMS 2007b).

In addition to these timing issues, each measure has definition problems that should be addressed to make the measures more accurate (Kramer 2007a). For example, it is hard for clinicians conducting a patient assessment to detect pain and early-stage ulcers (Sangl et al. 2005). Therefore, reported differences in these measures may reflect differences in the staffs' assessment abilities and

not actual differences in patients' conditions. The pain measure is narrowly defined, capturing only those patients on day 14 with moderate pain daily or excruciating pain at any frequency. In addition, the measure is confusing. Experts told us that assessors may differ in how they record patients with pain that was successfully managed with medication. Other pain measures have been validated and the draft revisions to the MDS include an expanded set of questions that record a broad range of pain experiences. The pressure sore measure was found to be not valid (Abt 2005, 2003). The draft revised MDS includes an expanded set of questions about skin integrity and uses the National Pressure Ulcer Advisory Panel's Pressure Ulcer Scale for Healing tool to describe pressure ulcers. It also screens for skin condition at admission. Finally, the delirium measure is nonspecific and is insensitive, missing a large share of patients with the condition (Kramer et al. 2007b). The draft revised MDS asks about four specific behaviors in assessing delirium.

Another concern of the MDS-based measures is the inverse relationship between these publicly reported measures of quality and the quality based on rates of community discharge and potentially avoidable rehospitalization (Kramer et al. 2007b, MedPAC 2007a). SNFs that appear to furnish high-quality care using the CMS measures appear to furnish poor-quality care using community discharge and rehospitalization rates. The likely explanation is the differences in the patients included in each measure. While the community discharge and rehospitalization rates can be calculated for all patients (that is, all patients with an assessment at day 5), the CMS measures include only the patients who stayed long enough for a second assessment on day 14 (omitting almost half the SNF patients who were discharged, readmitted to the hospital, or died). Thus, facilities with high community discharge rates are likely to discharge their healthy patients, leaving only the sicker patients, who are then captured by the CMS measures. Similarly, providers that elect to treat patients with the conditions counted in the potentially avoidable conditions rehospitalization measure will appear to furnish good quality (with their relatively low potentially avoidable rehospitalization rates) but could appear to furnish poor quality by CMS's measures. In sum, the publicly reported measures based on patient assessment information result in a systematic bias against facilities that treat patients with short stays, discharge their healthiest patients, or elect to treat medically complex patients (rather than transfer them to the hospital). Reflecting measurement concerns, CMS's planned pay-for-performance demonstration will not use the delirium, pain, and pressure ulcer measures (Abt 2006).

Apart from requiring that SNFs conduct patient assessments at discharge on all patients, the Commission is not in a position to evaluate the technical aspects of potential revisions to the MDS-based measures. Rather, an expert panel should carefully consider the relevant literature and the reliability and validity of alternative definitions used in these measures. Proposed revisions to the MDS have undergone such scrutiny.

Alternative post-acute quality measures could be publicly reported

Because of the problems with the publicly reported post-acute care measures, MedPAC uses alternative measures of quality that are appropriate for SNF patients—rates of discharge to the community and rehospitalization for five conditions that were potentially avoidable (electrolyte imbalance, urinary tract infections, congestive heart failure, sepsis, and respiratory infection). Experts told us that these measures provide better information on whether patients benefit from SNF care than the currently reported measures (MedPAC 2005). The measures capture key outcomes for beneficiaries placed in SNFs: Most beneficiaries want to improve their functional abilities so they can return to the community and avoid unnecessary hospitalization. Both measures are broad based (they apply to all patients) and combine a focus on clinical quality and efficiency of resource use (avoiding unnecessary SNF or hospital care).

Both measures are also well-accepted measures of quality. Rehospitalization rates are used as quality measures in the post-acute and ambulatory care settings and are publicly reported for home health agencies on CMS's Home Health Compare website. The five conditions made up more than three-quarters of SNF rehospitalizations and are thus broadly representative of readmissions. Further, by considering readmissions for conditions considered to be potentially avoidable, the SNF measure attempts to capture care (e.g., preventive measures, early detection, and prompt nursing interventions) that a SNF could provide to prevent unnecessary rehospitalizations (Donelan-McCall et al. 2006). Rates of community discharge are frequently used to evaluate rehabilitation care and have been associated with functional recovery as measured by a range of functional measures.[26] Given that more than three-quarters of beneficiaries receive rehabilitation services, return to the community is a good measure of whether patients improved sufficiently to meet this goal.

To assess the technical aspects of these measures, the Commission sponsored research to assess the risk adjustment methodology, consider the number of cases needed for stable measures, and evaluate the time period captured by the measures (discussed on pp. 157–158). The contractors found that robust risk adjustment is possible with readily available data, that the measures are stable for the majority of SNFs (those with at least 25 cases a year), and that measures looking at 100 days after admission to a SNF are preferred to those that examine only 30 days after admission. We concluded that both quality measures are ready for public reporting.

Quality measures recommendation

On the basis of our examination of the rates of community discharge and rehospitalization, we conclude that the measures are ready for public reporting. The problems with the pain, delirium, and pressure sore measures currently used by CMS are widely acknowledged; these measures need to be revised so they are accurate. Without assessments conducted at admission and discharge, however, measures that accurately reflect the care furnished to all patients will not be possible.

RECOMMENDATION 2D-3

To improve quality measurement for skilled nursing facilities, the Secretary should:

- **add the risk-adjusted rates of potentially avoidable rehospitalizations and community discharge to its publicly reported post-acute care quality measures;**
- **revise the pain, pressure ulcer, and delirium measures currently reported on CMS's Nursing Home Compare website; and**
- **require skilled nursing facilities to conduct patient assessments at admission and discharge.**

RATIONALE 2D-3

Currently, CMS has five quality indicators for SNF patient care, all of them limited. They do not focus on whether Medicare patients benefit from SNF care or whether the goals for a SNF patient's care are achieved. Two measures—rehospitalization and community discharge—reflect key clinical goals for SNF patients and are currently available from administrative data. Experts have raised a host of problems associated with the pain, delirium, and pressure sore measures CMS currently reports that undermine the accuracy of the measures. Chief among the concerns is that the measures can include information about the preceding hospitalization and not the SNF stay. Patients need to be assessed at admission and discharge so that MDS-based measures will reflect the care furnished to all SNF patients. Fixed timing for when patients are assessed will also help ensure that the measures capture differences in quality and not the timing of assessments.

IMPLICATIONS 2D-3

Spending

- This recommendation does not affect federal program spending relative to current law.

Beneficiary and provider

- This recommendation is expected to support quality improvement efforts. It would increase provider administrative costs because it requires patient assessments to be conducted at discharge for every beneficiary. The administrative burden could be lowered by replacing the day 5 assessment with one completed at admission and by having the discharge assessment include only a few key items. CMS would incur modest administrative costs associated with adding the new measures to its publicly reported set and developing a pared-back instrument for use at discharge. ■

Endnotes

1 A new spell of illness begins when a beneficiary has not had a hospital or SNF stay for 60 consecutive days.

2 The program pays separately for some services, including certain chemotherapy drugs, customized orthotics and prosthetics, ambulance services, dialysis, outpatient and emergency services furnished in a hospital, computed tomography, MRI, radiation therapy, and cardiac catheterizations.

3 Medicare's conditions of participation relate to many aspects of staffing and care delivery in the facility such as requiring a registered nurse in the facility for 8 consecutive hours per day and licensed nurse coverage 24 hours a day, providing physical and occupational therapy services as delineated in each patient's plan of care, and providing or arranging for physician services 24 hours a day in case of an emergency.

4 Medicare Advantage plans do not submit claims to Medicare, so their volume is not captured in the volume or spending measures.

5 Volume and case-mix growth contributed more to spending increases than the reductions in FFS enrollment. Had FFS enrollment remained constant, spending per FFS enrollee would have been $588 in 2007.

6 A more complete description of the SNF PPS is available at http://www.medpac.gov/documents/MedPAC_Payment_Basics_07_SNF.pdf.

7 In 2006 and 2007, the projected market baskets were 3.1 percent; in 2008, the market basket is 3.3 percent.

8 When the prospective payment system was first implemented, there were 44 case-mix groups and the nursing weights were calculated with data collected from time studies in volunteer facilities in 6 states in 1990, 1995, and 1997. When the RUGs were expanded to 53 groups, CMS regrouped the time-study observations into the 53 groups and recalibrated the nursing weights. For the therapy weights, the same weights for the 44 groups were used. For example, the two new "ultra high rehabilitation plus extensive services" groups have the same therapy weights as the three "ultra high rehabilitation" groups under the 44-group system, even though these groups used different amounts of therapy (MedPAC 2007b).

9 The 75 percent rule attempts to identify patients who need intensive rehabilitation services provided by IRFs. CMS established criteria (identifying 13 specific conditions) and requires that at least 75 percent of the patients treated by IRFs have one of those conditions. In 2004, CMS revised its criteria, removing the single largest category of IRF admissions (major joint replacements), having concluded that most joint replacement patients do not require IRF level of care. The Medicare, Medicaid, and SCHIP Extension Act of 2007 rolled back and permanently set the compliance threshold to 60 percent. It also put into law CMS's discretionary policy allowing IRFs to count patients whose comorbidities (rather than primary diagnoses) were among the 13 conditions toward the compliance threshold.

10 The extensive services category includes patients who have received intravenous medications or suctioning in the past 14 days, have required a ventilator or respiratory or tracheostomy care, or have received intravenous feeding within the past 7 days.

11 The community discharge and potentially avoidable rehospitalization rates have been risk-adjusted using many resident-level factors including the presence of advance directives, the Barthel index (a measure of functional independence), the cognitive performance scale (a measure of cognitive impairment), select patient assessment items (e.g., bowel incontinence, indwelling catheter, feeding tube, parenteral or intravenous feeding), a weighted comorbidity index, select comorbid conditions (from the qualifying hospital stay), and length of stay of the qualifying hospitalization. Data for this risk adjustment methodology come from Medicare SNF and hospital claims, the MDS, and the Online Survey Certification and Reporting System (Kramer et al. 2008).

12 This analysis updates work that examined trends between 2000 and 2004 (MedPAC 2007a).

13 HUD's Section 232/223(f) program insures mortgages through HUD-approved lenders for construction and rehabilitation of nursing homes and assisted living facilities that accommodate 20 or more residents.

14 A study of one chain's facilities in California found that the facilities had more survey deficiencies and lower staffing levels than other facilities in the state (Kitchener et al. 2007).

15 Costs were adjusted for case mix using each facility's nursing case-mix index.

16 These ranges compare the 10th and 90th percentiles of the distribution of the community discharge and rehospitalization rates.

17 The five conditions are electrolyte imbalance, urinary tract infections, congestive heart failure, sepsis, and respiratory infection. These conditions were selected because they have been found to be affected by nursing staff levels (and within

a facility's control) and because the incidence is sufficiently high to result in stable measures. The risk-adjusted rehospitalization rate for the five conditions was developed for CMS specifically as a measure of SNF quality (Kramer and Fish 2001).

18 Studies dating back to 1990 have used community discharge as a measure for evaluating the rehabilitation and SNF processes of care (Donelan-McCall et al. 2006).

19 This section summarizes work done for MedPAC by researchers at the University of Colorado at Denver and Health Sciences Center (Donelan-McCall et al. 2006).

20 Examining such facilities' scores separately would diminish any potential advantage they might have in using community discharge rates as a quality measure.

21 The risk-adjustment model includes many variables to adjust for patient differences in their ability to go home after their SNF stay—most importantly, functional and cognitive status. Long-stay nursing home patients are not excluded from these measures because identifying long-stay residents is not straightforward. The data in the SNF stay file are not accurate regarding whether a patient had been a long-term resident in a nursing home. Furthermore, patients admitted from nursing homes are not always long-stay residents and excluding them from the analysis would incorrectly exclude some patients. Last, some extended-stay nursing home residents go home after an acute event that results in a hospitalization and subsequent SNF admission.

22 A c-statistic measures how well a model predicts risk, with values ranging from 0.5 to 1.0 (where higher values mean better predictive ability). By comparison, the c-statistic for models predicting hospital mortality rates for coronary artery bypass graft are in the 0.7 range (Peterson et al. 2000).

23 Most stays not covered by Part A are also for Medicare beneficiaries who no longer qualify for skilled care or who have exhausted their part A stay benefit.

24 In 2003, about 4 percent of patients were assessed at or within three days of admission (MedPAC 2006).

25 Many questions in the patient assessment require the assessor to look back over various periods of time (e.g., 7 or 14 days) and consider a patient's condition or services provided. As a result, the first assessment records many aspects of care that actually occurred during the prior hospital stay.

26 Studies dating back to 1990 have used community discharge as a measure for evaluating the rehabilitation and SNF processes of care (Donelan-McCall et al. 2006).

References

Abt Associates. 2006. *Quality monitoring for Medicare global payment demonstrations: Nursing home quality-based purchasing demonstration.* Cambridge, MA: Abt Associates.

Abt Associates. 2005. *Design and validation of post-acute care quality indicators.* Cambridge, MA: Abt Associates.

Abt Associates. 2004. *Options for a CMS public reporting system of nurse staffing in nursing homes.* Cambridge, MA: Abt Associates.

Abt Associates. 2003. *Validation of long-term and post-acute care quality indicator.* Final report prepared for CMS. Cambridge, MA: Abt Associates.

Abt Associates. 2001. *Appropriateness of minimum nurse staffing ratios in nursing homes: Phase II final report.* Cambridge, MA: Abt Associates.

Cain Brothers 2007a. Construction market on a downward slope in skilled nursing sector. *Senior Health and Housing Weekly News* 211 (October 15).

Cain Brothers 2007b. *Private equity investment: The "takeover" of health care.* http://www.cainbrothers.com/research_preview/strategies_pvw.cfm.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2008. *MDS 3.0: Recommended content from National Evaluation Study January 15, 2008, draft.* http://www.cms.hhs.gov/NursingHomeQualityInits/Downloads/MDS30Draft.pdf.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2007a. *Nursing home value-based purchasing demonstration.* http://www.cms.hhs.gov/DemoProjectsEvalRpts/md/itemdetail.asp?itemID=CMS1198946.

Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2007b. *Minimum Data Set (MDS) 3.0 timeline.* http://www.cms.hhs.gov/NursingHomeQualityInits/Downloads/MDS30Timeline.pdf.

Department of Housing and Urban Development. 2007. *Mortgage insurance for nursing homes, intermediate care, board & care and assisted-living facilities: Section 232 and Section 232/223(f).* http://www.hud.gov/offices/hsg/mfh/progdesc/nursingalcp232.cfm.

Donelan-McCall, N., T. Eilertsen, R. Fish, et al. 2006. *Small patient population and low frequency even effects on the stability of SNF quality measures*. http:/www.medpac.gov/publications/contractor_rep/Sep06_SNF_CONTRACTOR.pdf.

Duhigg, C. 2007. More profit and less nursing at many homes. *The New York Times*, September 23.

Government Accountability Office. 2007. *Nursing home reform: Continued attention is needed to improve quality of care in small but significant share of homes.* GAO–07–794T. Washington, DC: GAO.

Institute of Medicine. 2006. *Rewarding provider performance: Aligning incentives in Medicare.* Washington, DC: IOM.

Irvin Levin Associates. 2007. *The senior care acquisition report.* Norwalk, CT: Irvin Levin Associates.

Kitchener, M., J. O'Meara, A. Brody, et al. 2008. Shareholder value and the performance of a large nursing home chain. *Health Services Research*. In press.

Kramer, A., S. Min, G. Goodrich, et al. 2008. *Changes in SNF rates of community discharge and rehospitalization 2000–2005.* http://www.medpac.gov/documents/Mar08_SNF_contractor_CC.pdf.

Kramer, A. 2007a. Presentation before the Medicare Payment Advisory Commission. April. http://www.medpac.gov/transcripts/0407_allcombined_transcript.pdf.

Kramer, A., T. Eilertsen, G. Goodrich, et al. 2007b. *Understanding temporal changes in and factors associated with SNF rates of community discharge and rehospitalization.* http://www.medpac.gov/documents/Jun07_SNF_contractor_CC.pdf.

Kramer, A., and R. Fish. 2001. The relationship between nurse staffing levels and quality of nursing home care. In *Appropriateness of minimum nurse staffing ratios in nursing homes: Phase II final report.* Cambridge, MA: Abt Associates.

Liu, K., and E. Jones 2007. *Closures of hospital-based SNF units: Insights from interviews with administrators, discharge planners, and referring physicians.* A study conducted by staff from the Urban Institute for MedPAC. Washington, DC: MedPAC. http://www.medpac.gov.

Medicare Payment Advisory Commission. 2007a. *Report to the Congress: Promoting greater efficiency in Medicare.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2007b. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2006. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

Medicare Payment Advisory Commission. 2005. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

National Investment Center. 2007a. *Key financial indicators show seniors housing and care loan originations slowed in second quarter.* October 9. http://www.nic.org/press/2007/071009.asp.

National Investment Center. 2007b. *Key financial indicators show seniors housing and care continues strong performance.* July 3. http://www.nic.org/press/2007/070703.asp.

Office of Inspector General, Department of Health and Human Services. 2006. *Medicare beneficiary access to skilled nursing facilities: 2004*. No. OEI–02–04–00270. Washington, DC: OIG. July.

Peterson, E., E. DeLong, L. Muhlbaier, et al. 2000. Challenges in comparing risk-adjusted bypass surgery mortality results. *Journal of the American College of Cardiology* 36: 2174–2184.

Sangl, J., D. Saliba, D. R. Gifford, et al. 2005. Challenges in measuring nursing home and home health quality. *Medical Care* 43, no. 3 (March supplement): I24–I32.

Stevenson, D., D. Grabowski, and L. Coots. 2006. *Nursing home divestiture and corporate restructuring.* Final report. Prepared for Office of Disability, Aging, and Long-Term Care Policy, Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services.

University of Colorado at Denver and Health Sciences Center and the Colorado Foundation for Medical Care. 2004. *Development of staffing quality measures. Phase I, final report.* A report prepared for the Centers for Medicare & Medicaid Services under contract # 500–02–CO01.