


**Rise of Post–Acute Care Facilities as a Discharge Destination of US Hospitalizations**

Medicare’s payment reforms in the 1990s significantly affected hospital length of stay and post-acute care (PAC) (eg, skilled nursing or rehabilitation) facility use.1, 2 However, few studies describe contemporary length of stay and postdischarge care trends in a nationally representative sample of Medicare and non-Medicare patients. We sought to understand these trends using the National Hospital Discharge Survey (NHDS) from 1996 to 2010.

**Methods** | The NHDS is a nationally representative annual probability sample of discharges from hospitals in all 50 states.3 We included all hospital discharges of patients 18 years or older, excluding patients transferred to other hospitals, discharges against medical advice, discharges without a destination coded, or hospital lengths of stay more than 31 days (together, <7% of all discharges). We used NHDS definitions for discharge to home or a care facility.

We evaluated trends in discharges to PAC facilities as well as length of stay over the 15-year period, then calculated relative percentage changes for each year, using 1996 rates as a baseline. To account for the aging of the population, all trends were age-adjusted by the US Census population in 2003 (www.census.gov). The derived age-specific estimates for each individual year were weighted to reflect the age distribution in 2003, the midpoint of our analysis. Analyses were conducted using SAS statistical software (version 9.3; SAS Institute Inc) and graphics created in R (R Foundation for Statistical Computing). The study received approval by the Colorado Multiple Institutional Review Board (COMIRB).

**Results** | The study population included 2.99 million sampled patient discharges, representing approximately 286 million discharges nationally during the 15-year study period. The proportion of hospitalizations resulting in discharges to PAC facilities increased from 9.2% in 1996 to 13.7% in 2010 (a 49.0% relative increase), while the proportion of discharges home decreased from 90.8% to 86.3% (a 5.0% relative decrease) (Figure 1). This corresponds to an absolute increase of 1.67 million discharges to PAC facilities in 2010, or 1.2 million more discharges to PAC facilities in 2010 than if the rate from 1996 had remained the same through 2010, adjusted for changes in the census. The mean length of stay decreased over this time period for patients being discharged to PAC facilities from 8.8 to 7.8 days; the trend for patients discharged home was 4.6 to 4.1 days (Figure 2).

**Discussion** | Discharges to PAC facilities rose nearly 50% over the 15 years, resulting in 1.2 million more discharges to PAC facilities in 2010 compared with 1996 rates. Concurrently, hospital lengths of stay progressively decreased, particularly for discharges to PAC facilities.

There are several potential explanations for these findings. Medicare’s prospective payment system may have influenced other payers leading to “quicker and sicker” discharges,4 and penalties for 30-day readmissions (currently assessed for readmissions from the community but not from PAC facilities) may have had the unintended consequence of increased...
discharges to PAC facilities. The rise in hospitalist care and changes in the epidemiology of diseases admitted to the hospital may also be significant contributors.

These findings have important implications for health care providers and policymakers. Health care providers have limited data regarding the most appropriate postdischarge care setting, and the “right” amount of PAC facility use is not defined. Clearly, high-quality transitional care from the hospital to a PAC facility is increasingly important.

Policymakers must consider whether the increase in discharges to PAC facilities represents a positive phenomenon or unintended consequences of payment reform. The link between increased spending on PAC facilities and outcomes is not clear. The NHDS does not collect data on patient comorbidities, functional status, social support, or outcomes of post-discharge care. Further research is needed to identify which patients benefit from PAC facilities, which processes maximize this benefit, and which structures of care optimize important patient-centered outcomes.

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Invited Commentary

Post-Acute Care: Who Belongs Where?

At the time of discharge from an acute care hospital many patients are not able to return home and need a short or extended stay at skilled nursing facilities. This is not a new phenomenon. However, using the National Hospital Discharge Survey data, Burke et al1 found a 49% increase in the number of patients discharged from hospitals to post-acute care (PAC) facilities between 1996 and 2010. What is fueling this large increase?

The authors’ postulate that initiation of the prospective payment system (which creates a financial incentive to discharge patients as soon as possible), onset of penalties for 30-day readmission, the rise in hospitalist care, and changes in patient population drove this growth in PAC. Recent Medicare claims data for patients with major joint diagnoses (MS-DRG 470), demonstrate that PAC accounts for almost one-third of the 30-day post-hospital care costs. From 2007 to 2009, the average Medicare episode payment for the MS-DRG 470 30-day fixed-length episode was $18,901; 33% of the spending during that time ($6161) was on PAC.2 Our local Medicare claims data for the 30 most commonly used PAC facilities revealed significant variation in length of stays and readmission rates. When benchmarked to “like-acute” facilities, some facilities performed 5% better than benchmark while others performed 166% worse than benchmark. The variation in care suggests that hospitals and PAC facilities lack best-practice guidelines to ensure effective and efficient care. With PAC now the fastest growing segment of health care expenditures3 the authors’ reiterate the call for determining which patients benefit from PAC and what type of interventions are most effective.

Previous research about PAC is limited to small studies and a few diagnoses. The variation in care processes and outcome measures make it difficult to ascertain which patients benefit from PAC facility care; study results are conflicting.4-6 Few studies have been designed to identify factors that support the need for PAC. Bowles et al4 identified lack of help at home, walking restrictions, poor self-rated health, longer length of stay, worse depression scores, and number of comorbidities, as factors supporting the need for PAC. More studies are needed to address specifically who requires PAC in the skilled nursing facility vs home care, inpatient rehabilitation facilities, or long-term care hospitals.

The Center for Medicare and Medicaid Innovation’s Bundle Payment Care Initiative (BPCI) offers several value-based pay-
ment models. One of the BPCI value-based payment models spans care provided during and after hospitalization. Hospitals, PAC facilities, home health agencies, and physicians are responsible jointly for costs over a 90-day period. Involved health care providers share in the potential gain if costs are curtailed. This payment model provides incentives for hospitals, clinicians, and PAC providers to determine how to provide the best medical and rehabilitative therapy for patients at the lowest cost.

The BPCI also affords an opportunity to determine who benefits most from which setting and which interventions are most beneficial and cost-effective. By creating a large-scale learning laboratory, participants in the BPCI can explore what clinical, psychosocial, and environmental factors are important when considering the discharge of patients to PAC facilities. Tracking patients across their care episode can help determine which interventions (eg, rehabilitation and palliative care) are most appropriate for which patients, estimate costs for care in different settings, and evaluate patient outcomes (eg, functional status, medical status; return to the community; hospital readmission) according to type and intensity of treatments received in various settings.

This tracking is best accomplished with a standardized tool for measuring patient outcomes across settings and over time. One such instrument is the Continuity Assessment Record and Evaluation (CARE) tool developed as a Centers for Medicare and Medicaid Services Post-Acute Care Payment Reform demonstration project under the 2005 Deficit Reduction Act. The CARE tool, an instrument to measure health and function of patients, was tested but never fully implemented. Measurement and documentation of patient outcomes via the CARE tool or other standardized instrument would allow researchers, payers, and policymakers to determine which medical, social, functional, and cognitive factors are critical in determining who needs skilled nursing facility care prior to return home, who will do well with home care after hospitalization, and who does not require PAC except for medical follow-up.

Most hospitals, and an increasing number of skilled nursing facilities and home health agencies, use electronic health records (EHRs). While the EHR systems and databases remain separate, a multitude of proprietary companies are accelerating the exchange of health information across these databases. The time is right for academic researchers to partner with hospitals, clinicians, skilled nursing facilities, and proprietary companies involved in the BPCI to study how best to care for patients across the continuum of care.

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Service Intensity and Physician Income: Conclusions From Medicare’s Physician Data Release

Recently released Medicare physician utilization and payment data1 illuminate the reasons that physician payments from the Centers for Medicare & Medicaid Services vary. One could expect that while physician payments may vary widely based on the type of physician service, payments indexed to unique patients should not. In addition, physician charges should hover reasonably closely to subsequent payments.

Methods | The data released by the Centers for Medicare & Medicaid Services highlight the causes of wide variation in payments to physicians. The Figure shows the ratio of the number of services provided to individual beneficiaries to total Medicare Part B payments, as well as the ratio of submitted charges, by decile, from lowest to highest Medicare recipients in calendar year 2012 (n = 825 108).

Results | These data indicate that higher-earning physicians earn more not by treating more patients but by offering more services per beneficiary. The relationship between these additional services and any meaningful improvement in outcomes is undefined. Given the data on medical service utilization in the United States, it is likely that a substantial portion of these services is unrelated to improved outcomes. For each service offered by a physician in the bottom decile, 5 are offered by a physician in the upper decile. The 20th, 40th, 60th, and 80th deciles for the services to beneficiary ratios are 1.4, 2.2, 3.6, and 6.9 (demarcated as quintiles of services [dashed lines in the Figure]), respectively, highlighting tremendous overall variation in the number of services physicians offer each beneficiary. In Medicare’s fee-for-service system, some physicians are collecting large fees by ordering services merrily.