

## Access to Postacute Rehabilitation

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Each year, more than 10 million Medicare beneficiaries are discharged from acute care hospitals into postacute care (PAC) settings, including inpatient rehabilitation facilities, skilled nursing facilities, and homes with services from home health agencies. These beneficiaries include very frail and vulnerable elders, many of whom have suffered from an acute event such as a stroke or a fall resulting in hip fracture, all of whom are judged unable to return to their homes without further care. Whether beneficiaries receive PAC and the type and intensity of care they receive is influenced not only by clinical factors, but by nonclinical factors including provider supply and financing, especially Medicare's methods of payment. This article provides a definition of PAC and discusses the wide cross-sectional variation in the use of postacute rehabilitation. It then discusses recent changes to PAC provider payment that have raised concerns about access to postacute rehabilitation, trends in the use of PAC, and what these trends imply about the appropriateness of PAC as it is now delivered. It concludes by identifying issues about the policy and research implications of recent developments and the PAC literature reviewed.

**Key Words:** Access to health care; Medicare; Rehabilitation.

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**P**OSTACUTE CARE (PAC) encompasses a wide range of health care services that share the goal of restoring recently hospitalized patients to the highest level of functioning possible. PAC is also used to improve the transition from hospital to the community by providing services to patients needing additional support to assist them as they recuperate following discharge from an acute care hospital. Thus PAC usually involves rehabilitation, although it need not involve specialized therapies.

Patients can access PAC services in a wide range of settings, including skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), long-term care hospitals (LTCHs), and in their own homes, with services from home health agencies (HHAs). Each of these settings offers a different level of care. Though substantial overlap exists, the provision of services varies across provider types because of statutory requirements and payment policies. IRFs are certified as hospitals or are units of hospitals oriented toward rehabilitation. They must provide at least 3 hours of multidisciplinary therapy a day, have a staff of nurses working 24 hours a day, and retain a physician

to oversee care daily. SNFs must follow a physician's plan of care, provide physician oversight within 30 days, have nurses on staff 8 hours a day, and have nurses on call 24 hours each day. HHAs must provide care to homebound patients consistent with physician orders and their assessment of the patient. They provide therapy, nursing care, and assistance from home health aides. LTCHs have average length of stay (LOS) over 25 days. They vary considerably in the services they provide and the populations they serve.<sup>1</sup> In addition, patients can also receive postacute services in hospital-based outpatient rehabilitation programs, from therapists practicing independently or in centers, or informally from family and friends.

It is worth noting several aspects about the literature on PAC. First, as the paragraph above illustrates, the literature is focused on where patients receive PAC, not what PAC they receive. Indeed much of the literature focuses only on the 2 primary inpatient sites of PAC: SNFs and IRFs. The type, content, and duration of therapies and other services provided are secondary factors, despite the fact that they shape patient outcomes, and similar services may be delivered in different settings. Second, most of the literature focuses on the Medicare population over age 65. This reflects the relative availability of data on this population, researchers' desires to study a reasonably homogeneous group of patients, and the importance of Medicare coverage both for patients and providers. Within this population the literature further focuses on common conditions such as stroke, hip fracture, and lower-extremity (LE) joint replacement.

### WHO ACCESSES PAC?

There is considerable variation in PAC use across diagnoses and types of patients. Approximately one third of Medicare patients leaving acute care hospitals used PAC services in 2002.<sup>2</sup> Some patient groups use PAC at low rates, such as angina patients. Others use it at much higher rates: 90% of hip fracture and 70% of stroke patients, for example, use IRF, SNF, or HHA care after acute discharge (figs 1, 2).<sup>3</sup> In addition, within these groups there is variation in which patients go to which site of care, with more medically complex patients generally going to IRFs and patients with age-related cognitive impairments going to SNFs. Patients going home with HHA care tend to be the healthiest, although a subset of this group is very sick and likely unable to support more intensive rehabilitative therapies.<sup>4,5</sup>

It is to be expected that clinical factors, such as primary reason for impairment, complications and comorbidities, and physical and cognitive functioning should affect care use. Overall, however, the clinical research that indicates which patient groups need PAC and what types of PAC are appropriate for these patients is limited and occasionally conflicting.<sup>6,7</sup> This leaves room for nonclinical factors to play a large role in decision-making about PAC.<sup>8</sup> Ottenbacher and Graham<sup>9</sup> review and categorize barriers to access into 4 categories: financial, structural, personal and sociodemographic, and attitudinal. All 4 are defined as factors associated with differential access to PAC regardless of diagnosis, disability, or age—for example, they are essentially nonclinical in nature and yet they significantly affect use.

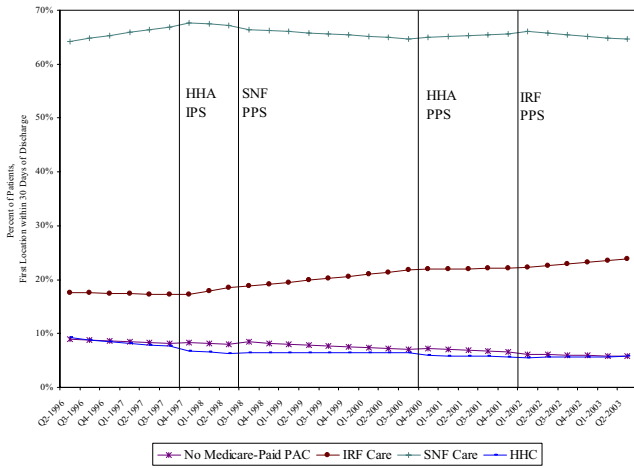
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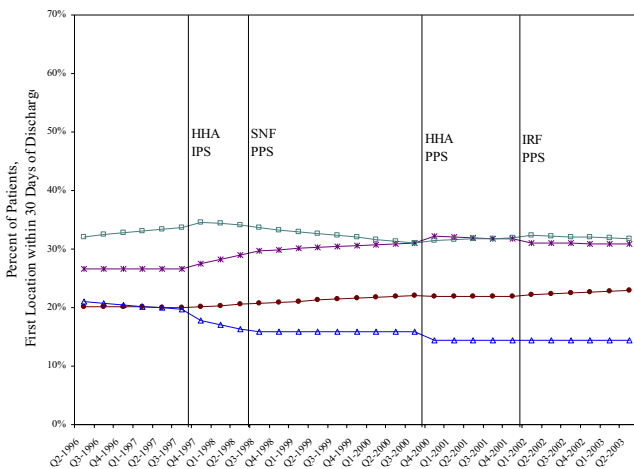
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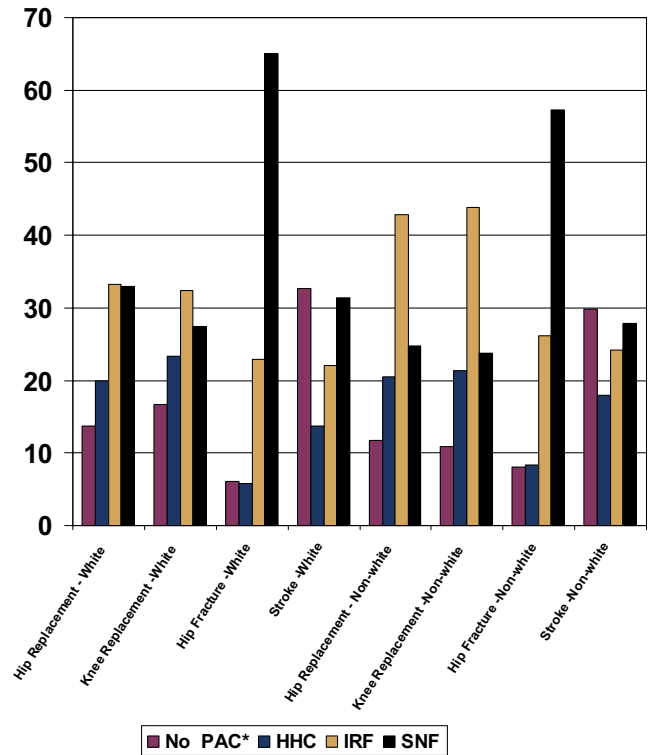
**Fig 1. Hip fracture patients use SNF at high rates. Reprinted with permission of RAND Corp.**

Among the nonclinical factors affecting use of PAC care is geographic location. Kane et al<sup>10</sup> documented substantial variation in PAC use across census regions. For example, they found that in 1998 any PAC use for stroke varied by 12 percentage points across regions. They also found that the variation across census regions was consistent over time. They posted a number of reasons for such variation, including variation in medical practice styles, local regulatory practices, the supply of PAC services, and the fact that PAC services overlap and thus there is the potential for substitution across sites of care. Buntin et al<sup>3</sup> examined the issue of PAC supply and found that the availability of different types of PAC facilities influenced the probability that Medicare patients discharged from acute care would receive facility-based PAC as well as the setting in which they received care.

Race and ethnicity might influence PAC access and the content of PAC care through patient preferences or differences in disease incidence that might vary across groups; however, disparities that do not reflect patient preference or clinical differences also exist in access to PAC. A few studies have found racial, ethnic, and socioeconomic differences in nursing



**Fig 2. Stroke patients use a variety of PAC sites. Reprinted with permission of RAND Corp.**



**Fig 3. Variation by race. Abbreviation: HHC, home health care. Reprinted with permission of RAND Corp.**

home care.<sup>11</sup> Ottenbacher et al<sup>12</sup> studied hip fracture and joint replacement patients who received care in IRFs and found that non-Hispanic white and black patients were significantly more likely to be discharged home alone and responsible for their own care than were Asian or Hispanic patients. They also concluded that there were disparities by race and/or ethnicity in patients receiving care in IRFs. Recent data supports such differences: levels of IRF use were higher among non-whites, and SNF use was higher among whites (fig 3). Harada et al<sup>13</sup> examined the use of physical therapy (PT) among hospitalized hip fracture patients and found that patterns of PT were less beneficial for the elderly and blacks. A review of the literature on disparities in stroke care reveals conflicting findings on the use of rehabilitation by race.<sup>14</sup> Blacks generally began and concluded rehabilitation in worse health and with worse functioning. And these disparities may begin before patients access PAC: for example, older Hispanics compared with black patients have lower rates of arthritis-related joint replacement, even after controlling for differences in health needs and economic access. Similarly, there are differences in PAC use by sex that persist after adjustment for other factors.

Differences in PAC access due to sex, race, ethnicity, and geographic location are likely only a few of the nonclinical factors that affect decisions about care use. These differences, coupled with the lack of clinical consensus about appropriate care trajectories for only a few types of patients, leads policy observers to fear that PAC use may be highly susceptible to influence by financial factors, including the new prospective payment systems for PAC providers.

**PROSPECTIVE PAYMENT FOR PAC PROVIDERS**

Between 1988 and 1997, Medicare expenditures for PAC increased at an average annual rate of 25%,<sup>15</sup> making it the

fastest-growing category of Medicare spending. This increase has been attributed to the implementation of Medicare's prospective payment system (PPS) for acute care hospitals in 1983, which created a powerful incentive to shift the time that patients spent in acute care to time spent in PAC (because PAC was still reimbursed on a cost basis).<sup>16-21</sup> U.S. court decisions in the late 1980s that liberalized the definitions of eligibility for PAC services are also important factors.<sup>22</sup> For example, in 1998, *Duggan v Bowen* both broadened the definition of part-time or intermittent care and resulted in the revision of Medicare manuals defining benefit eligibility.<sup>23</sup>

The rapid rise in spending in the 1990s prompted the U.S. Congress to pass the Balanced Budget Act (BBA) of 1997, which mandated prospective payment for PAC providers. Between 1997 and 2002, Medicare introduced an interim payment system (IPS) for HHAs (1997) and PPSs for SNFs (1998), HHAs (2000), IRFs (2002), and LTCHs (2002) (fig 4). The new payment systems for PAC were designed to reduce spending and introduce incentives for efficiency, and they did in fact reduce use and spending in the short term.<sup>15,16,24-26</sup>

Under the new system, IRFs and LTCHs are paid on a per discharge basis; SNFs are paid on a per diem basis; and HHAs are compensated according to 60-day periods.<sup>27</sup> The different units of care used in the payment systems lead to different incentives for providers. For example, the SNF per diem payments encourage providers to limit their daily costs, but do not provide incentives to limit LOS. Additionally, the payment systems differ substantially in the intended level of payments relative to the status quo at the time they were implemented, and hence in the strength of their incentives. Congress has also made adjustments to the payment rates: in many cases these adjustments have followed the recommendations of the Medicare Payment Advisory Commission (MedPAC), which are described by Kaplan.<sup>28</sup> Kaplan provides additional details about the incentives of the PAC payment systems.

Other regulatory changes during this period affected PAC utilization as well. Notably, the 75 percent rule for IRFs, which required that 75% of patients in an IRF fall into 1 of 10 groups in order for the facility to be certified as an IRF under the Medicare program, was found to be unevenly enforced and the definitions of the 10 condition groups to be a source of controversy. In 2004, this rule was revised and reinstated after a moratorium.<sup>29</sup> Similarly, a rule capping patient payments for outpatient therapy went through several periods of debate and moratoriums before being reinstated in 2006. Changes to payment rules in acute care, including the short stay transfer policy implemented in 1998 to discourage premature discharge to PAC, also affected use of care.

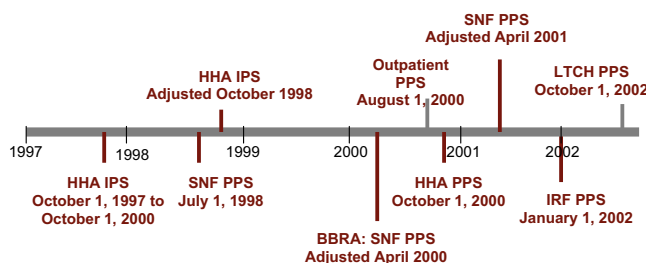


Fig 4. PAC payment system implementation timeline. Abbreviation: BBRA, Balanced Budget Retirement Act.

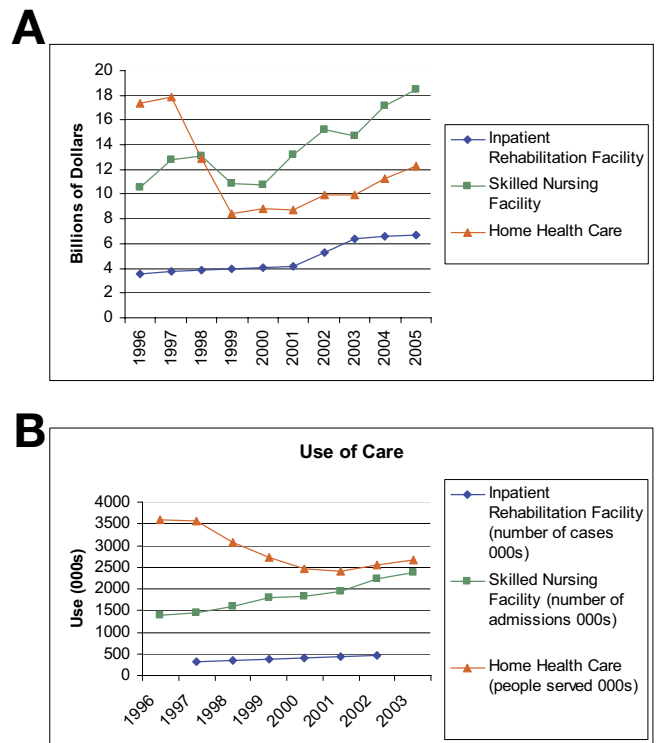


Fig 5. (A) Costs and (B) use of PAC.

EFFECTS OF PROSPECTIVE PAYMENT OF PAC PROVIDERS

These changes, and especially the implementation of the PPS, raise concerns about access to PAC rehabilitation. The chief fears are that by limiting payments to predetermined rates for specific types of patients, severely ill and thus less profitable patients might be discriminated against, and that providers would maximize revenue overall by skimping on care. The concerns can be summarized in the PAC context as follows:

- complex cases might experience reduced access to care;
- beneficiaries might receive inappropriately lower intensities of care and/or shorter LOS and length of care;
- providers might discharge patients prematurely;
- providers might transfer patients to other sites at higher rates, in less stable condition; and
- less complex cases might be admitted unnecessarily.

Concerns about PAC access are compounded by the lack of clear evidence about which sites of care and treatment intensities are appropriate for many types of patients, as described by Prvu Bettger and Stineman.<sup>6</sup>

These concerns may be well founded: the PAC payment changes have had dramatic effects in some areas. After rising from \$14 billion in 1994 to \$35.7 billion in 1996, total Medicare spending for PAC declined to \$30.6 billion in 2001 as the IPS for HHAs and PPS for SNFs were implemented—although it has since started to rise again. Over the same time period, the number of Medicare beneficiaries using PAC decreased by 18%, from 4.3 million to 3.5 million users,<sup>15</sup> though beneficiary use is now increasing (fig 5).

The evidence suggests that the new payment systems led to shifts in the type and content of care patients received as well. McCall et al<sup>16,30</sup> observed that changes in treatment patterns immediately following the BBA included more beneficiaries

receiving no PAC and also much lower use of home health care, but slightly higher use of IRFs and LTCHs. MedPAC<sup>15</sup> examined changes before and after the implementation of the PPSs for SNFs and home health care and found substantial declines in the use of home health care accompanied by increases in the use of SNFs and other PAC providers. For some diagnoses, MedPAC found that SNFs could have partly replaced home health care. For example, among patients discharged from acute care with a diagnosis of septicemia, use of home health care declined from 21% to 10% while SNF use increased from 21% to 27%.<sup>15</sup> Cotterill and Gage<sup>26</sup> suggested that some portion of the increase in the use of IRFs between 1997 and 2000 may have been influenced by the new incentives to curb use in HHAs and SNFs. The patterns of care surrounding the payment changes (see *figs 1, 2*) also support these conclusions.<sup>3</sup>

In response to the IPS for home health, the number of users fell by almost a third over the following 4 years, and around a third of HHAs left the program. (Not all home health is provided to patients being discharged from a hospital, but available figures aggregate all types of home health care spending.) With the advent of the PPS for home health in 2000, use and spending started to grow again. By 2005, 2.9 million beneficiaries used home health services, and there were nearly 5 million 60-day "episodes" (the unit of Medicare reimbursement under the home health PPS). Intensity conditional on use responded equally dramatically to the incentives of prospective payment. Between 1997 and 2003, the number of visits per 60-day episode fell from 36 to 19, and the number of minutes of care in an episode fell from 1500 to 940. In contrast, the home health PPS rewards the provision of therapy, and the proportion of visits with some therapy rose from 9% to 26% over the 1997 to 2003 period.<sup>2</sup> (These trends are discussed in the context of payment adequacy by Kaplan.<sup>28</sup>)

IRFs also seem to have responded to the new incentives. Average IRF LOS fell from 13.3 to 12.7 days between 2002 and 2004.<sup>2</sup> IRFs in rural areas, however, grew rapidly in response to a 21% supplement to their reimbursement under the PPS. There is also evidence that IRFs that previously had high cost-reimbursement limits reduced their spending growth more under the IRF PPS than did other IRFs.<sup>31</sup> After 2004, when CMS began to strictly define and enforce the 75 percent rule, the number of IRF cases fell 10% after increasing in the prior 2 years.

### PROSPECTIVE PAYMENT AND OUTCOMES OF PAC

The goal of the Medicare program and these new payment systems is to encourage effective, high-quality care that delivers good clinical outcomes at the lowest cost to society. Without knowing how outcomes are affected by these payment changes it is difficult to judge whether they represent improvements in efficiency or harmful limitations on Medicare beneficiaries' access to PAC.

The evidence base regarding outcomes is small, and focused on early effects of the PPSs, but it has generally found that despite these fluctuations in use, outcomes in PAC have generally shown stability or mixed effects.<sup>2,17,32</sup> Two early studies suggested that mortality and readmissions after PAC did not worsen as a result of the new HHA and SNF payment systems.<sup>16,28,33</sup> However, 2 risk-adjusted SNF outcome measures worsened between 2000 and 2004, perhaps because of the implementation of the SNF PPS. Rates of avoidable rehospitalizations<sup>34</sup> within 100 days of SNF admission for any of 5 conditions (congestive heart failure, respiratory infection, urinary tract infection, sepsis, electrolyte imbalance) increased

from 11.8% in 2000 to 17.0% in 2004.<sup>2</sup> Over the same period, discharges to the community declined from 33.8% to 32.8%. Other studies have found worrying declines in staffing and in the intensity of service delivery.<sup>25,35-41</sup> For example, White<sup>36</sup> found that nursing staff time per resident per SNF day declined by 13 minutes on average, and by much more in for-profit facilities with the implementation of the SNF PPS. Kaplan<sup>28</sup> concludes that in recent years the quality of SNF care declined, the quality of home health and IRF care improved slightly, and the evidence on the quality of LTCH care was mixed. However, most of the work cited considered only single sites of PAC care, did not adjust for the potentially changing populations electing to use those sites, and looked only at intermediate outcomes measured at discharge from a given PAC type. Thus, concerns remain that lower use of PAC generally, coupled with shifts in sites of care, could be adversely affecting beneficiary access to appropriate care as well as health outcomes.<sup>42</sup> Clearly, more research is needed in this area, but even more important, more research is needed on which patients benefit most from PAC.

### GAPS IN KNOWLEDGE ABOUT APPROPRIATENESS OF PAC USE

Despite the resources expended on PAC, the thousands of dedicated providers who work with PAC patients, and the positive experiences of millions of PAC patients over the years, concrete evidence about the appropriate use of PAC remains sparse. We rely on the strong evidence base that exists for stroke. We have also barely tapped the potential of quasi-experimental studies exploiting the wide natural variation in PAC use or determined how to apply the evidence from studies conducted in other countries with delivery systems that differ from our own. The lack of studies finding that outcomes have shifted in line with the swings in PAC use and spending risks reinforce notions about the limited effectiveness of PAC.

The policy controversy surrounding the 75 percent rule and the appropriate site of care for LE joint replacement patients illustrates the importance of this issue. A MedPAC expert panel found that most LE joint replacement patients should be discharged from acute care to their homes but that medically complex patients should go to IRFs, whereas patients without adequate caregiver support at home should use SNF care.<sup>43</sup> CMS, in its final rule on the subject in 2004, constructed a much more limited definition stating that LE joint replacement patients should use IRF care only if they are extremely obese, over age 85, or have bilateral joint replacements. The rule implied that other LE joint replacement patients should use SNF or outpatient care. A panel convened by the Institute of Medicine and the U.S. General Accounting Office concluded that randomized clinical studies were needed to determine where LE joint replacement patients should be discharged.

My colleagues and I conducted a quantitative study of costs and outcomes of LE joint replacement patients discharged to 3 different postacute settings: IRFs, SNFs, and patient homes. We analyzed data on all elderly Medicare joint replacement patients discharged from hospitals between January 2002 and June 2003. We assembled, and included as independent variables in our models, a wide array of indicators of clinical, individual, discharging hospital, and PAC supply factors that might affect PAC choices.

We then used multivariate techniques in order to adjust these analyses for the observable differences in severity of illness across sites of care—and for selection that we could not directly control. We used instrumental variable techniques to account for unobserved patient selection into IRFs and SNFs in order to learn how patient costs and outcomes are affected by



the availability of IRF and SNF care. Our instrumental variable model uses the variation in proximity to IRFs and SNFs as a natural experiment: it reveals whether “marginal” patients who go to IRFs and SNFs because of their proximity to these facilities have different outcomes and costs than patients who go home.

We found that there are differences in costs and outcomes across PAC sites for “marginal” LE joint replacement patients. The unadjusted data show that patients whose first site of care is an IRF or SNF have higher rates of mortality or care in an institutional setting 120 days after discharge from acute care than patients who receive care at home. However, our analysis suggests that these results are primarily driven by observed and unobserved differences in severity of illness and patient health at admission across sites of care. The apparently deleterious effects of IRFs and SNFs diminish significantly in models that control for patient selection on both observable and unobservable characteristics. In particular, we find that after controlling for patient selection there are no statistically significant differences in mortality rates across LE joint replacement patients in different sites of PAC. However, the results from the instrumental variable models suggest that marginal patients in IRFs and SNFs are more likely to be institutionalized over the long term. The results from our models of Medicare payments also show that episodes of postacute care in an IRF or SNF are much more expensive than episodes of care for patients who receive care at home or in a noninstitutional setting. Our results indicate that if, as CMS argued during its rulemaking process, the effect of the revised regulation will be to shift LE joint replacement patients from IRFs to SNFs, then Medicare payments will likely be reduced by the enforcement of the 75 percent rule. However, our findings indicate that although expenditures would be reduced, there is a higher risk of institutionalization if patients are switched from IRFs to SNFs.<sup>4</sup>

The debate about the outcomes of LE joint replacement patients in SNFs and IRFs will undoubtedly be renewed when the findings of the industry-funded Joint Replacement Outcomes in IRFs and Nursing Treatment Sites (JOINTS) project are published. In fact, the earlier findings continue to be brought before the Congress, and a bipartisan group of Senators recently introduced a bill<sup>44</sup> to halt the phase-in of the 75 percent rule.

The 75 percent rule controversy and the range of responses to it illustrate the challenges facing those who want to assure appropriate access to PAC. The chief problems with the literature that need to be remedied include:

- Study designs rarely consider the full range of PAC options, including institutional (SNF and IRF) care, home health, outpatient therapy, and no formal care;
- Investigators rarely attempt to measure and evaluate the content of care including which services and therapies are the most important and beneficial;
- Studies do not evaluate the best trajectories of care, taking into consideration that they might involve multiple therapeutic strategies and that the timing of these interventions can be important;
- Meaningful long-term outcomes are rarely the focus of study, and even less frequently are they measured at consistent intervals postacute discharge across sites. These outcomes might include functional status and return to community residence 6 to 12 months after acute discharge;
- Studies rarely address less common conditions—even LE joint replacement is little studied despite being the third most common reason for PAC rehabilitation.

## HOW TO RATIONALIZE ACCESS TO PAC

It is clear that more research is needed to fill the gaps identified above and provide a solid evidence base for PAC referrals. These gaps should be filled using quasi-experimental designs and rigorous social science methods. These studies could exploit the wide geographic variation in PAC use and could also exploit variation within facility types in the content of care delivered. The changes in PAC payments and the resulting changes in care use also provide the basis for retrospective explorations of the effects of PAC on outcomes. Clinical trials, in contrast, could and should be used when we have better hypotheses about which care plans are optimal for which groups of patients. Until that time large-enough trials to ferret out promising strategies would likely be prohibitively expensive and randomization would likely be unrealistic.

What should we do in the interim while these studies are conducted? We have 3 responsibilities. One is to use the evidence that we have—for example, to understand whether stroke patients are getting the rehabilitation shown to be effective. The second is to lay the groundwork for using incentives to reward good outcomes. We have already seen that financial incentives can be powerful in this sector, and we should use them to benefit patients as soon as possible. Third, both in “paying for performance” and adding to the evidence base, we should not let the perfect be the enemy of the good. Research funding is limited and yet progress is urgently needed. We can use vehicles such as the State-of-the-Science symposium to distill useful findings and push the field forward.

### References

1. Liu K, Baseggio C, Wissoker D, Maxwell S, Haley J, Long S. Long-term care hospitals under Medicare: facility-level characteristics. *Health Care Financ Rev* 2001;23:1-18.
2. Medicare Payment Advisory Commission. Report to the Congress: increasing the value of Medicare. Washington (DC): MedPAC; 2006.
3. Buntin MB, Escarce J, Hoverman C, Paddock S, Totten MB. Effects of payment changes on trends in access to post-acute care. Santa Monica: RAND; Oct 2005. Report No. TR-259-CMS.
4. Buntin MB, Garten AD, Paddock S, Saliba D, Totten M, Escarce JJ. How much is postacute care use affected by its availability? *Health Serv Res* 2005;40:413-34.
5. Buntin MB, Partha D, Escarce JJ, Hoverman C, Paddock SM, Sood N. Comparison of Medicare spending and outcomes for beneficiaries with lower extremity joint replacements. Santa Monica: RAND; June 2005. Working paper WR-271-MedPAC.
6. Prvu Bettger JA, Stineman MG. Effectiveness of multidisciplinary rehabilitation services in postacute care: state-of-the-science. A review. *Arch Phys Med Rehabil* 2007;88:1526-34.
7. Kane RL. Assessing the effectiveness of postacute care rehabilitation. *Arch Phys Med Rehabil* 2007;88:1500-4.
8. Jette AM, Keysor JJ. Uses of evidence in disability outcomes and effectiveness research. *Milbank Q* 2002;80:325-45.
9. Ottenbacher KJ, Graham JE. The state-of-the-science: access to postacute care rehabilitation services. A review. *Arch Phys Med Rehabil* 2007;88:1513-21.
10. Kane RL, Lin WC, Blewett LA. Geographic variation in the use of post-acute care. *Health Serv Res* 2002;37:667-82.
11. Gabrel CS. Characteristics of elderly nursing home current residents and discharges: data from the 1997 National Nursing Home Survey. *Adv Data* 2000;(312):1-15.
12. Ottenbacher KJ, Smith PM, Illig SB, et al. Disparity in health services and outcomes for persons with hip fracture and lower extremity joint replacement. *Med Care* 2003;41:232-41.

13. Harada ND, Chun A, Chiu V, Pakalniskis A. Patterns of rehabilitation utilization after hip fracture in acute hospitals and skilled nursing facilities. *Med Care* 2000;38:1119-30.
14. Stansbury JP, Jia H, Williams LS, Vogel WB, Duncan PW. Ethnic disparities in stroke: epidemiology, acute care, and postacute outcomes. *Stroke* 2005;36:374-86.
15. Medicare Payment Advisory Commission. Report to the Congress: variation and innovation in Medicare. Washington (DC): MedPAC; 2003.
16. McCall N, Korb J, Petersons A, Moore S. Reforming Medicare payment: early effects of the 1997 Balanced Budget Act on postacute care. *Milbank Q* 2003;81:277-303, 172-3.
17. Chan L, Koepsell TD, Deyo RA, et al. The effect of Medicare's payment system for rehabilitation hospitals on length of stay, charges, and total payments. *N Engl J Med* 1997;337:978-85.
18. Manton KG, Woodbury MA, Vertrees JC, Stallard E. Use of Medicare services before and after introduction of the prospective payment system. *Health Serv Res* 1993;28:269-92.
19. Steiner A, Neu C. Monitoring the changes in use of Medicare posthospital services. Santa Monica: RAND Corp; 1993.
20. Neu C, Harrison S, Heilbrunn J. Medicare patients and postacute care: who goes where? Santa Monica: RAND Corp; 1989.
21. Lewis MA, Leake B, Leal-Sotelo M, Clark V. The initial effects of the prospective payment system on nursing home patients. *Am J Public Health* 1987;77:819-21.
22. Newhouse JP. Pricing the priceless: a health care conundrum. Cambridge: MIT Pr; 2002.
23. Manton KG, Stallard E, Woodbury MA. Home health and skilled nursing facility use: 1982-1990. *Health Care Financ Rev* 1994; 16:155-86.
24. Street D, Quadagno J, Parham L, McDonald S. Reinventing long-term care: the effect of policy changes on trends in nursing home reimbursement and resident characteristics—Florida, 1989-1997. *Gerontologist* 2003;43:118-31.
25. White C. Rehabilitation therapy in skilled nursing facilities: effects of Medicare's new prospective payment system. *Health Aff (Millwood)* 2003;22:214-23.
26. Cotterill PG, Gage BJ. Medicare post-acute care since the Balanced Budget Act of 1997. *Health Care Financ Rev* 2002;24:1-6.
27. Gage B. Impact of the BBA on post-acute utilization. *Health Care Financ Rev* 1999;20:103-26.
28. Kaplan SJ. Growth and payment adequacy of Medicare postacute care rehabilitation. *Arch Phys Med Rehabil* 2007;88:1494-9.
29. Department of Health and Human Services, Centers for Medicare and Medicaid Services. Final Rule: Medicare Program; Changes to the criteria for being classified as an inpatient rehabilitation facility. 69 Federal Register 25752 (2004).
30. McCall N, Petersons A, Moore S, Korb J. Utilization of home health services before and after the Balanced Budget Act of 1997: what were the initial effects? *Health Serv Res* 2003;38(1 Pt 1):85-106.
31. Sood N, Buntin MB, Escarce JJ. Does how much and how you pay matter? Evidence from the inpatient rehabilitation facility prospective payment system. Cambridge: National Bureau of Economic Research; 2006.
32. Chan L. The state-of-the-science: challenges in designing post-acute care payment policy. *Arch Phys Med Rehabil* 2007;88: 1522-5.
33. Angelelli J, Gifford D, Intrator O, Gozalo P, Laliberte L, Mor V. Access to postacute nursing home care before and after the BBA. *Balanced Budget Act. Health Aff (Millwood)* 2002;21:254-64.
34. Agency for Healthcare Research and Quality. AHRQ quality indicators—guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions. Rockville: Agency for Healthcare Research and Quality; 2001.
35. Yip JY, Wilber KH, Myrtle RC. The impact of the 1997 Balanced Budget Amendment's prospective payment system on patient case mix and rehabilitation utilization in skilled nursing. *Gerontologist* 2002;42:653-60.
36. White C. Medicare's prospective payment system for skilled nursing facilities: effects on staffing and quality of care. *Inquiry* 2005;42:351-66.
37. Wodchis WP. Physical rehabilitation following Medicare prospective payment for skilled nursing facilities. *Health Serv Res* 2004; 39:1299-318.
38. DeJong G, Horn SD, Smout RJ, Ryser DK. The early impact of the inpatient rehabilitation facility prospective payment system on stroke rehabilitation case mix, practice patterns, and outcomes. *Arch Phys Med Rehabil* 2005;86(12 Suppl 2):S93-100.
39. Murray PK, Love TE, Dawson NV, Thomas CL, Cebul RD. Rehabilitation services after the implementation of the nursing home prospective payment system: differences related to patient and nursing home characteristics. *Med Care* 2005;43:1109-15.
40. Schlenker RE, Powell MC, Goodrich GK. Initial home health outcomes under prospective payment. *Health Serv Res* 2005;40: 177-93.
41. McCue MJ, Thompson JM. Early effects of the prospective payment system on inpatient rehabilitation hospital performance. *Arch Phys Med Rehabil* 2006;87:198-202.
42. Medicare Payment Advisory Commission. Report to the Congress: assessing Medicare benefits. Washington (DC): MedPAC; 2002.
43. Medicare Payment Advisory Commission. Report to the Congress: issues in a modernized Medicare program. Washington (DC): MedPAC; 2005.
44. The Preserving Patient Access to Inpatient Rehabilitation Act, S. 543, 110th Cong. (2007).