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Does how much and how you pay matter? Evidence from the inpatient rehabilitation care prospective payment system

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Abstract

We use the implementation of a new prospective payment system (PPS) for inpatient rehabilitation facilities (IRFs) to investigate the effect of changes in marginal and average reimbursement on costs. The results show that the IRF PPS led to a significant decline in costs and length of stay. Changes in marginal reimbursement associated with the move from a cost-based system to a PPS led to a 7–11% reduction in costs. The elasticity of costs with respect to average reimbursement ranged from 0.26 to 0.34. Finally, the IRF PPS had little or no impact on mortality or the rate of return to community residence.

JEL classification: I11; I18

Keywords: Provider reimbursement; Prospective payment; Medicare

1. Introduction

Between 1988 and 1997, post-acute care was the fastest growing category of Medicare spending with an average annual growth rate of 25% (MedPAC, 2003). The Balanced Budget Act of 1997 and subsequent Balanced Budget Refinement Act of 1999 attempted to control the rising spending and costs by shifting payments to providers from a cost basis to prospective payment systems (PPSs). However, the switch to a prospective payment system has two potential, and possibly competing, effects on costs. First, the switch to prospective payment reduces *marginal* reimbursement for additional services thereby creating incentives to reduce costs. Second, and perhaps less appreciated, the switch to prospective payment affects the *average* reimbursement that a facility receives. An increase in average reimbursement levels could in principle lead to an increase in costs (Hodgkin and McGuire, 1994). Therefore, it is uncertain whether a switch to prospective payment that reduces marginal reimbursement but increases average reimbursement would result in cost savings.

Under a prospective payment system that leads to cost savings, the approach chosen by providers to reduce costs could have implications for health outcomes. In particular, cost savings that are achieved by reducing the amount of beneficial care provided might increase the risk of adverse health outcomes (Kahn et al., 1990; Kosecoff et al., 1990;

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Rubenstein et al., 1990; Cutler, 1995; Shen, 2003). Prospective payment-induced reductions in beneficial care could also have spillover effects for providers in other settings; for example, patients who are discharged "too early" due to prospective payment and suffer adverse health outcomes might end up obtaining additional care from providers in other settings. However, if providers respond to prospective payment by providing care more efficiently, savings could be generated without affecting health outcomes.

In this study, we examine the impact of the inpatient rehabilitation facility prospective payment system (IRF PPS) on the costs of care and length of stay in inpatient rehabilitation facilities (IRFs).[1] The IRF PPS changed payments in two fundamental ways. First, it switched the payments from a cost-based system to a prospective payment system. Second, although the IRF PPS was intended to be budget neutral, we find evidence that in practice it significantly increased the average reimbursement received by IRFs. To disentangle the impact of changes in marginal and average reimbursement, we take advantage of the timing of the IRF PPS and of the fact that different IRFs experienced widely divergent changes in average reimbursement under the new payment system, depending on the payment levels they received in the pre-PPS period. We also examine whether the IRF PPS affected health outcomes including return to community residence and mortality.

We find that the implementation of the IRF PPS was associated with a decline in resource use (both costs and length of stay) for patients receiving inpatient rehabilitation following a stroke, hip fracture, or lower extremity joint replacement. We also find strong evidence that both marginal and average reimbursement matter. Finally, we find no evidence that the change in reimbursement led to adverse health outcomes for patients.

The rest of the paper proceeds as follows. First we describe the key features of the IRF PPS. Next, we briefly discuss the anticipated effects of changes in marginal and average reimbursement associated with the IRF PPS. We then describe our data and empirical strategy. The last two sections present the results and conclusions.

2. The IRF PPS

Prior to the implementation of the IRF PPS, IRFs were paid on a cost basis up to a per patient limit that varied substantially across facilities and was based on each facility's historical costs (Chan et al., 1997). The facility-specific limits were determined by calculating average costs per patient during each IRF's base year of operation: facilities opening after this rule went into effect had incentives to inflate their costs during their initial period of operation and thus had higher payment limits than older facilities. Various attempts were made to bound the payment limits, for example, by imposing caps, but facilities were still able to petition to have these caps waived (CMS, 2002). Accordingly, there was wide variation in payment limits; as we describe below, in 2001 approximately a third of IRFs had payment limits below $13,000 per patient while the top third had limits above $17,000. The highest cap in the final year of TEFRA was set at just under $22,000, and 16 IRFs successfully made a case to have payment adjustments that exceeded this cap.

Under the IRF PPS, IRFs receive a prospective payment for each patient. Patients are assigned to a case-mix group (CMG) based on their rehabilitation impairment (e.g., stroke, hip fracture, joint replacement, etc.), comorbidities, functional status and length of stay, and each CMG has a payment weight based on the expected resource use for patients in that category. The payment for a patient depends on the patient's CMG and on facility characteristics such as rural location and percentage of low-income patients (CMS, 2001; Carter et al., 2002). A national conversion factor is used to obtain the dollar amount of the payment. There is also an outlier payment system, but it is designed to affect only three percent of payments.

Beginning in January 2002, all IRFs were required to start administering the IRF patient assessment instrument (IRF PAI), which is used to assess functional status for the purpose of CMG assignment. However, each IRF actually transitioned to the IRF PPS at the beginning of its fiscal year, which could occur any time during the 2002 calendar year. Thus, although all IRFs knew about the policy change in advance, some IRFs had more time to plan for the transition to the IRF PPS. In summary, all facilities expected a virtual elimination of marginal reimbursement following the implementation of the IRF PPS in January 2002. However, the effects of the IRF PPS on average reimbursement varied across facilities. Facilities with low pre-PPS annual payment limits expected the highest increase in average reimbursement and facilities with high pre-PPS annual payment limits expected little or no change in average reimbursement.

[1] IRFs provide rehabilitation services to patients discharged from acute care hospitals. IRFs must provide at least 3 h of therapy per day, have a staff of nurses working 24 h per day, and retain a physician to oversee care daily.