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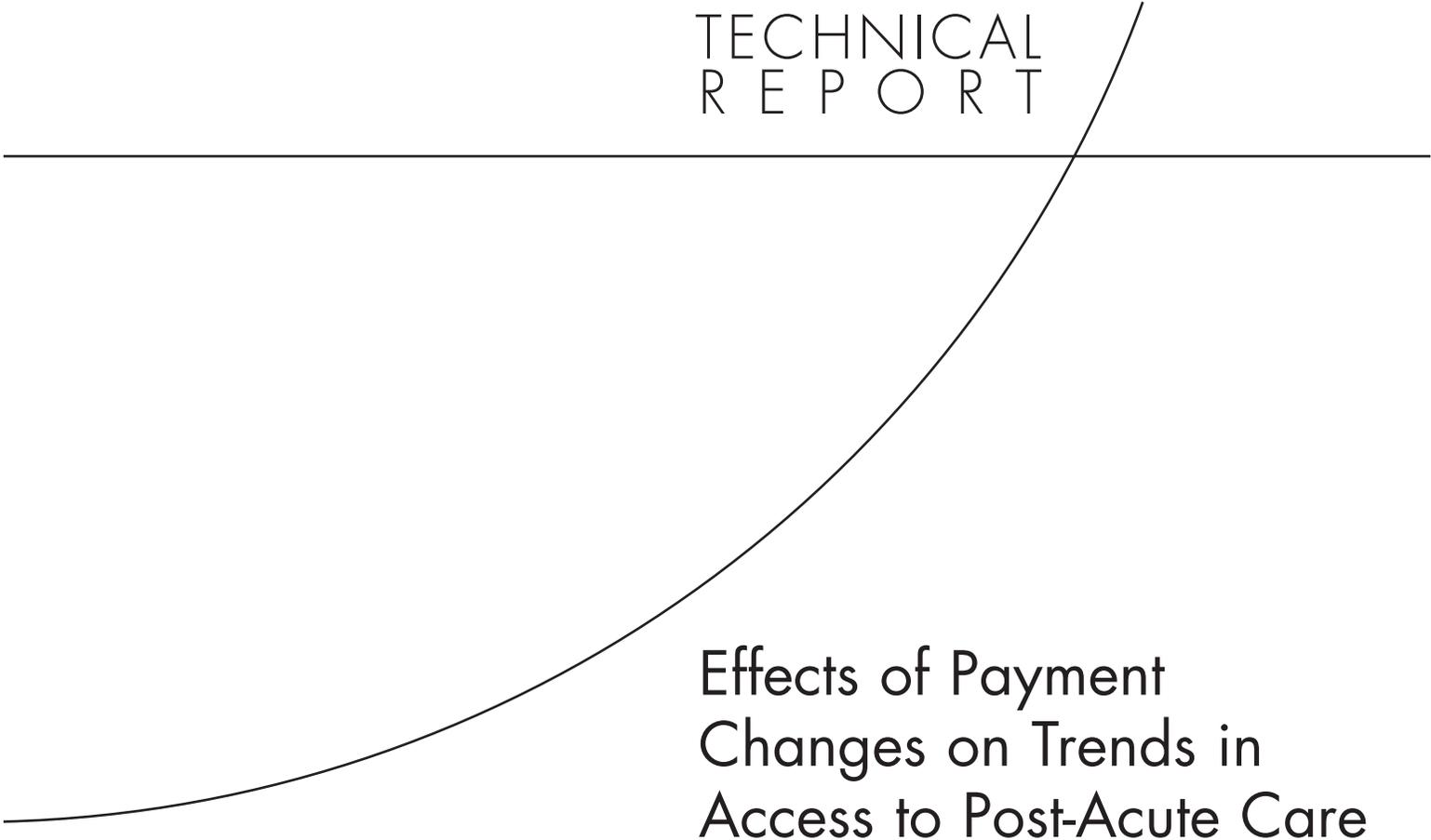
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TECHNICAL  
REPORT

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# Effects of Payment Changes on Trends in Access to Post-Acute Care

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## Executive Summary

In 1997, Congress mandated the development and implementation of prospective payment systems for post-acute care (PAC PPSs). Its goal was to introduce incentives for efficiency and reduce spending. However, some worried that PAC providers would respond in ways that would reduce beneficiary access to care. This concern was particularly acute for more severely ill patients who may be less profitable than typical patients under these systems. In addition, there were concerns that the PAC PPSs would cause shifts in the burden of care across sites.

This report represents one of the first efforts to examine the cumulative effect of these payment changes on patient access to care. The post-acute care payment system changes we study are the Home Health Agency Interim Payment System (HHA IPS), the Skilled Nursing Facility Prospective Payment System (SNF PPS), the Home Health Agency Prospective Payment System (HHA PPS), and the Inpatient Rehabilitation Facility Prospective Payment System (IRF PPS). We examine “realized access” to care by measuring utilization of Medicare-paid IRFs, SNFs, and HHA care, and how it has changed in response to these prospective payment systems enacted in the late 1990s and early 2000s. For each payment system we look at both the immediate effects of the payment system on the use of the site of care it affected directly, and the longer-term effects of the payment system. In order to account for potential substitution across sites, we also look at the effects of payment system changes on alternative sites of care. Finally, we consider the question of whether more severely ill patients have seen their access to care decline more than other patients as a result of these changes.

The study focuses on elderly Medicare patients discharged from acute care facilities between 1996 and 2003 with a diagnosis of hip fracture, stroke, or lower extremity joint replacement. Models are used to predict the probability of patients going to a post-acute care location (no Medicare post-acute care, IRF, SNF, or HHC) before and after each payment system was enacted, controlling for underlying trends in PAC use, patient characteristics, and discharging hospital characteristics. We assess the importance of the payment system changes in the choice of PAC site by simulating how much each payment system changed the predicted probabilities of using IRF care, SNF care, and HHC.

Our results are displayed in the summary table below. We find that although the effects of the payment systems on the use of PAC varied, most reduced the use of the site of care they

**Summary Table  
Payment System Changes and Effects**

<b>Payment System Implementation Schedule</b>	<b>Date</b>	<b>Changes and Goals</b>	<b>Hypothesized Effects</b>	<b>Observed Significant Effects</b>
Home Health Agency Interim Payment System (HHA IPS)	Oct-97	The IPS was a temporary system put in place by the BBA. Under the interim payment system, HHAs are paid the lesser of (1) actual reasonable costs; (2) the per-visit limits; or (3) the per-beneficiary limits. It was projected to reduce payments to home health agencies by \$3.1 billion in FYs 1998 and 1999.	Negative effect on HHA use with implementation and following implementation, especially for severely ill patients. Increase in use of alternative sites over time.	<b>Hip Fracture:</b> slight negative implementation effect on HHA use, modest positive time trend effect on IRF use <b>Stroke:</b> large negative implementation effect on HHA use, modest negative time trend effect on SNF use, slight negative time trend effect on HHA use <b>Joint Replacement:</b> modest negative implementation effect on SNF and HHA use, slight positive time trend effect on IRF use, slight negative time trend effect on SNF and HHA use
Skilled Nursing Facility Prospective Payment System (SNF PPS)	Jul-98	The SNF PPS pays SNFs prospectively on a case-mix adjusted per-diem basis, a change from the former cost-based system. The estimated reduction in SNF payments during the first PPS year averaged 17 percent.	Negative effect on SNF use with implementation and following implementation, especially for severely ill patients. Increase in use of alternative sites over time.	<b>Hip Fracture:</b> slight negative implementation effect on IRF use, modest negative implementation effect on SNF use, slight positive time trend effect on HHA use <b>Stroke:</b> slight negative time trend effect on SNF use, modest positive time trend effect on HHA use <b>Joint Replacement:</b> slight negative implementation effect on IRF use, large negative implementation effect on SNF use, slight positive time trend effect on IRF use, modest positive time trend effect on HHA use
Home Health Agency Prospective Payment System (HHA PPS)	Oct-00	The HHA PPS pays HHAs prospectively on a case-mix adjusted per-episode basis, a change from the former cost-based system with per-beneficiary limits. The HHA PPS was designed to be budget neutral to IPS in FY 2001 (the BBRA postponed the 15% reduction in the budget neutrality target).	Negative effect on HHA use with implementation and following implementation. May increase use of HHC by severely ill patients. Increase in use of alternative sites over time.	<b>Hip Fracture:</b> slight negative implementation effect on IRF and HHA use, slight negative time trend effect on IRF use <b>Stroke:</b> slight negative implementation effect on IRF use, large negative implementation effect on HHA use, slight positive time trend effect on SNF use <b>Joint Replacement:</b> large negative implementation effect on HHA use, slight negative time trend effect on IRF use
Inpatient Rehabilitation Facility Prospective Payment System (IRF PPS)	Jan-02	The IRF PPS pays IRFs prospectively on a case-mix adjusted per-discharge basis, a change from the former cost-based system. The IRF PPS was designed to be budget neutral.	Little effect on use of IRFs overall, may increase use of IRFs by severely ill patients.	<b>Hip Fracture:</b> slight positive implementation effect on SNF use, slight negative time trend effect on SNF use <b>Stroke:</b> slight positive implementation effect on IRF use <b>Joint Replacement:</b> slight positive implementation effect on IRF use, modest positive implementation effect on SNF use, slight negative implementation effect on HHA use

directly affected and boosted the use of other sites of care. However, since these payments systems were implemented nationally, we are limited to an uncontrolled pre/post analysis and cannot draw strong conclusions about the causal effects of payment changes. There was a marked decline in the use of home health care with the implementation of the HHA IPS, which persisted in the period following its implementation for stroke and joint replacement patients. Similarly, the implementation of the SNF PPS was associated with a significant decline in SNF use for hip fracture and joint replacement patients and an increase in HHC use over time for all three conditions. As anticipated, use of HHC decreased with the implementation of the HHA PPS for all three conditions. In the period after the HHA PPS implementation there was an increase in use of SNF care for stroke patients. The IRF PPS was associated with greater SNF and IRF use for joint replacement patients. In the period following the IRF PPS, there is evidence of a trend away from SNF use for hip fracture patients.

We also ran a model that included interactions for more severely ill patients with the payment system variables to see if they were differentially affected by the changes in payment systems giving facilities incentives to constrain costs and avoid unprofitably expensive patients. Including these 10 interaction variables across three PAC location choices resulted in only a few weakly significant effects so these payment system changes do not appear to have affected the severely ill more than others. This may be because many of the new payment systems during this time were case mix adjusted, while the prior payments were cost-based with per-beneficiary limits. While this is good news, continued attention should be given to this issue in the future. In addition, it is also interesting to note that the changes described above were least significant and pronounced for hip fracture patients and most pronounced for stroke patients. This is a cause for concern because stroke patients are the group for whom there is the most evidence that aggressive post-acute care rehabilitation produces better outcomes.

Overall, most of the payment system changes that were intended to contain costs had the effect of decreasing the use of the site of care directly affected. But in many cases they also had the effect of increasing the use of alternative care sites. These changes do not, however, appear to have affected the severely ill more than others.