Medicare Payment Reform and Hospital Costs: Evidence from the Prospective Payment System and the Treatment of Cardiac Disease

Abstract

Medicare's Prospective Payment System (PPS) reform in 1983 tied hospital payments to the national average cost of each medical technology with the expectation of reducing health care costs. I show that an unintended consequence of PPS was to generate financial incentives for hospitals to expand treatments that had average costs greater than marginal costs due to sizable fixed investments – i.e., the Medicare payment would be greater than the treatment cost at the margin. In the context of cardiac treatments, coronary artery bypass graft (CABG) surgery has a greater average-to-marginal cost ratio than angioplasty, whose ratio is greater than drug therapy's. I document that the PPS reform induced a profit margin that was five times higher for CABG than for angioplasty. I derive a simple model that allows each treatment's effectiveness to vary by patient illness severity. The model predicts that hospitals, in response to PPS, will expand CABG use by treating patients for whom angioplasty is more cost-effective in order to exploit the greater economies of scale. To identify the impact of PPS on cardiac procedures, I exploit the discontinuity in Medicare eligibility at the age of 65. Utilizing data from *before–and–after* the PPS reform, I find a discontinuous change in CABG use at age-65 after the reform that implies an increase of 50 to 60 percent. Nearly all of the increase is driven by a composition change in the patients who receive CABG, with treatment expanded to patients who are observably healthier (i.e., fewer grafts or no comorbidity). Possible competing hypotheses do *not* exhibit changes at the age-65 threshold (e.g., disease incidence, insurance rates). The increased CABG use was not cost effective – the lower bound estimate of the cost per quality-adjusted life year was over one million dollars. The average cost payments of PPS provided incentives for hospitals to expand the use of technologies that have high fixed costs; an expansion that increased health care costs with possibly little health benefits.