In the struggle to control health care spending, policymakers in the United States and abroad may opt to reduce payment rates for medical services. But spending is the product of price and utilization. If physicians increase utilization sufficiently in response to declining fees, total spending can increase. In fact, a large body of evidence suggests that cutting fees leads to higher utilization when the targeted services account for a large share of physician income. If the services involved do not account for a large share of income, however, physicians reduce their output of the services whose fees were cut.1

In this essay, we describe results of our recent research on the impact of reductions in Medicare payments to physicians for chemotherapy drugs.2 Put simply, our findings back up the conclusions from many earlier studies: fee cuts can generate behavioral responses that reduce the savings one hopes to achieve through the payment reductions.

The Payment Change

Most chemotherapy treatment in the United States occurs in physician offices or community clinics.3 Physicians purchase chemotherapy drugs, administer them to patients in their offices and are reimbursed directly for the drugs by Medicare and other payers. Because these services are provided in the outpatient setting, Medicare payments are made under Part B of the program. Historically, Medicare and most private payers set reimbursement for Part B drugs at a percentage of the average wholesale price (AWP).4

In the late 1990s several high-level Federal investigations confirmed that Medicare payments for many Part B drugs were much higher than the prices physicians paid to buy them.5 Many chemotherapy drugs were widely available to physicians for 13 to 34 percent less than the AWP, and some agents were priced as much as 65 to 85 percent lower.6 At that time, however, Medicare was reimbursing physicians at 95 percent of the AWP (reduced to 85 percent in 2004).

To eliminate overpayments, the Medicare Prescription Drug, Improvement, and Modernization Act instituted a new reimbursement system for Part B drugs in January 2005. The new average sales price (ASP) payment system ties reimbursement more closely to acquisition costs by setting payments at the national average of manufacturers’ sales prices over the two previous quarters (lagged one quarter), plus a 6 percent margin.

By setting the ratio of drug payments to costs at 1.06, this new system had the effect of reducing profit margins substantially for many chemotherapy drugs. In particular, the change represented a marked decline from the weighted average payment-to-cost ratio of 1.22 for all drugs billed to Medicare by oncologists in 2004 and likely an even larger decline relative to earlier years.6

Impact of the Payment Change

The reduction in margins for oncology drugs raised concerns that Medicare beneficiaries would have less access to chemotherapy treatment overall and that community-based oncologists would refer patients to hospital outpatient settings instead of providing care themselves, possibly causing unnecessary treatment delays. Research conducted prior to our study found no evidence of treatment delays for those who suc-
increased to 15.3 percent after ASP implementation. The timing of the increase in the probability of chemotherapy treatment, both overall and in a physician's office, strongly suggests that the switch to the ASP reimbursement system drove the treatment changes.

Because Medicare beneficiaries face 20 percent coinsurance for Part B services, it is possible that utilization increased because lung cancer patients increasingly accepted chemotherapy treatment as their drug costs fell. However, anecdotal evidence indicates that physicians were less likely to collect copayments when reimbursements were based on the AWP, so the decline in reimbursements for chemotherapy drugs may have actually increased out-of-pocket spending for many beneficiaries.4 Any such increase would have dampened the change in use we observe.

**Use of Specific Chemotherapy Agents.** Our analysis also revealed that the type of drugs used in chemotherapy changed in ways that are consistent with a physician response to shifting reimbursement incentives. Most notably, the share of chemotherapy patients who received either Carboplatin or Paclitaxel—the two commonly-used drugs that lost substantial profit margin—declined considerably after the payment change went into effect. In contrast, the probability of receiving Docetaxel, a relatively expensive agent implicitly favored by the 6 percent margin on all Part B drugs, increased modestly among patients receiving chemotherapy treatment. These changes preceded the switch to ASP-based reimbursement by about a month, suggesting that physicians were rearranging the stock of chemotherapy agents on hand in anticipation of the new payment system. Failure to do so by the time the ASP system took effect could have meant a considerable loss of income.

**Discussion**

Economic theory tells us that the effect of fee cuts on physician effort depends on the share of income accounted for by the services whose fees are cut. On the one hand, a fee cut for one service can make other services or even leisure time more attractive to physicians, leading them to spend more of their time on these other activities and less on the activity whose fee was cut. Economists term this response a substitution effect. On the other hand, a fee cut for services that account for a large share of a physician's practice can generate the opposite response: physicians may provide more of the service(s) to make up for some of the lost income. Economists call this response an income effect.

How physicians respond to payment cuts depends critically on the balance between the substitution and income effects. In the study described here, we found that the fee reductions generated an increase in use overall. Because income from Medicare chemotherapy services is so important to most oncologists' practices, the income effect was larger than the substitution effect. Income derived from any specific agent, however, accounts for a smaller share of practice income, so the substitution effect may dominate for specific agents as physicians adjust their behavior to the changing relative profit margins of treatment alternatives. Indeed, we found that the precipitous drops in reimbursement for Paclitaxel and Carboplatin were associated with a decline in the use of these agents. We also observed a shift to Docetaxel, the most expensive agent, which provided the largest profit in absolute terms thanks to the fixed 6 percent margin paid above the ASP.

Clearly the interplay of possible responses determines whether a payment cut will succeed in trimming medical spending or not. Our recent work, along with a large body of prior research, demonstrates that fee cuts cannot reliably or predictably control spending. Policymakers need to be alert to behavioral responses that can undermine their ability to achieve savings through fee changes.

---