
Policy Implications of Physician Income Homeostasis

Joseph Bernstein

Physicians tend to protect their desired target incomes in the face of declining fees by working more. This homeostatic “volume response” in the name of income protection can have budgetary consequences opposite of those intended: overall spending will probably rise. This is seen because when the physician tries to earn one extra dollar, he or she causes many additional dollars to be spent within the health care economy. The fraction of total costs represented by the physician’s fee varies among specialties and procedures. Among certain medical services that are susceptible to doctor-induced demand, the Medicare standard physician payment may represent 10 percent or less of the total cost of that service. Accordingly, even if physicians were very inefficient at finding additional work to compensate for lower fees, cutting physician payments may still lead to increased spending. For example, a 50 percent decrease in the physician payment for a single operation, total hip replacement, may trigger nearly one billion dollars in additional annual Medicare spending, even if surgeons can find only half of the additional work they would need to neutralize the effect of the fee reduction. A sophisticated health care spending policy would recognize that cutting fees induces volume increases. It would recognize that such fee decreases without controls on the volume response will lead to increases in overall costs. Finally, it would recognize that the fiscal effect of the volume response varies between specialties and procedures, and thus flexible guidelines are in order. Key words: *cost control, health policy, Medicare, physician income*

Homeostasis—the maintenance of constant conditions within an internal environment—is a familiar concept in medicine. The kidney, for example, controls the flux of water and salts to ensure that body sodium levels stay within appropriate ranges. Homeostasis may also be a familiar concept in medical economics. Specifically, it has been proposed that physicians modulate their behavior to keep income levels constant.¹ Such modulations are termed “income targeting.” Since total income can be approximated by the following product, [price for unit work] x [volume of work done], income homeostasis can be achieved by altering the value of either of these factors, price or volume, in response to a change in the other.

The original description of income targeting centered on changes in price.² It was observed that when new physicians entered a given market—presumably yielding less work for each physician to do—the price of units of service went up. (This runs counter to

classical economic doctrine, which suggests that increased supply would pressure prices downward.) Today, physicians have less control on establishing the price of their work; instead they can effect homeostasis by altering the volume of their services.

Volume changes in physician output can be achieved through various means. These can be broadly divided into two categories: increasing access and increasing demand. The “increased access” method is predicated on the notion that there is some demand at the given price that is not yet satisfied for reasons

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beyond price. This demand is not met because the patients cannot avail themselves of medical care. The distance from physicians' offices or the inconvenience of the hours of operation may serve as a barrier to access. Accordingly, removing the barriers—opening satellite offices in underserved areas or offering evening hours—may be reliable means for physicians to increase the volume of their work, without changing their prices.

Physicians can also induce demand for their services. The simplest such mechanism would be through patient education: informing the community about medical problems and the treatments that are available. Demand induction could also be produced through less benign steps, such as instilling fear in the population, and encouraging perhaps unnecessary visits to the physician for diagnosis and treatment. Also, for many illnesses, the precise indications (that is, necessary conditions) for invoking treatment are ill defined. Physicians, therefore, can increase their workload by altering the threshold for treatment. That is, they can require the presence of fewer signs and symptoms prior to initiating therapy. Alternatively, they can use less rigorous criteria for choosing the more intensive, and expensive, approach. (In my field, orthopaedic surgery, most procedures are "elective", and electing when to do them is predominantly still under physician control, despite the requirement of fully informed consent.)

The volume response triggered by income homeostasis changes not only the quantity but the quality of the medical care delivered. When physicians are eager to do more, access to care may be improved. Health awareness may be promoted. The underserved may be attended to because of it. On the other

hand, pressure to increase volume may encourage the hypochondriac, uncouple scientific standards from the practice of medicine, and, in short, lead to unnecessary or poor care delivery. Regardless—seen as neither good nor bad but simply present—the phenomenon of income homeostasis has important economic implications. It must therefore be understood by policy makers, so it can be managed correctly.

The Effect on Physician Fee Spending

What happens to expenditures on physician fees when the professional fee reimbursement rates are decreased? At first glance, it should result in lower levels of spending. But according to the target income hypothesis, lower unit fees are neutralized by increases in volume. For example, Medicare pays approximately \$200 million annually for surgeons' fees for total hip replacement surgery. The current volume is about 100,000 operations, each priced at about \$2,000. If the fees were cut in half to \$1,000, physicians would attempt to perform 200,000 cases. Their main concern, independent of the price of each surgery, is to have a constant cash flow of \$200 million from the hip replacement business.

Although cutting the fee per surgery seems to be negated by volume responses, some maintain that such a maneuver is not necessarily a futile step in cost containment. After all, for the same price, more work is purchased, and the average price for the physician's labor is lower. As long as purchasers want, or at least accept, more surgery to be done, there are some savings in professional fee expenditures possible from fee reductions.

In addition to that, despite the intention to maintain income, the net amount spent on physicians' work may indeed go down. Income homeostasis is achieved only when the "targeting efficiency" is 100 percent; that is, when a commensurate increase in work volume will be found. Of course, there are some natural constraints preventing that. In the given example, there may not be 200,000 patients who desire a hip replacement. Alternatively, the demands of income homeostasis cede to medical imperatives: there may be 200,000 patients seeking surgery, but all may not meet the medical criteria for the operation. (In the body, too, homeostasis of one variable must, at times, yield to the more powerful pull of another. Rapid breathing when oxygen is needed, even though too much CO₂ is lost, is an obvious example.) And, finally, even if perfect homeostasis were possible in the long run, it is probable that it will lag in time behind the fee changes that stimulate it. That is, 200,000 appropriate patients for hip replacement may indeed be found, only not instantaneously.

The Effect on Total Spending

The decision to practice more medicine, order more tests, or do more surgery rests, ultimately, with the physician. Nevertheless, only a small fraction of the total expense of practice goes to him or her. Thus, allowing the physician to open the spigot until he or she is satisfied promotes outflow far in excess of what the physician necessarily intends. The larger determinants are the secondary costs—not paid to the physician. Therefore volume increases lead to spending increases even if physicians receive less. The amount saved by paying the physician less is

more than offset by the additional amounts spent elsewhere.

For example, even a quick visit to the family practitioner for a sore throat generates secondary expenses, beginning with the cost of the tongue depressor. More than that, medical services seem to beget additional services: some of those patients with sore throats may need a bacterial culture test. Others may require a chest X-ray. Accordingly, if physicians were to encourage more people to visit them for sore throats, each extra dollar they earn costs the health care system far more than that dollar. This is even more germane in procedure-based medicine, where there are often explicit secondary charges, such as hospital fees. Each dollar paid to the practitioner for a procedure, accordingly, must be multiplied by a variable factor to discover the overall fiscal impact of that procedure.

At a minimum, the multiplier effect of physician procedure fees can be approximated by examining the diagnosis-related group (DRG) payment to the hospital for the procedure. Under Medicare, that is the amount paid to the hospital for providing the ancillary services for the procedure. At my hospital, Medicare pays the surgeon \$2,002 for hip replacement surgery, but pays the hospital nearly 10 times that amount: \$18,199.³ And even that large amount does not cover the entire cost of the procedure; as many services are not included (see Table 1). A "package pricing plan" for total hip replacement, under which one fee covers all expenses of the procedure, typically budgets the surgeon's fee at six percent of the total costs. Thus inducing a surgeon to perform one additional hip replacement triggers not \$18,199 but perhaps more than \$30,000 ad-

Table 1. A list of charges for total hip replacement

| Costs included in DRG payment for total hip replacement | Costs not included in DRG payment, in addition to surgeon's fee* |
|--|---|
| <ul style="list-style-type: none"> • Hospital stay • Nursing • Operating room • Recovery room • Pharmaceuticals • Physical therapy • Hip prosthesis • Laboratory studies | <ul style="list-style-type: none"> • Medical consultations • Anesthesiologist • In-patient psychiatry (if needed) • Radiologist • Surgeon's assistant • Cost of medical complication (> 1% risk) • Cost of revising failed operation (> 10% lifetime risk) |

*Since these costs can exceed the included costs, the cost of a complicated total hip replacement procedure can be in excess of \$40,000.

ditional spending. (For the purposes of my analysis, I will use the DRG payment, because it is a fixed figure. The reader is urged to recall that it is a minimum value.)

Using the DRG value as a proxy for total costs, the effect of fee cuts, volume responses, and targeting efficiency can be seen in Figure 1. The baseline values are a professional fee of \$2,002, a hospital charge of \$18,199, and national volume of 100,000. The three lines drawn are for targeting efficiencies of 100 percent, 50 percent, and 10 percent. It may be instructive to note that even with a 50 percent cut in price and only 10 percent targeting efficiency (that is, 90 percent of the volume the surgeon hopes for is not found), costs for this procedure alone rise by nearly one hundred million dollars. At 50 percent targeting efficiency, the additional spending is on the order of one billion dollars. It is also interesting to note that, by definition, the maximal savings possible from cutting physicians' fees is that fraction of the total cost represented by the fee. Among the major procedures listed in Table 2, the physicians'

fee fraction is less than one-sixth of the total costs. If Congress were to pass a law mandating orthopaedic surgeons to perform all hip replacements free of charge, still at most only 10 percent of total spending from that procedure would be saved.

Comparison Between Specialties

The phenomenon of low physician fee fractions is not unique to orthopaedic surgery. The magnitude of this ratio, though, is variable both within and between specialty fields. A list of the DRG payments and physician's fee for a sampling of procedures is given in Table 2. These procedures were chosen because their utilization may be deemed to be under physician control. (Other procedures, such as appendectomies and fracture repairs, may be omitted from an analysis of income homeostasis, as their utilization rests entirely on the incidence of inflamed appendices and broken bones, respectively.)

Distinctions between fields are already a

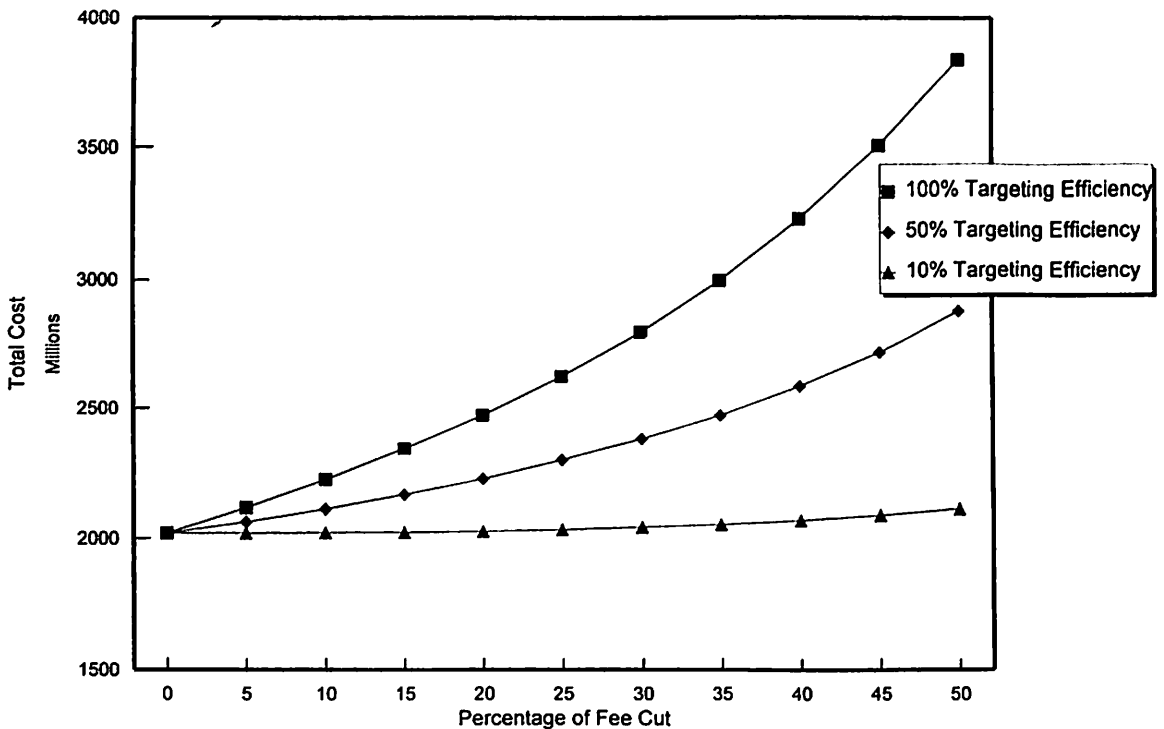


Figure 1. Total Medicare spending on hip replacements, assuming that physicians can find new patients to compensate for cuts in professional fees. The uppermost line represents total costs, assuming a full complement of patients can be found. This is 100 percent targeting efficiency (see text). The line below shows total costs if only half of the volume needed to return physician income to baseline levels is found. Finally, the lowest line shows the 10 percent targeting efficiency cost.

part of the discussion of physician payments. Medicare now pays on a resource-based relative value scale. This fee schedule is purportedly based on what it costs to give the care. Pundits may debate whether the urologist is a bargain at \$1,020 for a prostate resection, or whether the general surgeon deserves more than \$848 for a cholecystectomy. These and similar questions are beside the point. What the comparative data from the various specialties illustrate is that the effect of cutting fees varies from field to field. Such data can be used to tailor incentives appropriately. For

example, it may be twice as important to dissuade an orthopaedic surgeon from seeking that additional hip replacement candidate than to dissuade a urologist from an analogous search. Likewise, controls on the urologist may need to be stricter than those on the colonoscopist. A payment system that is strictly "resource based" or outcome based and ignores the cost effect of additional work is a system that is bound to wreck budget havoc. Without advocating that orthopaedic surgeons (or others whose procedures have a low physician fee fraction) should be

Table 2. Multiplier effect

| Procedure* | Physician's fee | Hospital fee | Physician fee fraction |
|--|-----------------|--------------|------------------------|
| Total hip replacement | \$2,002 | \$18,199 | 9.9% |
| Open hysterectomy | \$1,073 | \$9,429 | 10.2% |
| Laparoscopic cholecystectomy | \$848 | \$7,381 | 10.3% |
| Total knee replacement | \$2,117 | \$18,199 | 10.4% |
| Laminectomy for decompression of lumbar nerve root | \$1,251 | \$8,951 | 12.3% |
| Transurethral resection of prostate | \$1,020 | \$4,949 | 17.1% |
| Cystourethroscopy | \$142 | \$437 | 24.5% |
| Endoscopy of upper gastrointestinal tract | \$199 | \$325 | 38.0% |
| Arthroscopy, knee, diagnostic | \$398 | \$616 | 39.3% |
| Colonoscopy, diagnostic | \$283 | \$437 | 39.3% |
| Carpal tunnel release | \$410 | \$499 | 45.1% |

*For each procedure listed in the first column, the Medicare physician payment is listed in the second and hospital payment in the third column. The right-most column lists the fraction of the total Medicare payment (to hospital and physician) represented by the physician's fee. The smaller the number, the greater the ancillary spending associated with the procedure. For some procedures, the hospital payment does not represent the total collection of ancillary charges, and thus the fourth column should be viewed as a conservative estimate.

“bribed” with higher fees to do less, I note that a 50 percent cut in the payment for total hip replacement can lead to nearly two billion dollars more Medicare spending to hospitals alone, if the target volume is attained. To ignore that is foolish.

Programs To Cut Costs

The historical record reveals a paucity of plans successful in lowering costs. At best, the effective ones temper the rates of increase. This, according to Kissick, is a consequence of an “iron triangle” relating the total cost of care, the total volume of care delivered, and the quality of that care.⁴ In his view, costs are reduced only when volume or quality is cut. This is not unreasonable.

Demagoguery aside, it is not universally acknowledged that cutting health care spending is a desirable goal. High levels of spending may indeed be appropriate for a wealthy country that has already satisfied the more basic needs. Even among those who agree that costs should be constrained, there is no agreement on whether this should be at the expense of volume or quality. (Perhaps less quality for the few with total access is preferable to a system where many go without any care at all.) This debate is clearly beyond the scope of this article. Nonetheless, if one believes that salvation lies in limiting consumption, incentives for physicians that stimulate output must be abolished. As seen, even a disproportionately weak volume-increasing response in the face of lower fees tends to increase overall costs.

Fee capitation plans are one system for removing incentives to do too much. Of course, as Unland noted, they may be incentives to do too little; capitation plans, accordingly, are no panacea.⁵ Still, they contain an essential truth: costs will not go down unless

physicians join the cause of doing less. And, if one believes that the forces of income homeostasis are real and powerful, bringing physicians aboard the bandwagon of cost control will require higher, not lower, pay for their efforts.

NOTES

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