

# Paying Surgeons Less Has Cost More

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## abstract

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The Balanced Budget Act of 1997 mandated reductions in physician reimbursement. This reduction in payments could be envisioned to limit expenditures on 2 counts: first, individual fees would be lower, producing inherent savings. Furthermore, reducing fees should depress the incentive to work, thereby generating additional savings from reduced output. A rival point of view holds that lower fees might paradoxically lead to greater spending because surgeons compensate for per-case reductions by performing more cases. If this income-targeting hypothesis is correct, lower per-case fees leads to increased volume. Increased work output has particularly sizable economic effects in fields like orthopedic surgery because the total cost of orthopedic interventions is usually many times larger than the physician's fee (largely owing to the cost of implants). As such, increases in work volume more than negate the potential savings from lower surgeon's fees.

This phenomenon was studied in the context of total knee arthroplasty. In the decade spanning 1996 to 2005, inflation-adjusted physician reimbursement decreased by approximately 5% per year, leading to a cumulative drop in reimbursement from \$2847 to \$1685. Nonetheless, because the number of procedures performed increased from 253,841 to 498,169 and because payments to hospitals far exceeded payments to surgeons, total expenditures for total knee arthroplasty increased dramatically: more than \$7.1 billion additional was spent on hospital payments. Continuing to pay surgeons less is apt to continue to cost more. Counter to intuition, the best strategy for controlling overall spending might be higher, not lower, surgical fees.

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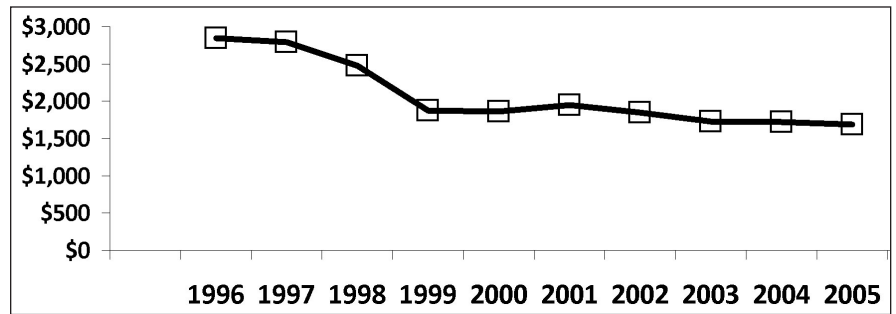
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In response to concerns about the increasing federal deficit, Congress passed the Balanced Budget Act in August 1997.<sup>1</sup> One of the major provisions of this law was a reduction in payments to physicians under the Medicare program,<sup>2</sup> a standard emulated by many commercial third-party payers.

A reduction in physician payments could hypothetically limit expenditures on 2 counts: (1) individual fees would be lower, producing an inherent savings, and (2) reducing fees should reduce the incentive to work, thereby producing savings from reduced output as well. This prediction follows the law of supply,<sup>3</sup> which states that the quantity of a service offered by suppliers will decrease as the price of that service decreases, and vice versa. An alternative view suggested by Bernstein and Holt<sup>4</sup> and McGuire and Pauly<sup>5</sup> is that the lower fees mandated by the Balanced Budget Act would not balance budgets. The idea, stated simply in *The New York Times*, is that: lower fees do not save money because, in the face of lower per-case payments, “doctors [would make] up for the reductions by performing more tests and procedures.”<sup>6</sup> In apparent violation of the law of supply, lower wages could be associated with increased work output.

Increased work output has a significant effect in fields such as orthopedic surgery<sup>7</sup> because the total cost of orthopedic interventions, owing to the cost of implants in particular, can be many times larger than the physician’s fee. Even if per-case fees are reduced, increases in output in response to lower fees<sup>8</sup> can more than negate potential savings.

The purpose of this study was to investigate the effects of price and production changes following the passage of the Balanced Budget Act, with specific emphasis placed on total knee arthroplasty (TKA), which was chosen for 3 reasons: ample data regarding the national volume of output are available, indications for TKA are partially under physician discre-



**Figure:** Graph showing the surgeon's fee trend for total knee arthroplasty expressed in 2010 dollars between 1996 and 2005. A cumulative decrease of approximately 40% occurred.

tion, and the price and incidence of TKA are high.

The authors studied the number of TKAs between the years of 1996 and 2005. The early years established a baseline prior to the enactment of the Balanced Budget Act, and the middle and latter years defined the trend line for changes in volume, physician fees, and overall spending.

## MATERIALS AND METHODS

The number of TKAs performed annually in the US between 1996 and 2005 was acquired from the Healthcare Cost and Utilization Project's Nationwide Inpatient Sample,<sup>9</sup> a national database designed to assemble an annual representative sampling of hospital discharge records. Next, the number of patients in the Medicare population older than 65 years for each year in the decade was obtained from data on national trends in Medicare enrollment published by the Centers for Medicare and Medicaid Services.<sup>10</sup> Because arthritis is an age-related degenerative disease, the changes in the size of the Medicare population older than 65 years were taken as a proxy for changes in the prevalence of arthritis. These data were used to study the possibility that increases in the number of TKAs performed reflected increasing numbers of eligible candidates.

The fees for TKA were calculated from the relative value units and conversion factors published annually in the Federal Register.<sup>11</sup> This fee was a national average that corresponded with the number

of relative value units assigned to TKA multiplied by the conversion factor (a national average reimbursement per work unit). All dollar figures were converted to 2010 dollars using the inflation calculator provided by the Federal Reserve Bank of Minneapolis.<sup>12</sup>

Last, to study the effect of changes in TKA volume on total expenditures for this procedure, a minimum cost estimate for the entire procedure beyond surgeons' fees was derived by considering the base Medicare reimbursement to hospitals for TKAs. This value was computed by multiplying the diagnosis-related group relative weight by the federal payment rate. This was reasonably deemed a minimum cost estimate because the base Medicare reimbursement did not include all of the spending associated with the TKA.

## RESULTS

During the 10-year period examined, the number of TKAs increased from 253,841 in 1996 to 498,169 in 2005. In 1996, 33,423,945 Medicare beneficiaries existed. In 2005, 35,817,558 existed. The number of TKAs per thousand Medicare beneficiaries increased from 7.6 to 13.9 per year.

Overall, 3,293,977 TKAs were performed during the decade in question. Had the rate of surgery per Medicare beneficiary remained constant over that 10-year period, the total output would have been 2,615,662, meaning that a surplus of 678,315 procedures were performed.

The reimbursement for TKA, expressed in 2010 dollars, decreased from \$2847 in

1996 to \$1685 in 2005. This cumulative reduction of 41% represents a decrease of approximately 5.1% compounded annually (Figure). In 1996, total spending on physician fees was approximately \$723 million. Because of fee reductions, the average amount spent in each of the decade's remaining 9 years was \$654 million, for a total of \$6.608 billion between 1996 and 2005. Had the fees remained constant, the total physician fee spending for the volume performed would have been \$9.378 billion; had the fees and the incidence of surgery per Medicare beneficiary remained constant, total payments to surgeons would have been \$7.448 billion. By either measure, surgeons were paid less.

The base payment to hospitals decreased from \$12,208 in 1996 to \$10,417 in 2005. Regardless, the estimated overall spending on hospital payments increased from \$3.1 billion in 1996 to \$5.2 billion in 2005 because of increasing volume. The total spending on hospital fees for the decade was \$36 billion. Had the incidence of surgery per Medicare beneficiary remained constant, \$28.9 billion would have been spent. The cumulative hospital costs due to surplus procedures over that decade are estimated at \$7.1 billion or more.

## DISCUSSION

The Balanced Budget Act of 1997 was passed in an effort to balance the budget. However, the current analysis demonstrates that spending on TKA increased markedly following passage of this law. The first conclusion is that, with respect to TKA, the Balanced Budget Act of 1997 did not help balance the budget.

The second conclusion is that lower fees did not reduce surgeons' output. This finding resonates with the report by Jacobson et al,<sup>13</sup> who reported that, contrary to the law of supply, marginal reductions in the payments for chemotherapy were associated with increased use and spending despite the lower fees.


The current study further illustrates the particularly powerful effect that changes

in volume may have on fields with high ancillary costs. Because of these nonphysician costs, increases in hospital expenditures of \$7.1 billion or more were observed despite lower surgeon fees.

The current study makes no claim about the correct number of TKAs. The use of the word surplus connotes the number above and beyond the baseline. It may be the case that many more TKAs should have been performed in 1996<sup>14</sup>; the higher surgery rates observed in recent years could represent the satisfaction of this previously unmet demand. The increased spending observed does not necessarily represent wasteful spending.

The current study methods had some limitations. First, it must be considered that the prevalence of arthritis has increased or that the indications for surgery have been lowered. In this scenario, the surgery rates changed independent of, or counter to, the incentives set by the fee schedule. Likewise, the number of Medicare beneficiaries aged 65 years and older may offer a weak approximation of the arthritis prevalence. Furthermore, although "private insurers actually use Medicare's cost-based relative value scale as the basis for negotiating fees with physicians in their networks,"<sup>15</sup> basing the analysis on Medicare fees may be too imprecise.

## CONCLUSION

The Balanced Budget Act of 1997 did not help balance the budget with regard to TKA. Lower fees were associated with increased volume. If decreased spending on TKA is a worthwhile goal, a new strategy is needed. Medicare could limit the number of surgeries permitted each year or drastically reduce fees so that surgeons would adopt such limits on their own. However, because neither of those options is politically viable, a counterintuitive increase in surgical reimbursements might be the best option. 

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