



## Medicare Payments May Inappropriately Favor Hemiarthroplasty Over Total Hip Arthroplasty for Geriatric Hip Fracture Treatment

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### Introduction

Displaced fractures of the femoral neck in geriatric patients are typically not treated with open reduction and internal fixation (ORIF) procedures. That is sensible. For one thing, patients who had ORIF surgery might have to delay their full rehabilitation while waiting for their fractures to unite. Also, because the blood supply to the femoral head ascends the femoral neck and could be disrupted by the fracture, there is a risk for osteonecrosis of the head even if the fracture were to heal uneventfully. Taken together, there is a consensus in the orthopaedic surgery community that displaced femoral neck fractures in geriatric patients should be treated with joint replacement. With joint replacement, physical therapy can begin expeditiously and the risks of osteonecrosis are avoided.

There are two types of joint replacements that can be used for displaced geriatric femoral neck fractures: hemiarthroplasty and total hip arthroplasty. In hemiarthroplasty, a femoral stem and a prosthetic head are inserted. In a total hip arthroplasty, an acetabular cup is inserted as well. In brief, total hip arthroplasty is said to give better long term results but at the price of greater surgical complexity and an increased risk for short term complications such as dislocation.<sup>1-3</sup>

There is reason to believe that there is a shortage of total hip arthroplasty relative to the true appropriate demand.<sup>4</sup> Hochfelder et al.<sup>5</sup> reported on the treatment of femoral neck fractures in New York and noted that among 33,226 elderly patients treated with arthroplasty, 30,763 (93%) received hemiarthroplasty (HA). By contrast, when Bhandari's group<sup>6</sup> surveyed patients at risk for hip fracture, they found that 93% of patients preferred total hip arthroplasty.

This putative shortage of total hip arthroplasty procedures may be due to improper financial incentives built into the Medicare fee schedules. If reimbursement for total hip arthroplasty is the same as that for hemiarthroplasty, despite increased costs

associated with total hip arthroplasty, the proper equilibrium at which supply matches demand cannot be achieved. Along those lines, if there is a shortage caused by inadequate reimbursement, the obvious solution would be to pay more for the appropriate procedure.

In this study, we review some common reasons to suggest why total hip arthroplasty should be compensated at a higher level than it currently is. We further detail several potential payment reforms that might help rectify this imbalance. We conclude with a discussion of why reform may not succeed—and indeed may not be necessary.

### Background

Ordinarily, for patients with medical insurance (and most geriatric hip fracture patients are Medical-eligible) there are two separate payments for surgical treatment of hip fracture. There is a payment to the physician based on the CPT code, and there is a payment to the hospital based on the diagnosis code.

Although there are three distinct operations for hip fracture, there is a single CPT code that covers all of them: CPT code 27236. This code is defined as “open treatment of femoral fracture, proximal end, neck, internal fixation or prosthetic replacement.” Although separate CPT codes exist for hemiarthroplasty and total hip arthroplasty, 27125 and 27130, respectively, these codes are reserved—according to the letter of law<sup>7</sup> at least—for degenerative, non-trauma indications.<sup>8</sup>

Because payments to the orthopaedic surgeon are based on the CPT code, the existence of a single code for all three operations ensures that payment for both total hip arthroplasty and hemiarthroplasty will be the same. And needless to say, if there is a single, similar payment for the two operations, despite one them incurring greater costs, this structure creates perverse incentives for potentially choosing the cheaper one (hemiarthroplasty) in settings where the more expensive one (total hip arthroplasty) is better.

Total hip arthroplasty incurs greater costs. First, total hip arthroplasty takes more time, if nothing else because the additional task of cup insertion<sup>9</sup> is required. In addition, there are potential complications associated with this additional step, notably fracturing the acetabulum while inserting the cup. (Most surgeons are familiar with inserting a cup into arthritic, sclerotic bone; patients with fracture, by contrast, are typically osteoporotic.) This can add operative time and perhaps increase the length of stay.

Beyond that, there is the issue of postoperative complications—and who may be blamed for them. When a hemiarthroplasty fails, it typically fails years after the index operation, either by loosening of the implant or protrusion into the pelvis (protrusio acetabuli). In general, late complications will be blamed on nature taking its course. On the other hand, the most common unique complication of a total hip arthroplasty, dislocation, may occur within days to weeks after surgery. Dislocation is more likely to be deemed a “surgical complication.” Reports of surgical complications may adversely affect surgeons’ quality metrics or invite malpractice litigation.

In short, paying a surgeon the same fee for a hemiarthroplasty and a total hip arthroplasty assuredly underpays for total hip arthroplasty relative to hemiarthroplasty. This may lead to suboptimal treatment selection. Although we may wish to believe that orthopaedic surgeons are motivated by altruism alone and are thereby exempt from financial temptations, systems should not be built on this assumption. To the point, DeMik et al demonstrated how Medicare’s transition to a bundled payment model for elective total joint replacement was built to improve care by altering financial incentives.<sup>10</sup> This program would make no sense if physicians were not swayed by incentives.

A second, separate payment made is to hospitals. Although it may be assumed that changing the incentives for hospitals will not affect the selection of treatments (as it is the surgeon, not the bureaucrat, who makes this decision), such an assumption ignores potential institutional influences on clinical decision making. Experience teaches that when physicians’ behaviors markedly affect hospitals’ margins, hospitals take action to modify physician behaviors. This may be done through individual “counseling” or by instituting pathways and treatment algorithms that nudge the physician in the desired direction. It is therefore reasonable to consider hospital incentives as well.

Similar to orthopedic surgeons, institutions are relatively underpaid for total hip arthroplasty, given that total hip arthroplasty is associated with greater institutional expenses (despite similar payments) relative to hemiarthroplasty. As noted, the operation is longer, and every additional minute in the operating room incurs both direct costs (i.e. staffing and material expenditures, etc.) and opportunity costs (in that the occupied OR cannot be used for another patient). The hospital must also purchase the acetabular implant (which may also be coupled to a more expensive

stem) without additional reimbursement. For these reasons alone, at the margin, a hospital administrator would prefer that all patients receive a hemiarthroplasty.

The issue of hospital payments is made more complicated by the advent of so-called bundled payments. Traditionally, hospitals were reimbursed by Medicare using a Diagnosis Related Group (DRG), a single code for the diagnosis that yields a fixed reimbursement amount for the hospitalization. More recently though, Medicare introduced the Comprehensive Care for Joint (CJR) Model, which includes all associated expenses for the 90-day period following the completion of an outpatient procedure or discharge from an inpatient procedure. In this bundled payment model, each hospital is given a target price for each episode, and the actual spending at the end of each year is compared to this target price to determine a net bonus or penalty. The target price is also accordingly adjusted for the following year based on the previous year’s performance and other factor.<sup>11</sup> Given the increased risk of complications for total hip arthroplasty over hemiarthroplasty, the CJR model further disincentives its use by creating an additional penalty for institutions with increased 90-day procedure-associated costs. Medicare also introduced the Bundled Payments for Care Improvement (BPCI) initiative, a voluntary bundle program. Since BPCIs are designed to favor the bundle owner, which can be a physician group instead of the actual hospital, BPCI fiscal pressure may be even more significant in influencing surgical decisions, overtly or subconsciously. With the greater emphasis on value-based healthcare through the use of bundled payments, more institutions will be increasingly affected by this double-penalty for using total hip arthroplasty.

### Countervailing Arguments

It is of course possible that the perceived shortage of total hip arthroplasty for femoral neck fracture is illusory. To start, the subjects in the survey study asking about preferences may be confounded by a psychological bias: namely, subjects did not put sufficient weight on the possibility that they themselves would die too soon to reap any benefits from the bigger operation. In general, it is psychologically adaptive to not think about one’s own mortality too much. In this instance, however, a life expectancy overconfidence bias may encourage patients to select the wrong treatment. Many geriatric hip fracture patients may die within one year,<sup>12</sup> and thereby not stand to benefit from total hip arthroplasty. All individuals in the survey study cited above may think that they are exempt from this fate, but not everyone can be above average. Thus, integrated across the entire population, overconfidence regarding one’s life expectancy will produce an inappropriate preference for total hip arthroplasty.

Another factor to consider is that the differences between hemiarthroplasty and total hip arthroplasty are not properly understood. The most comprehensive information

to date comes from systematic reviews and meta-analyses, but a large randomized controlled trial<sup>13</sup> has suggested that at the two-year point, at least, the operations are not significantly different in outcome. One can criticize that study for conflating all additional surgical procedures into one category—the revision of a hemiarthroplasty counts as much as a closed reduction of a total hip arthroplasty—yet that study is ongoing, with additional endpoints under examination. In the near future, accordingly, we may have a revised understanding of the costs and benefits of the two procedures. With that, any putative shortage may disappear.

Still more, it is dubious to assume that if we were to perform more total hip replacements, the complication rates will remain as reported thus far. After all, the patients currently receiving total hip arthroplasty presumably represent the most ideal patients. Any additional (marginal) patient would be less ideal, even if only slightly. With that, surgical complication rates may be higher. This change might offset any improvement in long term outcomes.

In addition, a program that favors total hip arthroplasty might have an unintended consequence of causing treatment delays. Specifically, some surgeons may not feel comfortable inserting an acetabular cup in osteoporotic bone. They will therefore refer the patient who needs one to a colleague, but this second surgeon might not be available right away. The resulting treatment delay may increase mortality risk.<sup>14</sup>

Finally, there is the possibility that any “correction” of the hemiarthroplasty/total hip arthroplasty ratio will overshoot the optimal point. Given the high one-year mortality rate for femoral neck fracture in geriatric patients, total hip arthroplasty is certainly not the right answer for many patients. Yet one could imagine that if total hip arthroplasty fees were significantly higher than those for hemiarthroplasty too many of these procedures may be performed. That is, inversed incentives can create an inverse problem.

## Proposed Solutions

The American humorist, H.L. Mencken, famously said, “For every complex problem, there’s a solution that is simple, neat, and wrong.” His analysis is a simple, neat, and correct. It would be naïve to assume that complex problems have easy answers. Nevertheless, with appropriate humility, we propose the following simple and neat reforms:

- There should be a new CPT code for the performance of a total hip arthroplasty for displaced geriatric femoral neck fracture. This operation is sufficiently different from hemiarthroplasty and internal fixation procedures that it deserves its own code. (Indeed, hemiarthroplasty should have a code distinct from internal fixation procedures too, if for no other reason than to facilitate research studies.)
- Along those lines, the payment for total hip arthroplasty for femoral neck fracture should be much higher than

what is paid for hemiarthroplasty. This fee should be commensurate with the required skills and efforts and compensate the surgeon for the additional risks and responsibilities this operation brings with it.

- Additionally, there should be an amply rewarded CPT code for preoperative counseling and shared decision-making. This is similar to what is currently required by Medicare for the implantation of an implantable cardioverter-defibrillator.<sup>15</sup> Pre-operative counseling is normally bundled with the surgical fee and not compensated distinctly. That is a mistake in this instance. For geriatric hip fracture, such a session is often more time-consuming than the surgery itself. In some cases, a well-executed shared decision-making session might even provide more benefit than the surgery itself. Greater incentives are needed to ensure that counseling gets the time and attention it deserves.
- There should be an amply rewarded CPT code for CPT code for “nonoperative management, geriatric hip fracture.” Currently, nearly all geriatric patients in the United States with a hip fracture are treated surgically. The high 30-day mortality rate suggests that perhaps some patients might be better off receiving nonoperative care.<sup>16</sup> Financial incentives should reflect that.

## Conclusion

Femoral neck fracture has long been known as the “unsolved fracture.”<sup>17</sup> More than 70 years ago, a “solution” was thought to be found,<sup>18</sup> but that prediction was at least a tad premature. It is certainly possible that the high mortality rates seen after this injury do not represent any inadequacies in our treatments, but rather reflect the underlying frailty, senescence, and decay that leads to both the fracture itself (through higher risks of falls, and decreased ability to prevent fracture given the fall) and the post-op mortality seen after treatment (poor physiological reserves). That said, it is possible that we can improve our care.<sup>19</sup> In the realm of treatment selection, we must ensure that we have the right operation, for the right patient, at the right time, performed by the right surgeon. Minor adjustments to the financial incentive structures may help us get there.

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