Procedures Take Less Time At Ambulatory Surgery Centers, Keeping Costs Down And Ability To Meet Demand Up

ABSTRACT During the past thirty years outpatient surgery has become an increasingly important part of medical care in the United States. The number of outpatient procedures has risen dramatically since 1981, and the majority of surgeries performed in the United States now take place in outpatient settings. Using data on procedure length, we show that ambulatory surgery centers (ASCs) provide a lower-cost alternative to hospitals as venues for outpatient surgeries. On average, procedures performed in ASCs take 31.8 fewer minutes than those performed in hospitals—a 25 percent difference relative to the mean procedure time. Given the rapid growth in the number of surgeries performed in ASCs in recent years, our findings suggest that ASCs provide an efficient way to meet future growth in demand for outpatient surgeries and can help fulfill the Affordable Care Act’s goals of reducing costs while improving the quality of health care delivery.

Technological developments in medicine have dramatically changed the provision of surgical care in the United States during the past thirty years. Advances in anesthesia and the development of laparoscopic surgery in the 1980s and 1990s made it possible for patients to be discharged the same day as their surgery, whereas previously they would have had to spend several days in the hospital recovering. The introduction of the Medicare inpatient prospective payment system in 1983 created additional incentives for hospitals to shift patient care from inpatient to outpatient departments.

Between 1981 and 2005 the number of outpatient surgeries nationwide—performed either in hospital outpatient departments or in free-standing ambulatory surgery centers (ASCs)—grew almost tenfold, from 3.7 million to over 32.0 million. Outpatient procedures represented over 60 percent of all surgeries in the United States in 2011, up from 19 percent in 1981.

The expansion of health insurance coverage under the Affordable Care Act (ACA) presents opportunities to explore new ways to accommodate the increased demand for outpatient services. In addition, the ACA’s goals of reducing the cost and improving the quality of health care delivery makes it increasingly important to find alternatives to existing methods of care delivery that cost less and are in more flexible settings.

ASCs are such an alternative to hospital outpatient departments. The number of ASCs has grown quickly to meet the rising demand for outpatient surgery services since the 1980s. Whereas outpatient departments provide a range of complex services, including inpatient and emergency services, ASCs provide outpatient surgery exclusively. Since most ASCs focus on a limited number of services, they may provide higher-quality care at a lower cost than hospitals that offer a broad range of services. Similar to retail clinics that meet primary care needs, ASCs offer convenient, relatively low-cost access to health care services.

This article addresses the possibilities for ASCs...
to generate substantial cost savings in outpatient surgery by presenting new evidence on the cost advantages of these centers relative to hospital outpatient departments. This is particularly important in light of the anticipated growth in demand for outpatient surgeries, in part as a result of the ACA.

Background On Ambulatory Surgery Centers
The number of outpatient surgeries has grown considerably in the United States since the early 1980s. Outpatient surgery volume across both hospital-based and freestanding facilities grew by 64 percent between 1996 and 2006, according to the National Survey of Ambulatory Surgery. Physicians receive the same payment for an outpatient procedure, regardless of whether it occurred in an ASC or a hospital. However, payments to facilities differ between settings. In general, reimbursements for outpatient procedures in hospitals are higher than those for procedures in ASCs, to account for the fact that compared to ASCs, hospitals must meet additional regulatory requirements and treat patients whose medical conditions are more complex. However, there is little evidence about the extent of cost advantages of ASCs, since these facilities have not historically reported cost or volume data. In spite of the limited availability of information about ASC costs, the Centers for Medicare and Medicaid Services has adjusted the relative facility payments over time to reflect speculative cost differentials across the two types of outpatient surgery facilities.

Changes in reimbursement levels for outpatient procedures have likely contributed to fluctuations in the number of ASCs in recent years. In 2000 Medicare’s traditional cost-based reimbursement system for outpatient care in hospitals was replaced with the outpatient prospective payment system, which reimburses hospitals on a predetermined basis for what the service provided is expected to cost.

Noting the dramatic growth in outpatient surgeries performed in ASCs relative to hospitals around the same time, the Centers for Medicare and Medicaid Services subsequently made efforts to reduce ASCs’ payments. The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 froze ASCs’ payment updates, and between 2008 and 2012 Medicare phased in a new system for ASCs’ payments based on the outpatient prospective payment system. The rates were set so that for any outpatient procedure, payments to ASCs would be no more than 59 percent of payments made to hospitals, phased in fully by 2012. This policy change reduced incentives to treat patients in ASCs, which may have contributed to slower growth in this sector in recent years (Exhibit 1).

In spite of reduced incentives for treating patients outside of hospitals, growth in outpatient volume was greater in ASCs than in hospitals during the period 2007–11. For example, volume among Medicare beneficiaries grew by 23.7 percent in ASCs, compared to 4.3 percent in hospital outpatient departments (Exhibit 2). This suggests that physicians and patients still increasingly prefer outpatient surgery in ASCs to that in hospitals, because of either perceived advantages in cost and quality or resource constraints that inhibit hospitals’ ability to meet the growing demand for outpatient surgeries.

ASCs have been praised for their potential to provide less expensive, faster services for low-risk procedures and more convenient locations for patients and physicians, compared to outpatient departments. However, if hospitals are better equipped to treat high-risk patients, treating higher-risk patients in ASCs could have negative consequences for patient outcomes. There is little evidence about the quality of care provided in ASCs or their ability to function as substitutes for hospitals in providing outpatient surgery. Comparisons of outcomes between these two types of outpatient facilities are complicated by the fact that ASCs tend to treat a healthier mix of patients than hospitals do. Thus, any differences in observed outcomes between the two settings could reflect differences in underlying patient health instead of differences in quality of care.

Elsewhere, we used variations in ASC use generated by changes in Medicare reimbursements to outpatient facilities to show that patients treated in ASCs fare better than those treated in hospitals. In particular, we considered the likelihood that patients undergoing one of the five highest-volume outpatient procedures visited an emergency department or were admitted to the hospital after surgery. These outcomes have been used in the medical literature as proxies for quality in outpatient surgical care. These measures are also interesting from a policy perspective: As of October 2012, as part of the Ambulatory Surgical Center Quality Reporting Program, ASCs are required to report transfers of patients directly from the ASC to a hospital and hospital admissions of ASC patients upon discharge from the facility.

Our findings indicate that the highest-risk Medicare patients were less likely than other high-risk Medicare patients to visit an emergency department or be admitted to a hospital following an outpatient surgery when they were treated in an ASC, even among similar patients...
undergoing the same procedure who were treated by the same physician in an ASC and a hospital. These results indicate that ASCs provide high-quality care, even for the most vulnerable patients.

In this article we examine the question of whether or not ASCs are less costly than hospital outpatient departments. The answer to this question is not straightforward, since little is known about surgery cost and volume in ASCs. The often-cited cost differential between ASCs and outpatient departments is frequently attributed to differences in reimbursement rates for the two types of facilities, which reflect hospitals’ greater complexity of patients and procedures. But for an average patient undergoing a high-volume procedure, are ASCs more efficient than hospital outpatient departments?

Study Data And Methods
Our analysis incorporated one important aspect of cost in the outpatient surgery setting: the time it takes to perform procedures in ASCs and hospital outpatient departments. For data on that time, we used the National Survey of Ambulatory Surgery. This survey of outpatient surgery in hospitals and freestanding surgery centers in the United States was conducted by the Centers for Disease Control and Prevention from 1994 to 1996 and in 2006.

The 2006 data include patients’ diagnoses, demographic characteristics, and surgical procedures, as well as information about length of surgery and recovery for 52,000 visits at 437 facilities. There are four length-of-surgery measures: time in the operating room; time in surgery (a subset of time in the operating room); time in postoperative care; and total procedure time (time in the operating room, time in postoperative care, and transport time between the operating room and the recovery room).

Previous research has documented differences in surgery time between ASCs and hospital outpatient departments. However, observed differences in procedure time may reflect underlying differences in patients’ characteristics, instead of differences in efficiency between the two types of facilities. To address this concern, we estimated the relationship between outpatient setting and procedure time, controlling for a patient’s primary procedure, number of procedures, and characteristics such as underlying health and demographics.

Study Results
It is the nature of outpatient procedures that the patient spends most of his or her time in a surgical facility preparing for and recovering from surgery, not actually undergoing the surgery (Exhibit 3). This suggests that organization, staffing, and specialization may play a large role in the cost differences between ASCs and hospital outpatient departments.

Our estimates of the time savings for ASC treatment suggest that ASCs are substantially faster than hospitals at performing outpatient procedures, after procedure type and observed patient characteristics are controlled for (Exhibit 4). On average, patients who were treated in ASCs spent 31.8 fewer minutes undergoing procedures than patients who were treated in hospitals—a difference of 25 percent relative to the mean procedure time of 125 minutes (Exhibit 3). Thus, for an ASC and a hospital outpatient department that have the same number of staff and of operating and recovery rooms, the ASC can perform more procedures per day than the hospital can.

We estimated the cost savings for an outpatient procedure performed in an ASC using the results presented above and estimates of the cost of operating room time. Estimated charges for this time are $29–$80 per minute, not including fees for the surgeon and anesthesia provider. Our
calculation suggests that even excluding physician payments and time savings outside of the operating room, ASCs could generate savings of $363–$1,000 per outpatient case. These results support the claim that ASCs provide outpatient surgery at lower costs than hospitals. However, they provide little information about what is driving these cost differences.

Terrence Trentman and coauthors discuss several factors that affect patient flow and could result in differences in preoperative and recovery times for outpatient procedures between in ASCs and hospitals.20 For example, compared to the situation in hospitals, in ASCs surgeons are more likely to be assigned to a single operating room for all cases, which reduces delays; the operating room is often closer to the preoperative and recovery rooms, because facilities are smaller; teams of staff have clearer and more consistent roles, with less personnel turnover; and staffing is not done by shifts—that is, staff members go home only after all cases are finished, which creates incentives to work quickly. In addition, hospitals may be more likely to have emergency add-on and bring-back cases for more complex cases that compete with outpatient procedures for operating room time.

These differences suggest that hospitals would have to adopt a substantially different and highly specialized organizational model to achieve the same efficiencies as ASCs.

Discussion

The findings presented here provide evidence that ASCs are a lower-cost alternative to hospitals for outpatient surgical procedures. The tremendous growth in the number of ASCs since the 1980s suggests that these facilities are quite flexible in meeting the growing demand for outpatient services. This is not surprising, given that ASCs have a smaller footprint than hospitals, which makes them less costly to build—particularly in urban environments, where available land may be scarce or difficult to acquire.

The Congressional Budget Office projects that as a result of the ACA, an additional twenty-five million people will have health insurance by 2016.23 The question of whether the current supply of health care providers will be able to accommodate the anticipated surge in demand for services resulting from the ACA has received a considerable amount of attention.24

To get a sense of the magnitude of the anticipated growth in the outpatient surgery market following the ACA, we used a microsimulation model to project hospital outpatient surgical volume through 2021 (for details about the model, see the online Appendix).25 Our estimates indicated that outpatient surgical volume in hospitals alone will increase by 8–16 percent annually between 2014 and 2021, compared to annual

![Exhibit 3: Average Outpatient Surgical Procedure Time, By Facility Type, 2006](image)

**Source:** Authors’ analysis of data from the 2006 National Survey of Ambulatory Surgery. **Notes:** Estimates were weighted using sample weights. ASC is ambulatory surgery center. HOPD is hospital outpatient department. “Both” is both types of facilities. OR is operating room. “Total” is total procedure time, from entering the operating room to leaving postoperative care, as described in the text.

![Exhibit 4: Estimated Time Savings for Ambulatory Surgery Centers (ASCs) Relative to Hospital Outpatient Departments](image)

**Source:** Authors’ analysis of data from the 2006 National Survey of Ambulatory Surgery. **Notes:** Estimates and standard error bars represent results from separate ordinary least squares regressions of nonsurgical time in the operating room, surgery time, postoperative recovery time, and total time on an indicator for treatment in an ASC. (Total time is total procedure time, from entering the operating room to leaving postoperative care, as described in the text.) All regressions controlled for primary procedure, total number of procedures, patient’s risk score, age, sex, disability status, type of insurance, and an indicator for whether the facility was located in a Metropolitan Statistical Area. The full specifications for these regressions are available in the online Appendix (see Note 25 in text). Data were balanced across surgery and postoperative time components; the final sample included 34,467 observations. Estimates were weighted using sample weights. Standard errors were clustered at the facility level. All estimates are significant (p < 0.01). OR is operating room.
growth rates of 1–3 percent in the previous ten years.

We did not have adequate data on surgical volume in ASCs to produce an equally precise estimate for the projected demand in this sector attributable to the ACA. However, our results indicate substantial growth even in hospital outpatient surgical volume, which has been growing at a much slower rate than ASC surgical volume. The trends in the growth in the number of ASCs before the passage of the ACA and our model for projected growth in the number of hospital outpatient department procedures suggest that it will be increasingly important to identify ways to accommodate growing demand for outpatient surgery. This is particularly important since hospitals will also likely face increased demand for other types of outpatient visits besides surgery after the ACA is implemented.

The rapid growth in the number of procedures performed at ASCs in recent years is a good indication of the ability of the market to expand quickly when there are sufficient incentives for it to do so. The range of surgeries performed in ASCs has increased considerably since the 1980s. In 1981 Medicare covered 200 procedures that were provided in ASCs. Today about 3,600 different surgical procedures are covered under Medicare’s ASC payment system. Consequently, the volume of procedures performed in ASCs has increased dramatically, and the share of all outpatient surgeries performed in freestanding ASCs increased from 4 percent in 1981 to 38 percent in 2005. The Ambulatory Surgery Center Association has estimated that roughly 5,300 ASCs provide more than twenty-five million procedures annually in the United States. Physicians who have an ownership stake in an ASC obtain greater profits from performing procedures in these facilities rather than in hospitals. Since physicians receive the same payment for their services regardless of whether procedures are performed in an ASC or a hospital, one implication of ASCs’ lowering the cost of outpatient surgery without the price being adjusted accordingly—therefore leading to higher profit per procedure—is that it could create greater incentives for providers to recommend unnecessary procedures in physician-owned ASCs, a concept known as demand inducement. Another consequence of demand inducement is that physicians may respond to the increased number of patients with health insurance—as a result of the ACA—by performing surgeries that are not clinically indicated. Future research should examine the implications of reductions in the cost of outpatient surgery for demand inducement.

Conclusion

The ASC market faces challenges to meeting increased demand for outpatient surgery. As noted above, recent reimbursement changes have lowered payments to ASCs, which reduces the incentives to start or expand these facilities.

This gap in reimbursement is likely to continue to widen because Medicare’s reimbursement rates for hospital procedures are updated annually according to projected changes in hospital prices, whereas ASC reimbursements are updated annually according to projected changes in the prices of all goods purchased by urban consumers, and medical spending is increasing at a much faster rate than other spending in the US economy. Furthermore, the disparity between medical and other consumer spending is expected to increase over time.

Critics of ASCs argue that these facilities “cherry pick” profitable patients and procedures, diverting important revenue streams from hospitals. In combination with research on the quality of care in ASCs, the findings in this article indicate that ASCs are a high-quality, lower-cost substitute for hospitals as venues for outpatient surgery. Increased use of ASCs may generate substantial cost savings, helping achieve the ACA’s goals of reducing the cost and improving the quality of health care delivery.