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Comparing The Mix Of Patients In Various Outpatient Surgery Settings

Which type of facility treats the most costly patients: hospital outpatient departments or freestanding surgery centers?

by Ariel Winter

ABSTRACT: Medicare’s facility payment rates for an ambulatory surgical procedure differ among settings. These differences raise questions about how Medicare should pay for the same procedure in various settings. In exploring this issue, it is important to look at whether the type of patients treated varies by setting. The recent growth in specialty facilities offers another reason to analyze the mix of patients. This study compares the medical complexity of Medicare beneficiaries treated in ambulatory surgical centers (ASCs) and outpatient departments. Outpatient departments treat beneficiaries who are more medically complex, so ASCs might incur lower costs when providing similar procedures.

Medicare spent about $235 billion on health care services for beneficiaries in 2001. The program accounted for 19 percent of total national spending on personal health care services, making it the single largest payer for health services in the United States. Medicare has different payment systems for each health care setting, most of which have evolved separately over time. Medicare often pays different rates for the same service in different settings, such as reimbursement for the overhead costs of many ambulatory services—diagnostic tests and ambulatory surgery, for example.

Surgical services are provided in inpatient and outpatient hospital settings, ambulatory surgical centers (ASCs), and physicians’ offices. An ASC is a distinct entity that exclusively furnishes outpatient surgical services. In 1980 Congress authorized Medicare to begin covering the facility costs of certain procedures in ASCs. This policy change was intended to encourage the shift of surgical procedures from inpatient to less costly ambulatory settings. The number of Medicare-certified ASCs grew from just over 400 in 1983 to more than 3,300 in 2001. According to Medicare claims data, 17 percent of ambulatory surgical procedures were performed in ASCs in 2000, compared with 59 percent in outpatient departments and 24 percent in physicians’ offices. The most common services provided by ASCs to Medicare beneficiaries in 2001 included cataract-related procedures,

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colonoscopy, and upper gastrointestinal endoscopy.\textsuperscript{6}

\textbf{Two payment systems.} Medicare uses separate reimbursement systems for ASCs and outpatient departments to pay for facility services related to a surgical procedure.\textsuperscript{7} Facility services include nursing, recovery care, anesthetics, and supplies. Facility services provided in hospital outpatient departments are paid for under the outpatient prospective payment system (PPS), which classifies services, drugs, and devices into about 570 payment groups based on cost and clinical characteristics.\textsuperscript{8} The payment rate for each group is based on the median cost of the services in the group, using hospital cost data. In contrast, the ASC payment system divides procedures into only nine payment groups based on similar costs. The payment rate for each group is based on the median cost of procedures in the group, using data from a 1986 survey of ASCs' costs.\textsuperscript{9} Because of the age of these cost data, the payment rates might not reflect current costs.

In 2003, ASC rates are higher than outpatient department rates for eight of the ten procedure codes with the highest share of Medicare payments to ASCs (Exhibit 1). However, the ASC rate is lower for cataract removal/lens insertion, which accounts for nearly half of Medicare payments to ASCs.\textsuperscript{10}

\textbf{Options for paying across settings.} These payment differences raise important questions about how Medicare should pay for the same procedure offered in different settings. Should payment rates vary based on cost differences between sites of care, or should they be uniform across settings? One option is to allow the rate to vary between sites of care and to base the setting-specific rate on the costs incurred by efficient providers in that setting. This is similar to Medicare’s current

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
\textbf{Procedure} & \textbf{Hospital outpatient rate ($)} & \textbf{ASC rate ($)} & \textbf{Percent difference} & \textbf{Share of Medicare payments to ASCs, 2001 (%)} \\
\hline
Cataract removal/lens insertion (66984) & 1,160 & 973 & -16 & 49 \\
After cataract laser surgery (66821) & 246 & 446 & 81 & 7 \\
Colonoscopy, diagnostic (45378) & 413 & 446 & 8 & 5 \\
Upper gastrointestinal endoscopy, biopsy (43239) & 387 & 446 & 15 & 5 \\
Colonoscopy with removal of lesion by snare (45385) & 413 & 446 & 8 & 3 \\
Epidural injection, lumbar or sacral (62311) & 250 & 333 & 33 & 3 \\
Colonoscopy with biopsy (45380) & 413 & 446 & 8 & 2 \\
Colonoscopy with removal of lesion by forceps (45384) & 413 & 446 & 8 & 2 \\
Upper gastrointestinal endoscopy, diagnostic (43235) & 387 & 333 & -14 & 1 \\
Cystoscopy (52000) & 329 & 333 & 1 & 1 \\
\hline
\end{tabular}
\caption{Medicare Payment Rates For Ambulatory Surgical Procedures Performed In Hospital Outpatient Departments And ASCs, 2003}
\end{table}

\textbf{SOURCES:} Centers for Medicare and Medicaid Services, “Update of Rates and Wage Index for Ambulatory Surgical Center Payments Effective October 1, 2002,” Program Memorandum (AB-02-124); CMS, “Final Rule: Medicare Program; Changes to the Hospital Outpatient Prospective Payment System and Calendar Year 2003 Payment Rates” (CMS-1206-FC); and analysis of 5 percent Standard Analytic File of ambulatory surgical center (ASC) facility claims, 2001.

\textbf{NOTES:} Procedure codes are in parentheses. The ASC rates are for fiscal year 2003. The hospital outpatient rates are for calendar year 2003.
payment approach. A second option is to pay the same amount for the same service regardless of the setting, adjusting for the mix of patients. A uniform rate could be based on the cost of providing the service in the most efficient setting. Whichever option is chosen, it is important to understand how the health status of patients treated in each setting differs.

**Basing payment on underlying costs.** Under the first payment approach, payment variations by setting should reflect underlying cost differences among settings, such as differences in the mix of patients or providers’ cost structure. However, there is the potential for payment variations to instead be related to the separate development of each reimbursement system. Payment variations that are unrelated to differences in underlying costs could mean that the service is more profitable in one setting than another. Varying profitability could create financial incentives to shift services between settings, which might increase costs to Medicare and its beneficiaries.

Because of the potential for differences in profitability, it is important to investigate whether payment variations reflect cost differences between the settings. Such an analysis would ideally be based on recent data on the costs incurred by efficient providers in each setting. In many cases, however, recent cost data are incomplete or unavailable. In the ASC setting, for instance, the most recent data on facility costs are from a survey conducted by the Centers for Medicare and Medicaid Services (CMS, then known as HCFA) in 1994. Thus, indirect measures of costliness also should be considered. Factors that affect the cost of providing care include regulatory requirements, productivity, infrastructure and medical equipment, staffing levels, types of procedures provided, and patients’ health status. It is presumably more costly to provide care to patients with more health problems. For example, surgical patients with comorbidities could require additional time in the operating and recovery rooms and more sophisticated monitoring during the surgery.

**Basing payment on the most efficient setting.** Even if payment reflects cost in each setting, one setting might be able to provide a given set of services more efficiently—at lower cost with equal or better outcomes. If so, Medicare might wish to pay a uniform rate across settings based on the costs of the most efficient setting. This policy would provide a financial incentive for services to shift to the most desirable setting while encouraging providers in other settings to become more efficient. If this approach were to be pursued, policymakers would need better data on the costs of care, treatment outcomes, and patients’ health status to determine the most efficient setting. Because patients’ prior health status affects both costs and outcomes, it is important to control for this variable when comparing costs and outcomes between settings.

**Growth of specialty facilities.** The recent growth of facilities that specialize in services traditionally offered by general hospitals provides another motivation for analyzing the clinical severity of patients treated in various settings. According to
the U.S. General Accounting Office (GAO), the number of hospitals that specialize in specific service lines, such as cardiac, orthopedic, and surgical procedures, tripled between 1990 and March 2003. The number of ASCs, which often specialize in specific surgical procedures that were historically performed only in hospitals, more than doubled between 1991 and 2001 (from 1,460 to 3,371). General hospitals are concerned that these specialty facilities will take away their most profitable procedures and most lucrative patients. If specialty hospitals and ASCs are serving a healthier mix of patients, Medicare and other payers might wish to adjust their payment systems to account for this favorable selection. The GAO found that among patients in the same diagnosis categories, specialty hospitals tended to treat a lower percentage of severely ill patients than general hospitals did. However, there have not yet been any published studies examining patients’ clinical severity in free-standing ambulatory surgical facilities. As a first step in this direction, this study uses Medicare data to analyze the health status of patients in ASCs and hospital outpatient departments.

**Study Data And Methods**

- **Risk scores.** I used Medicare beneficiaries’ risk scores to compare the medical complexity of patients in ASCs and outpatient departments. The risk scores were derived from the hierarchical condition category (HCC) risk adjustment model, which was developed by Health Economics Research for the CMS. The scores represent beneficiaries’ expected costliness based on their age, sex, and diagnoses from hospital inpatient, outpatient, and physician visits during the previous year. Because they are based on diagnoses, the risk scores capture the portion of complexity related to comorbidities, rather than disability or other factors. The HCC model explains 11.1 percent of the total variation in beneficiaries’ costs. According to one estimate, at least 20–25 percent of the variation in total costs is predictable; the rest is attributable to random, unpredictable factors. If this estimate is correct, the HCC model explains about half of the predictable variation in costs.

  The average risk score across all Medicare beneficiaries is 1.0. A score of 1.3 indicates that a beneficiary is expected to be 30 percent more costly than the average beneficiary, based on the person's demographic profile and medical conditions.

- **Study sample.** Beneficiaries who received surgical services in either an outpatient department or an ASC in 1999 were included in the analysis. To ensure comparability between settings, only surgical procedures that were eligible for Medicare facility payment when performed in an ASC were included in the analysis. The sample included 103,000 procedures performed in ASCs and 244,000 procedures performed in outpatient departments in 1999. Because outpatient departments are more likely than ASCs to perform services associated with higher-risk patients (such as cardiovascular procedures), I controlled for the type of procedure provided when comparing risk scores. Thus, patients were grouped by the type of procedure they received, using the Berenson-Eggers Type of Service (BETOS) classification.
Each BETOS category consists of several clinically related procedures.

**Data sources.** Beneficiaries’ risk scores for 1999 were calculated using the HCC risk adjustment model. The model inputs were 1998 Medicare claims data (for beneficiaries’ diagnoses) and 1999 enrollment data (for demographic information). Information on beneficiaries’ use of ASCs and hospital outpatient departments came from Medicare claims data (using the 5 percent Standard Analytical Files).

**Study Results**

Exhibit 2 compares the average risk scores of beneficiaries treated in ASCs and outpatient departments within a procedure category. The exhibit includes the ten procedure categories with the highest share of Medicare payments to ASCs in 1999, which accounted for 97 percent of Medicare ASC payments. With the exception of arthroscopic procedures, the average risk score of beneficiaries who received these procedures in either setting was higher than the average score across all beneficiaries (1.0), indicating that patients who receive ambulatory surgical procedures are predicted to be more costly than those who do not. In each procedure category, patients treated in ASCs had lower average risk scores than those treated in outpatient departments ($p < .01$ for all of the differences). For example,

### EXHIBIT 2

**Average Risk Scores For Medicare Beneficiaries Receiving Surgical Procedures In ASCs And Outpatient Departments, 1999**

<table>
<thead>
<tr>
<th>Procedure category</th>
<th>Average risk score for beneficiaries in</th>
<th>Percent difference</th>
<th>Share of Medicare payments to ASCs, 1999 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outpatient departments</td>
<td>ASCs</td>
<td></td>
</tr>
<tr>
<td>Cataract removal/lens insertion</td>
<td>1.28</td>
<td>1.25</td>
<td>-2</td>
</tr>
<tr>
<td>Other eye procedures$^a$</td>
<td>1.37</td>
<td>1.31</td>
<td>-4</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>1.22</td>
<td>1.15</td>
<td>-6</td>
</tr>
<tr>
<td>Other ambulatory procedures$^b$</td>
<td>1.38</td>
<td>1.33</td>
<td>-4</td>
</tr>
<tr>
<td>Upper gastrointestinal endoscopy</td>
<td>1.44</td>
<td>1.32</td>
<td>-8</td>
</tr>
<tr>
<td>Ambulatory procedures—musculoskeletal$^c$</td>
<td>1.22</td>
<td>1.09</td>
<td>-11</td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>1.50</td>
<td>1.43</td>
<td>-5</td>
</tr>
<tr>
<td>Ambulatory procedures—skin$^d$</td>
<td>2.26</td>
<td>1.45</td>
<td>-36</td>
</tr>
<tr>
<td>Arthroscopy</td>
<td>0.99</td>
<td>0.90</td>
<td>-9</td>
</tr>
<tr>
<td>Minor procedures—other$^e$</td>
<td>1.73</td>
<td>1.58</td>
<td>-9</td>
</tr>
</tbody>
</table>

**SOURCES:** Author’s analysis of the 5 percent Standard Analytic File of Medicare claims, 1998 and 1999, from the Centers for Medicare and Medicaid Services, and the CMS’s Berenson-Eggers Type of Service (BETOS) classification scheme. Each category includes several procedure codes; exhibit includes only procedures that were payable by Medicare in ASCs in 1999.

**NOTES:** ASCs are ambulatory surgical centers. Procedure categories are based on the BETOS classification scheme. Each category includes several procedure codes; exhibit includes only procedures that were payable by Medicare in ASCs in 1999. Risk scores are based on the hierarchical condition category risk adjustment model, which predicts beneficiaries’ expected service use in 1999, given their demographic profile and diagnoses, relative to that of the average beneficiary. The risk score differences between settings are statistically significant (1 percent level).

$^a$ Includes after cataract laser surgery.

$^b$ Includes interventional pain management procedures (such as epidural injection and facet joint block), dilation of esophagus, and septoplasty.

$^c$ Includes services such as hammertoe operation, arthrotomy, tenotomy, and tendon repair.

$^d$ Includes services such as skin debridement, excision of lesion, wound repair, and skin graft.

$^e$ Includes certain nasal, oral, urological, and nerve procedures.
“It seems likely that ASCs incur lower costs than outpatient departments do for the same types of procedures.”

the complexity of patients (as measured by their predicted costliness) who received a cataract removal/lens insertion in an ASC was 25 percent higher than that of the average Medicare beneficiary. The complexity of those receiving the same procedure in an outpatient department was 28 percent higher. Although the percentage differences between settings are generally not very large (less than 10 percent for most procedure categories), ASC risk scores are lower in each category. These results indicate that ASCs treat Medicare patients who, on average, have somewhat lower medical complexity than patients who receive similar procedures in hospital outpatient departments.

The risk-score differences might be slightly influenced by variations in the geographic distribution of ASCs and hospitals. ASCs are more likely than hospitals to be located in urban areas, where average beneficiary risk scores are higher.22 If the sample had included only hospitals located in areas with ASCs, the average outpatient department risk scores would probably have been slightly higher because of the larger proportion of urban patients. Thus, the risk-score differences presented here are probably somewhat understated.

Implications For Reimbursement

Why are outpatient departments more likely than ASCs to treat patients with greater medical complexity? A recent study identified nine risk factors that are associated with increased rates of hospitalization and death following ambulatory surgery.23 Several of these factors—cardiac disease, cerebrovascular disease, malignancy, and old age (over age eighty-five)—are reflected in beneficiary risk scores. Physicians might prefer to treat patients with these risk factors in hospital outpatient departments instead of ASCs because the former offer emergency services and access to on-site specialists if complications arise.24

The finding that outpatient departments treat patients who are more medically complex than ASC patients has implications for how to address payment variations between these settings. Because of the potential for shifts of services from a less profitable to a more profitable setting, it is important to investigate whether payment differences between ASCs and outpatient departments are justified by underlying cost variations. Although some firms that own ASCs claim that they are more cost-effective than outpatient departments, there are no recent independent data on ASC costs that would allow us to verify these claims.25 Thus, we have to rely on indirect measures of the relative costs of procedures in each setting. Based on the indicator—patients’ medical complexity—examined in this study, it seems likely that ASCs incur lower costs than outpatient departments do for the same types of procedures.
Another factor that affects costs is the regulatory environment for each type of facility. Although outpatient departments are subject to additional federal regulatory requirements, such as the Emergency Medical Treatment and Active Labor Act (EMTALA), more research is needed on how states regulate ASCs compared with outpatient departments.\textsuperscript{26}

It is unclear how other factors—productivity, infrastructure and medical equipment, and staffing levels—affect relative costs. Based on the evidence from this study, however, it might be reasonable for Medicare to pay ASCs no more, if not less, than outpatient departments for similar procedures. In fact, MedPAC has recommended that payment rates for ASC procedures should not exceed hospital outpatient rates for the same procedures, after accounting for differences in the bundle of services included in the base payment rate in each setting.\textsuperscript{27}

These findings also have implications for the broader debate about whether specialty facilities experience favorable patient selection. The results of this study are generally consistent with the GAO's recent finding that specialty hospitals treat a lower proportion of severely ill patients than general hospitals. If less complex patients cost less to treat and are thus more profitable, this pattern may help to explain the growth of specialty hospitals and ASCs. Further research is needed on what drives these selection patterns and how they might affect the profitability of specialty facilities and general hospitals.

The views expressed here are those of the author and do not necessarily reflect those of the Medicare Payment Advisory Commission. The author thanks Mark Miller for his valuable support and guidance, as well as Dan Zabinski, Kevin Hayes, Sarah Thomas, Chantal Worzala, Nicholas J. Wolter, and I. David Shockey for their constructive comments and assistance.

\section*{Notes}
\begin{enumerate}
\item K. Levit et al., “Trends in U.S. Health Care Spending, 2001,” \textit{Health Affairs} (Jan/Feb 2003): 154–164. This number does not include cost sharing by Medicare beneficiaries.
\item Facility payments cover the overhead costs of services delivered in ambulatory surgical centers or hospital outpatient departments. The practice expense portion of the physician payment covers overhead costs for services provided in physicians' offices. Physicians receive a smaller practice expense payment when a service is furnished in a facility.
\item This paper focuses on payment differences between ASCs and hospital outpatient departments.
\item These numbers are derived from the Centers for Medicare and Medicaid Services Provider of Services file.
\item Medicare pays the facility costs of only certain surgical procedures when performed in an ASC. The CMS uses clinical criteria and site-of-service volume standards to determine which procedures are eligible for Medicare facility payments. For example, procedures that are highly invasive or life-threatening are not eligible for payment when performed in an ASC.
\item Medicare pays separately for physician services related to the procedure using the physician fee schedule.
\item CMS, “Medicare Program; Changes to the Hospital Outpatient Prospective Payment System and Calendar Year 2003 Payment Rates; and Changes to Payment Suspension for Unfiled Cost Reports; Final Rule,” \textit{Federal Register} 67, no. 212 (1 November 2002): 66717–67046.
\item CMS, “Medicare Program; Update of Ratesetting Methodology, Payment Rates, Payment Policies, and the List of Covered Surgical Procedures for Ambulatory Surgical Centers Effective October 1, 1999; Proposed
Overall, the ASC payment rate exceeds the outpatient department rate for 13 percent of the procedure codes for which ASCs received Medicare payments in 2001. These codes accounted for 35 percent of Medicare payments to ASCs.

In setting payment rates, it is difficult to separate efficient from inefficient providers. Medicare bases rates for ASCs and outpatient department services on the average costs incurred by providers.

It is worth noting that program payments could increase while beneficiary cost sharing declines if services shift from settings where beneficiary coinsurance is higher to settings where it is lower. For example, cost sharing is generally higher for services received in a hospital outpatient department than in an ASC.

Depending on the availability of efficient providers in local markets, this policy might reduce beneficiaries’ access to care.


These numbers are derived from the CMS’s Provider of Services file.


A study commissioned by a chain of specialty heart hospitals found that these hospitals treated a more complex mix of cardiac cases than a comparable group of general hospitals. This study’s case-mix index did not isolate the effect of the patients’ illness severity from the mix of procedures performed in each hospital. See A. Dobson, R.H. Haught, and N. Sen, “Specialty Heart Hospital Care: A Comparative Study,” American Heart Hospital Journal (Winter 2003): 21–29.


Each beneficiary’s Medicaid eligibility was based on 1998 data.

According to the 2001 CMS Provider of Services file, 88 percent of ASCs are located in urban areas. Sixty-two percent of acute care hospitals covered by the inpatient PPS are in urban areas (2001 Medicare cost report data). The average risk score for beneficiaries living in urban areas in the four states with the highest concentration of ASCs (California, Florida, Maryland, and Texas) was 1.02, compared with an average score of 0.97 for rural beneficiaries in those states.


For example, the American Gastroenterological Association recommends that severely ill patients not receive endoscopy in an ASC. AGA, “The American Gastroenterological Association Standards for Office-Based Gastrointestinal Endoscopy Services,” Gastroenterology (August 2001): 440–443.


This statute requires outpatient departments to stabilize and transfer patients who believe they are experiencing a medical emergency, regardless of their ability to pay.