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A comparison of ambulatory perioperative times in hospitals and freestanding centers

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Abstract

BACKGROUND: The volume of surgical procedures performed in ambulatory surgical centers has increased rapidly.

METHODS: Ambulatory surgical visits of Medicare beneficiaries were compared for hospital-based and freestanding ambulatory surgical centers (ASCs). The main outcomes were time in surgery, time in operating room, time in postoperative care, and total perioperative time.

RESULTS: The mean total perioperative time for all procedures examined was 39% shorter in freestanding ASCs then in hospital-based ASCs (83 vs 135 min; $P < .01$); surgery time was 37% shorter (19 vs 30 min; $P < .01$), operating room time was 37% shorter (34 vs 54 min; $P < .01$), and postoperative time was 35% shorter (48 vs 74 min; $P < .01$).

CONCLUSIONS: Perioperative times were significantly shorter in freestanding ASCs than in hospital-based ASCs. It is unclear how much of the difference was the result of efficiency versus patient selection.

The past 3 decades have seen substantial growth in ambulatory surgery performed in freestanding ambulatory surgery centers (ASCs) in the United States.[1,2] In 2006, approximately 43% of 34.7 million ambulatory surgery visits took place in freestanding ASCs.[2] This growth has been attributed in part to the degree of control that freestanding ASCs afford surgeons over their professional lives through authority over staffing, surgical equipment, and scheduling.[1,3] Freestanding ASCs may function as "focused factories," allowing surgeons to achieve greater productivity relative to practicing in hospital outpatient departments.[1] Some differences in productivity also may be owing to physicians with ownership stakes in freestanding ASCs systematically referring lower-risk patients or more profitable procedures to freestanding ASCs instead of hospital outpatient departments.[4,5]

Medicare payment policy implicitly recognizes that freestanding ASCs perform surgical procedures at a lower cost than hospital outpatient departments. Since 2008, freestanding ASCs have been reimbursed at a fixed percentage (61% in 2011) of the hospital rate for equivalent services. However, the payment differential is calculated on the basis of budget neutrality with previous payment systems and not on the basis of estimates of the cost of providing services in each setting.

Previous studies have found that for selected procedures freestanding ASCs provide care with equivalent safety and shorter surgical times relative to hospital outpatient departments.[6–9] However, no studies have compared surgical times for a comprehensive set of ambulatory procedures

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performed in both hospitals and freestanding ASCs. The objective of this study was to compare surgical times for ambulatory procedures commonly performed in both hospitals and freestanding ASCs. A secondary objective was to compare anesthesia use by facility type.

Methods

The 2006 National Survey of Ambulatory Surgery (NSAS) public use data file, a survey of ambulatory procedures performed in hospitals and freestanding ASCs in the United States, was used for all analyses. A detailed description of the design and methodology used by the survey has been described previously.[10] Briefly, the NSAS uses a multistage probability design to sample hospitals and freestanding ASCs.[11] An ASC was considered hospital-based if it was a facility that was licensed as a hospital and offered ambulatory surgery. The surgery could have occurred in a general operating room, in a room or facility dedicated to ambulatory surgery, or in a room dedicated to specialized procedures.[10] A freestanding ASC was considered eligible for NSAS if it was either regulated by one of the states in the U.S. or was certified for participation in Medicare. In the 2006 survey, 142 of 189 eligible hospitals and 295 of 397 eligible freestanding ASCs responded. For each sampled facility, systematic random sampling was used to select a sample of ambulatory surgery visits. Data were abstracted for selected visits using a medical abstract form.

All analyses in this study were restricted to visits in which a single surgical procedure was performed, in which Medicare was the principle source of payment, and in which the patient routinely was discharged home. We compared hospital-based ASCs and freestanding ASCs on procedures in the following anatomic systems: nervous system (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] procedure codes 01–05), eye system (ICD-9-CM procedure codes 08–16), cardiovascular system (ICD-9-CM procedure codes 35–39), digestive system (ICD-9-CM procedure codes 42–54), musculoskeletal system (ICD-9-CM procedure codes 76–84), integumentary system (ICD-9-CM procedure codes 85–86), and miscellaneous diagnostic and therapeutic procedures (ICD-9-CM procedure codes 87–99); and by the following selected procedures: release of carpal tunnel (ICD-9-CM procedure code 04.44), extraction of lens (ICD-9-CM procedure codes 13.1–13.6), other endoscopy of the small intestine (ICD-9-CM procedure code 45.13), endoscopic polypectomy of the large intestine (ICD-9-CM procedure code 45.42), closed (endoscopic) biopsy of the large intestine (ICD-9-CM procedure code 45.25), other local excision or destruction of lesion or tissue of skin and subcutaneous tissue (ICD-9-CM procedure code 86.3), upper-gastrointestinal endoscopy, biopsy (ICD-9-CM procedure codes 45.16 and 44.14), and diagnostic colonoscopy (ICD-9-CM procedure codes 45.22, 45.23, and 46.85). Only procedures that had at least 25 unweighted observations for both facility types were analyzed.

Table 1 Characteristics of patient visits by facility type

	Total	Hospital	FASC	*P* value
Total*	5,510,493	3,108,896	2,401,597	
Age				
Mean, y (SE)	71.0 (.4)	70.6 (.4)	71.4 (.8)	.42
<15 y, n (%)	17,018 (.3)	8,363 (.3)	8,655 (.4)	
15–44 y, n (%)	166,528 (3.0)	108,699 (3.5)	57,829 (2.4)	
45–64 y, n (%)	698,755 (12.7)	435,878 (14.0)	262,877 (10.9)	
65–74 y, n (%)	2,430,491 (44.1)	1,312,266 (42.2)	1,118,225 (46.6)	
≥75 y, n (%)	2,197,701 (39.9)	1,243,690 (40.0)	954,011 (39.7)	
Male, n (%)	2,444,348 (44.4)	1,407,478 (45.3)	1,036,870 (43.2)	.23
Diagnoses, n				
Mean (SE)	2.1 (.1)	2.4 (.2)	1.7 (.1)	<.001
1	2,729,429 (49.5)	1,374,572 (44.2)	1,354,857 (56.4)	
2	1,270,468 (23.1)	660,401 (21.2)	610,067 (25.4)	
3	687,929 (12.5)	381,413 (12.3)	306,516 (12.8)	
4	294,840 (5.4)	207,240 (6.7)	87,600 (3.6)	
5	200,521 (3.6)	173,810 (5.6)	26,711 (1.1)	
6	155,797 (2.8)	146,049 (4.7)	9,748 (.4)	
7	171,509 (3.1)	165,411 (5.3)	6,098 (.3)	
Symptoms, n				
Mean (SE)	.04 (.01)	.04 (.01)	.04 (.01)	.99
0	5,293,377 (96.1)	2,986,316 (96.1)	2,307,061 (96.1)	
1	204,865 (3.7)	115,702 (3.7)	89,163 (3.7)	
2	10,022 (.2)	5,830 (.2)	4,192 (.2)	
3	2,229 (.0)	1,048 (.0)	1,181 (.0)	

FASC = freestanding ambulatory surgery center; SE = standard error.
*Total number of visits, based on weighted frequencies, for Medicare beneficiaries who underwent one procedure and were discharged home.