

The Ambulatory Surgical Unit

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RESEARCH in health care delivery has become an appropriate concern of surgeons. This attitude has been expressed recently in the presidential addresses of the American Surgical Association, the Society of University Surgeons, the Society for Surgery of the Alimentary Tract, and the New England Surgical Society.¹⁻⁴ Health care is the third largest industry in the United States, and it has been estimated that by 1975 it will be the largest. This tremendous rise is a result of increases in all parameters of health care, but the single greatest rise is in the cost of hospital care. Surgeons can affect hospital costs by treating many uncomplicated operations on an ambulatory basis instead of the traditional hospital admission. It has been estimated that 20% to 40% of operations now performed in general hospitals could be handled on an ambulatory, outpatient basis.⁵ Despite the publicity that ambulatory care is less expensive, no comparative data could be found in the literature. In a similar manner, a comparison of the quality of care between these two options was also lacking.

To investigate this subject, a study was undertaken by Watts Hospital, a Durham community hospital, to ascertain if care, comparable to that received by inpatients, could be delivered to ambulatory patients. The study would evaluate the effect of such services on both costs and inpatient bed

utilization and would be open to any of the hospital surgeons that cared to admit patients to the unit.

A five-bed unit was established from existing, but poorly utilized, hospital space. The simple space requirements (1,440 square feet) are illustrated in the diagram (Fig. 1). Staffing consisted of two registered and one licensed practical nurse providing coverage from 6:30 a.m. to 6:30 p.m., from Monday through Saturday. Patients selected by their surgeons as being surgically and psychologically qualified for such outpatient care arrived in the unit in the early morning. Required laboratory and x-ray studies were performed in the 48 hours prior to admission. They underwent the physical examination and pre-anesthetic evaluation required of inpatients and proceeded through the usual operating room and recovery room routines. They were then returned to the unit for further observation and were discharged home in the late afternoon by their surgeon. The patients were offered a follow-up visit in their home on the first or second postoperative day to determine any disadvantages or dangers to the patient as a result of early hospital discharge.

During the nine month period from February 1 through October 31 of this year, 367 patients were registered in the unit. Three of these patients were admitted to the hospital: one because more extensive surgery than anticipated was performed; one because the operative procedure was delayed until late in the day; and one because of unusually severe post-operative

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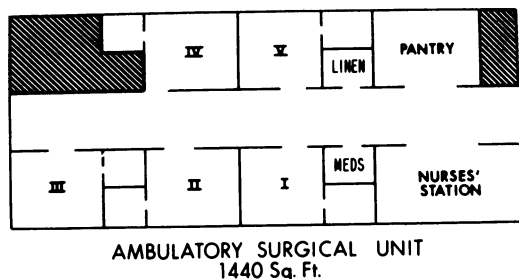


FIG. 1. Ambulatory surgical unit—1,440 sq. ft.

pain. The remainder of the analysis, therefore, will be focused upon the 364 patients treated on an ambulatory basis.

Utilization of Unit

Patients ranged in age from 8 weeks to 69 years. They were predominantly young, over half being less than 25 years of age. Females outnumbered males 8 to 1. Within 10 different surgical specialties, 43 types of operative procedures were performed (Table 1). Twenty-six of a possible 41 staff surgeons (63%) admitted patients to the unit during this study period. Though the unit was intended primarily for the use of patients receiving general anesthesia, it became apparent that a legitimate usage would include some regional and local cases requiring a period of postoperative observation. Of the 364 total patients, 354 (97%) underwent general anesthesia. Six patients had regional and four had local anesthesia.

TABLE 1. Operations Performed

Therapeutic abortion	185
Dilatation and curettage of uterus	81
Excision of breast tumor	20
Adenoidectomy and bilateral myringotomy	13
Excision of ganglion of wrist	12
Inguinal herniorrhaphy	12
Excision of bartholin cyst	8
Excision of cervical polyps	7
Body cast change	4
Closed reduction of fracture	2
Bronchoscopy	1
Nerve repair	1
Full mouth extraction	1
Squint repair	1
(43 different procedures)	

TABLE 2. Mean Operative Savings

Excision of breast tumor	\$119.38
Inguinal herniorrhaphy	75.20
Dilatation and curettage of uterus	79.63
Therapeutic abortion	46.34
Change of body cast	117.00
Excision of ganglion of wrist	106.97
Adenoidectomy and bilateral myringotomy	67.24
Full mouth extraction	146.25
Closed reduction of fractured radius	170.10
Range of Savings 24%-60%	

Cost Analysis

To the degree that was possible, each of the ambulatory patients was matched with an inpatient, during the study period, who was comparable in age, sex, diagnosis, operative procedure, and anesthesia. This resulted in a comparable matching of 166 patients. The actual hospital charges to these patients were analyzed. The mean inpatient cost was found to be \$240.66 as compared with the mean ambulatory patient cost of \$179.97. This resulted in a difference of \$60.69. Between these two groups, therefore, there was a savings of 25.2% of the hospital charges for each ambulatory patient. Applying these figures to our total patient sample of 364, there was an overall estimated savings of \$22,000 in this nine-month period. Savings vary widely for different procedures and examples of a few are shown in Table 2.

Analysis of Bed Utilization

The actual hospital stay of 166 matched inpatients was studied. The inpatient stay averaged slightly more than two days per patient. Extrapolating this estimate to our total population there was a total estimated savings of 731 inpatient bed days.

Opinions of Participating Parties

Efforts were made to evaluate the response to this type of care by interviewing each of the four participating groups. These included: the patients, the participating sur-

geons, the insurance carriers, and the hospital administrators.

Patients. The patients were interviewed by the visiting nurse, a member of the unit's nursing staff, in their home, and also by the surgeon on the patient's first postoperative office visit. Three complications were identified—one technical, and two emotional. The technical complication occurred in a 2-year-old child who had undergone plastic revision of a lip laceration, and by pulling at the incision, he dislodged one of his sutures. This affected the cosmetic repair, but required no further operation. Observation in the hospital might have avoided this complication. Two patients expressed mild apprehension at being away from the hospital the night of their operation. The first case was a man with bilateral eye operations who went home with both eyes bandaged. This case probably represents a poor choice of type of patient for this method of care. The second patient was a 10-month-old child who had undergone bilateral myringotomy and had mild bleeding after arriving home. This concerned the mother but did not result in readmission or further complication. With these exceptions, the remainder of the patients were very pleased with their care. Four patients in recent months had undergone identical contralateral procedures (excision of breast tumor, inguinal herniorrhaphy) as inpatients and these were among the most enthusiastic advocates of the ambulatory method. There were no wound infections.

The greatest patient benefits appear to be the psychological advantage of being able to spend almost all of the preoperative and postoperative period at home with minimal derangement of schedule and habits. The patient's progression through the hospital was much more efficient as well. Young mothers undergoing operation expressed appreciation for the opportunity to be at home and able to supervise their household and children. Since 46% of our patients as-

sumed liability for their own hospital bill, in lieu of hospital coverage, they benefited directly from the dollars savings.

Surgeons. All participating surgeons were asked to express by letter their evaluation of the unit and whether they desired continuation of the unit. All favored continuation of the unit and promised their continued support. Many found the time savings to be appreciable since they had fewer patients in the hospital to follow. They also expressed satisfaction in their ability to deliver care of the same quality as delivered to inpatients with greater comfort and less cost to the patients.

Insurance Carriers. The insurance companies welcomed both the 25% saving of hospital charges and the reduced hospital inpatient utilization. They stressed the fact that fewer unnecessary tests and services were used since the patient was outside the traditional hospital setting. In the early part of the study, there was a reluctance on the part of some private insurance carriers to accept liability for patients treated in the unit. It is of some significance that at the end of the first 3 months of operation of the unit only seven private carriers had accepted liability while at the end of the 9-month period a total of 19 companies were participating. These firms are carriers for most of the largest industries in this area.

Hospital Administration. This community hospital for several years has had a constant waiting list for hospital admissions. The list has been reduced but not eliminated during the period of time the ambulatory unit has functioned. The hospital has continued to operate at the same percentage of inpatient occupancy so unfilled inpatient beds have not resulted from this project. As a result of this, the administration is happy to be able to serve a larger clientele and understands the ultimate value of the ambulatory unit, in spite of some additional expense that has been borne by the hospital during the developmental part of the project.

Discussion

After 9 months of operation of the ambulatory unit, it is our feeling that surgical care of a quality comparable to that of inpatients can be delivered with a cost savings and an economy of scarce hospital beds. We feel that a hospital-attached unit may operate more efficiently with greater latitude of types of operative cases and possibly may offer greater safety to the patient than does an independent unit. In general this unit has been highly successful and this success is based upon the satisfaction of the following requisites: adequate population base, appropriate selection of patients, professional staff support, potential for increasing the capacity of the operating rooms, recovery rooms and anesthesia departments, waiting lists for hospital beds, appropriate unit size, and cooperation of third parties. If these criteria are satisfied it would appear that the development of such units in other settings would also meet with success. It became clear that the patient population was willing to accept care in the manner

deemed appropriate by the surgeon and that this offered no problem.

Summary

The experience of this ambulatory unit suggests that uncomplicated surgical care was delivered on an ambulatory basis in a satisfactory manner. The quality of care delivered appeared to be comparable to that provided to the inpatient. Significant cost savings were realized (approximately 25%) and hospital bed utilization was reduced (approximately 2 days per ambulatory patient). We feel the concept is worthy of consideration for implementation by others.

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DISCUSSION

DR. C. ROLLINS HANLON (Chicago): I have enjoyed this clear and concise estimate of the situation regarding free-standing versus hospital-based surgical facilities by Dr. Davis and his associates. The American College of Surgeons has had a number of inquiries about the stance which organizations or individuals should take toward development of such facilities.

These inquiries have come from the American Medical Association, from the National Blue Cross Plans, from the Joint Commission on Accreditation of Hospitals, and from a number of surgeons who are considering the possibility of initiating such facilities and wish to know the attitude of organized surgery toward short stay surgical facilities.

We have also had inquiries from the Phoenix Surgicenter itself. They were seeking approbation of the College in order to facilitate more widespread approval by third party payors.

As many of you realize, the Phoenix Surgicenter has been approved by approximately 100 insurance carriers. They have been approved by the Blue Shield Plan, and by certain local organizations, including the health planning council in their county. They have not been approved under

Part A of Medicare. An attempt is being made to change the relevant Social Security legislation by a bill introduced into the House by Congressman Rhodes.

One possible reason why free-standing surgical facilities have not been approved by the National Blue Cross Plan, although they have been approved by Blue Shield, is because Blue Cross Plans are in serious financial difficulty in their Federal Employee Program. This difficulty revolves around the authorization which had been urged on Blue Cross for many years to include certain outpatient services in their basic plan. It was anticipated that this expansion of outpatient coverage would diminish expensive hospitalization.

Actually, the Federal Employee Program of National Blue Cross, a so-called showcase account comprising over five million individuals, went in 3 years to a deficit status estimated at more than \$60 million. This was related to an incredible proliferation of outpatient studies, such as laboratory tests and radiographs, without a corresponding saving by decreased inpatient utilization. Although theoretically the increased use of outpatient facilities should save money, this did not follow.

I cannot discuss definitively the differences between free-standing and hospital-based facilities,