The History of Anesthesiology

Reprint Series: Volume 22

Ambulatory Anesthesia



Unidentified photograph of an outpatient, minor surgical operation, probably early 1900s, vicinity of Pittsfield, Massachusetts. That seems to be at a hospital but not in an operating room: the fireplace is curtained off, possibly ether bottles on the mantle, gas illumination, curtains drawn, and a gas heat instrument sterilizer. Surgeon, anesthetizer, and patient appear to have come in off the street while the nurse is a regular member of the staff. (Photograph courtesy of the Boston Medical Library in the Francis A. Countway Library of Medicine, Boston, Massachusetts.)

History of Anesthesiology Reprint Series Volume 22, 1992

Ambulatory Anesthesia

Introduction

Several decades have elapsed since the reincarnation of anesthetic administration for outpatients undergoing more intricate surgical procedures. And there seems to be no leveling-off of activity as the accumulated experience has led to relaxation of the criteria for acceptance of patients and the application of new surgical technologies. While the impetus originally was an economic one, that is the cost:benefit ratio of nonhospitalization, doubt has now arisen about the putative gains in the current climate of rising health care costs. Because of these several considerations, the Wood Library-Museum Committee on Publications, B. Raymond Fink, M.D. in charge, has elected to focus the 1992 Historical Reprint Series on the development of Ambulatory Anesthesia.

Leroy D. Vandam, M.D.

AMBULATORY ANESTHESIA

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A HISTORY OF AMBULATORY ANESTHESIA

-1-

By Leroy D. Vandam, PhB, MD, MA

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A History of Ambulatory Anesthesia

Leroy D. Vandam, PhB, MD, MA*

Rightfully, a history of ambulatory anesthesia should begin with the introduction of surgical anesthesia and the first public demonstration thereof in 1846. Nevertheless, Crawford Williamson Long in 1842 and Horace Wells in 1844 already had practiced anesthesia for office surgery of a kind. Outpatient surgery and attempts at anesthesia, however, may be traced as far back as people have dared to treat illness instrumentally, that is, by the use of the hand—the literal definition of surgery.

What is the correct appellation for the subject of this article, indeed the essence of this symposium? Although the adjective ambulant sounds better than ambulatory, either term conjures up pictures of patients and surgeons on the move, or a patient walking away from the procedure, as surely most would subconsciously prefer to do. Day-care surgery, strictly speaking, hardly differs from elective surgery of any variety, which is best done during the waking hours, in contrast to the emergency treated at any time. In-and-out surgery is even less specific. To be sure, every patient enters and, it is hoped. leaves the operating room. Here one is reminded of a celebrated cartoon in The New Yorker in which an American in Paris enters the Louvre and asks, "Quick, where's the Mona Lisa?—I'm double parked." Of course what we really mean is that anesthesia and operations are provided for outpatients, whether in a regular hospital operating suite, a separate area within hospital, or a completely independent (i.e., free-standing) facility. Outpatient surgery is the better truncated term. The definitions begin to blur as the medical-industrial firms cast an eye on the construction of facilities where the outpatient may stay overnight, now an inpatient once again.

The overall trend is the result of decades of debate on the purpose of hospitals and hospitalization, on the necessary length of stay, and the cost benefit ratio. Currently, alternate forms of outpatient surgery include morning admission of patients for operation with subsequent overnight or longer hospitalization, and a resurgence of procedures done in the surgeon's office, where skilled anesthesia

^{*} Anesthesiologist, Brigham and Women's Hospital; and Professor of Anaesthesia, Emeritus, Harvard Medical School, Boston, Massachusetts

personnel need not be present. Most plastic and dental surgery offices thrive on this kind of arrangement.

HISTORY

The founding of hospitals to care for the sick occurred a century or more before the introduction of anesthesia, which was essential for surgical techniques to progress. Occupants of these original institutions were mainly the indigent or conscripts to military service who often had infirmaries of their own at the time of conflict. Pursuant to the introduction of anesthesia, even though the numbers of operations increased, the nature of surgery changed very little, still largely restricted to the body surfaces and extremities as in the ancient practice of trephination, cutting for the stone, cataract removal, manipulation of fractures and dislocations, whirlwind amputations, and so on. As Siggrist indicated, not only was there opposition to anesthesia on medical, ethical, and religious grounds, but in order for surgery to develop, the prevalent Galenical concept of disease—as a manifestation of an imbalance among the four major body humors-required revision. To this day, traces of that system survive in adjectives such as choleric, jejune, phlegmatic, and sanguine, which are still part of our vocabulary. And, humorally directed therapy continued to be employed well into the twentieth century, restoring the "balance" via purging, blood letting through phlebotomy, and leaching and cupping, induced emesis and frequent resort to the clyster. These travesties were cynically illustrated in those eighteenth- and nineteenthcentury graphic lampoons of physicians and their practices. For surgery to make progress, the anatomic basis of disease had to be demonstrated at postmortem examination, increasingly performed in the nineteenth century, and by noninvasive diagnostic technique as in the use of percussion, stethoscopy, and radiography. Only around the turn of the century was surgery able to assume a major role in the treatment of disease.

Another deterrent was the overwhelming prevalence of infection, or "hospitalism" as it was dubbed in the pre-microbiologic era. Consequently, those who could make the arrangements, largely the affluent, were treated in their homes, a custom lasting well into the present century. Others evaded operation as long as they could survive without its putative benefits. Office surgery also had its beginnings at the time. The introduction of cocaine for regional anesthesia, and the hasty development of techniques and better local anesthetics established the physician's office as a prime site for minor operations. Through the application of listerism, then asepsis, residual objections to hospitalization began to fade, although nosocomial infections have now become a major factor in morbidity and mortality in the current hospital environment. The hospital became dominant as the site of medical and surgical therapy. In that setting, obstetric care, sophisticated diagnostic procedures, and eventually emergency care supplanted the general practitioner who could no longer be induced to make house calls. Heretofore, the doctor's black bag had been a virtual traveling pharmacy and minor surgical kit.

Dentistry continued after the pattern established by Morton, Wells, Colton, and their contemporaries. After all, it was the etherization in Morton's office of patient Eben Frost for tooth extraction on September 30, 1846, that was witnessed by Henry Jacob Bigelow, a surgeon at the Massachusetts General Hospital. After several such visits to Morton's office, Bigelow arranged for the ether demonstration and operation done by John Collins Warren, at the Hospital.

As suggested by these preliminary remarks, the concept of outpatient anesthesia did not fall into the category of the "eureka" phenomenon, but was the result of many forces, even as its proponents were molded by the social, economic, and political milieu of their times.

Writing in the *British Medical Journal* for September 18, 1909, surgeon James H. Nicoll stated that for the last 10 years (1899 to 1908) he had been in charge of an outpatient clinic at the Glasgow Hospital for Sick Children; his work included some 8988 operations of which he had performed 7392.⁸

They have embraced operations for many of the usual affections of childhood, which in a city such as Glasgow naturally included a large proportion of cases of surgical tuberculosis of bone, joints and glands. Amongst others, however, there have been 610 operations for talipes (tarsectomy), tarsotomy, astragalectomy and tendon operations; 406 for hare lip and cleft palate; 36 for spina bifida; 23 for depressed birth fracture of skull; 18 for congenital stenosis of pylorus; 167 for mastoid empyema; 143 for ligature or resection of internal jugular vein in course of radical mastoid operation or excision of cervical glands; and 220 for hernia, inguinal, umbilical and ovarian (during the past five years only).

As bearing on the conclusions come to, it may be noted (1) that all of the 8988 cases were treated as outpatients after operation, and (2) that nearly one-half of these were children under 3 years of age, a large proportion of them being infants of under a year.

Nicoll continued to describe the disadvantages of hospitalization for this category of patient and the benefits of being at home for the convalescence, particularly for sickly children and nursing mothers. Presumably, for the outpatient in Scotland, chloroform must have been the anesthetic employed. One wonders how many cases of delayed chloroform poisoning might have developed as described by Sykes in his essay on "Chloroform and the Children," relating the experience of James Guthrie. Concerning surgical morbidity and mortality, and the operative results per se, no information is supplied by Nicoll. Nevertheless, the gist of his communication is truly astonishing, considering the kinds of operations done and the state of anesthesia at the time—even as people debate the pros and cons of outpatient pediatric surgery under modern conditions.

A second seminal communication, "The Down-town Anesthesia Clinic,"came in July 1919 from Ralph M. Waters.¹⁰ Sometime after the turn of the century a coterie of physicians, for the most part American midwesterners and Canadians, began to specialize in anesthetic practice, eventually devoting all of their time to that endeavor. Among the Americans were Francis Hoeffer McMechan, Elmer I. McKesson, Ralph M. Waters, and, later, John S. Lundy. Because of crippling arthritis, McMechan eventually stopped practicing anesthesia and instead became an organizer of societies and an editor par excellence. McKesson became a clinician, physiologist, educator, and an innovator of apparatus as well as founder of the Toledo School of nitrous oxide administration. Waters eventually became a chief of anesthesia in Wisconsin, where he established the first academic training program. Lundy was recruited by W. S. Mayo to be in charge of anesthesia at a clinic in Rochester, where he, too, organized a graduate training program. The history of outpatient surgery envelopes the caliber and philosophy of these people, one of whom gave the first clear description of outpatient surgical anesthesia.

In 1915, the work of Waters¹⁰ as a physician consisted largely of anesthetic practice, with his home as office.

An occasional call from a dentist however broke the routine and in many such cases the dentist and patient also objected to going to the hospital both because of the time and expense involved. It was suggested to me that a down-town office equipped to care for dental and minor surgical cases would be useful, as we had no exclusive specialist in exodontia in our town, and some surgeons were also anxious to establish extra hospital clinical facilities.

Initially a modest office was equipped with a waiting room and a small operating room with an adjoining room containing a cot on which a patient could lie down after his anesthetic. . . . In due time the place became popular and we moved.

Waters gives much credit for the success of the venture to his office assistant, a 21-year-old woman who handled all of the business details. Waters wrote that "In February of 1918 we found ourselves with three units of floor space in the newest and most central office building of our town." He described the facilities in detail and did not hesitate to emphasize the economic benefits for all concerned. Records were kept, nitrous oxide was used freely and preparations for, as well as recovery from, anesthesia were detailed. "We have made no start with local anesthesia as yet but have plans regarding it in the future. . . . We prefer a light meal, when possible, for the last before the operation. Liquids are allowed at all times."

Waters concluded in the following vein:

The future for such a venture, I believe, is bright. I know ours is not half-grown. Several additions have been planned for the immediate future: one, a permanent graduate nurse-assistant. So far we have only employed the extra assistant as occasion demanded.

We have considered seriously the manufacture of our own nitrous oxide also. Frequently other additions suggest themselves as are suggested by physicians and dentists. When the war is over I trust many of you may develop down-town minor surgery and dental clinics of much larger scope.

Thus, with the general concept established by Nicoll in the pe-

diatric arena, Waters provided more than a mere framework, as well as a philosophy concerning the functions and administration of a freestanding, outpatient surgical facility. Over the next 50 years, minor operations were done in hospital emergency wards and outpatient clinics, either with local anesthesia or inhalation of nitrous oxide with similar procedures used in well-equipped physicians' offices. During that time, children were admitted to hospital outpatient operating rooms in the mornings for tonsillectomy, given nitrous oxide, and then remained overnight for observation.

Although from time to time there were reports of outpatient surgical activity in the British literature and particularly relating to pediatrics, some 45 years elapsed before the idea surfaced again in the United States. Meanwhile, according to essavist Lewis Thomas. the practice of medicine had undergone vast change, a "second revolution," which began in the early 1940s. For the first time there were specific means to treat infection in the availability of the sulfanilamides and antibiotics. Empirical treatment was succeeded by the specific, with many a new drug added to the old standbys—digitalis. quinidine, and opioids. Anesthesia came into its own in the early 1950s, with the use of neuromuscular blocking agents after the introduction of curare by Griffith and Johnson in 1942, when tracheal intubation became commonplace. The concept of anesthesia was distilled into its components: lack of sensibility, muscle relaxation, and elimination of unwanted reflexes arising from the operative site. Further. the pharmacokinetics of inhalation and intravenous anesthetics were elucidated—uptake and distribution, their protein-binding, metabolism, and elimination-so that clinical anesthesia became a rational phenomenon. Recruitment of physicians into the specialty increased remarkably after World War II, Board certification of competence was established, and a strong national society of anesthesiologists helped to further progress.

As a result of their experience with the paralysis induced by the neuromuscular blocking drugs, anesthesiologists became innovators in respiratory care and use of mechanical ventilators for control of respiration. Postanesthesia, the resort to recovery rooms was found essential in lowering perioperative mortality. Around the 1950s, Beecher and Todd, in a large scale prospective analysis of perioperative deaths, elucidated the contributing anesthetic factors; Dripps and Vandam, in a parallel endeavor, established the safety of spinal anesthesia after the contributing causes of morbidity were defined. A major change embraced the abandonment of the flammable anesthetics, ether and cyclopropane, with their inconvenient pharmacokinetic properties and their replacement by halogenated compounds, which permitted more rapid induction and emergence from anesthesia. Further, the replacement of the local anesthetic ester compounds, particularly procaine, by the amide substances lidocaine and carbocaine, permitted a wider range of use of regional anesthesia.

The discussion thus far has defined the medical and anesthetic milieu in which further development of the concept became possible. Over several decades, the advantages of early ambulation for surgical inpatients had become apparent. In 1955, E. L. Farquaharson emphasized this aspect of surgical care with special reference to herniorrhaphy as an outpatient procedure. In 1961, Stephen and Dudley observed the organization of an outpatient surgical facility. In 1959, two Canadians, Webb and Graves,¹¹ concerned by a short supply of hospital beds in Vancouver, reported on their experience with outpatient surgery done in 494 patients over a 6-month period. Several standard textbooks were also available on surgery for the ambulatory patient.

In 1966, Cohen and Dillon² added momentum toward adoption of outpatient surgery, based on their perception of a shortage of hospital beds and an increasing population, both of indefinite proportions for some time to come. To achieve more efficient use of hospital beds, outpatient surgery was their answer. They observed that efficient use of hospital beds had been hampered further by the regulation of insurance carriers that required admission to the hospital for a minimum of 18 hours, with the paradoxical loss of possible savings to patients or insurance companies.

With these facts in mind, Cohen and Dillon instituted a program for outpatient surgery at the University of California, Los Angeles, late in 1962. If no surgical or medical aspect of the patient's physical status demanded postoperative observation, there was no reason to detain a patient arbitrarily simply because he or she was to receive general or conduction anesthesia. The basic responsibility for selecting a patient rested with the operating surgeon, in whose estimation only brief postoperative observation would be required for safety-for instance, if there were minimal danger of postoperative bleeding. Only the development of complications should necessitate detention. Although a patient with an infection was not eligible, one who was not in good health but under good control would be considered for treatment. It was understood further that a patient might need to be admitted to inpatient status for either a surgical or an anesthetic complication. Finally, in that experiment it was essential that the anesthesiologist could cancel a procedure for any reason that an inpatient anesthetic would be canceled.

Once selected for outpatient surgery, patients were issued instructions, such as time of reporting to the outpatient department, with a signed and witnessed consent form; direction to have had a blood test and urinalysis within 10 days; and specific instruction not to eat or drink after midnight the night before surgery. Other information concerned an interview by the anesthesiologist; the length of stay after operation; the need for someone to accompany the patient when discharged from the hospital; and the strict rule that the patient could not then drive an automobile.

These arrangements for outpatient surgery differ little from present procedures. Further, as shown in the published tables of Cohen and Dillon,² the kinds of surgical specialties represented in the program and anesthetic management, except for the use of ether and cyclopropane, differed little from current practice, some 20 years after the fact. Concerning complications, 31 patients (3.9 per cent) were admitted to hospital for administrative or surgical reasons, the latter because surgery had been delayed, prolonged, or unexpectedly complicated. Only two patients (0.25 per cent) were detained because of prolonged recovery from general anesthesia.

Cohen and Dillon² then discussed the economics of the venture, giving relative costs for inpatient versus outpatient operations. They estimated a savings in 2 years of some \$28,000 to patients or insurance companies, as well as a saving of approximately 1000 patient hospital days during the study period. Within a year of this announcement by Cohen and Dillon, Levy and Coakley⁷ at George Washington University reported a similar experience during a 1-year period.

The idea of a free-standing surgical facility was resurrected in 1968, through the efforts of Charles Hill.⁶ In his letter, "Surgery in an Office Suite," Hill wrote to Medical Economics Magazine:

Your article, 'Spare the Purse and Please the Patient' asked the question, 'Why not do minor operations in your office, instead of a hospital?' Here in Rhode Island, we've come up with what we hope will be the answer by incorporating in a Providence medical office building an operating suite with complete O.R. facilities and a recovery room. These facilities are to be used for various surgical procedures that don't require a patient to stay in a hospital overnight. We're now discussing the cost coverage of the unit with the Rhode Island Blue Cross plan and many private insurance companies. The operating suite will be open to any member of the accredited surgical or dental staffs of Rhode Island hospitals, as well as to gastroenterologists. There'll be a standards committee for the facility, overseen by a state agency. The estimated cost to the doctor who uses this unit is \$30 an hour, based on an eight hour day.

Hill surely was aware of the efforts of Waters in this direction. According to Reed,⁹ "Dr. Hills' Dudley Street facility was unable to maintain itself financially because of nonsupport of the State Health Department, which ruled at least unofficially that the suite was no more than a doctor's office, plus lack of support from the Blue Cross and other third party insurance carriers."

At this point it is pertinent to evaluate the claims made by Cohen and Dillon² and by subsequent purveyors of outpatient anesthesia in relation to the economics of such ventures. Some 15 years later, Berk and Chalmers¹ analyzed the cost and efficacy of the substitution of ambulatory for inpatient care with the proposition that both direct and indirect costs should be taken into account.

Direct costs are payments made to the health industry for the treatment or detection of illness. These expenditures may be made directly by the patient or indirectly by third party payers such as insurance companies, employers or government. Indirect costs include the loss of output to the economy because of illness or premature death. Such loss of output may be incurred both by the patient and by the relatives or friends who may provide unpaid nursing service as well as restricting their production in their own sector of the economy. In one study cited, indirect costs were estimated to be twice as great as direct costs.

An appropriate empirical measure for hospital costs would be the actual cost of resources used by a group of inpatients. . . . The use of average cost per patient day, is also inappropriate in calculating hospital costs because by definition, average cost per day includes costs of certain standby facilities that, although they are required in both settings, are not usually included in estimates of the costs of ambulatory care. *Therefore, the outcome is biased in favor of ambulatory care.* . . . A corollary to the argument above is that as the inpatients who are less sick are transferred into ambulatory-care programs, average costs for the remaining inpatients will rise. The savings in the long run will therefore be less than the product of the current average patient day hospital costs times the number of beds closed. Such savings are in any case largely dependent on the closure of hospital wings or entire hospitals. If the vacated beds are used to meet the previously unmet demands for more hospitalization, then more care will be provided at a higher total cost.

In the year 1981, Berk and Chalmers¹ examined 109 studies for relative economic costs and clinical considerations. They stated that "All but 31 of the 109 studies available mentioned economic outcome." Although most favored ambulatory care over inpatient care, the lack of appropriate data to support this claim led to a reclassification of most of the studies as indeterminate from the standpoint of economic outcome. Lastly, in 26 simultaneous-control trials where economic outcome was discussed, measurements were made in only 15; the appropriate measurements were done in only 2, whereby the authors assayed the cost of resources used by their inpatient controls instead of the per-diem charges or average cost per inpatient day. In only one study were indirect costs also measured completely.

When the report of Berk and Chalmers¹ was in preparation, they included regular hospital facilities and operating rooms, separate hospital suites, and free-standing surgical units for outpatient surgery. It is apparent that the costs and benefits might differ markedly among the three kinds of facilities, although the estimates may be even more complicated. There are no data for cooperative concurrent studies implemented in the same community simultaneously.

In 1969, Ford and Reed⁴ were the first to establish a modern, free-standing ambulatory surgical clinic, reincarnating the "Downtown Anesthesia Clinic" of Waters.¹⁰ They also were influenced markedly by the current pattern of medical economics. In a retrospective report of their experience, Reed and Ford supplied a brief history and account of the problems experienced during the venture —highly formidable ones not encountered by Waters and by Hill before them. Among these were obtaining clearance from the local comprehensive health planning councils ("B agencies") and state planning authorities ("A agencies"); meeting the requirements of local building and zoning codes; and gaining approval of third-party insurers including several hundred commercial carriers, Blue Cross, and federal government programs such as Champus, Federal Employee Programs, Medicare, and Medicaid. Further, a certificate of need had to be issued by the state, implying that the need for a new medical facility be established before approval for construction could be granted. In addition, the constitutionality of any legislation had to be established. All of these matters had to be settled before embarking on expensive building programs.

At the time, it was predicted that if Professional Service Review organizations were to function as prescribed in Public Law 92-607, an ever-increasing number of medical and surgical procedures would be performed on an outpatient basis—thus leading to removal of some of the obstacles. So Reed and Ford engaged in the skirmishes that have since made it possible to obtain approval of other outpatient facilities.

Reed and Ford proceeded with an account of benefits for the surgeon and the essentials of patient safety. These included the kinds of procedures that might be performed, equipment required, design of facilities, logistics, and specific procedures as well as the ultimate benefit for patients. Since then there has been little difference in the general philosophy propounded by writers on the subject. Indeed, as predicted, economic forces have hastened rather than retarded such types of care. Thus, the March 23, 1982, issue of the Federal Register (page 12,583, section VIII) on "Competition" contained the following statement:

These proposed regulations would permit a new class of facilities, ambulatory surgical centers to compete with hospitals in providing ambulatory surgical services to Medicare beneficiaries. . . . We believe, say the Feds, that the extension of coverage of reimbursement to ambulatory surgical centers will give beneficiaries and their physicians important additional options in their selection of sites for surgery. These options in turn will enhance the competition between ambulatory surgical centers and hospitals.

Additionally, Ford and Reed surmised that the advent of a national health insurance plan would not retard the growth of these units. In Great Britain, proponents reported that it had not been uncommon for patients needing elective surgery, such as herniorrhaphy and varicotomy, to wait for 3 years or more. They looked to outpatient facilities as a possible solution.

When Ralph Waters (then 90 years of age) of the "Down-town Anesthesia Clinic" heard the latest news from Wallace Reed on February 13, 1974, he replied in a handwritten note (supplied by Dr. Reed), which is an historical gem.

February 20, 1974

Dear Dr. Reed,

And Doctor Ford I presume, what a happy surprise it was for me to learn of your "Surgicenter," which was totally unknown to me before your letter came.

I am very much retired and most of the professional "progress" is passing me by these days. I am afraid I must admit to being critical of much that goes on. Transplants of hearts and "bringing the dead to life" do not seem to me very important accomplishments.

Since you may like added historical data, I ought to say that, upon my return from the Mexican Border Mobilization in 1916 I returned to Sioux City Iowa. Military matters interfered with plans somewhat but from 1918 in our downtown "office" where friends brought much minor surgical work, to bipass (sic) the necessity of hospital entrance, was chief. This went on until 1923. Dr. Morris Clark had started a similar effort in his office in the Argyle Bldg in Kansas City. He was a very "outgoing type." A warning regarding his kidney function "convinced him" that exposure to Ether vapor was "bad" for his kidneys and he wrote to me asking if I would consider taking over his practice in Kansas City. He went to Vienna to become an ophthalmologist and I moved to K.C. It was an ideal town in which to live and practice medicine at that time. The doctors were really—ethically and professionally—the best with whom I ever associated.

I needed University contacts and was about to become lined up with the U. of Kansas when our plans changed in 1923 and we moved to Madison, Wisconsin and the department of Anesthesia there was the result. I tried to leave what I had in K.C. with Frank Hurwitt who carried on much as Clark and I had done before him.

Just why the idea of "outpatient service" did not progress I can't say. I always thought the idea was sound.

It is therefore a happy surprise to have your letter of Feb. 13th. I wish you and Doctor Ford continued success and satisfaction.

> Sincerely yours, RALPH WATERS

At the time, in 1974, Waters might have learned of the resurgence of outpatient surgical services of several kinds but stated further that "As to my interest in professional matters—it is at a very low ebb. I doubt if you should waste your valuable time by informing me. I am as *retired* as can be."

The idea of early discharge dictated by Professional Review Organizations and the more stringent regulations concerning payments from the U.S. Government and Commercial Carriers hastened the trend toward outpatient surgery. The amendments were the result of a rising clamor on the part of government and industry over the huge share of the gross national product apportioned to medical care.

In surgery, with the new approach to treating breast cancer in women, excisional breast biopsies were done with local infiltration anesthesia after suspicious-looking mammograms in many cases. The same approach applied to the diagnosis of lymphoma. More and more surgeons were learning how to operate on patients under local anesthesia for inguinal and umbilical hernia. In gynecology, laparoscopy became an essential means of diagnosing pelvic disease, infertility, evacuation of ovarian cysts, retrieval of ova for artificial fertilization, and for tubal ligation and analysis of sterility problems. Similarly in orthopedics, arthroscopy became one of the more commonly used procedures, for diagnosis of knee and shoulder derangements and their correction. In ophthalmology, many possessed new kinds of equipment and made a complete turnabout by judging that complete bed rest was no longer necessary after cataract operations—a procedure accomplished on an outpatient basis. In dentistry, although many continued to offer general as well as regional anesthesia, patients with more complex problems went to hospitals on an outpatient basis. Finally, in cosmetic plastic surgery, many procedures were performed in the surgeon's office, because third-party payment for hospitalization was not sanctioned for these operations.

A parallel influence was a change in the latitude of anesthetic administration, mainly because of the introduction of new drugs and a knowledge of their pharmacodynamics and kinetics, with applicability to the outpatient. Premedication for the anesthetic was either avoided or minimally prescribed. Standard barbiturate sedation was abandoned as had been urged for many years, succeeded by the benzodiazepines, a class of compounds exerting only minimal effects on respiration and less so on the circulation, with the added advantage of countering central excitatory effects of toxic quantities of the local anesthetics. Fentanyl citrate or Sublimaze proved to be an excellent opioid of short duration for supplementation of general anesthesia.

For induction of anesthesia, thiopental and methohexital continued to offer the appropriate kinetics for rapid onset and recovery of consciousness. Ketamine (Ketelar), on the other hand, was not useful because of the psychotomimetic aftermath.

As general anesthetics, the halogens—first halothane, then enflurane and isoflurane—were available for rapid induction and emergence, along with nitrous oxide and the short-acting opioids to diminish the depth of anesthesia required.

Insofar as muscle relaxation was concerned, the depolarizing, short-acting succinylcholine preceded by a competitive neuromuscular blocker, continued useful for tracheal intubation, or by infusion for continued relaxation. Tubocurarine was at hand as a competitive neuromuscular blocker, with monitoring of neuromuscular transmission and reversal of its effects at termination of anesthesia. For regional anesthesia, dichloroprocaine (Nesacaine), lidocaine (Xylocaine), mepivacaine (Carbocaine), and bupivacaine (Marcaine), with or without epinephrine, offered a spectrum of anesthesia of appropriate duration for recovery in the outpatient setting.

PRESENT STATUS

Having had its origins in the introduction of anesthesia nearly 150 years ago and with the first reports appearing around the turn of the century, anesthesia and surgery for outpatients have gradually assumed a significant share of surgical practice. Older facilities for outpatient surgery in hospitals—whether in the operating suite or apart—are being enlarged to accommodate the burden while freestanding clinics continue to proliferate. Freeman⁵ makes the following observations:

Initially there was the doctor (supplier of services) and the patient (payer for services)—the first and second parties. Then came the public and private insurers—the third parties who simply spread the cost of health care for individuals across the population without attempting to change the scientifically based delivery system. Now a new, fourth party is emerging in the form of the major private purchasers of health care, business and industry. This new party on the scene is pressing for a thorough redesign of the delivery system. Its orientation is to become actively involved in the business of health care—that is, to relate the price of the product to the cost of production as in the industrial model. Freeman then speculates on what will become of the primary care practitioner and subspecialty practitioners, with suggestions as to how their problems may be faced.

In a succinct article, D. E. Detmer³ depicted the status of ambulatory surgery, a "Sounding Board" article in *The New England Journal of Medicine*. The history of outpatient surgery was recounted, the terms were defined, and types of procedures were recommended. Routines for care, patient safety, quality control, and the impact on costs and efficiency also were described. In the latter area, Detmer indicated that there was still room for speculation.

Evaluation of the impact of ambulatory surgical units on cost and efficiency is complex. Certainly at the institutional level, direct patient savings can be demonstrated . . . whether money is ultimately saved at the level of the health care system is difficult to determine. . . . Since we do not know what will happen to system-wide costs, a national policy with incentives favoring free-standing units over hospital-based units seems inappropriate. The observation that patient charges are generally slightly higher in hospital units than in free-standing units must be balanced against the knowledge that capital costs for new, free-standing units are substantial, and that most hospitals currently have good physical plants and excess beds. . . . Furthermore, there is little evidence that hospitals will contract gracefully and quickly enough to save money. . . As free-standing, independent surgical units become larger will they add one-night stay capability as well? At risk is the economic viability of the traditional voluntary community and teaching hospital.

Meanwhile, as the system is being analyzed and revised, the record for safety in the care of outpatient surgical patients is impressive and the system has been accepted readily by the public and physicians alike. Outpatient surgical care is in a sense the newest specialty, with special anesthetic attributes. There are a national society, several textbooks, a journal in the process of publication, and a continuing array of symposia and continuing education courses directed toward the subject of outpatient surgery.

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Department of Anesthesia Brigham and Women's Hospital 75 Francis Street Boston, Massachusetts 02115

THE SURGERY OF INFANCY

- 2 -

By James H. Nicoll, MB, CM Glasg

From THE BRITISH MEDICAL JOURNAL, Sept. 18, 1909; 753-754

THE SURGERY OF INFANCY

By JAMES H. NICOLL, M.B., C.M.GLASG., Surgeon, Western Infirmary: and to the Royal Hospital for Sick Children. Glasgow.

I DESIRE to bring forward certain views concerning surgical operations in infants and young children, and it may be well, in the first instance, to indicate the basis on which such conclusions as I have arrived at have taken shape.

As influencing my opinions, doubtless the experiences of some twenty years of private surgical practice, and of my wards in the Western Infirmary, have been factors: but I desire to found myself mainly on the out-patient practice of the Glasgow Royal Hospital for Sick Children, in which for some fifteen years I have been in charge of a clinic. During the past ten years (1899 to 1908 inclusive) the work in that clinic has included some 9,000 operations (strictly, 8,988), of which 7.392 have been performed by myself. They have embraced operations for many of the usual affections of childhood, which in a city such as Glasgow naturally include a large proportion of cases of surgical tuberculosis of bones, joints, and glands. Amongst others, however, there have been 610 operations for talipes (tarsectomy, tarsotomy, astragalectomy, and tendon operations); 406 for hare-lip and cleft palate: 36 for spina bifida: 23 for depressed birth fracture of skull; 18 for congenital stenosis of pylorus: 167 for mastoid empyema: 143 for ligature or resection of internal jugular vein in course of radical mastoid operation or excision of cervical glands; and 220 for hernia, inguinal, umbilical, and ovarian (during the past five years only).

As bearing on the conclusions come to, it may be noted (1) that all the 8,988 cases were treated as out-patients after operation, and (2) that nearly one-half of them were children under 3 years of age, a large proportion of them being infants of under a year. Certain series of the cases have been from time to time published as bearing on special subjects, and, in connexion with spina bifida and hydrocephalus, birth fracture of skull, hernia of ovary, pyloric stenosis, ligature of jugular, etc., will be found in the BRITISH MEDICAL JOURNAL, Annals of Surgery, Glasgow Medical Journal, Edinburgh Medical Journal, and other periodicals.

The conclusions to which experience of these cases has led are mainly five; and if I put them in the form of pleas rather than of opinions, it is not that I doubt their soundness, but that I have found adverse criticism not wanting, though less pronounced of late. They are as follows:

I.

That a much larger share of the operative work of a children's hospital than is even now so treated should be done in the out-patient department. In the light of the results obtained at the Glasgow Children's Hospital I have no alternative to the opinion that the treatment of a large number of the cases at present treated indoor constitutes a waste of the resources of a children's hospital or a children's ward. The results obtained in the out-patient department at a tithe of the cost are equally good. Discrimination in the choice of cases for out-patient operative treatment is, of course, necessary. Certain cases are unsuitable. As a rule, the unsuitable cases are found amongst children as opposed to infants. A few instances in illustration must suffice. Osteotomy for rachitic bones, and excision of the knee and hip for tuberculous arthritis are inadmissible as out-patient operations. Both classes of operation belong to childhood, not to infancy. Cleft-palate operations in suckling infants do well as out-patients, but the child of 3 or 4 must go into the wards, where care can be taken to prevent his putting hard edibles into his mouth.

II.

That the cases relegated to the out-patient operating theatre should be largely infants and young children. I express deliberately an opinion which I believe to be well founded when I say that in children under 2 years of age there are few operations indeed which cannot be as advantageously carried out in the out-patient department as in the wards, and that, while the number increases with each year, the increase is not great until the age of 5 is reached. Infants and young children in a ward are noisy, and not infrequently malodorous. The main idea in their admission is the supposed benefit of "trained" nursing. That benefit is largely wasted on them. In the case, for instance, of a child of 18 months after herniotomy or abdominal section, the idea that in hospital he is kept lying quietly on his back largely obtains. Further, if he will not lie quietly he may be fixed on a splint. My experience has been that more often than not he is "all over the bed" directly the nurse's back has been turned on him, and that, if "splinted," his crying and struggling put fresh strain on the surtures. Continuous quiet rest on the back on the part of a young child in pain is a pretty idea, rarely obtainable, and not specially necessary after such operations. After operation in the out-patient room, such young children, with their wounds closed by collodion or rubber plaster, are easily carried home in their mothers' arms, and rest there more quietly, on the whole, than anywhere else. They are visited at home by the hospital sisters and brought back to have the dressing removed at the end of a week or ten days. And I go as far as to say that, with a mother of average intelligence, assisted by advice from the hospital sister, the child fares better than in hospital.

III.

That sucklings and young infants should remain with their mothers after operation. To add to a surgical illness, necessitating operation, the ordeal of weaning is largely to increase the chances of a fatal issue, more particularly in acute cases, in which, to apply the term "weaning" at all to the sudden separation of the child from mother is to largely deprive it of significance. Even when the child is "bottlefed" separation from the mother is often harmful.

For seven years I have had a small house, near the Glasgow Children's Hospital, for the accommodation of young infants and their mothers. The mothers are catered for, and themselves nurse their infants. My experience of the cases so treated has been such as to make me confident in the opinion that no children's hospital can be considered complete which has not, in the hospital itself or hard by, accommodation for a certain number of nursing mothers whose infants require operation.

The foregoing opinions have reference to the practice of surgery in the cases of children. Working in a children's clinic on the lines indicated, I find that I have

gradually formed two further opinions which bear on the practice of surgery in general, and which opinions have been formed by others from other points of view of the subject.

IV.

It has not surprised me to learn of late that many of our leading surgeons in this country and abroad do not prepare the part for operation until the patient is actually under anaesthetics on the table. In a children's out-patient clinic preliminary preparation of the skin is impracticable, and our experience in my clinic at the Glasgow Hospital proves that it is superfluous. If I retain it in my wards in the Western Infirmary it is solely on account of the one advantage it possesses. With all its disadvantages, preliminary preparation of the skin of the part presents the advantage of the saving of time under the anaesthetic, and that advantage is considerably greater in adults than in children. In the adult the surfaces to be cleansed are comparatively large, and especially in males, require the use of the razor in many parts of the body besides the scalp, and a good deal of time may be necessary. In the child cleansing of the part is very speedily performed.

V.

Experience of herniotomy, abdominal section, and other operations in young children treated as out-patients is gradually reconciling me to the view that we keep similar cases in adults too long in bed, and in my wards in the Western Infirmary we are gradually feeling our way to an average recumbent period of something under a week; how much under we have not yet quite decided.

DISCUSSION

The PRESIDENT OF THE SECTION (Mr. H.J. Stiles) agreed with Mr. Nicoll on very many points laid down by him, but did not consider it justifiable to treat hernia patients after operations for hernia as out-patients.

Mr. ROBERT CAMPBELL (Belfast) said that he was in entire agreement with Mr. Nicoll as regards operation on children who could be easily carried home by the mother. He was in the habit of operating in the out-patient department department on hernia cases.

Dr. J.W. SIMPSON (Edinburg) said that Mr. Nicoll's statement that after certain operations, if an infant could be treated as an out-patient, it was preferable to treating the same class of case in the hospital, raised the question of the advisability of as far as possible having infants under the care of the mother. Certainly, at least in medical cases in which the feeding was of the first importance, experience proved that, provided the mother was intelligent, it was much better to treat such cases as out-patients. Frequently, when under hospital care, these cases did badly; if sent out and carefully tended by the mother—the same dieting being carried out—they at once put on weight. As the question of feeding must be considered in all cases, he was disposed to agree with Mr. Nicoll that, as far as possible, infants should be treated as out-patients.

Mr. A. FULLERTON (Belfast) said that most of what Mr. Nicoll and the previous speakers had said accorded with his own practice to a large extent, but he drew attention to the medico-legal aspects of the question. Supposing, for instance, he had operated on a case of hernia in the out-patient theatre, and that child died from sepsis or other cause, a little awkwardness might arise with a jury, especially if a medical man called to see the case made the statement that the child ought to have been kept in hospital. With the authority, however, of such well-known surgeons as Mr. Nicoll, Mr. Stiles, and Mr. Campbell, he was sure more work would be done in the out-patient theatre, and he was also sure that the benefit of children's hospitals would be much extended thereby.

Mr. E. SCOTT CARMICHAEL (Edinburgh) said that he had had uniformly good results by following lines similar to what Mr. Nicoll had laid down with regard to operative treatment of infants.

Mr. R.C. DUN (Liverpool) said that on the whole he agreed with the views expressed by Mr. Nicoll.

Mr. ALEX. MACLENNAN (Glasgow) said with reference to radical operations for hernia there was no reason, as far as asepsis was concerned, why an operation done in an out-patient theatre should not be as safe as that done in the in-patient theatre. The risk of movement afterwards was much less than the risk of retching, coughing, or sneezing, all of which were as likely to be a sequence in the one as in the other case. Soiling of the wound at home could be prevented by an impervious dressing, and in any case the child soiled itself as much in a hospital bed as in a bed at home. The operation was so simple as to be practically without risk, and could be advantageously performed from birth onwards.

Mr. G.H. EDINGTON (Glasgow) detailed the after-treatment of operated cases of hernia in infants, and strongly advocated the application of a wet paste consisting of iodoform and carbolic lotion to the operation wound followed by a layer of gauze, which served to abstract the fluid, a dry antiseptic covering resulting. From experience amongst the poor he was certain the child would often have to share the family bed with the parents and other children, even in infectious diseases.

THE DOWNTOWN ANESTHESIA CLINIC

- 3 -

By Ralph M. Waters, MD

From THE AMERICAN JOURNAL OF SURGERY Quarterly Supplement of Anesthesia & Analgesia 33 (7): 71-73, July 1919

THE DOWN-TOWN ANESTHESIA CLINIC.* R. M. Waters, M.D. Sioux City, Iowa.

The subject assigned to me is so foreign to the thoughts uppermost in the minds of us all that I feel almost a slacker in presenting it. However in due time the war will be over and it is possible that many of us may land, thereafter, in new locations. In case we do I feel sure that a short story of my experiences may be of some value.

In 1915 my practice consisted largely of anesthesia and I was using my home as telephone headquarters with no office whatever; doing largely anesthetics for major surgery in the various hospitals. An occasional call from a dentist however broke the routine and in many such cases the dentist and patient alike objected to going to the hospital both because of the time and expense involved. It was suggested to me that a down-town office equipped to care for dental and minor surgical cases would be useful, as we had no exclusive specialist in exodontia in our town, and some surgeons were also anxious to establish extra hospital clinical facilities.

After the Mexican border demobilization in 1916 I made bold to try such a plan, my practice from that time being confined exclusively to anesthesia. An office was equipped with a waiting room and a small operating room with an adjoining room containing a cot on which a patient could lie down after his anesthetic. In due time the place became popular and we moved. I say we for two reasons. First, it avoids a too egotistical repetition of the pronoun I and second, chiefly because my office assistant, a girl of twenty-one, has been more than half responsible for the success of the experiment. Her interest and faithfulness have made it possible to make definite dates and keep them properly, and see that no dentist or surgeon has felt himself slighted or inconvenienced. I bespeak for any of you, who may make a like venture, a careful selection of your assistant and I wish you good luck.

In February 1918 we found ourselves with three units of floor space in the newest and most central office building of our town. The population is 65,000 and we have a hundred doctors and fifty dentists in peace times. In this building some fifty doctors and dentists have their offices. We are equipped with a large reception room with easy chairs and reading matter to divert the attention of fond relatives. Our operating room is of ample size with large south and west windows. In it we have a modified French chairtable such as you have seen Drs. McKesson and Denman use in Toledo for tonsillectomy and nose work. This we find very convenient for the dentist's use also, as it can be tilted into a half reclining position readily and quickly back to the head-forward position during recovery after bloody extractions. It also makes an excellent flat operating table. We have also a dental engine, a sink with foot pedals to turn on water and a sterilizer for instruments, gauze, towels, gowns, et cetera, and a sterile water tank. In short the usual equipment for a minor surgery room. The sterilizer, however, we plan to

^{*}Read during the Fourth Annual Meeting of the Interstate As sociation of Anesthetists with the Indiana State Medical Associa tion, Claypool Hotel, Indianapolis, Indi, Sept. 25-27, 1918.

replace with a better one in an adjoining room which we also use for storage of supplies.

To each side of the operating room is a room containing two or three cot-beds; separate doors open into each room through which the operating chair will roll with ease. Thresholds for such a door we have found are a nuisance and should be removed. One of these rooms we use for female patients and the other for males. There is running water in each, a mirror, etc. One thing we miss very much is a toilet and one should not be forgotten when planning such a place in a new building.

In addition, off the men's retiring room, I have a private office with desk and chairs which serves also as a good loafing and smoking room and a place in which doctors can wait when they are early; it has a separate exit to the building corridor.

Our hospital work with major surgery still occupies half our times and makes up half our income but that is mostly accomplished in the earlier part of the day. The down-town work consists of noon-time and afternoon appointments and occupies time which would be otherwise idle.

Dentists bring all sorts of difficult extractions and painful cavity preparations. Surgeons bring circumcisions, abscesses, and fractures and are gradually bringing more minor operations as time goes on. The head specialists bring some work and they too are gradually bringing more. Some dentists who used to attempt their own anesthesia now bring it to us. Others still do their less difficult cases and bring the more difficult ones to us. We take all sorts of cases. always attempting to give satisfaction regardless of expense. I mean we don't save anesthetic agents and let the patient feel the operation. We make careful physical examination on all suspicious risks. Others are accepted as they come. A sphymomanometer and stethoscope are constantly present and frequently used. Here again the well trained and alert assistant is useful. She often warns me that the next patient is short of breath or shows some other evidence of needing careful examination.

We attempt, as I said, to give satisfaction to operator and patient and charge a fee that will pay expenses and a good profit. We make no fees in advance and have no set prices. Sometimes one tooth extraction takes ten seconds and sometimes it takes an hour and a half. The cost of materials and the value of our time make it necessary to gauge the fee by the work. Our minimum fee, with present cost of materials is seven dollars, the maximum is usually not over fifteen dollars. In other words our fees are considerable less that for similar work in hospital because less time and trouble is involved.

As to anesthetic agents used we aim to use N_2O -O as a routine. In particularly nervous patients we use as preoperative sedatives morphin and scopolamin, sublingually, as a rule. Ether we add very rarely and of course no chloroform for we do not use that even in the hospital.

We keep a card record of every case with physical findings when made, approximate weight, sex, complexion, and other details and also the assistant's estimate, each time, as to the degree of satisfaction to patient, surgeon and dentist. Also a record of what work was done and the length of time.

As to the satisfaction of my patrons. I think I can say this: there are none who have fault to find with our work. We aim to keep an abundant supply of N_2O -O and use it freely. Many patients and some doctors object to the fees but they come back and their friends come back. Satisfactory anesthesia and too large fees work out better than bargain sale fees and unsatisfactory anesthesia; especially as in open mouth work one cannot wisely be over economical of gases when using N_2O -O anesthesia. People forget the fee but they never forget the hurt nor fail to tell their friends about it.

We have made no start with local anesthesia as yet but have plans regarding it for the future. I believe it a very useful addition in connection with such an establishment as I am describing. I know that many dentists would appreciate such service greatly as they prefer not to bother with learning the technic of local nerve-blocking and would feel safer in employing one who devotes his time to such work.

As to the preoperative preparation of patients we worry little about it. We prefer, when possible, a light meal for the last before the operation. Liquids are allowed at all times. Much of our work is done just before or during the noonhour because patients have then an empty stomach and at the same time we do not disturb the usual routine of the patient in regard to eating. Every patient takes off his or her outer garments above the waist and corsets are removed by the women. A sheet serves as drapery when coming to the operating room. Every case must go to the toilet before undressing.

As to the after-care the only difficulty is to be

sure that patients with blood in mouth or nose, spit it up and do not swallow it. That we accomplish by using pharyngeal packs during the operation when necessary for dental work and by changing to head forward position before removing the pack. The patient is usually awake before the pack is removed in such cases. Then the lateral position in the cot with face turned down by the pillow makes it easy to expectorate without rising up in bed. In this way we have little swallowed blood and little vomiting. The time required for recovery varies from one minute to three hours. Occasionally a woman in poor health who has been nauseated requires help to get home but this occurs rarely.

As to the success of the venture I think I can say that the men who are familiar with the place are well pleased. The place has been running in its present location now for eight months and is paying my total expenses with a nice profit besides.

I hear objections both from doctors and patients as to prices, occasionally. That bothers me not at all. I attempt to pay expenses and a net fair fee for myself in each case. I don't care to work on any other basis. The one thing I do strive for is to satisfy patient and operator. If I fail in that I wish no fee and I collect none. In the long run I believe that plan wins out.

As for *business getting* activity it is all with the dentists and physicians. The place is for their use and their convenience and consideration for them comes first. If Mrs. Jones calls up in regard to an anesthetic, because her neighbor Mrs. Brown was pleased, I ask after Mrs. Brown's health and tell Mrs. Jones to make any arrangements she sees fit with her dentist or doctor. His office calls mine and makes the appointment.

One point which we lay emphasis upon and which I think is a business getter is prompt collection direct from the patient. We never bother a physician or dentist about a patient's bill. A statement is rendered before the patient leaves the office and seventy-five per cent pay them. If there is to be a loss we assume it, preferring not to bother the doctor with finances. So we avoid making an enemy of the doctor and patient alike, for every patient who owes you is your enemy.

The future for such a venture, I believe, is bright. I know ours is not yet half-grown. Several additions have been planned for the immediate future; one, a permanent graduate nurse assistant. So far we have only employed the extra assistant as occasions demanded.

We have considered seriously the manufacture of our own N_2O also. Frequently other additions suggest themselves or are suggested by physicians and dentists. When the war is over I trust many of you may develop down-town minor surgery and dental clinics of much larger scope.

539 FRANCES BLDG.

ANESTHESIA FOR THE AMBULANT PATIENT

- 4 -

By Eric Webb, MD, and H. B. Graves, MD

From ANESTHESIA & ANALGESIA...Current Researches 38 (5): 359-363, Setp.-Oct., 1959

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IN VANCOUVER, BRITISH COLUMBIA, hospital beds are in short supply. The Vancouver General Hospital has long waiting lists for beds for patients undergoing elective surgery. The patient who has a nonemergency, nonfatal, relatively minor but nonetheless worrisome and irritating condition may find himself with essentially small hope of ever getting admitted to the hospital for his necessary operation.

As a partial solution to this problem, some 10 years ago we established an outpatient surgical service. Patients are admitted, on the morning of surgery, to the anesthetic recovery unit of our private ward operating suite. Surgery is done in the standard operating room, with normal anesthetic procedures. The fact that after a short period in the recovery unit the patient will dress and leave the hospital imposes certain restrictions on the anesthesiologist. It is the purpose of this presentation to outline some of the modifications required by this type of anesthetic practice as we have come to understand them.

The operations booked for this type of service are obviously the short, straightforward ones, where hemorrhage is not a problem, and where postoperative discomfort and nursing care are minimal. They are scheduled to start at 8:30 a.m. and thereafter at 45-minute intervals. until 11:30 a.m. The service is available Monday through Friday, so that, on the average, 25 cases are booked each week. Cancellations and missed appointments occasionally occur, so that we actually do about 100 operations per month, or somewhere between 1,100 to 1,200 per year. This is a fairly good load for one anesthetist's morning work.

A break-down of the operations done on this service during one recent sixmonth period is given in the table. Of the 499 cases, five required admission; one tonsillectomy was started under local anesthesia and subsequently re-

^{*}Department of Anesthesiology, Vancouver General Hospital and the University of British Columbia.

quired general anesthesia and admission; in two dental cases unexpected difficulty with surgery suggested that admission was advisable, and in one case each of dilatation and curettage and vaginal dilation the condition found suggested immediate admission and further surgery.

PRECAUTIONS REGARDING PATIENT SAFETY

Medical Assessment.—These patients are all under the care of their family doctor, and their conditions are fully assessed by him before their presentation for anesthesia. Correctible defects in their physical status are under control; for example, through digitalization, diabetes medication, etc. It is generally accepted that cases presenting unusual medical complications should not be handled on this service.

Adrenal Cortical Hormones.—All personnel concerned must be aware of a patient's receiving treatment with the adrenal cortical steroids. Providing the team has been forewarned, and appropriate therapy given preoperatively and postoperatively, no trouble has been en-

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About the Authors





Dr. Graves

★ ERIC WEBB, M.D., Senior Anesthetist at Vancouver General Hospital and Clinical Instructor at the University of British Columbia, was born at Stratford, Ontario. He received his doctor of medicine degree from the University of Western Ontario in 1940, and in 1947 he was granted a Diploma in Anesthesia from McGill University, Montreal. He was a Flight Lieutenant in the Royal Canadian Air Force Medical Branch from 1941 to 1945. His hobbies include playing the piano and recordings. He is reserve organist at his church, has been a member of the local school board the past three years and at present is Chairman. Dr. Webb and his wife, Clara Belle, have two sons and two daughters. The family also includes two dalmatians.

★ HORACE B. GRAVES, M.D., a native of Moncton, N.B., Canada, is Director of Anesthesia at Vancouver General Hospital and Clinical Associate Professor of Surgery at the University of British Columbia. He obtained the degree of B.A. and M.D.C.M. from McGill University, Montreal, in 1942 and also took postgraduate training in anesthesia. He served in the Royal Canadian Army Medical Corps from 1943 to 1946 at No. 7 and 24 Canadian General Hospital. He is a member of the Academy of Anesthesia, and his hobbies are all sports but especially golf and Little League baseball. Dr. Graves is the father of two sons and one daughter.

	Table		
BREAKDOWN SURGICAI	I OF OPERATIONS DONE ON OU L SERVICE DURING SIX-MONTH P	TPATIENT ERIOD	
	and the second	Number	Per cent
Dilatation and curettage	(therapeutic and diagnostic)	158	32
Other vaginal procedures		23	4
Upper limb	(ganglia, tendon repair, manipulation of shoulder)	82	16
Lower limb	(Keller operations, manipulation of knee, etc.)	79	16
Breast biopsy		50	10
Head and neck	(full-mouth extraction) (cysts, biopsy of tongue examination of eye under	27	5
	anesthesia)	26	5
Meatotomy, circumcision		15	3
Miscellaneous		39	8
		499	

countered. We did have one case in which the surgeon and anesthetist were unaware that the patient had undergone long-term steroid therapy for asthma. Removal of an axillary node was followed by a period of collapse, which was very amenable to intravenously given steroids. During the last three to four years we have routinely inquired about therapy with these drugs specifically.

PROCEDURE AND EQUIPMENT

Admission.—The patients must arrive early enough to allow a preoperative visit and taking of history by the anesthetist, a physical examination, and proper timing of preanesthetic medication. This means the first morning patient arrives about 7:30 a.m. A full and valid legal consent is required, and it is pointed out that no patient must leave unless accompanied by a competent adult. We discourage trips by taxicab unless a second passenger is present, and travel by bus is forbidden. The patient should be seen before any drugs are administered and the patient-physician relationship exploited as fully as possible. Records must be as accurately kept as for hospital patients. Ingestion of any food on the morning of surgery is an absolute indication for refusing an anesthetic, and we do not compromise on this point.

We insist that the surgery to be done be of a straight-forward nature. We discipline the surgeon who attempts to do major surgery under this service, and we discourage the "minor surgeon" who attempts a procedure beyond his scope. We admire the surgeon who, when he recognizes a situation beyond the scope of this service, admits this fact, discontinues the surgery, and arranges immediate admission of the patient.

Premedication.—Premedication is by normal standards extremely light. Our ordinary preference for scopolamine may be foregone in order to take advantage of the earlier waking with atropine. Opiates are used in small doses, and barbiturates and phenothiazine derivatives are avoided entirely. The extremely nervous patient who is well known to both surgeon and anesthesiologist may receive different treatment. Children small enough to be carried in their parents' arms can be treated as if they were inpatients, since the admission shortly before surgery can be disturbing unless adequate sedation is employed.

Recovery Unit.—These patients enter the normal stream into the recovery unit. Sedation postoperatively is naturally kept to a minimum. Admission is arranged from the unit if complications have arisen or if the surgery has been more extensive than contemplated. Since the last case is finished by 12:30, the discharge of these patients is nearly always completed by 3:00 p.m. The staff in the recovery unit is sufficient to handle the full output of the surgical suite. and the patients are assured of adequate experienced supervision until fully awake. Light refreshment (tea and toast variety) is served patients as soon as advisable.

Equipment.—Working, as we do, in our familiar environment, all of our major and minor equipment is available. Nothing is left to chance, and we are not liable to the forgotten forceps, the torn rebreathing bag, or the sudden calamity which has not been adequately foreseen. Nursing help is available, and these patients are as safely anesthetized as any of our inhospital patients.

ANESTHETIC TECHNIQUES

Since these patients are not easily available for postoperative rounds, we make every effort to avoid any technique which tends to result in frequent and troublesome complications. (This is not meant to imply that we do not trouble ourselves with complications in inpatients.) For example, spinal anesthesia is completely avoided in these outpatients. Epidural anesthesia likewise is not used with any enthusiasm. Brachial block, however, is popular and is successfully applied for upper limb surgery. Penile block with or without light supplemental anesthesia is useful in circumcision. Endotracheal intubation is used when indicated; indeed, in many of the cases intubation is mandatory. However, judgment here may suggest avoiding use of the endotracheal tube if the surgeon is well known and the operation can be managed with an ordinary airway.

The incidence of generalized and severe muscle pains after the use of succinylcholine in ambulatory patients has led most of us to avoid this drug. In its place decamethonium is used to distinct advantage.

As suggested by the type of case presented, general anesthesia is the commonest method used. Usually this consists of induction with a thiobarbiturate (with dosage minimal), maintenance with cyclopropane, and a thorough and complete blow-off of cyclopropane with nitrous oxide mixtures.

Halothane is becoming more and more popular for use in this type of case, although it is by no means a standard approach. It offers a great deal, though, where an explosive hazard exists.

The majority of the patients react even to the point of conversation in the operating room.

COMPLICATIONS

During 10 years' experience with this type of anesthetic service, complications have been gratifyingly infrequent. There have been several pneumothoraces after brachial block with two of the patients requiring admission. One case resulted in litigation which was successfully defended. There have been several cases of temporary neuritis, all of which cleared completely. One nasal polyp the size of a grape was dislodged by a nasal airway and nearly inhaled. This was one of our most grateful patients, inasmuch as he came in for removal of a bony exostosis of his thumb and returned home cured of a longstanding nasal obstruction-for which cure he was not charged any fee! The aforementioned case of collapse due to adrenal insufficiency after an axillary node excision was an early lesson in this regard. After-pains following use of succinylcholine have been frequent enough to discourage the use of this drug.

DENTAL OFFICE ANESTHESIA

In addition to the group of cases discussed above, we have had limited experience with anesthesia in the dentist's office. Surgery here is mainly for major extractions and removal of dental cysts and impactions. Our dental colleague operates with the patient in his chair. Nasotracheal intubation with a cuffed tube and maintenance with a minimal amount of halothane is our standard approach because of the explosion hazard. These patients are awake enough to move into a castered chair within five minutes after the anesthesia is discontinued and are then wheeled into one of several recovery rooms. They are ready to leave the dentist's office 30 to 60 minutes after induction. Minimal sedation with meperidine and atropine is used.

COST TO PATIENT

Basic hospital costs in our province are paid by a provincially sponsored, sales-tax-supported insurance scheme. The outpatient service costs the individual patient a small token fee of \$2.00. In addition to the surgeon's fee, he pays our anesthetic account, — a standard surgical anesthesia fee.

CONCLUSIONS

By adapting anesthesiological procedures in minor respects, we have made modern anesthesia available on our surgical outpatient service. Through this service, roughly 1,200 patients a year obtain surgical benefits which would otherwise be virtually unavailable in our hospital. (Our total surgical load is 20,000 cases; 5 per cent of our work is done in this service.) These cases are enough to gainfully employ one of our staff each morning.

This type of surgery requires the anesthesiologist to appreciate the needs for adequate, competent anesthesia, bearing in mind extremely rapid recovery. Ambulant surgery is quite feasible and can be pleasantly supplied. However, it can not be supplied by any but well-trained and sensitive anesthesiologists.

ANESTHESIA FOR OUTPATIENT SURGERY

- 5 -

By David D. Cohen, MD & John B. Dillon, MD

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Anesthesia for Outpatient Surgery

David D. Cohen, MD, and John B. Dillon, MD

It is possible to conduct a program of anesthesia for outpatient surgery without compromising patient safety. Intelligent selection of cases and anesthesia method minimizes the incidence of complications. The feasibility and practicality of outpatient surgery were demonstrated by the fact that only 33 of 804 patients (4.1%) were admitted as inpatients, and most of them during the early part of the study period. A properly equipped and staffed outpatient surgical unit is necessary: the availability of such a facility makes rapid expansion of surgical capabilities feasible in civil disaster. This flexibility is an attractive feature which can be helpful in obtaining funds for such expansion. An estimated \$28,000 in savings to patients or insurance companies was achieved and approximately 1,000 hospital days were saved during the study period.

W ith a population expanding faster than the number of hospital beds, a bed shortage of indefinite duration confronts the medical profession. This problem will be rapidly intensified as recent legislation is put into effect. Ways must be sought to achieve more efficient use of the existing hospital beds, many of which are occupied for administrative reasons only. Ambulatory patients are often admitted to the hospital for minor surgery either because their insurance covers them only if they are treated in the hospital or because

From the Department of Surgery/Anesthesiology, University of California, Los Angeles, School of Medicine.

Reprint requests to 10833 Le Coute Ave, Los Angeles 90024 (Dr. Cohen).

they require "major" anesthesia and the hospital's rules require their admission as inpatients. These practices militate against the economic and efficient use of existing beds.

Efficient use of hospital beds is further hampered by the regulation of many insurance carriers that requires admission to the hospital for a minimum of 18 hours, with the paradoxical loss of possible savings to patients or insurance company. The insurance companies keep their profits level by increasing premiums, but they may price themselves out of the market and cause government intervention in their premium structures.

With these facts in mind, we instituted a program of outpatient surgery at the University of California, Los Angeles (UCLA) Center for the Health Sciences in late 1962.

Program

Cases are selected primarily by the surgeon. If, in his estimation, only brief postoperative observation is required for safety, for instance, if there is minimal danger of postoperative bleeding, then outpatient surgery is considered appropriate. An essential criterion is that a maximum three-hour recovery period is judged to be probable prior to the patient's leaving the hospital. No prospective candidate is denied the possibility of the outpatient surgical service because of anesthesia requirements. If no surgical or medical aspect of the patient's physical status demands prolonged postoperative observation, there is no reason to detain a patient arbitrarily simply because he is to receive a general or conduction anesthesia. Only the development of complications should necessitate detention.

Patients with an infection are not eligible for treatment in the Outpatient Surgical Service Unit.

The basic responsibility for the patient in this program rests with the operating surgeon. In this respect, outpatient management is no different from inpatient management. Ground rules, as are subsequently detailed, were mutually agreed upon by the surgical and anesthesia services, and any breakdown in the observance of these rules results in cancellation of the procedure for that day.

It was understood from the beginning that the types of operative procedures would necessarily be limited and that the patients selected by the surgeon would ordinarily be patients in general good health. Some patients not in general good health but under good control are considered. It was further understood that the patient might need to be admitted to inpatient status for either a surgical or an anesthetic complication. It was of the essence in this experiment in management that the anesthesiologist could cancel the case for any reason that any inpatient anesthetic would be cancelled.

Having been selected for outpatient surgery, the patient is issued important instructions:

1. You will report to the Outpatient Surgical Unit, on the A floor of the Outpatient Department of the UCLA hospital, at your scheduled time on the day of your procedure. A consent form will then be signed and witnessed before medication and/or operative procedure is done.

2. Prior to this time (within ten days) you must have a blood fest and urinalysis performed in the UCLA clinical laboratories.

3. Do not eat or drink anything after midnight of the night before surgery. Do not have anything in the morning -NO COFFEE, NO FRUIT JUICE, NO WATER. Be especially careful, if the patient for surgery is a child, to insure against violation of this instruction. It is extremely hazardous to have anesthesia and surgery with a full stomach.

4. Remove all nail polish from your fingernails and toenails prior to coming to the hospital.

5. You will be seen by an anesthesiologist after you arrive in the Surgical Unit. He will answer all your questions regarding your anesthesia. He will also order premedication for you before you go to the operating room.

6. You will rest in the Surgical Unit after your return from the operating room. Your doctor will check you prior to departure from the Surgical Unit before you go home.

7. Someone must accompany you home from the hospital. You will not be allowed to drive yourself home or go home by any public conveyance after any surgical procedure. This relative or friend may wait for you in the



1. No. of outpatient admissions by hospital service.

outpatient lobby. No relatives or visitors are allowed in the Outpatient Surgical Unit.

8. If a change in physical status develops, such as a cold, persistent cough, fever, or important change in the condition for which you are to have surgery, notify your surgeon.

Surgeons have been careful of the type of patient selected, and it is very rare indeed that operations are cancelled by the anesthesiologist after the patient appears in the outpatient surgical unit. The most common cause has been the ingestion of fluid or food, or on rare occasions the suspicion of the development of an infection or upper-respiratory-tract disease.

The outpatient surgical unit provides for a maximum of eight adult and two pediatric patients at any given time. Suitable cribs and stretchers are used both for transportation to and from the operative areas and as beds during the recovery period. The room is equipped with all of the customary equipment to be found in the Inpatient Surgical Recovery Unit. This includes various fluids and medications, oxygen and suction equip-



2. No. of patients by anesthesia method and agents.

ment, sphygmomanometers, proper lights, laryngoscopes with proper blades and endotracheal tubes, an anesthetic-gas machine, and emergency tracheostomy and thoracotomy trays. Such equipment and facilities enable rapid expansion of surgical capabilities during civil-disaster conditions.

On arrival at the hospital, a patient scheduled for outpatient surgery is processed administratively at the admitting office and escorted to the outpatient surgical unit, where he undresses and is examined by the surgeon and the anesthesiologist. Written consent is obtained. Patients or parents of pediatric patients are questioned carefully regarding recent intake of food or drink. Preoperative medication is given as directed by the anesthesiologist, and the patient is transported



3. No. of patients in relation to duration of anesthesia.

to the operating room at the appropriate time.

Anesthesia is induced and maintained by conventional techniques, with the anesthesiologist bearing in mind that rapid recovery is desirable. Techniques involving higher incidence of complications are avoided whenever possible, but those types deemed necessary for the conduct of surgery or the safety of the patient are not withheld.

After surgery has been completed and soon after his emergence from anesthesia, the patient is accompanied by the anesthesiologist to the outpatient surgical unit, where he is observed by a staff of two registered nurses, who have been specially trained for this responsibility, until he is ready for discharge.

Outpatients are not included among the very first cases of the day because of the early hour, but every effort is made to schedule them as early as possible. No outpatient surgery is started after 12:30 PM in order to permit closing of the outpatient surgery unit by 5 PM daily. During 1963 and 1964, the two years under study, 1,523 patients were processed as outpatients. Of these, 719 had surgery with local anesthesia given by the surgeon. Assuming that the remainder (804 patients), who had "major" anesthesia requiring the services of an anesthesiologist, would have been inpatients under other circumstances, we have directed our attention especially to this group.

Slightly more than two thirds of these patients (551) came from four services: gynecology, ophthalmology, urology, and plastic surgery. The remaining one third came chiefly from anesthesia, head and neck, general surgery, and orthopedics (Fig 1).

The most frequent operations were diagnostic dilatation and curettage, eye examination, and cystoscopy.

No patients from the dental service were included, but it is anticipated that, with the opening of the UCLA dental school, considerable use of the outpatient recovery unit will be made for dental procedures.

Simple, uncomplicated anesthesia techniques were used for most patients (Fig 2). General anesthesia was used for 676 of the 804 patients (84.1%). Inhalation anesthesia was the principal technique in almost 85% of those patients receiving general anesthesia. Rectal anesthesia was used in 4.6%. Nongeneral techniques were used in 128 patients (15.9%). Nongeneral anesthesia used included regional nerve block, 60 cases (7.4%); epidural (mostly caudal for culdoscopy), 36 cases (4.5%); and spinal block, 11 cases (1.4%). In most cases (78.8%), anesthesia lasted less than one hour; in 95.7%, it lasted less than two hours (Fig 3).

The 4.5% of cases in which anesthesia lasted more than three hours represent, for the most part, erroneous prejudgment. Almost three fourths of these cases occurred during the first year of the study; the incidence declined sharply with experience.

Physical status was good in 502 patients (62.5%); fair in 241 (30%); and poor in 26 (3.2%). Emergency classifications make up the remaining 35 (4.3%); most cases in these categories were logged during the early days of the program. Outpatient admission for emergency patients is now discouraged.

Orotracheal intubation was used for 67 patients (approximately 10% of those who underwent general anesthesia).

Assisted ventilation was used in 425 patients (52.9%). Ventilation was not assisted in 311 (38.5%). Controlled respiration was used in 60 (8.9%).

Muscle relaxants were used in 26.3% of the cases in which general anesthesia was used. Succinylcholine, a short-acting muscle relaxant was used most frequently (25.1%). Curare-type drugs were usually avoided because of their potentially longer action; they were used in only 1.2% of the general anesthesias.

Complications

Thirty-three patients were admitted as inpatients instead of being released from the outpatient recovery room. Thirty-one of them (3.9%) were admitted to the hospital for administrative or surgical reasons, that is, because surgery was delayed, prolonged, or unexpectedly complicated. Only two patients (0.25%) were so detained for anesthetic reasons—insufficient arousal. There have been no serious anesthetic complications.

As with the unexpectedly long operations, it was observed that most of these admissions occurred during the earlier part of the study.

Economics

At the UCLA hospital the average cost to inpatients for diagnostic dilatation and curettage is approximately \$131. This includes the daily rate and charge for operating room, laboratory work, and pathological examination of specimen. The total cost to an outpatient for the same procedure is \$91, a difference of \$40.

The total cost for an eye examination for an inpatient for one hospital day is \$63; for an outpatient, the cost is \$35. The difference is \$28.

Differences for other procedures are within this range in most instances. A rough estimate of the average difference of \$35 multiplied by the total number of outpatients yields the estimated savings in two years: \$28,000 in savings to patients or insurance companies.

Approximately 1,000 hospital days were saved during the study period. This is the equivalent of hospitalizing an additional 200 patients for a stay of five days each. This is the equivalent of adding $1\frac{1}{2}$ hospital beds to our capacity on an annual basis, and it makes available ten hospital beds in an emergency.

Comment

The concept of outpatient general anesthesia is at variance with much established custom. Yet, we believe that such practice is entirely safe, indeed safer than many inpatient practices if it is undertaken seriously and with rigid controls by the surgeon and the anesthesiologist.

This type of practice is an excellent example of team effort. The surgeon is able to treat more of his patients safely and, what is of some importance, expeditiously and economically. He is concerned about his patients' welfare and has accepted, and enforces, the ground rules. The anesthesiologist shares the surgeon's interest and concern, and the result has been for the patient's benefit.

The Outpatient Surgical Service Unit has been a success so far as patients and their families are concerned. Many patients have conditions that require procedures to be done with the use of anesthetics at reasonably frequent intervals. Many infants and children have had multiple anesthetics without hospitalization. It should be noted that we do not consider tonsillectomy and adenoidectomy as appropriate for outpatient surgery, nor do we admit patients for these procedures through the outpatient service.

Safety of the patient is not a matter of inpatient vs outpatient. Safety is an attitude, and, when good practice is followed in selection of patients by the surgeon, with careful preanesthetic evaluation and careful anesthetic technique, there is no reason to expect more complications than under the circumstance of hospitalization.

The outpatient surgical service has been a success for the hospital. It has kept many patients out of the hospital who did not need hospitalization for medical reasons. It has, therefore, provided more effective use of hospital beds and has increased the hospital's public service.

THE SURGICENTER AN INNOVATION IN THE DELIVERY AND COST OF MEDICAL CARE

- 6 -

By John L. Ford, MD, and Wllace A. Reed, MD

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THE SURGICENTER

AN INNOVATION IN THE DELIVERY AND COST OF MEDICAL CARE JOHN L. FORD, M.D. WALLACE A. REED, M.D.



"I believe that whether we continue as an honored profession, self-governing and independent, or become a sort of scientific trade under the supervision and domination of others, depends absolutely on the efforts of the medical profession.

"Our future, in other words, will be determined by how fast and how well the medical profession recognizes its responsibilities, and how fast and how well it discharges these rosponsibilities." So was AMA Past-President Dr. James J. Appel quoted in the June 1969 issue of *Massachusetts Physician*.

"The Modern hospital is rapidly becoming an intensive care unit with all the fantastically expensive equipment and procedures that are required. It costs too much; it costs too much because many who are hospitalized do not need all this and should be cared for in much less expensive surroundings. Thus, the hospital must be surrounded with a number of closely associated special purpose facilities." This is Dr. Russell V. Lee's quotation from *Medical World News* of July 11, 1969.

The Surgicenter is one such special purpose facility, an effort by members of the medical profession, the prime objective of which is to discharge well some of our "responsibilities."

The building to house the Surgicenter is under construction at 1040 East McDowell Road, Phoenix, in handy proximity to Good Samaritan Hospital. The heart of the facility will be the four operating rooms and the large recovery room. Appropriate ancillary equipment and rooms are included in 5240 square feet encompassed in the building. (Figure 1)



Among the responsibilities which the authors hope to discharge with the concept of the Surgicenter are these:

- To make the "ambulatory patient" a matter of greater concern.
- To streamline the delivery of his medical services.
- To reduce the cost of his care.
- To work for a broadening of his insurance coverage.

Two facilities similar to the Surgicenter are already operational in Los Angeles, California and in Washington, D.C. Each is under the jurisdiction of hospitals maintained by medical schools. In each instance the expense of the delivered care, compared with inpatient cost has been appreciably reduced without sacrifice of quality.^{1, 2}

Dr. William Dornette, an authority in the field of health planning, has stated that a Surgicenter type facility can operate independently of a hospital, and the authors subscribe to this view:

"One facility about which little has been written is the outpatient service offering general anesthesia for minor surgical procedures. Such a facility, properly designed, staffed, and operated, has several advantages. A significant patient load is removed from the inpatient bed and operating facilities. There is a distinct savings in the cost to the patient or to the patient's hospitalization insurance carrier. The operation of one such facility (at UCLA) as part of a hospital's outpatient department, and the advantages accrued to such operation, are well documented. But a safe and efficient facility for performance of general anesthesia and minor surgical procedures need not be affiliated either administratively or geographically with a hospital."³ [Emphasis added]

While the concept as suggested by Dr. Dornette is simple in principle, infusing it with life is another matter altogether. There has been no precedent to follow, and many obstacles presented themselves as the project was developed. One thing that was certainly obvious from the outset was that we needed approval from major insurance carriers. Also, we wanted to establish an effective means for quality control. As it turned out, our interest in achieving quality control proved to be the key to a workable formula: We gained the cooperation and approval of the Comprehensive Health Planning Council of Maricopa County; and with their help, developed an "Agreement" which outlines a method for maintaining high standards. Chief among the stipulations is that a Medical Audit Committee consisting of at least three physicians "will regularly review the medical and surgical procedures and practices employed in our facility with the power to recommend and to enforce standards which are on a par with those employed in an accredited community general hospital in the metropolitan-Phoenix area and who will also recommend practices designed to avoid overutilization of our facility. These physicians will receive a nominal fee for serving on this Medical Audit Team and will accept appointment to such team in writing, wherein they will state that they have no economic or other vested interest in the facility. Persons selected for this Medical Audit Team shall receive prior endorsement from the appropriate local professional-specialty or general practice society or in its absence the Board of



151 Farmington Avenue Hartford, Connecticut 06115 D. W. Pettengili Vice President Group Division

March 21, 1969

TO WHOM IT MAY CONCERN:

This is to certify that most of the group medical expense benefit policies issued by Erm Life Insurance Company previde, among other benefits, payment is whole or in part of hespital charges for ancillary services rendered by the hospital is consection with the performance of a surgical precedure in its out-patient department. It further certifies that for purposes of the above benefit the ambulatory Surgisenter prepesed by Drs. Wallace A. Reed and John L. Ferd of Phoenix, Arisona, as approved by the Comprehensive Health Planning Council of Maricops County, will be deemed to be a hospital extpatient department with respect to surgical presedures performed thereis that require anosthesis other than by means of local infiltration of the amerthesis, While the Erms Life Insurance Company expects to se recognize the proposed Surgisenter indefinitely, it reserves the right to discontinue doing so without notice anytime after December 31, 1971.

Sincerely,

D. W. Pettengill Vice President, Group Division

Did Phap

Ætna Life Insurance Company/The Ætna Casualty and Surety Company/The Standard Fire Insurance Company

Directors of the Maricopa County Medical Society."⁴

We used the Agreement worked out with the Comprehensive Health Planning Council of Maricopa County as the basis for our discussions with various insurance carriers. We received official recognition from a major carrier in April, as is evident from Figure 2.

Several other carriers have made similar changes in their contracts, and many have indicated their willingness to cooperate when the Surgicenter opens. CHAMPUS (Military Medicare) has endorsed the concept wholeheartedly as evidenced by a Memorandum dated 16 May 1969, the full text of which is shown below:



ASSISTANT SECRETARY OF DEFENSE WASHINGTON, D. C. 20301

MANPOWER AND RESERVE AFFAIRS 1 6 MAY 1969

MEMORANDUM FOR THE SURGEON GENERAL OF THE ARMY THE SURGEON GENERAL OF THE NAVY THE SURGEON GENERAL OF THE AIR FORCE

SUBJECT: "Surgicenters"

We have recently learned of a new concept in health facilities which is now under development, known as "surgicenters." Under the concept involved, such facilities would be staffed and equipped to do surgery either of the type presently performed in a physician's office or, more importantly, of the type which frequestly results in an expensive admission to a hospital for from 12 to 36 hours. In essence, it would be an ambulatory surgical facility.

We think this is an interesting and worthwhile concept. We intend to add it to DoD Directive 6010.4, plus a definition of what a surgicenter shall consist of in order to participate in the CHAMPUS. In this connection, attached is a copy of an agreement between a health planning council in Arizona and two physicians in that State who are now developing a surgicenter. Also attached is a copy of the standards regarding such a facility recently prescribed by a large health insurance company.

For planning purposes we have concluded that while a surgicenter would be neither a hospital nor a physician's office, it is closer to the former and that, therefore, it should be considered as a hospital for cost-sharing purposes under the CHAMPUS.

Louis M. Rousselot, M.D. Deputy Assistant Secretary (Health and Medical)

Enclosures

As of this writing, we have not met with the Arizona Blue Cross Board of Directors, which has set a date in September as the time to review the Surgicenter concept. However, it is worthy of note that in the State of Arizona, Blue Cross is the fiscal agent for CHAMPUS, which has approved our proposal. The authors are encouraged to believe that Blue Cross will also endorse the idea, since there are already signs pointing in that direction. One such sign is that in New York, Blue Cross has asked the State Insurance Department to approve a change in benefits in certain policies to encourage use of outpatient facilities and discourage unnecessary use of inpatient beds. In addition, Mr. Walter J. McNerney, President of the National Blue Cross Plans, has stated in reference to methods of delivery of health care that, ". . . all laws standing in the way of experimentation should be struck down."⁵ He has recognized that, ". . . we in this country are going to stay with a pluralistic system of providing and financing medical care —a system involving both Government and private operations," and we should ". . . exploit fully the assets of the private sector."⁶

At its meeting in September, the Arizona Blue Cross Board will consider these features which make the Surgicenter unique:

- 1. It is more than a doctors' office, yet less than a hospital; and is independently operated. (However, transfer agreements with two major hospitals provide for the patient's continued care if indicated.)
- 2. It has been designed "from the ground up" to suit the particular requirements of the come-and-go patient, a fact which helps to keep the cost of care at a minimum.
- 3. With the exception of the physicians' fees, a single, all-inclusive charge will be made for each procedure. While the charge for an

infant herniorrhaphy will be greater than for a cystoscopy, there will be a pre-set charge for each. This means that each patient, each surgeon, and each insurance carrier will know in advance of the operation exactly what the cost for a given procedure will be.

Since the Surgicenter is not a hospital in the legal sense, no licensure by the State Department of Health is required. Nevertheless, the authors asked State Health Department officials to review the project, with the result that several excellent suggestions made by them were incorporated into the final plans. The Acting Commissioner, Henry D. Smith, M.D., wrote under date of May 23, 1969, as follows:

"... we feel your facility is both structurally and functionally sound. It is indeed refreshing to see new approaches being made in the delivery of health care services."

The above instance is in keeping with the policy of the authors to inform all interested parties of our plans, and invite their questions and comments.

Thus, early in the year, we discussed our ideas with three different hospital administrators, all of whom assured us we can count on their cooperation. On February 11, the Board of Directors of the Maricopa County Medical Society were apprised of our plans. Dwight Wilbur, M.D., when President of the American Medical Association, wrote that he was interested in reading about the plan and wished us success in implementing it. In a recent communication with Mr. Chris N. Theodore, Director of the A.M.A.'s Division of Health Services, we provided him with pertinent information; and a copy of his letter with enclosures was sent to Arizona's A.M.A. delegation.

We have welcomed suggestions from our colleagues, and have discussed with them in detail the ways in which this facility can serve the needs of surgeons and their patients. Their enthusiastic response indicates clearly that, contrary to current popular opinion, doctors *are* interested in the cost of medical care. Nurses with whom we have discussed the matter have shown a similar interest; and those who are to help us launch the project have spent many hours on the plans and in the selection of the instruments to be made available to surgeons using the facility.

Gerald D. Dorman, M.D., currently President of the American Medical Association, wrote in JAMA of August 11: ". . . we must foster innovation in delivery of health care, we must improve our efficiency, and we must develop our highest possible level of ethics and self-discipline . . . we need local answers to local problems in each area."

We submit the concept of the Surgicenter as a step in the direction pointed out by Dr. Dorman; and emphasize that it is being constructed and will be maintained without cost to the taxpayer, local, state, or federal.

The Surgicenter concept certainly appears to fit into the "basic philosophy" of the current administration, judging from remarks attributed to former HEW Secretary John Gardner. Mr. Gardner is guoted by the American Medical News (August 18, 1969) as stating we need more fruitful relationships between the public and private sectors. Forces now at work tend, says Mr. Gardner, "to squeeze out pluralism, and to move us toward one comprehensively articulated system of power. We must work against that trend . . . As I contemplate that trend, I find myself treasuring every remaining bit of pluralism, everything that stands between us and the one all-embracing system . . ." Herbert Marcuse favors a more "directed" society, Gardner said. "In doing so, he makes the assumption made by all who fall into authoritarian doctrines - that. in the 'directed' society he envisages, people who share his values will be calling the tune. So thought the businessmen who supported Hitler."

While the primary function of the Surgicenter is to serve the particular needs of the ambulatory patient and his surgeon, it is not intended to be used as an emergency-care center. Experiences elsewhere indicate that the real emergency belongs in the hospital environment. Nevertheless, it is worth noting that the facility would be readily available and immediately useful to the community in time of a major disaster of any kind.

In summary, the Surgicenter is a response from the private sector to the many urgent appeals from the government, labor, industry, and the medical profession to streamline the delivery of medical care and reduce its cost. It is designed to provide quality surgical care to the patient whose operation is too demanding for the doctor's office, yet not of such proportion as to require hospitalization. Numerous advances in surgical technics, together with new local and general anesthetic agents, have been utilized successfully at teaching hospitals to treat the come-and-go patient. The authors intend to demonstrate with the Surgicenter that an independently-operated facility can function as successfully with even greater savings to the patient while maintaining high standards of care.

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DEVELOPMENT OF AN INDEPENDENT OUTPATIENT SURGICAL CENTER

By Wallace A. Reed, MD, and John L. Ford, MD

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Development of an Independent Outpatient Surgical Center

WALLACE A. REED AND JOHN L. FORD

In recent years, countless appeals and recommendations have been made to physicians concerning the need to reduce the cost of medical care. Calls for innovations have come not only from such representatives of the public as John Gardner, former Secretary of Health, Education, and Welfare [6], but also from leading spokesmen for the medical profession, including three presidents of the American Medical Association [2, 3, 14]. Prominent among the recommendations that have been made have been proposals to perform minor surgery on an outpatient basis, eliminating the need for hospitalization and its attendant costs. In 1966, Cohen and Dillon [1] suggested that "it is possible to conduct a program of anesthesia for outpatient surgery without compromising patient safety." This proposal received official recognition when, in 1968, William H. L. Dornette [3], stated that "a safe and efficient facility for the performance of general anesthesia and minor surgical procedures need not be affiliated either administratively or geographically with a hospital."

Sensitive to the admonitions of our medical leadership and the sharp criticism of leading spokesmen for the public that physicians should concern themselves increasingly with health care costs, we decided to conduct our own study.

It began in 1968, when we met an uninsured barber from out of town who brought two of his children to the hospital for myringotomies. At that time, it was accepted practice to hospitalize a child two nights for this relatively simple surgical procedure. We posed the question, "How many haircuts does it take to pay for a myringotomy?" The answer, together with others like it, astounded us and launched us on the project which has become known as Surgicenter.*

We decided that improving medical care delivery was as important in these times as the discovery of a new instrument, medication, or method of therapy. We were convinced the challenge was well worth the risk of changing course at the peak of our professional careers and placing our savings and reputations on the line. We set the following objectives:

- 1. To elevate the status of surgical care for ambulatory patients
- 2. To streamline the delivery of surgical services
- 3. To reduce the cost of care to patients
- 4. To work for expansion of the patient's insurance coverage
- 5. To accomplish these objectives in an environment pleasant for both patients and staff

We found ourselves in agreement with Dr. Russell V. Lee [8], who wrote:

The modern hospital is rapidly becoming an intensive care unit with all the fantastically expensive equipment and procedures that are required. It costs too much; it costs too much because many who are hospitalized do not need all this and should be cared for in much less expensive surroundings. Thus, the hospital must be surrounded with a number of closely associated special purpose facilities.

The Surgicenter is just such a special-purpose facility. It was designed to provide excellent surgical care at the most reasonable cost to the patient whose operation is too demanding for the surgeon's office yet not of such complexity as to require hospitalization [4]. It was conceived as an extension of the surgeon's own office and as a well-equipped and well-staffed surgical workshop and was intended

* Surgicenter is a registered name.
to permit him to perform as efficiently as possible the task for which he has been trained.

DEFINITION OF THE SURGICAL OUTPATIENT FACILITY CONCEPT

The term *ambulatory surgical services* means services and supplies, other than physicians' services, which are furnished by an ambulatory surgical center to an individual who is a patient therein.

The term ambulatory surgical center means an institution that:

- 1. Is established, equipped, and operated primarily for the purpose of performing surgical procedures
- 2. Is operated under the supervision of a staff of physicians
- 3. Permits a surgical procedure to be performed only by a physician who at the time is legally authorized to perform such procedure and is privileged to perform such procedure in at least one accredited hospital in the area
- 4. Requires (in all cases other than those needing only local infiltration anesthetics) that a licensed anesthesiologist administer the anesthetics and remain present during the surgical procedure
- 5. Provides at least two operating rooms and at least one recovery room
- 6. Is equipped to perform x-ray and laboratory examinations required in connection with any surgery to be performed
- 7. Does not provide beds or other accommodations for patients to stay overnight
- 8. Provides full-time services of registered professional nurses for patient care in the operating and recovery rooms
- 9. Has available the necessary equipment and trained personnel to handle foreseeable emergencies (including a defibrillator for cardiac arrest, a tracheotomy set for airway obstruction, and a blood bank or other blood supply)
- 10. Provides for the periodic review of the center and its opera-

tions by a utilization review or other committee composed of physicians having no financial connection with it

11. Maintains adequate medical records for each patient, including: admitting diagnosis, preoperative history and physical examination, graphic record of intraoperative course, surgeon's operative report, pertinent laboratory and x-ray reports, and a discharge summary

BENEFITS TO THE PATIENT

Reduction of Major Overhead Costs

In the Surgicenter, we have developed a facility that has not only eliminated the expense of hospitalization, which was the main accomplishment of the programs developed by Cohen and Dillon [1] and Levy and Coakley [9], but has also enabled us to minimize the cost of the service itself. The savings are attributable to the following measures:

- 1. Construction was simplified. Conductive flooring was eliminated.
- 2. Laundry requirements are minimal because scrub suits and nurses' gowns are laundered in the facility by our own personnel, and drapes, sheets, and sterile attire are all disposable.
- 3. There is no cafeteria. The personnel provide their own lunch, and patients are not ready for nourishment other than liquids.
- 4. Because of our 12-hour workday, 24-hour laboratory and x-ray coverage was eliminated.
- 5. In-house janitors were eliminated by contracting with outside janitorial service for the cleaning of everything except the operating room suite.

Efficient Patient Flow

The design is such as to place waiting room, preanesthesia room, operating room, and recovery room in the closest possible proximity



FIGURE 1. Floor plan of Surgicenter. 1 = staff and physicians' lounge, dressing area; 2 = patient admission and lobby; 3 = preoperative area; 4 = pediatric recovery; 5 = accounting and business offices; 6 = storeroom; 7 = operating room; 8 = sterile area; 9 = mechanical (heating, vacuum motors); 10 = bathroom and showers; 11 = adult recovery.

(Fig. 1). This arrangement has many advantages, which are quickly apparent (Fig. 2):

- 1. Patient transportation time is reduced to a minimum.
- 2. The surgeon can visit the patient and family before and after the operation without losing time in transit.
- 3. Time is conserved for all personnel whose duties require movement between the operating room and the admitting or recovery area (e.g., anesthesiologists and nurses).
- 4. The need for extra personnel for patient transport is eliminated, since the circulating nurse, with the help of the recovery room nurse or anesthesiologist, can now bring the patient to the operating room.
- 5. Parking is also convenient for both patient and surgeon, which means that time in transit from the parking site to the operating site is minimized.

In addition, "down-time" between cases is rarely longer than 15 minutes and it is usually less than 10. This is made possible by a



FIGURE 2. Flow chart. (From J. M. Currie, Compatient Center-a General Health Service Setting for the Ambulatory Outpatient. Flemson University, Master of Architecture Dissertation, 1973.)

staff of professionally competent nurses who share their employers' interest in streamlining care to the ambulatory surgical patient.

The patient's time is also conserved. He is not required to appear a day in advance for preoperative evaluation. We did not consider this to be essential before the energy shortage. Now, because of the energy crisis, we feel that a visit a day in advance is contraindicated. The patient is not asked to appear more than an hour ahead of the scheduled time of operation. This is made possible by skillful planning on the part of the receptionist who does the scheduling and by a more efficient admitting procedure.

The patient's time in the operating room is also kept to a minimum because the well-staffed, well-equipped operating rooms eliminate all unnecessary delays. Anesthesiologists use simple monitoring devices such as precordial stethoscopes, so that preparation time for induction of anesthesia is reduced. Further, the patient's time in the recovery room is reduced. There is no residual effect from premedication, since atropine is virtually the only one used. The residual effect from anesthetic agents is reduced by a technique that eliminates the longer-acting drugs such as ketamine and combines short-acting agents with muscle relaxants. We have described the technique as *paramalgesia* [11], a word combining *analgesia*, *amnesia*, and *paralysis*. Early ingestion of fluids such as soups or carbonated beverages is encouraged in the recovery room to speed return to normal activity.

All these measures save time for the surgeon as well. His time is further conserved by use of a consolidated record. He dictates his findings on a tape before leaving the operating room and, if the transcribed playback is satisfactory, he signs his name to the record. That is all the writing and record keeping required of him. The effect of this procedure is that a surgeon is never behind in his dictation. A copy is sent to his office, and another copy is given to the third-party carrier if the patient consents.

Secretarial and insurance personnel time is saved by providing third-party carriers with a copy of the record. This is done only if the patient permits it; but when allowed, it markedly simplifies the mechanism of claims payment.

We have learned that one admitting stretcher and space for it in the preanesthetic area and four recovery stretchers are required for each operating room [5]. In addition, there are two important support areas, namely, the initial admitting area and waiting room (where name, address, and insurance information are obtained) and the business office. The admitting area is staffed with a friendly, patient, and compassionate receptionist. It is supplied with a water fountain, coffee, public telephone, and rest room. Eight chairs per operating room are adequate for the initial admitting and waiting room. The business section can be either in-house or separately located in more economical quarters. In most metropolitan areas, it is also possible to contract for these services at reasonable rates. This choice will depend on the preference of the group involved.

PROBLEMS OF THIRD-PARTY PAYMENT

Improved relationships with patients and surgeons, streamlining the flow of traffic, avoiding administrative overload, and eliminating needless laboratory tests as well as superfluous monitoring devices and other expenses are all of importance to the success of a freestanding ambulatory surgical facility. Important as these are, however, the project cannot be sustained without income. For this income, the facility must look to patients for about 25 percent and to third-party payers for the balance.

There is only one group of surgeons that might be able to operate a surgical facility successfully without the cooperation of thirdparty payers and that is a group of plastic surgeons who limit themselves to cosmetic procedures. Since it is extremely unlikely that any other group could survive without third-party cooperation, it may be useful to consider what requirements an ambulatory surgical facility must meet to qualify for financial reimbursement.

To begin with, there are several hundred commercial firms with which one must come to terms individually, each with a lengthy list of filing requirements. Establishment of "B agencies" (local comprehensive health planning councils) was authorized by Congress in 1966 under Section 314-B of Public Law 89-749. Among the purposes of the B agency were these: to prevent needless duplication of health care services; to eliminate fragmentation; to establish health care priorities; and to foster innovation. The applicant had to establish to the B agency's satisfaction that there was a community need for the facility and services he proposed to offer. Public Law 93-641, the National Health Planning and Resources Development Act of 1974, has eliminated the B agencies and replaced them with Health Service Areas. The boards of these areas have broader power than the agencies they replaced.

In states where "certificate of need" legislation has been passed,* the applicant may have to satisfy not only the local agency, but also the state agency.

We feel that it is clear that Public Law 89-749 did not accomplish what Congress intended. Innovative efforts were being stifled, and

^{*} Such legislation has been passed in Arizona, California, Colorado, Connecticut, Florida, Hawaii, Illinois, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New York, North Dakota, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Virginia, and Washington.

the hold of those who have long controlled health care delivery was being strengthened. Whether 93-641 can produce a better result is yet to be determined.

Obtaining a certificate of need does not obligate insurance carriers to honor claims originating in the facility. Even with approval by the Arizona state agency and the Comprehensive Health Planning Council of Maricopa County, it was two years before the Blue Cross portion of the federal employees program recognized the Surgicenter as a qualified provider, and it took Medicare over four years.

Thus, it is important before putting up the building for a surgical outpatient facility to obtain the cooperation of third-party payers in the governmental sector. This includes CHAMPUS (military Medicare), Medicare, Medicaid, federal employee programs, state industrial commission cases, and others.

Malpractice insurance is essential and should be sought early in the planning stage. In this connection, the report of Johnson and Higgins [7] is worthy of note. They found that physicians repeatedly sued were not usually on emergency room service, or foreigntrained, or general practioners performing surgery. Rather, most were board-certified, and 88 percent of the multiple claims were for elective surgery.

SURGICENTER STATISTICS

The doors of the Phoenix Surgicenter were opened on February 12, 1970. Since then, more than 33,000 patients have been safely treated in the facility, over 85 percent under general anesthesia. The operation most frequently performed is the diagnostic dilatation and curettage; laparoscopy is second and myringotomy third. The list of the 19 most common operations in the first 33,000 is shown in Table 1, and the breakdown by age groups is shown in Table 2.

In a typical month of 21 working days, 588 operations were performed, which is an average of 28 operations per day. Of the 588 operations, 184, or 31 percent, were performed by 98 surgeons. Of

Type of Procedure	No. of Procedures
Diagnostic dilatation and curettage	6311
Laparoscopy	4332
Myringotomy	1633
Inguinal herniorrhaphy	1607
Adenoidectomy	1407
Excision of skin lesions	1069
Excision of ganglia	725
Vasectomy	630
Cystoscopy	528
Eye muscle	514
Other	14,244
Total	33,000

TABLE 1. Most commonly performed procedures in Surgicenter series of33,000.

these 98, 46 performed one operation; 30 performed two operations; 10 performed three operations; and 12 performed four operations. The remaining 406 operations were performed by 39 surgeons. The 15 busiest surgeons performed 233 cases, as shown in Table 3.

The length and complexity of the operations have increased steadily as surgeons and their patients have gained confidence in the concept. In May, 1970, 73 percent of 189 operations were performed under general anesthesia; in May, 1974, 90 percent of 648 cases were so performed. While most operations last 1 hour or less, some last as long as 2 or 3 hours (Fig. 3). Most of the longer opera-

Age (yr.)	% of Patients	
Up to 2	10.6	
3–15	15.7	
16-45	53.3	
46-64	16.9	
65 or over	3.5	

TABLE 2. Age breakdown of 1000 Surgicenter patients.

Type of Surgeon	No. in Specialty	No. of Operations	
Gynecological	7	106	
Pediatric	3	54	
Otolaryngological	3	52	
General	1	11	
Plastic	1	10	
Total	15	233	

TABLE 3. Operations performed by 15 surgeons from various specialties in a typical month at Surgicenter.

tons are cosmetic procedures such as augmentation mammoplasties or dental procedures involving periodontal work.

Unscheduled hospitalization occurred in 70 of 33,000 patients, but none was a life-threatening emergency. There have been no fatalities or cardiac arrests in the series.

COST CONTAINMENT

We approached cost containment on four different fronts:

First, we conceived and designed a facility from the ground up, with satisfaction of the needs of the ambulatory surgical patient and his surgeon as our paramount objective. The savings achieved through this approach have already been mentioned.

Second, we determined to make the best possible use of our personnel. By means of a staggered shift, we are able to cover a 12-hour working day with 28 employees. These include 12 operating room nurses, 6 recovery room nurses, 2 secretary-receptionists, 1 telephone operator, 2 maintenance technicians, 1 instrument technician, 1 correspondence secretary, 1 insurance secretary, 1 medical transcription clerk, and 1 office manager. We contract for bookkeeping, accounting, and janitorial services for the nonsurgical section of the building. Hospitals have an employee/patient ratio of 2.5 to 3.0 : 1; our ratio is 1 : 1. This makes for real economy in delivering this medical service.

Third, we resolved to keep paperwork at a minimum. To this



FIGURE 3. Number and duration of general anesthetics at Surgicenter in May, 1974.

end, we designed a one-page record that contains all the information on each patient that is needed by the physician, nurse, billing clerk, bookkeeper, and third-party payer. We also developed an allinclusive charge for each procedure. We did this by determining how much expense was involved, for example, in the average dilatation and curettage, laparoscopy, and herniorrhaphy—in short, the average for each operation performed at the facility. Then we added a small percentage to put the project in the black and allow for some reserve and replacement costs. A list of charges is prominently displayed on the wall of the waiting room.

As of this writing (Summer, 1976), the charges for the three procedures most commonly performed are \$139 for a dilatation and curettage; \$181 for a laparoscopy with or without tubal coagulation; and \$127 for a myringotomy with poly tubes. (Physicians' charges are not included.)

These all-inclusive charges save time for those who would otherwise have to list the individual items used. It saves time for the bookkeeper. It eliminates mistakes. It means that all necessary supplies are used without regard to whether or not their use will generate more income for the facility. The patient is protected against underutilization by the careful evaluation of the attending surgeon, who, in the case of the Surgicenter, has no vested interest in the facility. In other words, the appeal of the Surgicenter to the patient and his surgeon is its efficiency and quality of service and not its financial advantages. While the patient is asked for a deposit at the time of admission, no one is refused if a deposit is not made.

We concluded that it makes medical as well as economic sense to trust the physician's judgment with respect to the need for additional procedures and consultations.

There is no need in every instance to send to the pathologist for identification the ingrown toenail, circumcised foreskin of the infant, aspirated contents of the middle ear, or "hardware" removed from healed fractures. The surgeon knows when it is in the best interest of the patient to have such tissue identified, and his judgment should be trusted. The Surgicenter Medical Audit Team does require that tissue obtained from a dilatation and curettage, biopsy, skin lesions, and any other tissue the identity of which is important for rational treatment be sent to the pathologist.

There is no need to have all x-rays read by a radiologist. Consider the case in which a foreign body in an extremity must be localized and removed. When the foreign body is out, the condition is cured, and there really may be no need for the radiologist to confirm this. Nothing prevents the surgeon from asking for a consultation, but the decision should be his.

There is no need to have every laboratory test performed by a certified technician and reviewed by a pathologist. The outpatient surgical facility is an extension of the surgeon's office. The patients are good risks. The laboratory tests are simple. We want to know the following about the urine: Is there protein present? Is there

glucose, reducing substance, bile, or blood? In the absence of any of these, and in the absence of any history of symptoms of kidney, cardiorespiratory, or intracranial disease, it is extremely unlikely that the patient will encounter any difficulty with the proposed surgical procedure. The tests can be made in less than a minute by dipping a piece of paper in the specimen and comparing the color with a standard. Our nurses do this during the course of admitting the patient. They also perform the hemoglobin determination. If the physician is competent to supervise these tests in his office, surely he is competent to supervise and act on the results of these tests in the outpatient surgical environment.

It is another matter, of course, if a test result is positive. In that case, more sophisticated laboratory work will be needed to determine the reason. On the other hand, if the results are negative, the patient or his insurance company will have been saved a substantial sum of money.

There also is no need to have an assistant for every operation. Many hospitals require that assistant surgeons be present for operations such as breast biopsies. If one accepts the premise that there is no added risk to performing a radical breast operation a day or two after a positive biopsy result, the need for an assistant surgeon is eliminated in more than 99 cases out of 100. (There is no charge to the patient or her insurance carrier if the biopsy specimen is malignant, since the two-stage operation would not have been necessary in an inpatient environment.) A point that has often been raised in explaining the presence of a second surgeon at the operating table is that the patient should be protected against the surgeon's becoming suddenly incapacitated during the course of the procedure. If the safety of the patient is the issue here, it would seem reasonable also to argue that a backup anesthesiologist is needed. Who will take care of the patient if the anesthesiologist collapses in the middle of the operation? Our position is that the decision regarding the need for an assistant in either instance should be left to the attending physicians.

We believe that in many cases the surgeon needs no assistant and that this requirement should be dropped at the discretion of the surgeon. This would result in added savings to the patient, whose safety would in no way be jeopardized by the change. We believe in the application of some common sense to this matter of escalating health care costs.

AVOIDANCE OF MALPRACTICE SUITS

We avoid the overdone emphasis on "practicing defensively" to protect oneself from malpractice suits. We take issue with the argument given by attorneys and others that we should practice defensively on an increasing scale. Although the basic principle that one should not overlook the obvious is excellent, there is an exasperating trend in the direction of ordering expensive procedures and tests that really may not be necessary at all. If this is true, we should have the courage to say so and to stand up for our convictions. For example, is it good practice and in the best interest of every patient to order routine pulmonary function studies? Except for its possible usefulness in a teaching institution for the training of students, is it necessary to take an electrocardiogram on every patient? If it can be agreed that the physician's good judgment and interest in his patients' welfare should prevail, there will be savings in the amount of approximately \$30 for every pulmonary screening test not done and \$20 to \$25 for every electrocardiogram not taken. There are many other examples.

Surgicenter's experience is that good clinical judgment and applied common sense can be depended on to protect the patient from harm. This is evident from a record that shows more than 33,000 operations performed without a fatality and without a malpractice suit.

We follow every patient's progress postoperatively. We want to know about nausea and emesis, which are the most frequent postoperative complications. We want to know about pain, unusual drowsiness or dizziness, bleeding, and any other problem the patient may wish to discuss with us. In addition, we also ask the patients for any suggestions or complaints. Our objective is to detect evidence of dissatisfaction at the earliest possible time. We find that most complaints are the result of misunderstandings that can be easily resolved. An example is the patient who said he received a bill from us in the amount of \$154 (the actual posted charge) when his surgeon had informed him the cost was \$100. We wrote to him as follows, with a copy to the surgeon:

We are happy to relate to you that our long standing policy is to support surgeons' estimates of Surgicenter charges even though they may be incorrect. We make a point of telling people they can know in advance what the facility fee is, and we have consistently backed up this claim.

What this means in the case of your son's operation is that we are refunding to you by means of the enclosed check the \$54 difference between your doctor's estimated charge and the actual amount you paid. We are providing your son's surgeon with a complete list of our charges as posted in the waiting room so that in the future he can quote actual charges instead of estimates when discussing surgical costs with patients.

We at Surgicenter are trying to be responsive to the consumer's cry to "do something about the cost of medical care," and in the process we want to show respect for each person entering the facility. Please let us know if you have any further questions.

The outcome in this case is that the patient is doing well, the surgeon's estimate is upheld, and the father's anger is abated, and his confidence in the medical profession is restored.

We firmly believe that this approach, if widely applied, will reduce malpractice claims. We also think that this is an area where insurance carriers could be extremely helpful. At very small risk, the carriers could guarantee benefits for surgical complications. This kind of evident concern would contribute mightily to the elimination of patient dissatisfaction, which is at the basis of so many suits.

SUMMARY AND CONCLUSIONS

We have discussed the origin of the idea of Surgicenter and have described the facility and the flow of patients through it. We have provided a statistical summary derived from a series of 33,000 cases and have pointed out the difficulties involved in setting up such a facility, particularly with respect to third-party payment. We have listed four areas of cost-containment that we feel are next-toimpossible to achieve in the inpatient environment. Finally, we have described a new approach to avoidance of malpractice suits.

We believe that the validity of the concept of the free-standing ambulatory surgical facility has been proved, and that it can be adapted to any kind of health care system that may develop during the next decade.

This type of practice is a challenge to anesthesiologists in many ways. They have closer contact than usual with patients and their relatives and have added responsibilities in screening and discharging patients. They also have a closer working relationship with the nurses and surgeons, with whom excellent rapport can be established in this environment. One of the special attractions to the maturing anesthesiologist is that he can find an exciting clinical niche here when his capacity to cope with night-long emergency calls diminishes. A recent study [10] on the mortality of anesthesiologists indicates a mortality rate 70 percent of that among males insured in the Metropolitan Life Insurance Company under standard ordinary policies. With the rate of inflation what it is and with a long life ahead, the anesthesiologist will be wise to look to activities such as this to prolong the usefulness of his professional life.

Finally, we wish to pay tribute to Dr. Ralph M. Waters [12], a pioneer in the field of outpatient anesthesia. The "down-town anesthesia clinic" was started in Sioux City, Iowa, in 1919. Later, Dr. Waters moved to Kansas City, where a free-standing outpatient surgical service was provided until 1923 [13], when he was called to Madison, Wisconsin, to establish the department of anesthesia at the University of Wisconsin School of Medicine. In the matter of outpatient surgical service, as in other matters, Dr. Waters was a good half century ahead of his time. His confidence in the concept has been vindicated.

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