A STUDY TO DETERMINE THE FEASIBILITY OF ESTABLISHING A DAY SURGERY PROGRAM AT HENDRICK MEMORIAL HOSPITAL, ABILENE, TEXAS

A Problem Solving Thesis

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Requirements for the Degree

of

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by

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CHAPTER I

INTRODUCTION

The Institution--Past, Present and Future

Hendrick Memorial Hospital was founded in 1923 as the West Texas Baptist Sanitarium, a seventy-five bed general hospital owned and operated by the Baptist General Convention of Texas. Since its founding, the institution has undergone a series of expansions through the construction of additions to the original physical plant. Similarily, the scope of services offered has undergone a concomitant expansion. The hospital's growth has predominately been funded through private contributions and monies provided by the Baptist General Convention of Texas. The hospital has utilized neither Hill-Burton funds nor state grants in its development, and only on one occasion has had to seek federal funding for a construction project.

Fully accredited by the Joint Commission on Accreditation of Hospitals, the institution currently operates as a short-term, acute care facility which offers a full range of inpatient services. Licensed by the State of Texas as a 500 bed acute care facility, the hospital presently staffs at only a 394 bed operational level, as follows: 150 medical beds; 148 surgical beds; 30 pediatric beds; 30 bassinetts; 30 obstetric/post-partum beds; and,

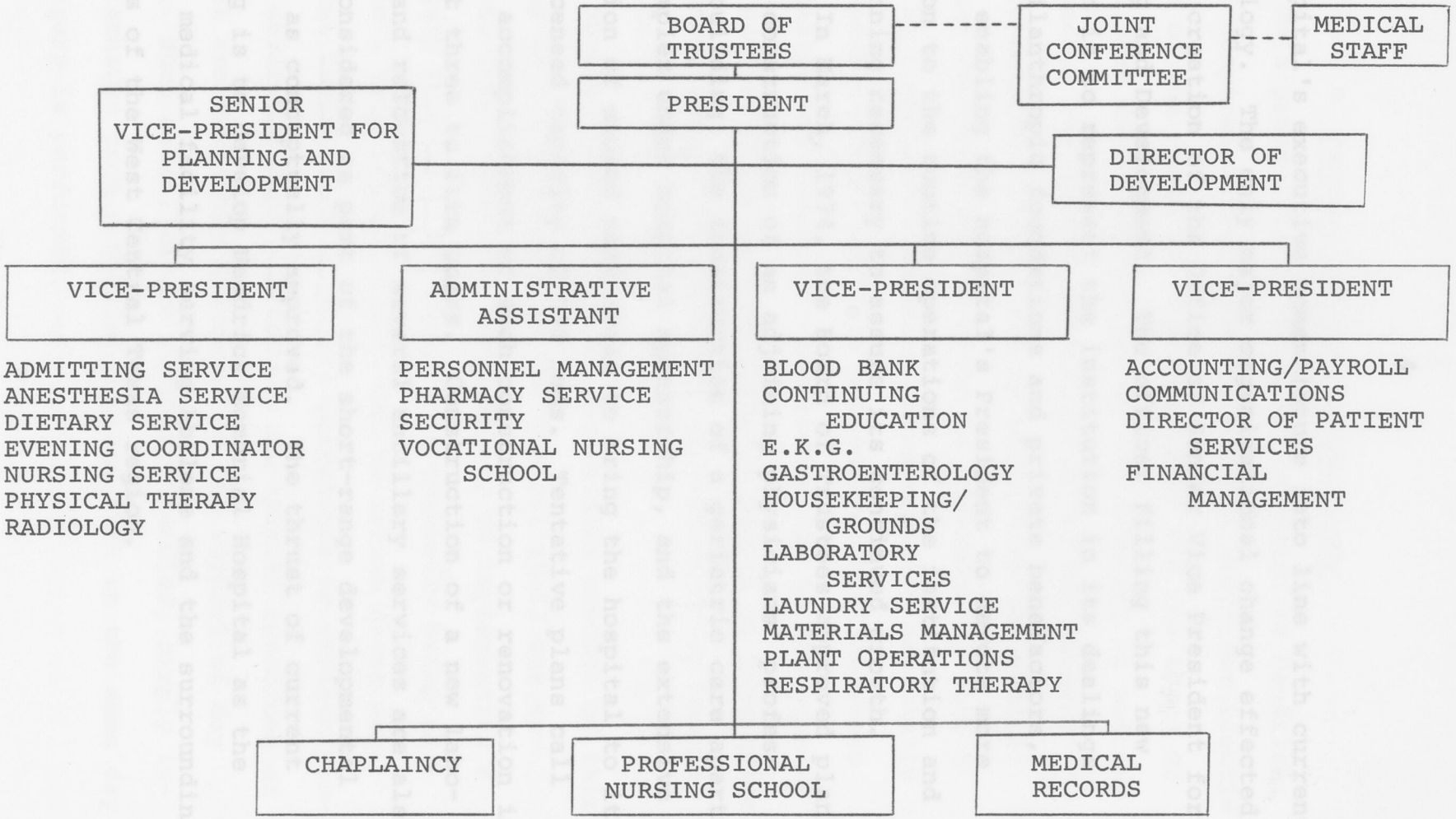
6 delivery room/labor room beds. While plant capacity currently exists to operate at the full 500 bed level, the administration considers a number of the older ward areas to be inadequate for the delivery of the desired level of quality patient care, and has elected to operate at the lower bed level until renovations can be effected. The hospital currently provides the only emergency room services available within the community of Abilene.

The hospital has an active in-service educational program for members of the medical staff, other professional personnel, and para-professional personnel. Supporting its educational endeavors is an in-house closed circuit television system, which has both a play-back and a color videotape production capability. Numerous in-house programs are on-going for the initial training of para-professional personnel, such as medical records technologists, licensed vocational nurses, and x-ray technicians. The Mary Meek School of Nursing, offering a three year diploma program, is supported by the institution as an autonomous element, and provides a majority of the registered nurse input to the hospital annually.

In the Fall of 1973, the administrative structure was redefined along corporate lines, as depicted at Figure 1. The action did not significantly alter staff functions or responsibilities, but was primarily intended to bring

FIGURE 1

CORPORATE STRUCTURE HENDRICK MEMORIAL HOSPITAL



the hospital's executive nomenclature into line with current terminology. The only major organizational change effected was the creation of the Office of Senior Vice President for Planning and Development. The officer filling this new position is to represent the institution in its dealings with philanthropic foundations and private benefactors, thereby enabling the hospital's President to devote more attention to the routine operations of the institution and the planning necessary to assure its continued growth.

In March, 1974, the Board of Trustees approved plans for the construction of an adjoining physicians' professional building, the construction of a geriatric care apartment complex under hospital sponsorship, and the extensive renovation of unused ward areas to bring the hospital to its full licensed capacity of 500 beds. Tentative plans call for the accomplishment of such construction or renovation in the next three to five years. Construction of a new laboratory and relocation of several ancillary services are also being considered as part of the short-range developmental program as conceptually approved. The thrust of current planning is to develop Hendrick Memorial Hospital as the primary medical facility serving Abilene and the surrounding counties of the West Central Texas region.

Factors Leading to the Study

To a great extent, the administration of Hendrick Memorial Hospital relies upon the medical staff for identification of the community's health needs and the types of services that should be offered by the hospital in meeting those needs. The current investigation of day surgery primarily relates to a request by members of the medical staff that consideration be given to implementing such a program as a means for reducing patient costs, especially with respect to those patients not covered by insurance. Additionally, the hospital's administration is desirous of keeping pace with the growing emphasis placed on preventive health care, outpatient services, and reduction in hospitalization.

Several months prior to the on-site conduct of this study, an ad hoc committee of the medical staff was appointed to investigate the desirability of implementing a day surgery program. Day surgery is currently being performed on a very limited scale, ten to twelve cases per month, but there exist no formal guidelines or written procedures governing such a program. No special resources or personnel are currently dedicated to the support of day surgery. Such cases, as are presently handled, simply involve discharge from a regular nursing unit on the same day that surgery is performed.

Statement of the Problem

The problem is to determine the feasibility of implementing a day surgery program at Hendrick Memorial Hospital, Abilene, Texas.

Definitions

The following definitions are included to facilitate the reading of this study:

Day Surgery is a mode of surgical care wherein a patient is admitted, undergoes a minor surgical procedure, and is discharged the same day. The total length of time from entrance to exit typically involves less than twelve hours. Frequently encountered synonyms are: outpatient surgery; ambulatory surgery; in-and-out surgery; day care surgery; "Surgicenter"; and, clinical surgery.

A Day Surgery Program is a formalized program which establishes policies and procedures for the conduct of day surgery.

The Observation Ward is an area to which the day surgery patient is transferred from the recovery room and in which he is held until sufficiently aroused from anesthesia to be discharged. The observation ward contains beds and is under the supervision of registered nurses.

The Day Surgery Unit Supervisor is a registered nurse responsible for the overall administration of the day

surgery program. Major duties of such an individual include: supervising observation ward operations and nursing staff assigned to same; briefing day surgery patients with respect to preoperative and postoperative instructions; accomplishing telephonic follow-ups on discharged day surgery patients; and, performing pertinent administrative duties relative to the collection of workload data and preparation of required reports.

A Day Surgery Admission is a short-term admission involving less than a twelve hour stay in the hospital. The patient does not occupy a bed on a regular nursing unit but is accommodated, after transfer from the recovery room, in the observation ward until discharge.

A Free-Standing Facility is a day surgical facility which is completely self-contained and operates independently of any connection with a hospital.

A Detached Facility is a day surgery facility which is physically separated from the hospital proper, but which operates in accordance with policies and procedures as established by the hospital. To be classified as a detached facility, the surgical suites and/or observation ward must be housed in a separate building which is not connected to the hospital proper.

An In-house Unit is a day surgery unit which is

physically located within the hospital proper and operates under the direct control of the hospital. Such a unit is typically dependent upon the parent institution for all logistical and administrative support resources required for operation.

The term Fiscal Year refers to the period of time between September the first of a given calendar year and August the thirty-first of the subsequent calendar year. Hereafter, the term Fiscal Year shall be indicated by the abbreviation "FY".

Criteria

The following criteria are established:

1. There should exist an adequate population base to permit the operation of a day surgery program.

2. The day surgery program should have the support of the professional staff.

3. The program should enjoy the cooperation of third-party payors with respect to reimbursement of both the hospital and the private physician for reasonable charges.

4. There should exist a waiting list for hospital beds, specifically surgical beds.

5. An expansion capability should exist with respect to operating rooms, recovery rooms, and the anesthesia

department.

6. The day surgery program should not serve to significantly reduce the inpatient bed occupancy rate.

7. The program should serve to increase the effective utilization of the nursing staff by reducing the number of minimal care patients who would traditionally occupy acute care beds on a surgical ward.

8. The program should permit a reduction in the total cost to the patient for selected minor surgical procedures.

9. The program should permit the hospital to serve a larger population, especially those patients to whom inpatient costs are a barrier to entry into the health care system.

10. The day surgery program should not contribute to a significant reduction in the hospital's gross patient revenues.

Limitations

The following limitations are noted:

1. The day surgery unit will be based in-house and not located in a detached or free-standing facility.

2. Existing operating suites and recovery rooms of the hospital should be used for the processing of minor surgical procedures performed on a day surgery basis.

3. The day surgery unit's observation ward should be located in an existing but unused or underutilized ward area.

4. Consideration will not be given to the costs that would be incurred in the renovation or remodeling of any area recommended for the day surgery unit's observation ward.

5. The study will be restricted to consideration of those procedures as would be performed by physicians only.

6. The day surgery unit's observation ward should permit a net return of approximately six per cent on the gross patient charges for observation ward services; at minimum, the observation ward should be a break-even operation from the financial standpoint.

Factors Bearing on the Problem

1. Approximately 30 per cent of the hospital's budgeted nursing staff positions are unfilled, primarily in the nursing skills below the registered nurse level.

2. There currently exists no comprehensive pre-admission program at Hendrick Memorial Hospital.

3. No detailed studies have been undertaken by the hospital with respect to the characteristics of the population it serves.

4. The philosophy as espoused at Hendrick Memorial Hospital emphasizes service to patients as a primary con-

sideration in all the institution's endeavors. In this respect, the administration is desirous of implementing a day surgery program as an additional service which will better enable the hospital to meet the perceived health needs of the community. While the hospital would not be desirous of entering into a substantial revenue-losing program, the financial ramifications are viewed as being of lesser importance than the provision of what is felt to be a needed service.

Assumptions

1. Physicians' fees for the performance of minor surgical procedures will remain the same for both day surgery and hospitalized patients.

2. Qualified nursing staff will be available to operate the day surgery unit's observation ward as required.

3. Key administrative staff officers of the hospital assume that any inpatient bed occupancy and revenue losses perpetrated by the management of potential inpatients as day surgery patients will be offset by an increase in the aggregate demand for minor surgical procedures requiring hospitalization. The rationale for this assumption is that there exists a latent demand for minor surgery that can never be fully supported.

4. For purposes of the study, it is assumed that 25

per cent of all minor surgical procedures as are performed at Hendrick Memorial Hospital on other than Medicare beneficiaries could be effectively performed on a day surgery basis.

Research Methodology

1. A limited-scope community study was undertaken to ascertain certain general characteristics of the population served and identify significant trends with respect to that population. Coordination was effected with the regional health planning agency to identify significant health services problems that would be relevant with respect to the implementation of a day surgery program.

2. Based on a review of the literature and interviews with key members of the medical, administrative, and nursing staffs, a conceptual model of a day surgery program was developed, as depicted at Appendix A.

3. In conjunction with nursing service representatives, an unused hospital ward was surveyed with respect to its suitability for use as the proposed observation ward. Three alternative plans were developed for operation of the observation ward, and estimated expenses were projected under each plan. An estimated per patient charge was then developed for observation ward services under each of the alternative plans.

4. The detailed survey at Appendix B was disseminated to the active and provisional staff physicians holding surgical privileges at Hendrick Memorial Hospital. The objectives of the survey were three-fold: determine physician attitudes with respect to the concept of day surgery and the conceptualized model of the day surgery program as developed; identify those reasons which physicians felt to be the most compelling for implementing a day surgery program; and, provide for identification of those procedures felt by members of the surgical staff to be appropriate for incorporation into a day surgery program.

5. The written questionnaire at Appendix C was distributed to the home offices of those major commercial third-party payors with which Hendrick Memorial Hospital frequently deals. The purpose of the questionnaire was to determine the willingness of such agents to reimburse the hospital and private physicians for reasonable charges to patients utilizing a day surgery program in lieu of hospitalization.

6. An analysis of selected workload data for a five-year period was performed to identify general trends in hospital workloads. The analysis also served as the basis for projecting the potential impact on workload that could be perpetrated by the implementation of a day surgery program. Data analysis was supplemented by personal interviews

with chief administrative staff officers of the hospital.

7. A detailed review of the 1972-1973 fiscal year's operating room records was undertaken to determine the frequency with which a given minor surgical procedure--dilation and currettage for diagnosis--was performed. Following selection of a randomly derived sample for the procedure, individual financial records were researched to determine the mean with respect to length of stay, daily service (room) charge, and total daily service charge. A comparison was then made with respect to the mean charges for the procedure as an inpatient versus the estimated cost of a patient's having been accommodated under a day surgery program. The comparison provided an indication as to the dollar savings that could have possibly been realized through use of a day surgery program for an identified minor procedure.

8. Proceeding under the assumption that 25 per cent of the hospital's total annual minor surgical workload could be accomplished on a day surgery basis, historical data concerning the 1972-1973 fiscal year's minor surgical workload was utilized to estimate the annual potential day surgery workload. An estimate was then formulated with respect to the loss in gross patient revenues that could have potentially been experienced had a day surgery program been in effect during the period.

Based upon the methodology as outlined, the con-

clusions were drawn and the recommendations formulated.

Review of the Literature

As an alternative to surgery performed on an inpatient basis, day surgery is not a new concept. In 1909, Nicoll published a report concerning outpatient surgery as performed on a series of 8988 pediatric patients during the period 1899-1909. As a result of the highly successful results achieved, Nicoll reached several conclusions: that a large percentage of pediatric surgery could be done on an outpatient basis, as inpatient management of patients not requiring extended hospitalization constituted a waste of scarce hospital bed space; that children who had undergone certain surgical procedures as outpatients could recover at home as well as in the hospital; that separation of the young child from its mother by a period of hospitalization was psychologically harmful; and, that many procedures as were performed on children could just as well be performed on adults, resulting in a reduction of lengthy postoperative hospitalizations that were often unwarranted.[1] Nicholl's report, specifically his conclusion concerning the applicability of day surgery for adult procedures, went largely unnoticed. The feasibility of day surgery as a viable alternative to inpatient surgery had, however, been effectively documented.

From 1909 until 1960, only a limited number of day surgery programs were implemented. Reports concerning these earlier programs--by Herzfeld[2], Lawrie[3], and Othersen et al.[4]--indicated that comparable success had been achieved. Such programs, however, were generally limited to certain specialties, predominately pediatric surgery, and did not provide for the wide range of outpatient surgery as performed on adults in contemporary day surgery programs.

It was not until the 1960's that interest began to develop in day surgery programs among surgeons whose practices were not restricted to pediatric cases. Two British physicians--Stephens[5] (in 1961) and Cardis[6] (in 1964)--reported successful day surgery programs that involved a wide variety of procedures on adults, yet which had encountered a minimal number of postoperative complications. Cohen and Dillon reported in 1966 that their hospital had processed 1,523 patients on an outpatient surgery basis between 1963 and 1964. Of the total, only 33 patients had required subsequent admission as inpatients because of postoperative surgical or anesthetic complications. Savings to patients and third-party payors during the period were estimated to be approximately $28,000. It was further estimated that the day surgery program added the equivalent of one and one-half beds to the hospital's annual capacity, while reducing by some 1,000 patient days the requirement for inpatient staff

support.[7] Cohen and Dillon were among the first authors to document the cost, bed utilization, and staff support savings that could be realized through a day surgery program. Such potential economic advantages prompted a number of hospitals to take a more favorable view towards the day surgery concept. In 1968, Chiang et al. reported a series describing 40,000 tonsillectomies as performed on a day surgery basis. No deaths had been encountered and postoperative hemorrhage, the most feared complication, had occurred in only .006 per cent of the cases handled. Such success was attributed to careful patient screening and preoperative examinations, administration of anesthesia by well-trained nurse anesthesists, and the fact that only board-certified otolaryngologists had performed the procedures. Although the tonsillectomy had traditionally been viewed as a major operation fraught with serious hazards, the Chiang study indicated that it could be safely performed on a day surgery basis, given proper controls and procedures to keep surgical risks to a minimum. In addition, Chiang also noted that numerous other types of surgery besides tonsillectomy had been performed by surgeons in his medical group with equal success, to include gynecological, orthopedic, urological, general surgical, and ear, nose, and throat procedures.[8]

The reports and studies of the 1960's served to legitimatize day surgery. No longer could the concept be

dismissed as a radical or experimental departure from the traditional mode. Increasingly, it came to be viewed as a professionally acceptable mechanism whose worth had been demonstrated. Additionally, spiraling costs of hospitalization and growing shortages of surgical beds made the concept an economically attractive alternative to inpatient surgery, to both patients and hospitals, respectively.

Contemporary day surgery programs may generally be categorized as free-standing or in-house. The former program involves day surgery units which function as independent entities, with no direct affiliation with a hospital. The free-standing concept is best demonstrated by the Surgicenter of Phoenix, Arizona, a privately owned, for-profit surgical facility. Surgicenter consists of four operating suites, an adult recovery room, a pediatric recovery room, a reception/waiting area, staff lounges, a small laboratory, and administrative work areas. It has no kitchen or dining facilities, and does not have the capacity to provide overnight accommodations to patients. The facility is open to use by any surgeon holding staff privileges at any one of the local, accredited hospitals.[9] The in-house program involves day surgery units which are located within the hospital proper, are under the direct administrative control of the hospital, and are totally dependent upon the hospital for the resources necessary for

operation. In-house programs typically utilize the existing emergency rooms or operating suites of the hospital for performance of the surgical procedures.

An argument has persisted as to which of the program categories is to be preferred, the crux of the argument relating to the aspects of safety and cost. Advocates of in-house programs assert that reason should compel one to conclude that some measure of patient safety is sacrificed when a surgical procedure is performed outside the hospital environment. Advocates of free-standing programs counter with the argument that their rates are inherently lower than hospitals' and serve to offset the debatable aspects as pertain to patient safety.[10] The arguments are further complicated by the various positions taken by professional organizations. The Board of Regents of the American College of Surgeons has expressed a preference for in-house programs, while the American Medical Association's position favors the free-standing unit. The American Hospital Association, while apparently leaning toward in-house programs, has not officially stated its preference.[11]

Day surgery programs generally conform to a typical operational pattern. The following sequence of events is illustrative of that typically encountered by a day surgery patient. Laboratory and administrative workups are per-

formed the day before surgery, and the patient is issued such medications and preparatory instructions as would be warranted for the specific procedure involved. On the day of surgery, the patient reports early in the morning, is administered preoperative medications as appropriate, and is moved directly to the operating suite. Following the procedure, and a relatively brief period in the recovery room for arousal from anesthesia to be effected, the patient is transferred to a lounge or holding area for subsequent discharge. Postoperative care is accomplished at home in accordance with instructions as issued by the attending physician or surgeon. Dressings and stitches are removed on a return visit,[12] usually to the physician's office. Slight variations to this general scheme are frequently encountered, especially among the in-house programs of hospitals. Some hospitals and Surgicenter wait until the day of surgery to accomplish laboratory and administrative workups.[13,14] The majority of hospitals, however, employ some form of preadmission program to preclude delays on the day of surgery and allow for a maximum period for recovery before discharge.[12,16] A number of hospitals have established transient postoperative observation wards to which patients are transferred from the recovery room after partial arousal; complete arousal is effected in the observation ward area, usually in the company of a friend or relative, after which

the patient is discharged.[17,18] While a few hospitals permit nursing staff to discharge patients, most require examination by the attending physician or an anesthesiologist before the patient is cleared for discharge.[19,20,21,22] A number of hospitals have implemented follow-up programs whereby patients are contacted by nursing staff personnel, telephonically or by home visit, to determine if the patient is recuperating satisfactorily.[23-25] These variations to the typical pattern are indicative of the fact that the exact character and operating policies of a given hospital's day surgery program will be related to the types of procedures performed, the categories of patients handled, the availability of nursing staff and facilities, and the philosophy of the medical staff and administration. In this respect, a given hospital's day surgery program should be developed based on well-defined goals as to what the day surgery program is to achieve.[26]

Most hospitals restrict the types of surgical procedures performed in their day surgery units to those which involve no more than 90 minutes of operating room time and require less than 180 minutes in the recovery room for the patient to be aroused from the anesthetic.[27,28]

Couch, Ford and Reed state that almost any surgical procedure not involving major intervention into the thorax

or abdomen is potentially an appropriate procedure for day surgery. Limitations are imposed by the extent of post-surgical management required, the time required for the procedure to be performed and full arousal from anesthetic to be effected, and the patient's general physical and mental condition.[29] Even in light of such limitations, Reed[30] estimates that from 20-40 per cent of all surgical procedures currently performed in general hospitals could be as effectively performed on a day surgery basis, an estimate with which Davis[31] is in agreement. The experience of the Fairfax Hospital provides, as do a number of other studies, documentary evidence to support the estimate made by Reed. Having introduced a day surgery program in 1966 to overcome an acute shortage of beds, Fairfax Hospital was operating its day surgery program six days a week by 1973 and was processing approximately 30 per cent of its total surgical workload through the program.[32] Other authors indicate that certain types of operative procedures could be performed in day surgery to an even greater extent. Kratzer has stated that 75-85 per cent of minor anorectal surgery could be effectively managed on an outpatient basis using local anesthesia.[33]

Review of the literature indicates that the most frequently performed day surgery procedures in the United States are uterine dilation and currettage for diagnosis,

cystoscopy, tonsillectomy-adenoidectomy, pediatric herniorrhaphy, vasectomy, therapeutic abortion, and miringotomy. To better illustrate the variety of procedures which have been effectively handled on a day surgery basis, Appendix D cites those procedures as currently performed at Surgicenter of Phoenix, Arizona. It is noted that even this expanded listing is not exhaustive, but represents only a portion of the total procedures found in various day surgery programs on a nation-wide basis. Conspicuously absent from the Surgicenter listing is the therapeutic abortion as performed in the first or second trimester, and which constitutes a commonly performed day surgery procedure in those states having liberal abortion statutes.

While day surgery has been demonstrated to be an effective and safe mode for delivering surgical care, the experiences of a few hospitals have indicated that the simple establishment of a program carries no guarantee of success.[34,35] Davis has identified certain basic criteria which he feels must be met by any hospital desirous of implementing a day surgery program. The criteria are: 1) there must exist an adequate demand for the type of procedures to be performed under the program, 2) a long waiting list for beds should exist, especially surgical beds [a variation of this criterion is that a considerable surgical backlog should exist because of an insufficient

number of surgical beds to support the demand encountered]; 3) expansion potential must exist in operating rooms, recovery rooms, and the anesthesia department; 4) wide professional staff support must be exhibited for the program by members of the medical staff; and, 5) cooperation of third-party payors is essential with respect to reimbursement for reasonable charges.[36] For a majority of those hospitals whose day surgery programs have been successful, the basic criteria as outlined by Davis were present. Detmer emphasizes that selection of patients for day surgery is extremely important from the standpoint of avoiding legal difficulties concerning patient misinterpretations over the procedure, potential complications, and proper postoperative care in the home environment; in this respect, he views a good doctor-patient relationship and rapport to be essential prerequisites.[37] This comment is closely associated with Nellis' view that the educational level of the patient is extremely important; the patient must understand and scrupulously follow, in the home environment, the postoperative instructions as issued by the attending physician. In essence, the patient must have the intelligence to recognize symptoms of postoperative complications before a serious situation develops.[38]

Current literature is replete with comments concerning the advantages of day surgery that accrue to the

patient, third-party payors, hospitals, and physicians.

Reductions in cost to patients and third-party payors have been reported to range from 25-60 per cent, primarily due to the elimination of room charges.[39,40] Less tangible, but perhaps equally as important, benefits are gained by the patient who cannot afford to be away from home or work for the one to three days of hospitalization traditionally required for very minor surgical procedures that do not limit physical activity.[41,42] In 1971, Nellis estimated that, on a national basis, approximately $172 million in hospitalization cost savings could be realized annually by patients and third-party payors if only 10 per cent of all surgical procedures could be performed on a day surgery basis.[43] Considerable attention has been given in the literature to the positive impact day surgery programs have had in the reduction of psychological trauma among very small children.[44,45] In a similar vein, Shields noted that reduction of preoperative anxieties among adult patients was a definite benefit to be realized.[46] Othersen et al. stressed the fact that the hazards of noscominal contamination and cross-infection were reduced drastically by processing pediatric patients through day surgery programs.[47] Davenport et al. found day surgery to be an effective means for overcoming long waiting lists for elective

surgery that resulted from an inadequate number of available surgical beds.[48] Related to this aspect is the fact that day surgery can provide for more effective utilization of operating rooms and recovery rooms by the accommodation of patients that would not otherwise have been processed because of a shortage of surgical beds.[49] Physicians have frequently reported that their productivity has been increased as a result of day surgery, primarily due to a reduction in the time required to follow patients who are hospitalized for several days following minor surgery. As a result, the physician is permitted to process a proportionately larger number of patients in the same period of time.[50] A less frequently reported advantage is the more effective utilization of nursing staff resources. In that day surgery units do not involve a twenty-four hour operation, the nursing staff required to service a given number of day surgery patients is less than that which would be required to service the same number of inpatients over a twenty-four hour period. In this respect, Berrill states that the hospital which has had to close wards because of nursing staff shortages should consider implementing a day surgery program.[51]

Disadvantages are less frequently cited and are usually less definitive, but several comments are worthy of note. Rhoads has pointed out that free-standing surgical facilities, as has been the case with many independent

laboratories, may tend to "skim the cream off the milk" by handling only those minor surgical procedures which prove economically profitable.[52] Under such circumstances, the non-profit hospitals in the area would be faced with reductions in minor surgical workloads, lowered operating room utilization, and a reduced bed occupancy. The result would be a reduction in gross revenue intake against fixed operating costs that could not be as easily adjusted downward. The non-profit hospital would feel compelled to continue its support of necessary but unprofitable services, such as emergency rooms, maternity wards, and teaching programs. In light of its reduced gross revenue intake, it would probably be forced to raise rates to offset at least a portion of the gross revenue lost to the day surgery program.[53-55] In this respect, the Board of Trustees of the American Hospital Association has taken the position that a free-standing surgical facility would be acceptable only if established in conformity with the community's overall health plan and if it were established only in response to a clearly demonstrated health care need of the community.[56] The same case could be appropriately made for an in-house program as sponsored by one of several hospitals within a community, for the impact of the one hospital's day surgery program could be just as adverse on the other hospitals' fiscal postures as would be that of a

free-standing surgical facility. A second potential disadvantage relates to the degree to which day surgery patients adhere to preoperative instructions as issued by the physician or nurse. Failure to impress the patient with the necessity of not eating prior to the administration of general anesthesia could result in anesthesia difficulties. This type of hazard is greatly enhanced by the hospital's lack of preoperative control over the patient for the twelve hours preceeding surgery.[57]

Postoperative complications have proven to be of minor consequence in most day surgery programs. As previously noted, the Chiang series involved 40,000 tonsillectomies with no deaths and an incident rate of only .006 per cent for postoperative hemorrhage.[58] Ahlgren *et al.* found that admissions to the hospital as a result of postoperative complications occurred in only 1.7 per cent of the 977 day surgery cases processed in 1969.[59] Of 1,438 patients processed as day surgery cases by the Abington Memorial Hospital, only seven required admission to the hospital following the minor surgical procedure.[60] Similar reports are usually encountered in the literature, with the inpatient admission rate ranging from 0.5 to 3.0 per cent.[61-64]

Patient acceptance of day surgery programs has consistently been high. One study indicated that day surgery had appealed preoperatively to 96 per cent of the day surgery

patients, with 93 per cent of the same patients indicating postoperatively that they would prefer to use the service again in lieu of inpatient hospitalization. Approximately 95 per cent of the patients undergoing day surgery indicated that they would recommend it to others.[65] In his experience with a pediatric day surgery program, Alhgren found that 99 per cent of parents were sufficiently satisfied with the program to prefer that any subsequent surgery be performed on their children in the same manner.[66]

A factor frequently cited as having contributed to the success of day surgery has been the fact that most programs have established definitive guidelines by which day surgery patients are discriminately selected. In most instances, infectious cases are not eligible for day surgery. Patients with diabetes, heart conditions, marked anemia, or pronounced respiratory problems are usually handled as regular inpatients rather than in the day surgery mode. Neurotic individuals are not viewed as good day surgery candidates, nor are those individuals who exhibit serious reservations about being processed as a day surgery case. In short, the typical day surgery patient is one who is in generally good health, mentally and physically.[67-71] Such would appear to disqualify a large percentage of very elderly people.

A primary anesthetic goal in day surgery is to achieve a safe induction with a rapid emergence and no de-

pression.[72] In light of this goal, most day surgery programs restrict the administration of preoperative medication to that of atropine. By not employing barbituates or sedatives, the patient is not as depressed postoperatively, and a faster recovery from anesthesia and earlier discharge are thereby achieved.[73-75]

The demonstrated successes of the vast majority of day surgery programs have proven the efficacy of day surgery as a viable alternative to the traditional inpatient hospitalization for minor surgical procedures. The proliferation of new programs, averaging some 200 per year between 1968 and 1973, is indicative of the fact that day surgery has become an accepted treatment mode.[76]

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CHAPTER II

DISCUSSION

The Community Served

A hospital does not, and can not, operate within a vacuum, for it serves a community which is itself a dynamic entity. Therefore, due consideration in planning should be given to the population being served, and the specific trends within that population which could, directly or indirectly, impact upon the delivery of health services. Admittedly, the collection and interpretation of data concerning the population of a given area does not provide solutions, but such can serve as aids in arriving at decisions which are more viable and realistic in light of the total operating environment. It is not within the scope of this study to undertake a thorough analysis of all pertinent characteristics of the community served by Hendrick Memorial Hospital. Such would necessiate a detailed examination of trends with respect to general economic conditions, educational levels, demographic aspects, epidemiological factors, employment levels, housing conditions, and a host of other factors, and would constitute a major study in its own right. Certain demographic characteristics, however, are considered to be of sufficient import to warrant specific attention.

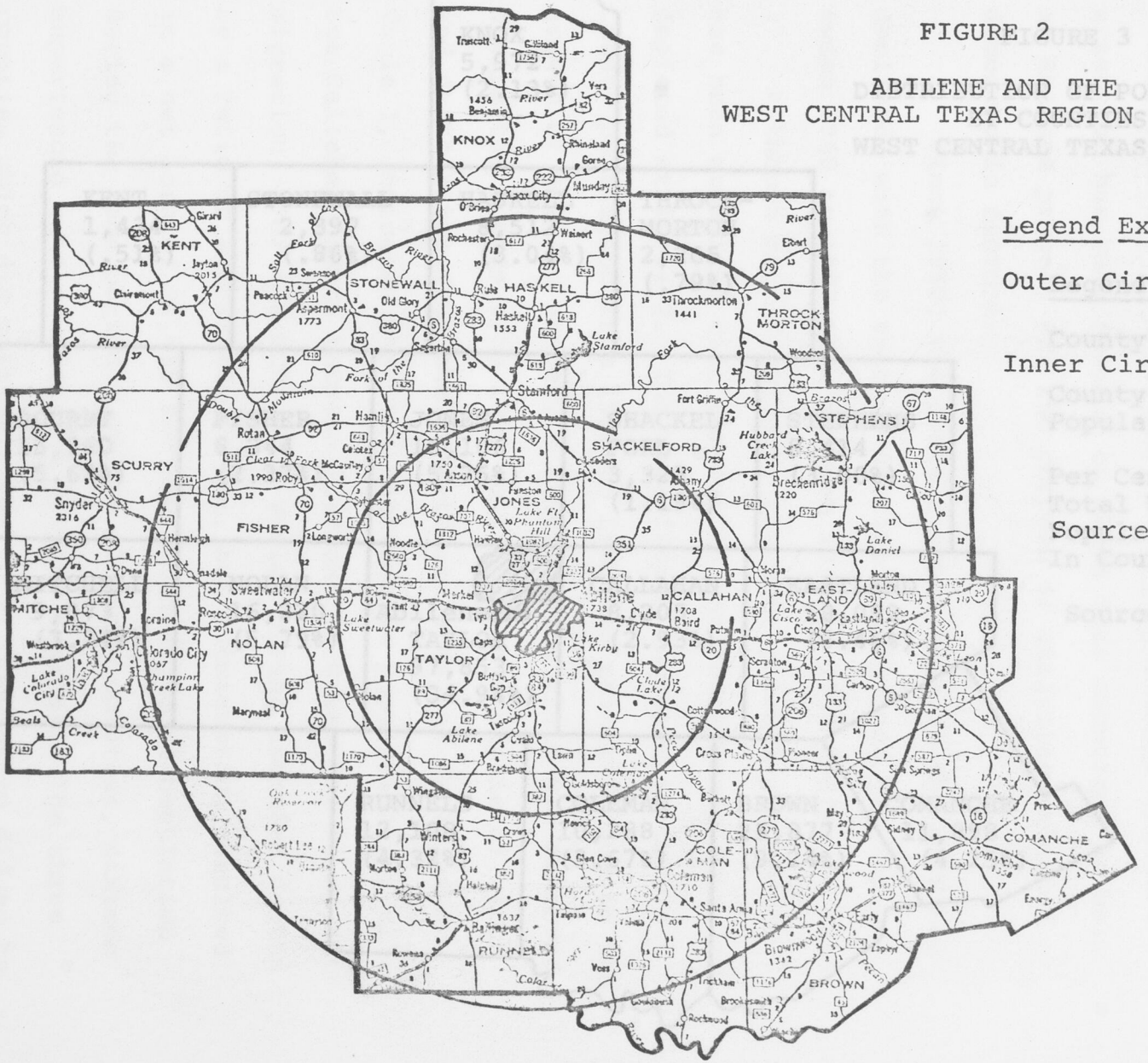
Abilene is located in approximately the center of what is known as the West Central Texas Region (WCTR), as

depicted at Figure 2. Encompassing nineteen counties, the WCTR was reported by the 1970 census to contain a total population of 280,081, of which 183,537 (65.53 per cent) were cited as living in urban settings, and 96,544 (34.47 per cent) were cited as being rural residents.[1] Figure 3 provides a schematic depiction of the population distribution, by county, within the WCTR. The relationship of urban to rural population is somewhat misleading, however, as the population of Abilene proper in 1970 accounted for approximately 33 per cent on the WCTR total and almost 50 per cent of the total urban population in the region. Eliminating Abilene proper from consideration, the remainder of the WCTR had a total 1970 population slightly in excess of 187,000, of which only about 50 per cent lived in an urban setting. This mixture of urban and rural population is fairly consistent with what one would expect for a region in which the primary economic pursuits are ranching and farming.[2]

As the administration of Hendrick Memorial Hospital is desirous of developing the hospital into the major medical center servicing the WCTR, it is appropriate to consider significant demographic trends within the WCTR as a whole. Of the nineteen counties within the WCTR, however, four counties--Taylor, Jones, Shackelford, and Callahan--account for approximately 45 per cent of the total WCTR population and are in closest proximity to Hendrick Memorial Hospital.

FIGURE 2

ABILENE AND THE
WEST CENTRAL TEXAS REGION (WCTR)



Legend Explanation:

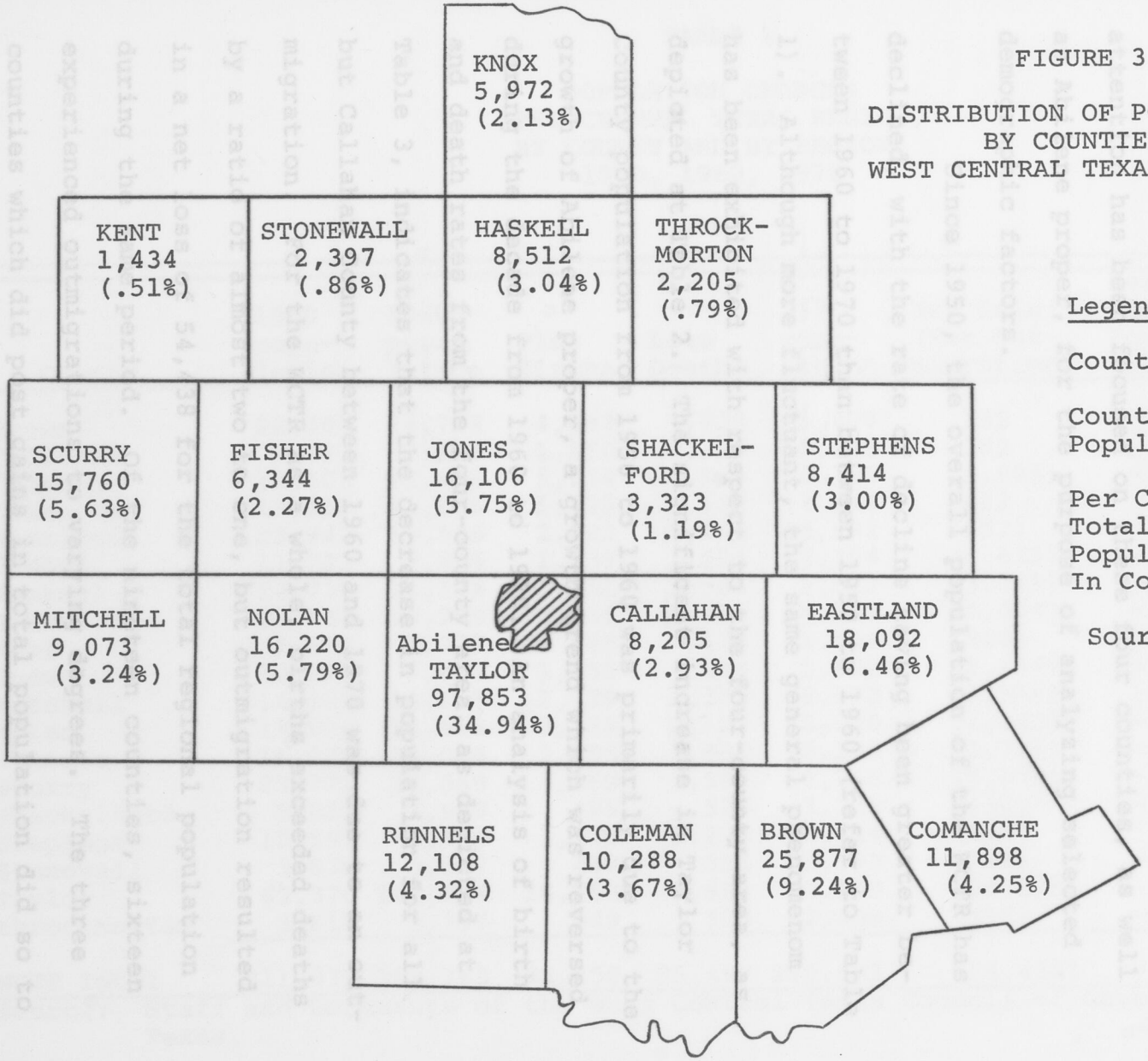
Outer Circle: 60 Mile Radius from Center of Abilene Proper

Inner Circle: 30 Mile Radius from Center of Abilene Proper

Source: Map is standard road map extract; Information pertaining to county boundaries from the staff of the West Central Texas Council of Governments

FIGURE 3

DISTRIBUTION OF POPULATION
BY COUNTIES
WEST CENTRAL TEXAS REGION



Legend Explanation:

County Name: KENT

County Population: 1,434

Per Cent of Total WCTR Population In County: (.51%)

Source: Staff and documents of the West Central Texas Council of Governments

While it is conceded that the hospital's patients are not drawn solely from the four-county area cited, it is fairly reasonable to assume that a majority of day surgery cases would emanate from that area. For this reason, specific attention has been focused on these four counties, as well as Abilene proper, for the purpose of analyzing selected demographic factors.

Since 1950, the overall population of the WCTR has declined, with the rate of decline having been greater between 1960 to 1970 than between 1950 to 1960 (refer to Table 1). Although more fluctuant, the same general phenomenom has been exhibited with respect to the four-county area, as depicted at Table 2. The significant increase in Taylor County population from 1950 to 1960 was primarily due to the growth of Abilene proper, a growth trend which was reversed during the decade from 1960 to 1970. An analysis of birth and death rates from the four-county area, as depicted at Table 3, indicates that the decrease in population for all but Callahan County between 1960 and 1970 was due to an outmigration. For the WCTR as a whole, births exceeded deaths by a ratio of almost two to one, but outmigration resulted in a net loss of 54,438 for the total regional population during the same period. Of the nineteen counties, sixteen experienced outmigrations to varying degrees. The three counties which did post gains in total population did so to

TABLE 1

POPULATION CHANGES
WEST CENTRAL TEXAS REGION,
BY COUNTY AND BY REGION
1950, 1960, 1970

County	1950 population	1960 population	Plus Births	Less Deaths	1970 population	Net Gain/ (Net Out-migration)	Per Cent Change In Population 1960-1970	Per Cent of Region's Total 1970 Population
Brown	28,607	24,728	4,493	3,739	25,877	395	4.6	9.24
Callahan	9,087	7,929	1,150	1,236	8,205	362	3.5	2.93
Coleman	15,503	12,458	1,634	1,999	10,288	(1,805)	-17.4	3.67
Comanche	15,516	11,865	1,729	2,118	11,898	422	3.6	4.25
Eastland	23,942	19,526	2,522	3,404	18,092	(552)	-7.3	6.46
Fisher	11,023	7,865	1,439	925	6,344	(2,035)	-19.3	2.27
Haskell	13,736	11,174	1,951	1,344	8,512	(3,269)	-23.8	3.04
Jones	22,147	19,299	3,358	2,472	16,106	(4,079)	-16.5	5.75
Kent	2,249	1,727	249	178	1,434	(364)	-17.0	.51
Knox	10,082	7,857	1,455	884	5,972	(2,456)	-24.0	2.13
Mitchell	14,357	11,255	2,479	1,305	9,073	(3,356)	-19.4	3.24
Nolan	19,808	18,963	3,726	2,127	16,220	(4,342)	-14.5	5.79
Runnels	16,771	15,016	2,695	1,809	12,108	(3,794)	-12.7	4.32
Scurry	22,779	20,369	3,559	1,589	15,760	(6,579)	-22.6	5.63
Shackelford	5,001	3,990	485	520	3,323	(632)	-18.2	1.19
Stephens	10,597	8,885	1,376	1,293	8,414	(554)	-5.3	3.00
Stonewall	3,679	3,017	448	354	2,397	(714)	-20.8	.86
Taylor	63,370	101,078	25,153	7,808	97,853	(20,570)	-3.2	34.94
throckmorton	3,618	2,767	349	395	2,205	(516)	-20.3	.79
WCTR Total	311,872	309,768	60,250	35,499	280,081	(54,438)	-17.57	100.00

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene Texas.

TABLE 2

POPULATION CHANGES
FOUR-COUNTY AREA
1950, 1960, 1970

County	1950 Population	1960 Population	1970 Population	Per Cent Change in Population 1960-1970
Taylor	63,370	101,078	97,853	-3.2
Jones	22,147	19,299	16,106	-16.5
Shackelford	5,001	3,990	3,323	-16.7
Callahan	9,087	7,929	8,205	+3.5
Four-county Area Total	96,605	132,296	125,487	-5.1

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene, Texas.

TABLE 3

NET OUTMIGRATION
FOUR-COUNTY AREA
1960-1970

County	1960 Population	Plus Births	Less Deaths	1970 Population	Net Outmigration
Taylor	101,078	25,153	7,808	97,853	-20,570
Jones	19,299	3,358	2,472	16,106	- 4,079
Shackelford	3,990	485	520	3,323	- 362
Callahan	7,929	1,150	1,236	8,205	None
Four-county Area Total	132,296	30,146	12,036	125,487	-24,919

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene, Texas.

rather insignificant degrees, the maximum total increase exhibited being only 4.6 per cent over a ten-year period.

Persistent outmigration has changed the complexion of the total WCTR population with respect to age distribution. From 1950 to 1970, the number of persons over 65 years of age increased from 26,694 to 42,868. In 1960, the 35,319 residents of the region who were 65 years of age or older accounted for 11.4 per cent of the region's population. By 1970, the figure had increased to 42,868, representing 15.3 per cent of the total population. Within the four-county area, all counties except Taylor experienced greater than a 5 per cent increase in the 65 and over category of population, as depicted at Table 4. The lower percentage

TABLE 4

POPULATION 65 YEARS OF AGE OR OLDER
FOUR-COUNTY AREA
1950-1970

County	1950	1960	1970	Per Cent of Total Population Over 65 Years Old in: 1960	1970
Taylor	4,369	6,591	9,142	6.5	9.3
Jones	1,866	2,421	2,885	12.5	17.9
Shackelford	462	563	707	14.1	21.3
Callahan	1,141	1,396	1,719	17.6	21.0
Four-county Area Total	7,838	10,971	14,453	8.3	11.5

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene, Texas.

increase experienced by Taylor County may be primarily attributed to the movement of younger residents from rural and other urban settings to the city of Abilene.[3] For most counties in the WCTR, population distribution by age category in 1970 was skewed to the more elderly end of the scale in comparison to the national distribution, as depicted at Table 5. Outmigration and the increasing number of residents over 65 years of age tended to raise the median age in the four-county area between 1960 and 1970, while the median age for the overall population of the State of Texas declined during the same period (see Table 6).

The potential impact of such demographic trends should be considered by the institution desirous of implementing a day surgery program. The most obvious aspect is that a continued decline in the population supported will tend to result in a corresponding decline in total admissions, bed occupancy rates, and minor surgical procedures. For hospitals which predominately rely upon patient revenues to support operations, this aspect has potentially significant ramifications. Day surgery programs tend to reduce inpatient admissions and lengths of stay, with the practical result being a reduction in gross patient revenues. The implementation of a day surgery program in the face of a declining and aging population base could prove to be a tenuous venture from the financial standpoint. In effect, the day surgery program could serve to further compound gross revenue intake

TABLE 5

POPULATION BY AGE CATEGORIES
IN PERCENTAGE BY COUNTY, REGION, NATION
1970

County	Under 5	5-14	15-24	25-44	45-64	65 and Over
Brown	6.3	16.0	16.6	18.5	24.0	18.5
Callahan	5.3	16.8	12.5	19.2	25.1	20.6
Coleman	5.6	15.8	11.4	16.2	26.7	23.7
Comanche	5.8	15.6	12.4	17.6	27.0	21.5
Eastland	5.1	13.7	15.7	16.8	25.1	23.5
Fisher	7.0	18.0	13.0	18.6	26.3	17.0
Haskell	6.7	17.6	12.3	17.9	27.4	18.0
Jones	6.8	17.7	13.2	18.4	26.0	17.9
Kent	5.1	20.3	13.2	19.9	26.7	14.6
Knox	6.8	19.6	11.5	17.6	25.4	18.9
Mitchell	7.7	19.8	14.0	18.6	24.2	15.6
Nolan	7.9	18.7	14.4	21.7	22.9	14.4
Runnels	6.6	18.3	13.5	18.4	25.0	18.2
Scurry	7.4	20.7	15.1	22.7	22.8	11.2
Shackelford	5.4	14.3	12.6	19.0	27.7	24.0
Stephens	6.7	16.3	12.4	19.8	25.1	19.4
Stonewall	5.0	17.4	13.2	21.2	27.2	16.0
Taylor	8.2	19.5	21.2	23.0	18.6	9.3
Throckmorton	4.6	13.8	11.6	18.3	27.5	24.2
Regional (WCTR)	7.1	18.0	16.5	20.3	22.8	15.3
National	8.4	19.5	18.0	23.7	20.5	9.1

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene, Texas.

TABLE 6

CHANGES IN MEDIAN AGE OF POPULATION
FOUR-COUNTY AREA, REGION, STATE
1960-1970

County	1960 Median Age	1970 Median Age	Per Cent Change 1960-1970
Taylor	24.9	25.8	+ .9
Jones	33.6	39.3	+5.7
Shackelford	39.3	44.1	+4.8
Callahan	39.7	41.6	+1.9
West Central Texas Region	33.6	39.7	+6.1
State of Texas	27.0	26.4	- .6

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene, Texas.

problems posed by static or declining total patient workloads. Secondly, older individuals are usually less desirable candidates for day surgery, especially for procedures requiring the administration of general anesthesia. A disproportionate percentage increase in the number of persons over the age of 65 to the increases in adolescents and young adults could, in effect, be viewed as representing a reduction in the absolute number of individuals who would be eligible for day surgery.

The economy of the WCTR is predominately based upon ranching and farming, a factor which is cited as being a major stimulus for the outmigration of young adults to other regions of the state in which job opportunities are viewed

as being more plentiful.[4] In the context of health planning, a pertinent question relates to whether sufficient labor intensive industry can be attracted to the region, specifically the four-county area surrounding Abilene, to reverse the declining population trend. As of March 8, 1974, 148 manufacturing concerns were operational in Abilene and the immediate vicinity of the city, employing 6,856 workers. Of the 148 manufacturers, only four employed in excess of 300 workers, and these four accounted for 2,649 of the 6,856 laborers (38.6 per cent) engaged in manufacturing.[5] The remainder of the adult workforce was primarily engaged in service-oriented industries and businesses. Recognizing the importance of expanding its labor intensive industry base as the ultimate solution to the problem of outmigration, the city of Abilene has undertaken an aggressive recruitment campaign to attract such industry.[6]

In a majority of instances, the counties comprising the WCTR had greater percentages of families in the lower income categories than did the State of Texas or the nation (refer to Table 7). In none of the nineteen counties did median incomes exceed those of the state or nation. Only four counties had smaller percentages of families below the low income level than did the state; only one county had a lower percentage of families below the low income level

TABLE 7

INCOME DATA, FAMILIES OF WEST CENTRAL TEXAS REGION, 1970

County	Less Than $3000	$3000 -4999	$5000 -6999	$7000 -9999	$10,000 -14,999	$15,000 Or More	Median Family Income	Per Capita Money Income	Per Cent of Families Below Low Income Level
Brown	17.7	20.7	16.9	20.6	15.0	9.1	$6,401	$2,402	15.3
Callahan	25.0	16.7	11.5	21.5	18.2	7.1	$6,567	$2,264	19.4
Coleman	25.4	20.6	17.7	17.8	12.1	6.4	$5,402	$2,154	22.9
Comanche	22.9	20.5	15.1	16.9	16.2	8.4	$5,756	$2,364	19.9
Eastland	24.9	18.6	16.9	20.3	12.2	7.1	$5,742	$2,297	20.0
Fisher	23.2	17.1	21.6	16.9	13.3	7.9	$5,737	$2,245	22.7
Haskell	26.1	16.7	18.6	16.8	12.8	9.0	$5,911	$2,186	24.1
Jones	20.8	18.7	16.1	19.9	16.2	8.3	$6,331	$2,386	20.0
Kent	27.0	17.0	17.0	20.3	13.2	5.5	$5,658	$2,076	25.1
Knox	22.8	22.7	19.9	19.5	9.2	5.9	$5,471	$1,896	22.4
Mitchell	20.6	17.4	13.5	19.6	17.2	11.7	$6,788	$2,357	22.8
Nolan	19.0	14.2	16.9	25.3	17.2	7.4	$6,991	$2,276	19.9
Runnels	23.2	17.9	17.1	18.6	14.7	8.5	$5,987	$2,254	22.2
Scurry	12.8	14.8	17.4	22.7	20.4	11.9	$7,758	$2,603	14.2
Shackelford	14.8	13.2	21.6	20.7	15.8	13.9	$7,065	$2,904	10.4
Stephens	19.0	18.4	16.7	22.3	15.8	7.8	$6,541	$2,404	19.0
Stonewall	25.8	12.3	18.7	16.6	13.8	12.8	$5,957	$2,982	19.7
Taylor	11.4	14.9	17.9	22.9	21.4	11.5	$7,719	$2,534	12.1
Throckmorton	18.8	14.8	18.2	16.5	24.9	6.8	$6,806	$2,697	13.6
State of Texas	13.1	12.5	13.8	20.7	23.4	16.5	$8,486	$2,792	14.7
National	10.3	10.0	11.9	20.6	26.6	20.6	$9,586	$3,119	10.7

Source: Staff and Documents of the West Central Texas Council of Governments, Abilene, Texas.

than did the nation. Per capita income was lower in seventeen counties than was the case for the State of Texas, and all nineteen counties reflected lower per capita incomes than did the nation.

Between 1970 and 1972, the percentages of Abilene households in the various income groups has exhibited marked change, as depicted at Table 8. The percentage of households earning less than three thousand dollars of income per year increased by 8.7 per cent during the period, while percentages for all other income groups dropped. In effect, there was a downward shift in the overall level of relative affluence within the Abilene community, with "middle-income" households exhibiting the greatest percentage decreases. This aspect poses considerable significance with respect to the delivery of health services, for the family with lower income tends to defer purchases of health services until such time as an acute illness or injury force the issue.

As day surgery is usually a less expensive alternative to hospitalization for minor surgery, it is probable that a day surgery program would enable more families in the lower income groups to afford needed medical care. Such is especially applicable for those families who are not covered by some form of third-party insurance or federally underwritten health care program and must pay for health care

TABLE 8

ABILENE PROPER
PER CENT OF HOUSEHOLDS BY INCOME GROUPS
1970-1972

	1970(a)	1971(b)	1972(b)	Per Cent Increase/ Decrease 1970-1972	State of Texas 1970(a)	United States 1970(a)
Number of Households:	22,451	28,500	29,800	N/A	N/A	N/A
Number of Households by Income Group:						
$0 - $2,999	10.9	15.2	19.6	+8.7	13.1	10.3
$3 - $4,999	14.7	12.8	13.6	-1.1	12.5	10.7
$5 - $9,999	40.9	39.5	37.9	-3.0	34.5	32.5
$10-$14,999	21.7	20.6	18.6	-3.1	23.4	26.6
Over$15,000	11.8	11.6	10.3	-1.5	16.5	20.6

Sources: (a) Standard Metropolitan Statistical Area, U.S. Bureau of Census, U.S. Census of Population and Housing, 1970.
(b) Abilene Chamber of Commerce, "Abilene Market Data--1971" and "Abilene Market Data--1972" (Mimeographed).

services out-of-pocket. In this respect, a day surgery program should enable Hendrick Memorial Hospital to serve a larger percentage of the region's population which could not otherwise afford, and would therefore not seek, needed medical care.

Implementation of a day surgery program by Hendrick Memorial Hospital could reasonably be expected to impact on the minor surgical workloads and inpatient admissions of the other hospitals within the city of Abilene and the four-county area, although the extent to which such impacts would prove to be adverse can not be accurately forecast. It is conceivable that a day surgery program could attract a sizable percentage of the other Abilene hospitals' minor surgical workloads, which would probably result in a reduction of their gross revenue intakes and necessitate rate increases to offset shortfalls in operating revenues. The effect would be the same as though a free-standing surgical facility had opened in the area, an aspect as has been previously addressed.

A 1973 study undertaken by the Health Coordinating Committee's staff of the West Central Texas Council of Governments identified a number of problems with respect to the delivery of health care and related services within the WCTR.[7] Of these problems, three are pertinent with respect to the implementation of a day surgery program.

Over one-half of the physicians within the WCTR are concentrated in Taylor County, specifically, in Abilene. Taylor County, however, accounts for only 35 per cent of the total regional population and three of the 28 hospitals. Distribution of remaining physicians throughout the other 18 counties is uneven, with the result being that a considerable proportion of the WCTR is underserved. Additionally, 1972 data indicated that 37 per cent of the region's physicians were over 60 years of age, with many having curtailed their active practice of medicine to varying degrees. This aspect has prompted the Health Coordinating Committee to forecast a potentially critical shortage of physicians in the region by 1980, and to recommend that priority attention be given to the recruitment of physicians to forestall such a development.[8] While the point will be more fully addressed in a subsequent section, it should be noted that physician support of a day surgery program is essential for it to remain viable as an on-going service. If retiring physicians are not replaced on at least a one-to-one basis by new physicians, the net result is a reduction in the number of entry points into the health care system. A decline in the number of active physicians would result in a proportionate decline in the aggregate number of patients hospitalized, particularly for minor surgical procedures. Similarily, a declining number of physicians would probably result in a lesser number of

referrals to a day surgery program.

Shortages of other professional and para-professional personnel also exist, particularly with respect to the shortage or non-availability of practicing nurses throughout the region.[9] Hendrick Memorial Hospital is currently able to fill only 70 per cent of its budgeted nursing staff positions, with shortages primarily found in the nursing skill levels below that of the registered nurse.[10] A day surgery program can be of benefit to hospitals experiencing nursing staff shortfalls, in that it requires less nursing staff than does an inpatient ward to support a proportionately greater number of surgical patients. The day surgery mode also tends to reduce the number of inpatients who would traditionally occupy an acute care bed, but would actually require only minimal nursing support. In this regard, better utilization of scarce nursing staff resources could be achieved, for their efforts could be more effectively expended in support of a larger proportionate census of acute cases requiring more attention.[11]

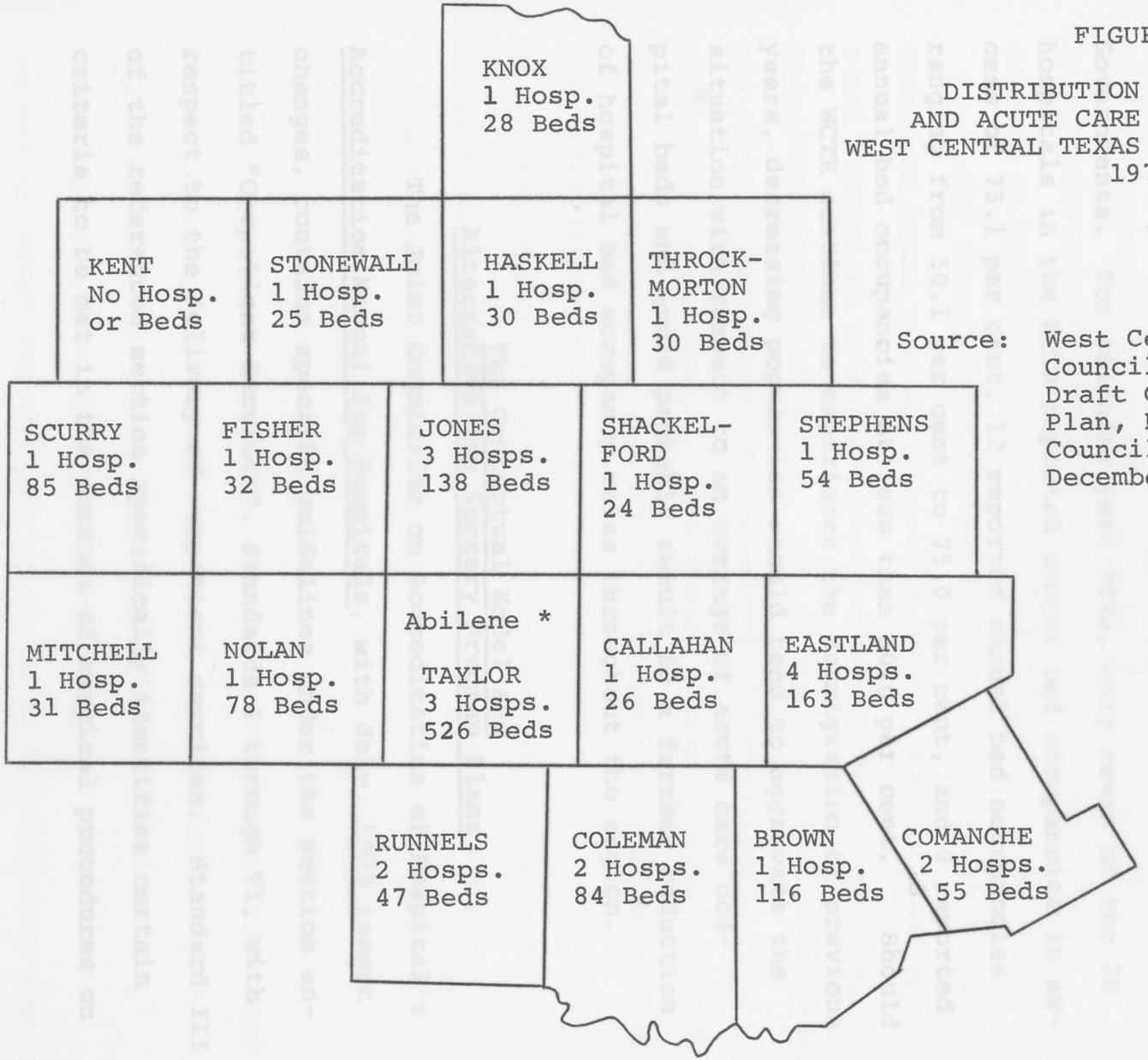
Emergency medical services are viewed as being inadequate throughout the region, especially with respect to ambulance service support. The existing ambulance services of the region fail to meet the minimum standards of the Highway Safety Act. Ambulances are predominately provided by funeral homes, lack adequate communications, are ill-

equipped, and are operated by untrained or inadequately trained personnel.[12] In short, a day surgery patient who developed serious complications at home which warranted immediate return to the hospital would probably encounter difficulties with respect to rapid ambulance response and proper enroute care. While the point is not addressed in current literature, it is obvious that adequate ambulance support is an essential adjunct to a viable day surgery program. The day surgery patient cannot be discharged and subsequently forgotten. Provisions must be made to expeditiously and safely return him to the hospital if necessary, as well as provide for essential enroute resusitation as might be required.

Within the WCTR as a whole, there is an overage of acute hospital beds, primarily due to the fact that most hospitals in the region were constructed when the population supported was considerably larger. Figure 4 illustrates the distribution of hospitals and acute care hospital beds for the 19 counties comprising the WCTR. As of year-end 1972, there were 28 hospitals in the WCTR, operating a total of 1,487 acute care beds and providing for a ratio of approximately one bed per 188 residents of the region. Within the four-county area, 8 hospitals operated a total of 714 acute care beds and provided for a ratio of approximately one bed per 175 residents. In Abilene proper, there were 3 hospitals

FIGURE 4

DISTRIBUTION OF HOSPITALS
AND ACUTE CARE HOSPITAL BEDS
WEST CENTRAL TEXAS REGION, BY COUNTY
1972



Source: West Central Texas Council of Governments. Draft Copy of "Objectives Plan, Health Coordinating Council," Abilene, Texas, December, 1973.

operating 566 acute care beds and providing for a ratio of approximately one bed per 178 residents. In each instance, the bed to population ratio was in excess to the target ratio of one bed per 222 residents as established by the Health Coordinating Committee of the West Central Texas Council of Governments. For calendar year 1972, only seven of the 28 hospitals in the WCTR reported annual bed occupancies in excess of 75.1 per cent, 12 reported annual bed occupancies ranging from 50.1 per cent to 75.0 per cent, and 9 reported annual bed occupancies at less than 50.0 per cent.[13] Should the WCTR continue to experience the outmigration of previous years, decreasing population should tend to aggravate the situation with respect to an overage of acute care hospital beds and would probably result in a further reduction of hospital bed occupancy rates throughout the region.

The Conceptual Model and Alternative Day Surgery Program Plans

The Joint Commission on Accreditation of Hospital's Accreditation Manual for Hospitals, with July, 1973 insert changes, contains specific guidelines under the section entitled "Outpatient Services", Standards I through VI, with respect to the delivery of outpatient services. Standard III of the referenced section specifically identifies certain criteria to be met in the conduct of surgical procedures on

an outpatient basis.[14] Hendrick Memorial Hospital is accredited by the Joint Commission on Accreditation of Hospitals (JCAH) and is desirous of maintaining said accreditation. The development of a conceptual model for the hospital's proposed day surgery program has been accomplished in accordance with pertinent JCAH guidelines concerning surgery as performed on an outpatient basis.

The conceptual model as depicted at Appendix A was developed based upon a review of current literature and personal interviews with key members of the medical, nursing, and administrative staffs.[15] Key to the conceptual model are the time factors involved with respect to performance of a given surgical procedure, preliminary recovery of the patient in the recovery room, and complete recovery of the patient in the observation ward. Personal interviews with the chiefs of the department of surgery and the anesthesia service resulted in the establishment of the following guidelines: the selection of surgical procedures would be initially restricted to those which could be performed in less than 60 minutes of operating time; surgical procedures would be further restricted by the requirement that postoperative stay in the recovery room would not exceed 180 minutes and preferably be 120 minutes or less; and, the target time from commencement of the operation until discharge should not exceed six hours for the patient to be fully ambulatory and

ready for discharge.[16] Additionally, the conceptual model presupposes that the hospital's existing surgical suites would be used for the performance of day surgery procedures, that an observation ward would be established as a separate entity from existing ward areas in the hospital, and that a preadmission program would be utilized by scheduled day surgery patients. With respect to the last presupposition, elaboration is warranted. Hendrick Memorial Hospital does not have a comprehensive preadmission program, wherein all routine administrative and diagnostic workups are effected prior to the admission of a patient.[17] While such a program is not a prerequisite for a day surgery program, it is an important adjunct for the expeditious processing of patients on the day of surgery. The accomplishment of all administrative processing, financial counseling, routine laboratory testing, and patient orientation the day before surgery precludes unnecessary delays on the day surgery is to be performed.[18] More importantly, preadmission workups permit the early postings of day surgery cases on the operating room schedule, thereby affording a maximum period for anesthetic recovery and ambulation postoperatively.

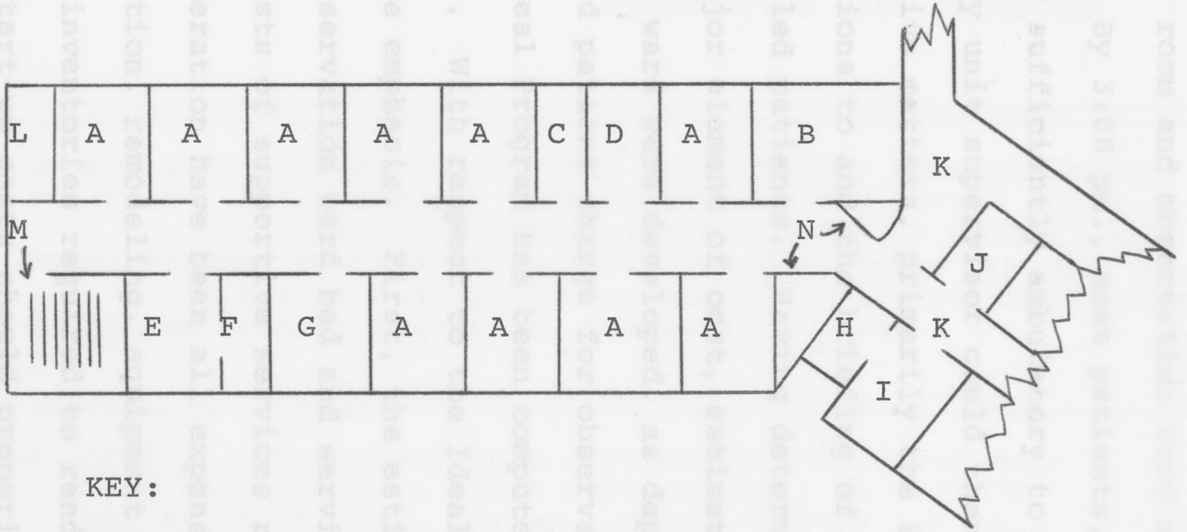
The hospital's administration is desirous of utilizing currently unused ward space for the observation ward, rather than integrating day surgery patients into a portion of a functional surgical ward.[19] In this regard, an unoc-

cupied ward area was selected for use as the observation ward, and its available floor space has been dedicated to observation ward activities as depicted at Figure 5. Three plans for staffing the selected observation ward area were developed, each plan being predicated upon a different combination of observation ward beds and days of operation per week.

The first plan has been designated as the Ideal Program, for it would permit the optimum utilization of available space in the area selected and nursing staff resources dedicated to the program. The plan envisions a five day per week operation, 6:00 am. to 6:00 pm. Monday through Friday, with eight day surgery patients being accommodated on a daily basis. In conjunction with nursing service representatives, it was ascertained that two registered nurses, one licensed vocational nurse, and one nurses' aide would constitute the preferred level of nursing staff to effectively operate the observation ward on a daily basis.[20] Of the two registered nurses, the more experienced would be designated as the day surgery unit supervisor and charged with the responsibility for the overall administrative operation of the day surgery program. The observation ward would operate on a two-shift basis: the morning shift would consist of one registered nurse and the licensed vocational nurse, who would work from 6:00 am. to 2:00 pm.; the second registered nurse,

FIGURE 5

OBSERVATION WARD ARRANGEMENT AND FUNCTIONAL ALLOCATION OF SPACE



KEY:

A - Patient room with one-bed capacity
B - Observation ward briefing/conference room
C - Utility room
D - Bathroom (requires renovation)
E - Preparation room
F - Preparation room shower
G - Examination room
H - Medication room
I - Nurses office/station for observation ward
J - Lounge for friends/relatives
K - Corridors to other ward areas and elevators
L - Elevator shaft (presently unused)
M - Stairwell
N - Interstitial/dead space

Allocation of space made in accordance with observation ward operating plan of the Ideal Program. Unit capacity is eight beds, with maximum expansion capacity of up to ten beds.

who would serve as the day surgery unit supervisor, and the nurses' aide would arrive at 10:00 am. and remain until 6:00 pm. Such an arrangement for shift overlap would provide for the presence of the observation ward's total staff complement from 10:00 am. until 2:00 pm., the time frame during which most patients would be returning from the recovery room and observation ward activity would be at its peak. By 3:00 pm., most patients, if not all, should have become sufficiently ambulatory to be discharged. The day surgery unit supervisor could then devote attention to administrative matters, primarily the issuance of preoperative instructions to and the briefing of the next workday's scheduled patients. Having determined staffing requirements, the major element of cost, estimated expenses for the observation ward were developed, as depicted at Table 9. The estimated patient charge for observation ward services under the Ideal Program has been computed to be approximately $17.00. With respect to the Ideal Program, two points require emphasis. First, the estimated per patient charge for observation ward bed and services relates primarily to the costs of supportive services rendered. Excluded from consideration have been all expenses related to necessary renovation, remodeling, equipment purchases, furnishings, or shelf inventories required to render the ward operational. Such start-up costs should properly be included as a portion

TABLE 9

IDEAL PROGRAM
OBSERVATION WARD OPERATION

1. Operational period: 5 days per week, Monday through Friday, 6:00 am. to 6:00 pm. daily.
2. Staffing: 1 Day Surgery Unit Supervisor Registered Nurse; 1 Floor Nurse (RN); 1 Licensed Vocational Nurse (LVN); 1 Nurses' Aide (NA); Total Staff = 4.
3. Total Patient Processing Capacity (at 8 patients per day for 52 weeks annually): Weekly = 40 patients; Monthly = 173 patients; Annually = 2080 patients.
4. Estimated Cost of Operation, Observation Ward:

Key Element of Expense	Monthly Expense	Annual Expense
a. Staff: Day Surgery Unit Supervisor @ $700 per mo.; RN @ ¢675 per mo.; LVN @ $410 per mo.; NA @ $1.75 per hr. X 160 hrs. per mo.; Total = $2065 per mo.	$2065.00	$24,780
b. Housekeeping: @ $80 per week.	$ 346.67	$ 4,160
c. Linens: @ $.50 per day per patient per operational bed ($.50 X 8 = $4.00 per day X 20 days per mo.).	$ 80.00	$ 960
d. Miscellaneous Non-medical Supplies: @ $.96 per day per patient bed operational ($.96 X 8 = $7.68 per day X 260 operational days per yr.)	$ 166.42	$ 1,997
e. Total Estimated Expenses:	$2658.09	$31,897

5. Profit Margin Adjustment: $31,897 + (31,897 X 6% profit margin) = $33,811.
6. Preliminarily Estimated Charge Per Patient for Observation Ward Services to Meet Expenses Identified: $31,811 divided by 2080 patients per year = $15.29.
7. Final Estimated Charge Per Patient for Observation Ward Services = Approximately $16.06 (includes an additional 5% of preliminary estimated charge per patient to cover costs of utilities, water, repair and maintenance, staff vacation coverage, etc.).

Source: Staff salaries--Mr. Joel Allison, Administrative Assistant; Housekeeping and Linens estimates--Mr. George Severs, Executive Housekeeper; Miscellaneous Non-medical Supplies estimate--Mr. Jim Pender, Department Head, Materials Management Department.

of the estimated per patient charge on a prorated basis over a period of time. Similarily, anticipated replacement costs for equipment and furnishings should be included on a prorated basis. Such aspects were excluded from consideration under the rationale that the extent to which start-up costs were incurred would relate to the desires of the administration and the availability of funds. Secondly, the hospital's projected day surgery workloads would be insufficient to support an eight bed observation ward operation on a daily basis, Monday through Friday. The Ideal Program has been presented primarily for the purpose of comparing alternative plans which would prove more feasible in light of the potential day surgery workload.

The second plan has been designated as the Weekly Program, and involves a considerable reduction in the patient processing capacity of the day surgery program. It envisions the accommodation of eight to ten day surgery cases on only one day per week, for an annual total ranging from 416 to 520 patients. The observation ward would be similarily staffed and have the same operational hours as under the Ideal Program. The per patient charge would be approximately one dollar less than for the Ideal Program, based on a 416 patient workload as depicted at Table 10; progressively higher day surgery workloads, up to the maximum 520 annual patient capacity, would permit progressive reductions in the

TABLE 10

WEEKLY PROGRAM
OBSERVATION WARD OPERATION

1. Operational Period: 1 day per week, 6:00 am. to 6:00 pm.
2. Staffing: 1 Day Surgery Unit Supervisor, Registered Nurse; 1 Floor Nurse (RN); 1 Licensed Vocational Nurse (LVN); 1 Nurses' Aide (NA); Total Staff = 4.
3. Total Patient Processing Capacity (at 8 patients per week for 52 weeks annually): Weekly = 8 patients; Monthly =32 patients; Annually = 416 patients.
4. Estimated Cost of Operaion, Observation Ward:

Key Element of Expense	Weekly Expense	Annual Expense
a. Staff: Day Surgery Unit Supervisor @ $700 per mo.; RN @ $675 per mo.; LVN @ $410 per mo.; NA @ $1.75 per hr. X 416 hrs. per year; Total = $3,779 per yr.	$ 72.67	$ 3,779
b. Housekeeping: @ $16.00 per week X 52 weeks per yr.	16.00	$ 832
c. Linens: @ $.50 per patient per operational bed per day ($.50 X 8 = $4.00 per week).	$ 4.00	$ 208
d. Miscellaneous Non-medical Supplies: @ $.96 per patient per operational bed per day ($.96 X 8 = $7.68 per week X 52 weeks per year).	$ 7.68	$ 399
e. Total Estimated Expenses:	$100.35	$ 5,218

5. Profit Margin Adjustment: $5,218 + ($5,218 X 6% profit margin) = $5,531
6. Preliminarily Estimated Charge Per Patient for Observation Ward Services to Meet Expenses Identified: $5,531 divided by 416 patients per year = $13.30.
7. Final Estimated Charge Per Patient for Observation Ward Services = Approximately $13.97. (includes an additional 5% of preliminary estimated charge per patient to cover costs of utilities, water, repair and maintenance, staff vacation coverage, etc.).

Source: Estimates extrapolated from information provided by individuals as cited: Staff salaries--Mr Joel Allison, Administrative Assistant; Housekeeping and Linens estimates--Mr. George Severs, Executive Housekeeper; Miscellaneous Non-medical Supplies estimate--Mr. Jim Pender, Department Head, Materials Management Department.

per patient charge. As an example, a consistent workload that translated into an annual total of 471 patients would permit the reduction of the per patient charge to approximately $12.33. The Weekly Program, however, does raise certain operational and scheduling problems. The first relates to the optimum utilization of nursing staff required to support the program as presented. It would probably prove difficult to employ competent nursing personnel who were desirous of working only eight hours per week. Transfer of permanent nursing staff resources from other functional areas to the observation ward on one day per week would serve to create artificial staff shortages in the functional operations from which they were borrowed; the existing nursing staff shortfalls within Hendrick Memorial Hospital would probably render this an undesirable alternative, as a number of wards are currently staffed below optimal levels. Secondly, the expenditure of funds to renovate, remodel, furnish, and otherwise prepare the observation ward for operation would be a disproportionately high investment compared to the return in day surgery program capacity. In essence, the hospital would have dedicated resources to an operation that would be utilized only once per week by a maximum of eight patients, but would be inactive for some 26 days per average month. Finally, the operational restriction of the day surgery program to only one functional

day per week could prove to be a disadvantage. One surgeon would perhaps not utilize the day surgery program on Tuesday if that were the day he preferred to restrict his surgical schedule to major procedures only. In this respect, the Weekly Program lacks flexibility for the scheduling of day surgery cases, an undesirable aspect in a hospital whose physician staff members are private practitioners.

The final plan has been designated as the Modified Weekly Program. It envisions the observation ward as having four beds and being operational four days per week. Under this plan, a total of 832 patients could be processed in the day surgery mode on an annual basis. Staffing would consist of only two personnel: a registered nurse who would serve as the Day Surgery Unit Supervisor; and, a licensed vocational nurse. These two individuals would operate the observation ward from 7:00 am. to 4:00 pm. each functional day, Tuesday through Friday. The registered nurse would work each Monday afternoon from 2:00 pm. until 4:00 pm., preparing charts and briefing the next day's scheduled patients. The reduced staff would prove adequate to effectively support the lesser number of operational beds under a shortened workday. The Modified Weekly Program poses some of the same disadvantages as does the Weekly Program, although to a much lesser extent. Additionally, the combination of a reduced patient load and a different staffing pattern results in the

highest per patient charge, $25.00, for observation ward services of the three plans, as computed at Table 11. Finally, the reduction in operational beds to four presupposes that there would always be sufficient day surgery patients to fill the observation ward beds programmed. A consistent shortfall of only one day surgery case per week from the 16 cases programmed would necessitate an upward shift of the per patient charge by approximately $1.66 to a total of approximately $26.67 per patient. This aspect would necessitate a monthly review and adjustment of the per patient charge to insure sufficient gross revenue intake on an annual basis to offset total annual expenses for the observation ward and still provide for a 6 per cent margin of profit. It should also be noted that the Modified Weekly Program presupposes a more prudent selection of surgical procedures and patients to insure that all patients would complete postoperative recovery and be discharged by 4:00 pm., an aspect which could conceivably reduce the number of eligible day surgery patients. The four-day-per-week operation, however, does afford considerably more flexibility to private physicians in the utilization of the day surgery program; as a result, it would probably enhance program utilization.

Staff Physician Attitudes Concerning A Day Surgery Program

An essential prerequisite for a day surgery program

TABLE 11

MODIFIED WEEKLY PROGRAM
OBSERVATION WARD OPERATION

1. Operational Period: 4 days per week, Tuesday through Friday, 7:00 am. to 4:00 pm.
2. Staffing: 1 Day Surgery Unit Supervisor, Registered Nurse; 1 Licensed Vocational Nurse (LVN); Total Staff = 2.
3. Total Patient Processing Capacity (at 16 patients per week for 52 weeks annually): Weekly = 16; Monthly = 69-70; Annually = 832.
4. Estimated Cost of Operation, Observation Ward:

Key Element of Expense	Weekly Expense	Annual Expense
a. Staff: Day Surgery Unit Supervisor @ $700 per mo.; LVN @ $410 per mo; Total = $1,110 per mo.	$256.15	$13,320
b. Housekeeping: @ $80 per week.	$ 80.00	$ 4,160
c. Linens: @ $.50 per operational bed per day ($.50 X 4 = $2.00 per day X 4 days per week).	$ 8.00	$ 416
d. Miscellaneous Non-medical Supplies: @ $.96 per operational bed per day ($.96 X 4 = $3.84 per day X 4 days per week).	$ 15.36	$ 799
e. Total Estimated Expenses:	$359.51	$18,695

5. Profit Margin Adjustment: $18,695 + ($18,695 X 6% profit margin) = $19,817.
6. Preliminarily Estimated Charge Per Patient for Observation Ward Services to Meet Expenses Identified: $19,817 divided by 832 patients per year = $23.82.
7. Final Estimated Charge Per Patient For Observation Ward Services = Approximately $25.01. (includes an additional 5% of preliminary estimated charge per patient to cover costs of utilities, water, repair and maintenance, staff vacation coverage, etc.).

Source: Estimates extrapolated from information provided by individuals as cited: Staff salaries estimate--Mr. Joel Allison, Administrative Assistant; Housekeeping and Linens estimates--Mr. George Severs, Executive Housekeeper; Miscellaneous Non-medical Supplies estimate--Mr. Jim Pender, Department Head, Materials Management Department.

to be successful is acceptance and support of the physician staff.[21] To determine physician attitudes with respect to the concept of day surgery and the conceptual model, the detailed survey at Appendix B was disseminated to each of the 53 physicians of the active and provisional staffs holding surgical privileges and the five anesthesiologists at Hendrick Memorial Hospital. The survey was divided into four major sections, the last three of which required physician responses: the second pertained to reasons for implementing a day surgery program; the third solicited physician opinions as to which procedures they considered to be appropriate for day surgery; and, the last posed a number of questions concerning the proposed program and operational aspects thereof. A total of 21 completed surveys were received, of which one was prepared by an anesthesiologist.

With respect to reasons for implementing a day surgery program, the overwhelming response related to the desire to provide an alternative to inpatient surgery which would result in a lower cost to patients having to pay all or a major part of their medical bills out-of-pocket. Other responses in order of physician selection are as depicted at Table 12. Of special note are the fourth and sixth-ranked reasons, which relate to the program's potential for overcoming surgical bed shortages and for reducing operating room waiting lists for elective procedures, respectively. As sub-

TABLE 12

RESULTS OF PHYSICIAN SURVEY
REASONS FOR IMPLEMENTING A DAY SURGERY PROGRAM

Order of Priority	Relative Rank Score	The Day Surgery Program Should: Reason as Was Cited(a)
1	93	Result in a lower total cost to patients who must pay all or part of the cost out-of-pocket.
2	48	Release inpatient surgical beds for more major surgical procedures.
3	27	Provide for the better utilization of nursing staff by reducing the number of acute surgical beds that are filled with patients requiring minimal care.
4	20	Overcome surgical bed shortages by permitting the accommodation of minor procedures and discharge the same day.
5	18	Increase the number of minor surgical procedures that could be performed in the hospital.
5	18	Permit the hospital to reach a larger population base through lesser total costs for minor surgery.
6	16	Reduce the waiting period for operating rooms for patients who are referred for elective surgery.
7	13	Reduce/eliminate use of the emergency room for the performance of minor surgical procedures.
8	12	Provide an alternative to hospitalization for those patients having an aversion to an inpatient stay.
9	11	Reduce psychological trauma to very young children who are separated from mothers during hospitalization.

TABLE 12--Continued

Order of Priority	Relative Rank Score	The Day Surgery Program Should: Reason as Was Cited(a)
9	11	Permit more efficient use of physician time.
10	9	Reduce physicians' susceptibility to medical tort liability arising out of minor surgical procedures performed in private offices away from the hospital.
11	7	Reduce or eliminate waiting lists for surgical beds for patients referred for elective surgery.
12	5	Overcome underutilization of minor procedure operating rooms by increasing volume of minor surgical procedures.
13	1	Reduce the time that mothers are separated from the home and small children.
		Addition(b)
12	5	Result in less stress for patients.

Source: (a) Physician survey, prepared list of reasons from which selections were made in order of priority.
(b) Added by certain physicians as an additional compelling reason for implementing a day surgery program.

sequent discussion will disclose, Hendrick Memorial Hospital is not experiencing a shortage of surgical beds on a continuing basis. While such bed shortfalls may occasionally occur during peak seasonal workload periods, they are generally of very short duration. Additionally, the hospital has no surgical backlog for elective cases.[22] Existing

operating room resources are not being utilized to maximum capacity; two minor surgical suites are no longer used for the performance of surgical procedures, and afternoon surgery is not scheduled on a regular basis.[23] In short, any surgical backlogs that might periodically exist would be more a function of underutilized operating room capacity and physician preference for morning surgery than a result of insufficient operating suite capacity.

Appendix E summarizes physician responses to the general questions posed by the fourth part of the survey, and provides analysis of the results obtained. Of major import to this study is the fact that all 21 respondents indicated that they would generally be in favor of a day surgery program, with 18 of 20 respondents indicating that they would recommend the program to those patients whom they felt were eligible for day surgery. Such responses suggest that a day surgery program would enjoy the support of a majority of the responding physicians.

With respect to the identification of specific procedures felt to be appropriate for day surgery, the results of the third part of the physician survey proved to be inconclusive. Considerable diversity of opinion was demonstrated concerning the appropriateness of specific procedures for incorporation into a day surgery program. Such was especially the case regarding the opinions of general

practitioners who have surgical privileges and whose surgical cases are representative of a variety of the surgical disciplines. In this respect, it is concluded that the identification of specific procedures as being appropriate for day surgery should be accomplished by the officers of the medical staff, rather than by this study, for the interpretation and reconciliation of physicians' comments require a degree of medical expertise beyond that held by the author.

As of March, 1974, the medical staff of Hendrick Memorial Hospital consisted of 103 physicians, distributed among the medical disciplines as indicated at Table 13. As depicted at Table 14, almost 50 per cent of the total medical staff's physicians are 51 years of age or older, with approximately 20 per cent being over the age of 61. Of interest is the fact that a large proportion of the 18 general practitioners holding surgical privileges do an appreciable amount of minor surgery, either within Hendrick Memorial Hospital, in other area hospitals, or in their private offices.[24] As indicated at Table 15, the age distribution of the 53 physicians holding surgical privileges is similar to that for the entire medical staff, with the percentage of physicians over 61 years of age being approximately 20 per cent. The fact that a number of physicians holding surgical privileges are somewhat elderly is

PHYSICIAN STAFF OF HENDRICK MEMORIAL HOSPITAL
BY SPECIALTY

Specialty	Number on Active Staff	Number on Provisional Staff
Allergist	2	0
Anesthesiologist	4	1
Cardiologist	3	0
Dermatologist	3	0
Eye, Ear, Nose and Throat (EENT)	4	0
Ear, Nose and Throat (ENT)	1	2
Gastroenterologist	0	1
General Practitioner	16	2
Gynecologist	1	0
Internal Medicine	8	3
Neurosurgeon	1	0
Obstetrician/Gynecologist	5	2
Ophthamologist	4	0
Orthopedist	4	2
Pathologist	3	0
Pediatrician	6	0
Proctologist	1	0
Psychiatrist	2	1
Radiologist	4	1
Surgeon	10	1
Thoracic Surgeon	1	0
Urologist	3	1
Total	86	17

Aggregate Total = 103

Source: Dr. Carlton F. Hodges, Chief of Surgery Service, Hendrick Memorial Hospital.

TABLE 14
AGE DISTRIBUTION OF ALL CATEGORIES OF PHYSICIANS ON HENDRICK MEMORIAL HOSPITAL MEDICAL STAFF

Age Group	Number on Active Staff	Number Provisional Staff	Aggregate	Per Cent Aggregate to Total Number of Physicians (103)
26-30	0	1	1	.97
31-35	2	9	11	10.68
36-40	5	3	8	7.77
41-45	16	1	17	16.50
46-50	12	2	14	13.59
51-55	20	1	21	20.39
56-60	9	0	9	8.74
61-65	12	0	12	11.65
66 and Up	9	0	9	8.74
TOTAL	85(a)	17	102(a)	

(a) Add to total one physician whose age is unknown and who was not counted in total or computations.
Source: Physicians Roster, Hendrick Memorial Hospital.

relevant to this study, as most of those physicians could reasonably be expected to cutail or terminate their surgical activities in the next few years. Unless new physicians were recruited as replacements on at least a one-to-one basis, such would tend to reduce the number of surgical procedures performed on an annual basis, an aspect which would prove deleterious to an established day surgery program.

TABLE 15

AGE DISTRIBUTION OF PHYSICIANS ON
HENDRICK MEMORIAL HOSPITAL MEDICAL STAFF
WHO HAVE BEEN GRANTED SURGICAL STAFF PRIVILEGES

Age Group	Number on Active Staff	Number on Provisional Staff	Aggregate	Per Cent of Aggregate Number of Surgical Staff Physicians (53)
26-30	0	0	0	0
31-35	0	7	7	13.21
36-40	3	2	5	9.43
41-45	9	0	9	16.98
46-50	4	1	5	9.43
51-55	12	0	12	22.64
56-60	3	0	3	5.66
61-65	7	0	7	13.21
66 and Up	4	0	4	7.55
TOTAL	42(a)	10	52(a)	

(a) Add to total one physician whose age is unknown and who was not counted in total or computations.
Source: Physicians Roster, Hendrick Memorial Hospital.

Third-party Payor Attitudes Concerning A Day Surgery Program

A major determinant with respect to a day surgery program's financial viability is the degree to which third-party payors are willing to reimburse the hospital and the attending physicians for reasonable charges to the patients utilizing the day surgery program. For this reason, the

questionnaire at Appendix C was disseminated to the home offices of the 14 commercial third-party payors with which Hendrick Memorial Hospital most frequently deals. Table 16 indicates the agents queried and their responses; all 10 of the third-party payors responding to the questionnaire indicated that they would generally agree to the reimbursement of hospital and physician charges under a day surgery program.

TABLE 16

COMMERCIAL THIRD-PARTY PAYOR WILLINGNESS TO REIMBURSE FOR REASONABLE DAY SURGERY CHARGES

Agents Responding to the Questionnaire in the Affirmative (a)		
Protective Life Insurance Company	Massachusetts Life Insurance Company	Aetna Life Insurance Company
Metropolitan Life Insurance Company	Equitable Life Insurance Company	Prudential Life Insurance Company
Paul Revere Insurance Company	Transport Life Insurance Company	Travelers Life Insurance Company
Lincoln National Life Insurance Company	CHAMPUS (b)	

Agents Not Responding to the Questionnaire (a)	
Republic National Life Insurance Company	United States Life Insurance Company
Occidental Life Insurance Company of California	Southwestern Life Insurance Company

Source: (a) Home offices of the companies as cited, names of companies having been provided by the Business Office, Hendrick Memorial Hospital.
(b) Added by Author.

The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), a Department of Defense program, currently provides reimbursement for day surgery services as performed upon eligible recipients, and has been included as an affirmative respondent in the listing of third-party payors.[26]

It should be noted that each commercial third-party agent offers a multitude of policy options with varying degrees of coverage. In this respect, the respondents to the questionnaire have only indicated a conceptual willingness to reimburse for reasonable day surgery charges. An affirmative reply should not be construed to indicate a firm or contractual committment on the part of the third-party payor responding in the affirmative.

Of special significance is the position of Blue Cross concerning the reimbursement of reasonable day surgery charges as incurred by Medicare beneficiaries. Conceptually, Blue Cross approves of a properly established and operated day surgery program as a means for reducing unnecessary hospitalization without a sacrifice in the quality of care. In practice, however, the Blue Cross carrier within the State of Texas views day surgery as being a mode of health care which is outpatient in nature. Reimbursement, therefore, would be predicated upon whether the Medicare beneficiary had voluntarily elected to subscribe to the outpatient option, commonly referred to as "Part B' coverage.

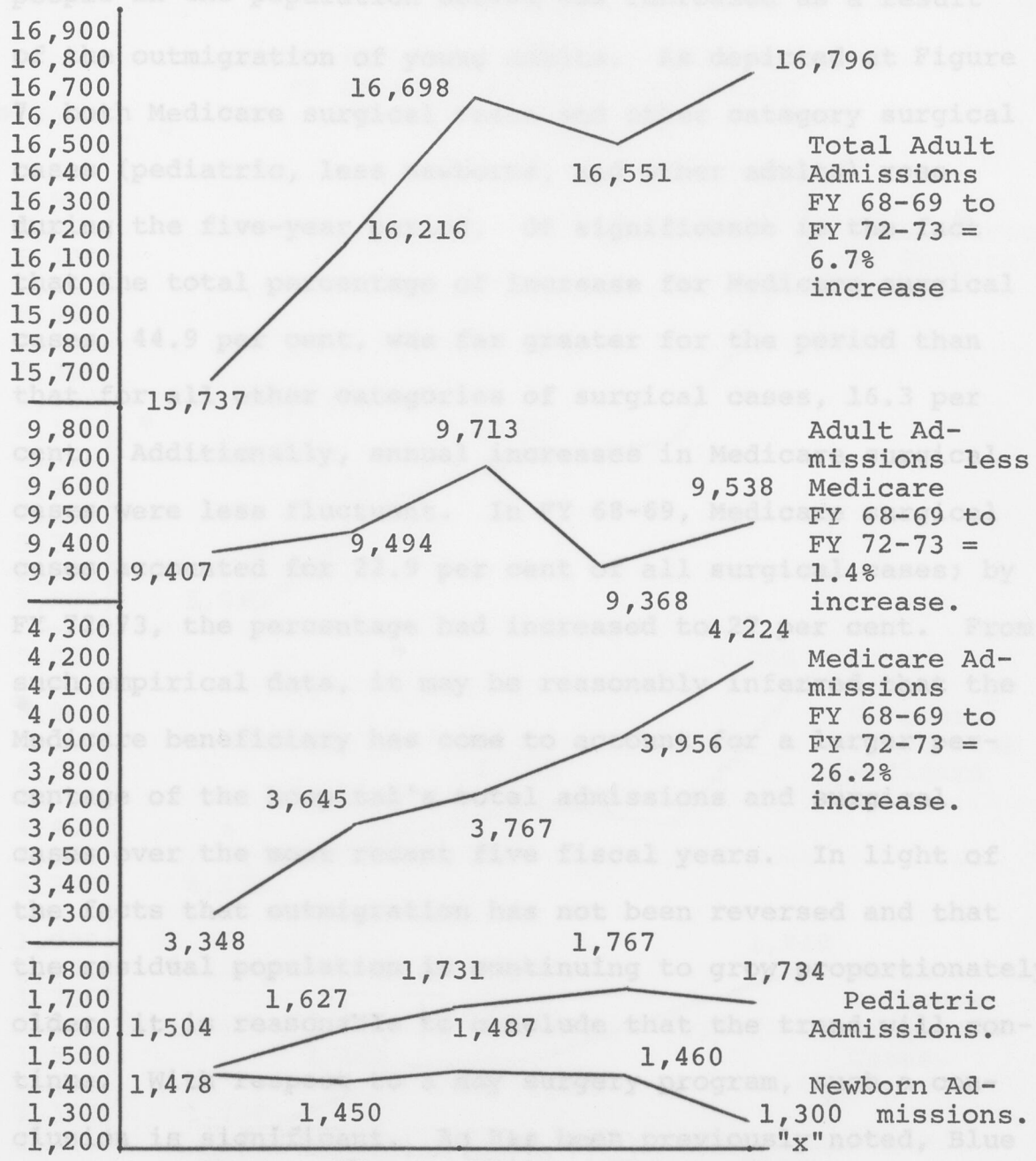
In the sense that the conceptual model as developed in this study does not envision admission to the hospital for a period of twenty-four hours at minimum, it must be classified as an outpatient form of service. In this respect, Blue Cross of Texas would not provide reimbursement for the day surgery charges incurred by a Medicare beneficiary unless the beneficiary had subscribed to the Part B coverage option. Blue Cross would, however, provide reimbursement for an early-discharge program involving only one day of inpatient hospitalization.[27]

Analysis of Historical Workload Data and Potential Impact of a Day Surgery Program on Inpatient Workloads

As indicated at Figure 6, total admissions rose during the period FY 68-69 to FY 72-73 by 6.7 per cent. Of the total 6.7 per cent increase, 5.2 per cent may be attributed to the 26.2 per cent increase in the number of Medicare admissions during the same period; had Medicare admissions remained stable at the FY 68-69 level for the five years of the period, only a 1.5 per cent increase in total admissions for all other categories of patients would have been realized. In short, the hospital is encountering a greater percentage of Medicare admissions to total patient admissions with each passing year. Such a phemomenom is consistent with the fact that the percentage of older

FIGURE 6

GRAPHIC DISPLAY OF ADMISSIONS
FY 68-69 TO FY 72-73 INCLUSIVE



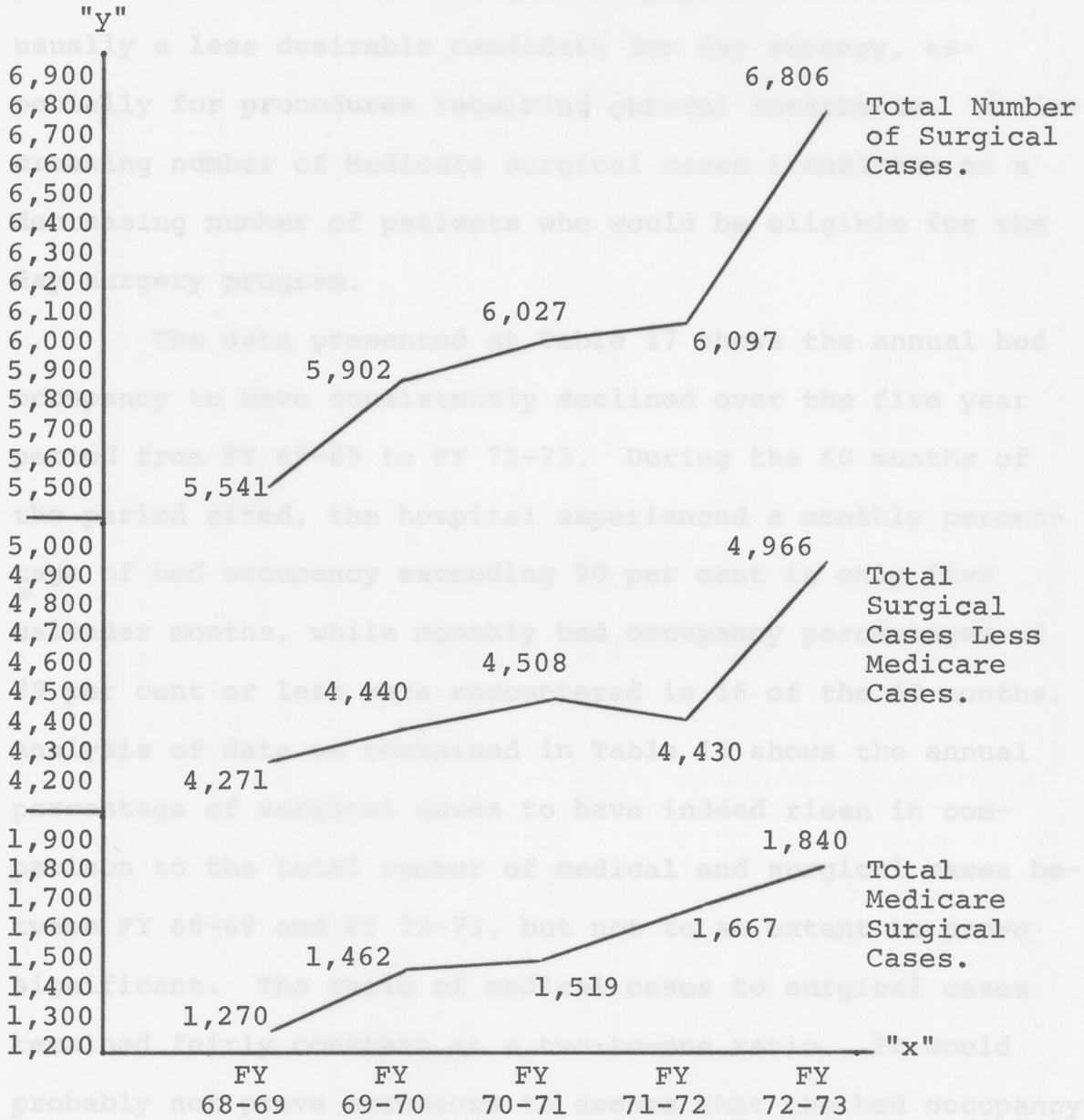
"y" Axis: Number of Admissions
"x" Axis: Fiscal Year Periods

Source: Medical Records Department, Hendrick Memorial Hospital, Abilene, Texas.

people in the population served has increased as a result of the outmigration of young adults. As depicted at Figure 7, both Medicare surgical cases and other category surgical cases (pediatric, less newborns, and other adults) rose during the five-year period. Of significance is the fact that the total percentage of increase for Medicare surgical cases, 44.9 per cent, was far greater for the period than that for all other categories of surgical cases, 16.3 per cent. Additionally, annual increases in Medicare surgical cases were less fluctuant. In FY 68-69, Medicare surgical cases accounted for 22.9 per cent of all surgical cases; by FY 72-73, the percentage had increased to 27 per cent. From such empirical data, it may be reasonably inferred that the Medicare beneficiary has come to account for a larger percentage of the hospital's total admissions and surgical cases over the most recent five fiscal years. In light of the facts that outmigration has not been reversed and that the residual population is continuing to grow proportionately older, it is reasonable to conclude that the trend will continue. With respect to a day surgery program, such a conclusion is significant. As has been previously noted, Blue Cross of Texas would provide reimbursement for day surgery charges only if the Medicare beneficiary had previously elected to subscribe to the outpatient coverage option. For a large percentage of Medicare beneficiaries, hospitalization

FIGURE 7

GRAPHIC DISPLAY OF SURGICAL CASE WORKLOAD
FY 68-69 TO FY 72-73 INCLUSIVE



"y" Axis: Number of Surgical Cases
"x" Axis: Fiscal Year Periods

Source: Medical Records Department, Hendrick Memorial Hospital, Abilene, Texas.

would probably prove to be a less expensive proposition than would a day surgery program. Additionally, the Medicare patient, because of age and general physical condition, is usually a less desirable candidate for day surgery, especially for procedures requiring general anesthesia. An increasing number of Medicare surgical cases translates to a decreasing number of patients who would be eligible for the day surgery program.

The data presented at Table 17 shows the annual bed occupancy to have consistently declined over the five year period from FY 68-69 to FY 72-73. During the 60 months of the period cited, the hospital experienced a monthly percentage of bed occupancy exceeding 90 per cent in only five calendar months, while monthly bed occupancy percentages of 79 per cent or less were encountered in 16 of the 60 months. Analysis of data as contained in Table 18 shows the annual percentage of surgical cases to have indeed risen in comparison to the total number of medical and surgical cases between FY 68-69 and FY 72-73, but not to an extent to prove significant. The ratio of medical cases to surgical cases remained fairly constant at a two-to-one ratio. It would probably not prove erroneous to assume that the bed occupancy data presented in Table 17 could be viewed as fairly representative of both medical and surgical bed occupancies, as well as the aggregate.

TABLE 17

AVAILABLE BEDS AND BED OCCUPANCY RATE PERCENTAGES
FY 68-69 TO FY 72-73

Period	Month in Period Cited												Annual Average Per Cent Occupancy
	S	O	N	D	J	F	M	A	M	J	J	A	
September 1, 1968 to August 31, 1969 (FY 68-69)													
Beds Available	312	312	312	312	312	312	312	312	312	345	345	345	
Per Cent Occupancy	83	84	84	86	91	91	89	94	90	83	80	82	86
September 1, 1969 to August 31, 1970 (FY 69-70)													
Beds Available	345	345	345	345	345	345	361	361	361	361	361	361	
Per Cent Occupancy	78	78	83	75	90	88	82	83	80	85	82	81	82
September 1, 1970 to August 31, 1971 (FY 70-71)													
Beds Available	361	361	361	359	359	359	359	359	359	359	359	359	
Per Cent Occupancy	81	79	81	73	87	83	85	81	82	80	79	82	81
September 1, 1971 to August 31, 1972 (FY 71-72)													
Beds Available	359	359	359	359	359	359	356	356	356	356	356	356	
Per Cent Occupancy	84	78	78	74	83	83	80	79	81	75	77	82	80
September 1, 1972 to August 31, 1973 (FY 72-73)	356	356	356	356	377	377	377	377	377	377	377	377	
Per Cent Occupancy	73	81	79	70	82	85	80	80	80	81	82	80	79

Source: Business Office, Hendrick Memorial Hospital, Abilene, Texas.

TABLE 18

PERCENTAGE OF SURGICAL CASES
TO TOTAL NUMBER OF MEDICAL-SURGICAL CASES
FY 68-69 TO FY 72-73 INCLUSIVE

Period	Total Number Medical and Surgical Cases	Total Number Surgical Cases	Ratio: Medical/ Surgical Cases	Surgical Cases as a Per Cent of Total Case Workload
FY 68-69	17,987	5,541	2.25/1	30.8
FY 69-70	18,840	5,907	2.12/1	31.4
FY 70-71	19,439	6,027	2.23/1	31.0
FY 71-72	19,317	6,097	2.17/1	31.6
FY 72-73	20,719	6,806	2.04/1	32.8

Source: Medical Records Department, Hendrick Memorial Hospital, Abilene, Texas.

A day surgery program would tend to increase surgical bed availability by reducing the number of surgical patients requiring an inpatient bed for a one to three-day period of hospitalization. The net effect would be to decrease surgical bed occupancy. It is the hospital administration's contention, however, that a decrease in the surgical bed occupancy rate perpetrated by a day surgery program would be offset by a rise in admissions for minor surgery, with the end result being a re-establishment of the percentage of surgical bed occupancy at the same level or a higher level than was previously the case. The contention is based upon the

rationale that there exists a latent minor surgical workload that can never be fully accommodated.[28] Analysis of the bed occupancy data presented at Table 17 does not support the assumption. Comparison of like months for each of the five fiscal year periods indicates that there was generally no correlation between the number of beds available and the bed occupancy rate experienced. A further question as to the assumption's validity was raised by the survey of physicians holding surgical privileges at Hendrick Memorial Hospital. When queried as to whether sufficient latent minor surgical workload existed to offset surgical bed occupancy shortfalls caused by a day surgery program, half of the 16 physicians responding to the question answered in the negative. As historical data does not empirically support the assumption and physicians are apparently evenly divided in their opinions on the question, this study will proceed under the assumption that a latent minor surgical workload of sufficient magnitude does not exist to offset to any appreciable extent the surgical bed shortfalls that would be generated by the implementation and operation of a day surgery program.

Hendrick Memorial Hospital currently has a total of 14 operating rooms, categorized as follows: eight major suites; two minor suites; one cast suite; and, three cystoscopic suites. Neither of the minor suites is utilized

for the performance of surgical procedures; one is idle and the second is used only for the initial anesthetic intubation of patients undergoing total hip procedures in one of the major suites. All major and minor surgical procedures are performed in the major surgical suites, except cystoscopic and orthopedic cast procedures which are accomplished in the designated specialty suites. Use of major operating suites in lieu of the two minor surgical suites for the performance of minor procedures is reported to be basically a matter of physician and operating room staff preferences, rather than a result of facility inadequacy or other limiting factor. Except for one major suite which is staffed to handle emergency cases, most major surgical suites terminate operation in the early afternoon, with relatively few afternoon surgical cases being routinely scheduled.[29] In short, existing operating rooms are not being utilized to the maximum extent possible. This conclusion is further supported by the fact that operating room backlogs are only infrequently experienced.[30] A much greater workload could be accommodated than is presently the case if the minor suites were rendered functional and afternoon surgery were more routinely scheduled. It was indicated by the operating room supervisor that any appreciable increase in workload, especially during the morning period, would necessitate an increase in the size of the operating room staff; if minor surgical suites were made operational,

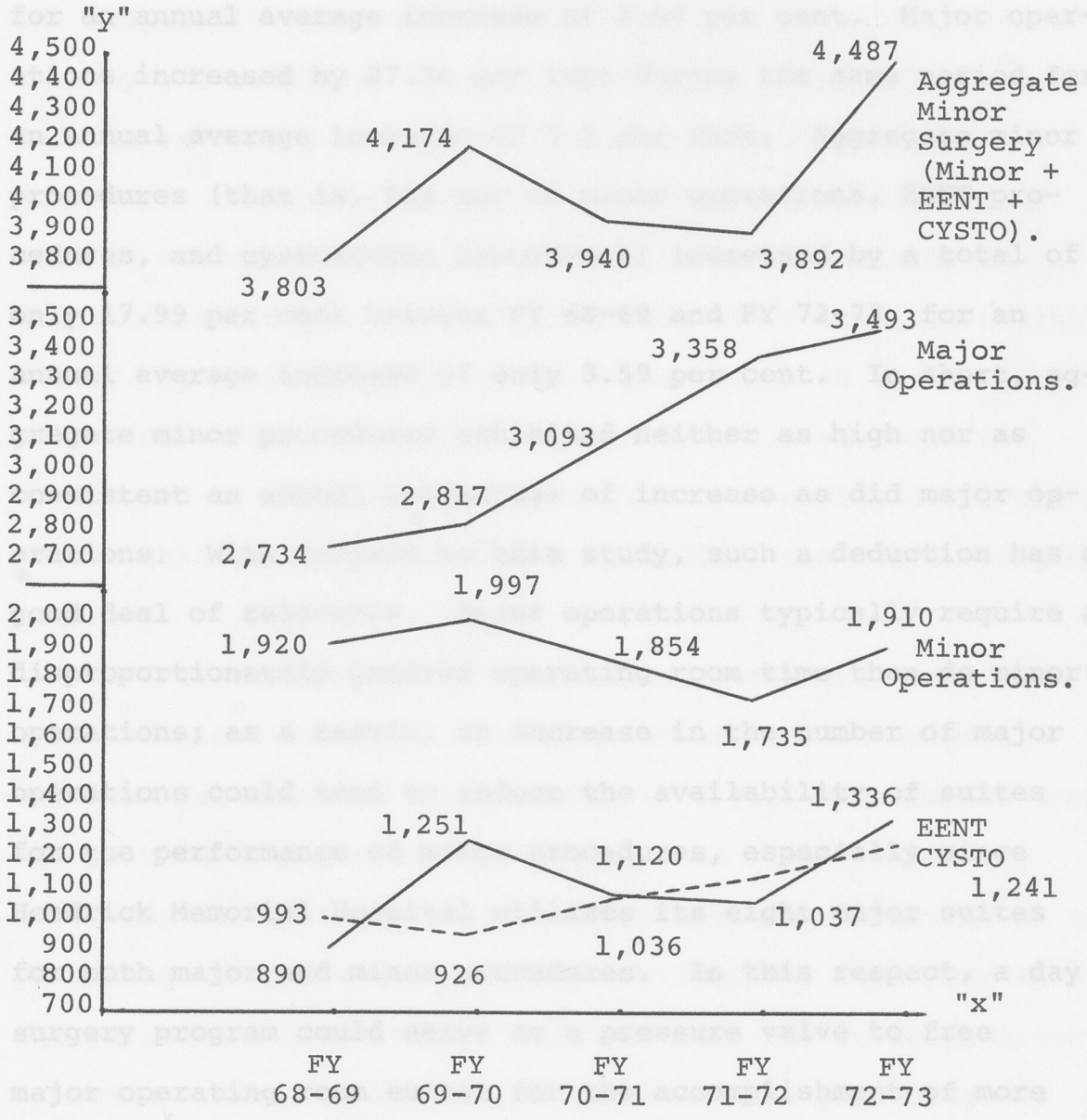
additional staff would be required to provide each minor operating suite with one operating room registered nurse and one operating room technician.[31]

The hospital currently has five anesthesiologists on the medical staff and four nurse anesthesists. The chief of the anesthesia service has indicated that the present complement of personnel could support an increase in the surgical workload, especially with respect to cases involving minor surgical procedures of less than 60 minutes of operating room time.[32]

As depicted at Figure 8, the number of major operations performed on an annual basis appears to have steadily increased over the five year period with the FY 72-73 total being approximately 22 per cent higher than that of FY 68-69. Although less consistent, the general trend exhibited for cystoscopic procedures was similarily upward with the FY 72-73 total being approximately 25 per cent higher than was the case in FY 68-69. Over the five year period, the annual totals for eye, ear, nose and throat (EENT) procedures showed a much greater degree of fluctuation from year to year. In the absence of information concerning the variables that could have influenced EENT surgical workloads, identification of any apparent trend cannot be based solely on a retrospective analysis of data. The same problem arises with respect to minor operations, although there is more of

FIGURE 8

GRAPHIC DISPLAY OF OPERATIONS PERFORMED
BY CATEGORY FY 68-69 TO FY 72-73 INCLUSIVE



"y" Axis: Number of Operations Performed
"x" Axis: Fiscal Year Periods

Source: Medical Records Department, Hendrick Memorial Hospital, Abilene, Texas.

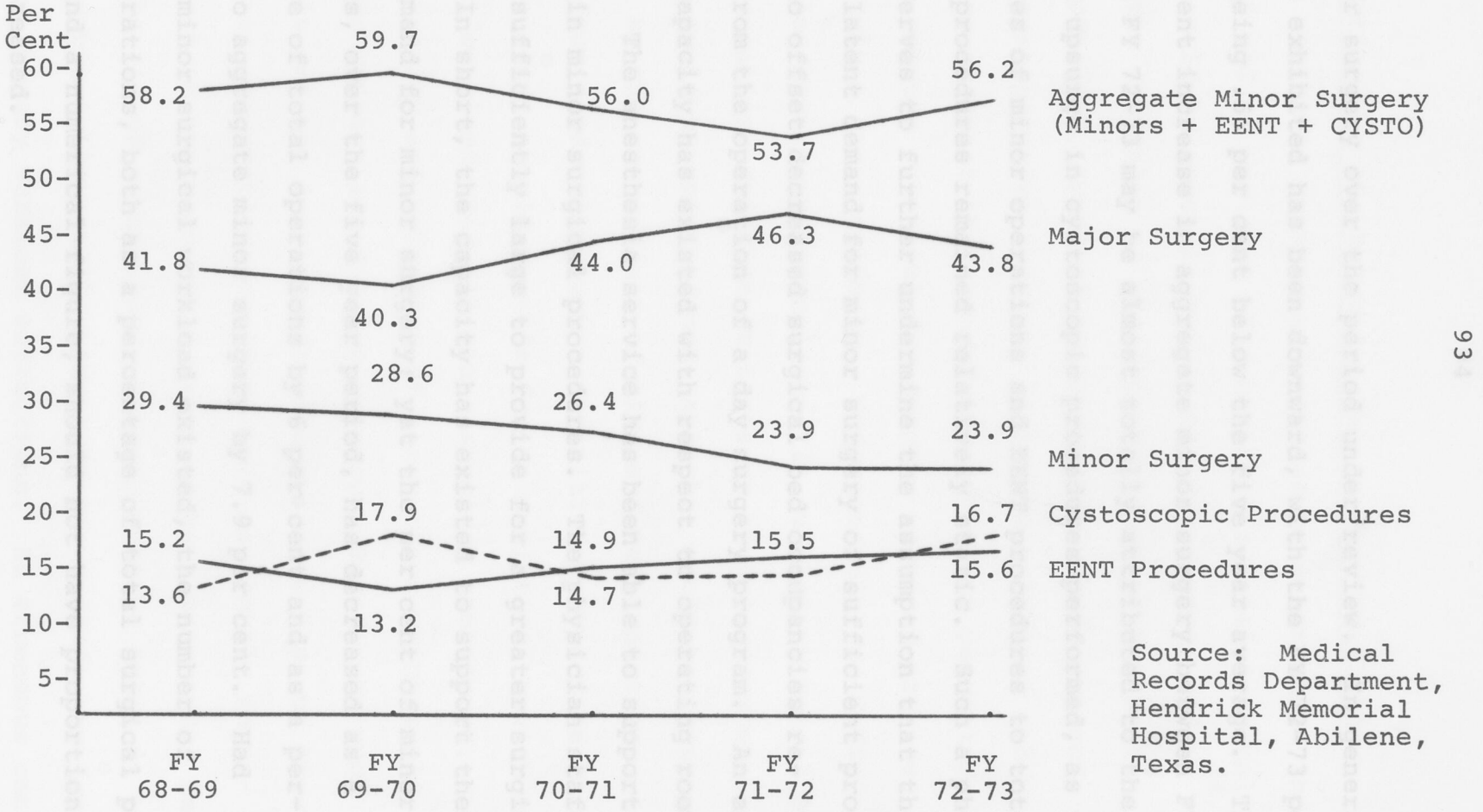
an indication that the trend tended to be downward for most of the period. The total number of all categories of operations increased by 18.45 per cent from FY 68-69 to FY 72-73, for an annual average increase of 3.69 per cent. Major operations increased by 27.76 per cent during the same period for an annual average increase of 5.5 per cent. Aggregate minor procedures (that is, the sum of minor operations, EENT procedures, and cystoscopic procedures) increased by a total of only 17.99 per cent between FY 68-69 and FY 72-73, for an annual average increase of only 3.59 per cent. In short, aggregate minor procedures exhibited neither as high nor as consistent an annual percentage of increase as did major operations. With respect to this study, such a deduction has a good deal of relevance. Major operations typically require a disproportionately greater operating room time than do minor operations; as a result, an increase in the number of major operations could tend to reduce the availability of suites for the performance of minor procedures, especially since Hendrick Memorial Hospital utilizes its eight major suites for both major and minor procedures. In this respect, a day surgery program could serve as a pressure valve to free major operating room suites for the accomplishment of more complex and time-consuming major procedures, yet still provide for the accommodation of minor procedure demand. By opening and utilizing its two inactive minor surgical suites

for day surgery procedures, the hospital could free major operating suites. Such would constitute a more effective utilization of available operating suite resources. Secondly, the hospital's operating rooms are staffed by suite, rather than by the nature of the procedure (except for complex procedures requiring special staff or additional staff resources).[33] Therefore, the performance of a vasectomy, or similar minor procedure, in a major suite constitutes an underutilization of the operating room staff assigned to that suite. By performing day surgery procedures in the smaller operating suites, less staff should be required, both to assist and to clean the suites following the procedure, and a better utilization of available operating room staff could be realized.

For the purpose of identifying pertinent trends in minor surgical workloads, analysis of historical surgical workload data must be accomplished in a different manner than was previously employed. As depicted at Figure 9, annual workloads for each surgical category have been restated as a percentage of the total surgical workload for each year in the period and graphically displayed. As can be seen, minor operations have, in actuality, declined as a percentage of total surgical workload over the five year period. Of relevance is the demonstrated trend in the percentage of aggre-

FIGURE 9

SPECIFIC CATEGORIES OF SURGICAL PROCEDURES
EXPRESSED AS A PERCENTAGE OF TOTAL SURGICAL WORKLOAD



Source: Medical Records Department, Hendrick Memorial Hospital, Abilene, Texas.

gate minor surgery over the period under review. In general, the trend exhibited has been downward, with the FY 72-73 percentage being .56 per cent below the five year average. The 2.5 per cent increase in aggregate minor surgery between FY 71-72 and FY 72-73 may be almost totally attributed to the exhibited upsurge in cystoscopic procedures performed, as the percentages of minor operations and EENT procedures to total surgical procedures remained relatively static. Such a phenomenom serves to further undermine the assumption that there exists a latent demand for minor surgery of sufficient proportion to offset decreased surgical bed occupancies resulting from the operation of a day surgery program. An expansion capacity has existed with respect to operating room capacity. The anesthesia service has been able to support an increase in minor surgical procedures. The physician staff has been sufficiently large to provide for a greater surgical output. In short, the capacity has existed to support the latent demand for minor surgery; yet the per cent of minor operations, over the five year period, has decreased as a percentage of total operations by 6 per cent and as a percentage to aggregate minor surgery by 7.9 per cent. Had a latent minor surgical workload existed, the number of minor operations, both as a percentage of total surgical procedures and a numerical figure, should not have proportionately decreased.

Estimating the Potential Day Surgery Workload

A number of authors and studies have contended that between 20 and 40 per cent of a hospital's total surgical workload could be accomplished in the day surgery mode.[34,35] However, the variables of physician preference and professional capability, types of procedures selected, patient desires, postoperative recovery time, and a host of other factors are so great that use of any arbitrary percentage factor to compute potential day surgery workload provides, at best, only a gross estimate. Unfortunately, no definitive studies have been accomplished in sufficient detail or depth to establish reliable criteria or techniques whereby estimates could be more refined, and this study has been prevented by the constraints of time and retrospective analysis from conducting such a definitive prospective study. Ideally, a study should provide for an analytical review of historical workloads for all minor surgical procedures, with physician review and selection of those cases which would have proven appropriate for day surgery. Based upon such an analysis and the development of a reliable base of historical data, projections could be more accurately formulated. Such an approach would prove to be a monumental task without the aid of a computer. Liberty must be taken in this study in arbitrarily establishing a 25 per cent factor for use in day surgery workload estimations. As erroneous con-

clusions or recommendations formulated by this study could have considerable financial ramifications, the percentage factor has been conservatively tempered in the following manmer. First, major surgical procedures have been totally excluded from consideration in developing the day surgery estimate, the rationale being that virtually all such procedures would generally be inappropriate for day surgery. As a result, only aggregate minor procedures (minor operations, EENT procedures, and cystoscopic procedures) have been considered in projecting day surgery workloads. Secondly, the aggregate minor surgical workload figure has been reduced by 27 per cent, reflecting the approximate percentage of Medicare surgical cases as processed by Hendrick Memorial Hospital in FY 72-73. The adjustment to exclude Medicare patients has been predicated upon the fact that such patients are over 65 years of age and less likely as a group to meet stringent general physical requirements for day surgery; furthermore, Blue Cross reimbursement for day surgery charges to Medicare beneficiaries would apply only for those who were covered under the outpatient option. Only after having made the aforementioned adjustment was the 25 per cent factor applied to the aggregate minor surgical workload figure of FY 72-73 to develop the estimated day surgery workload, as depicted at Table 19.

The estimate of a potential day surgery workload

TABLE 19

ESTIMATION OF POTENTIAL
DAY SURGERY WORKLOAD

Total FY 72-73 Aggregate Minor Surgical Workload	4,487 Patients
Less 27 Per Cent Estimate of Patients Who Would Be Medicare Beneficiaries (.27 X 4,487)	1,211
	3,276
Times 25 Per Cent Estimate of Patients Eligible for Day Surgery	X .25
Estimated Annual Day Surgery Workload	819 Patients

approximating 819 patients annually is conservative, for it represents only 10.2 per cent of the total surgical workload for FY 72-73. In implementing a day surgery program, a conservative approach would be warranted until total physician acceptance and support were achieved, patient acceptance of the concept was developed, and the actual impact upon bed occupancy could be measured and evaluated. The capacity to easily expand the program would exist, and it is preferable to expand a viable program to its maximum capacity than to be forced by workload shortfalls to reduce an on-going program to a lower operational capacity.

Of the three alternative day surgery plans previously discussed, the Modified Weekly Program's annual patient capacity is the most closely attuned to the estimated day surgery workload as developed. As the difference between the 832 patient capacity of the Modified Weekly Program and the day surgery workload estimate is minimal, it could be expected that the programmed annual patient capacity of the Modified Weekly Program could be realized in practice.

Financial Ramifications of a Day Surgery Program

For the patient electing to undergo a minor surgical procedure as a day surgery patient, most charges for operating room use, administration of anesthesia, recovery room use, laboratory tests, and physicians' or surgeons' fees would remain basically the same as though he had been an inpatient.[36] Major savings would be realized primarily in the area of the daily service (room) charge, as the day surgery patient would not be occupying an inpatient bed for the usual one to three days of hospitalization. The degree to which a savings was realized would relate to the number of days the patient would have normally been hospitalized as an inpatient.

Hendrick Memorial Hospital has daily service charges

for a private room ranging from $38.00 to $64.00, with the weighted average being $46.00; the weighted average for a semi-private room is $40.50, with daily service charges ranging from $37.00 to $43.00.[37] Using the Modified Weekly Program's estimate of $25.00 for an observation ward bed and the average inpatient daily service charges as formulated for private and semi-private rooms, approximate savings to patients who selected the day surgery option can be estimated. As depicted at Table 20, savings to the patient electing the day surgery mode would range from $15.50 to $113.00, contingent upon the length of hospitalization that would have been involved and the type of inpatient accommodations that would have been selected. The day surgery program would prove to offer a financial benefit to patients as an alternative to the more expensive inpatient hospitalization for minor surgery. Such would especially prove true for the patient who would have routinely been hospitalized for two or three days and subsequently have had to pay out-of-pocket for all charges incurred.

To more pointedly illustrate the potential financial benefits available to patients through a day surgery program, a specific minor surgical procedure, dilation and curettage for diagnosis,[38] was selected for further study. Review of operating room schedules for FY 72-73 indicated that 133 patients underwent the selected procedure during

TABLE 20

ESTIMATED RANGE OF SAVINGS TO PATIENTS
ELECTING TO USE A DAY SURGERY PROGRAM
IN LIEU OF HOSPITALIZATION FOR MINOR SURGERY

Day Surgery in Lieu of a Typical One-day Hospitalization	Had the Patient Selected a:	
	Private Room	Semi-private Room
Average Daily Service Charge (a)	$46.00	$40.50
Less Observation Ward Bed Charge	25.00	25.00
Estimated Patient Savings	$21.00	$15.50

Day Surgery in Lieu of a Typical Two-day Hospitalization	Had the Patient Selected a:	
	Private Room	Semi-private Room
Average Daily Service Charge(a) X 2	$92.00	$81.00
Less Observation Ward Bed Charge	25.00	25.00
Estimated Patient Savings	$67.00	$56.00

Day Surgery in Lieu of a Typical Three-day Hospitalization	Had the Patient Selected a:	
	Private Room	Semi-private Room
Average Daily Service Charge(a) X 3	$138.00	$121.50
Less Observation Ward Bed Charge	25.00	25.00
Estimated Patient Savings	$113.00	$ 96.50

(a) Weighted average daily service charge for private and semi-private rooms used in computations.

the period. All such patients, certainly, would not have proven suitable as day surgery candidates. An arbitrary limit of three days or less of hospitalization was applied as a criterion for identifying patients who would probably have proven eligible for day surgery. Under the limiting criterion as established, 114 patients were identified as having been hospitalized for no more than three days.

Liberty has been taken in classifying all 114 patients as eligible day surgery candidates. Considerations relating to physician preference and professional competence, the desires of patients, the physical conditions of patients, and a number of other variables are so numerous that the liberty must be accepted.

Utilizing a random numbers table and patient register numbers, a random sample of 30 patients was selected from the 114 total for subsequent financial records review. Such review permitted the computation of means with respect to length of stay, daily service charge, and total daily service charge, as depicted at Table 21.

Had a modified Weekly Program plan been in effect in FY 72-73, the average patient would have realized an average savings of $51.20, computed by deducting the observation ward bed charge of $25.00 from the mean total daily service charge of $76.20. Employing the mean daily service charge for computation purposes, it can be estimated that the average

TABLE 21

SAMPLE MEANS FOR
MINOR SURGICAL PROCEDURE
DILATION AND CURRETTAGE FOR DIAGNOSIS

Mean Length of Stay	2.12	Days
Mean Daily Service Charge	$42.00	Per Day
Mean Total Service Charge	$76.20	Per Period of Hospitalization

savings to patients not requiring a typical one, two or three-day length of stay would have been as follows: $17.00 for a one-day period; $59.00 for a two-day period; and, $107.00 for a three-day period. By multiplying the average patient savings of $76.20 times the number of patients eligible for day surgery (114), it can be determined that the gross savings estimate for dilation and currettage alone would have been approximately $5,836 in FY 72-73.

For those third-party payors whose beneficiaries elected to use the day surgery program, a similar positive financial benefit would be realized, as the amount of reimbursement required would be proportionately less than would be the case were an inpatient admission involved.

To the hospital, each patient processed through the day surgery program would represent a loss in gross patient revenue of from $15.50 to $113.00. If all 819 day surgery

candidates were to be actually handled in that mode, the gross revenue loss to the hospital would range from a low of approximately $12,700 to a high of approximately $92,500 for the year. Taking a two-day period as the average foregone period of hospitalization for most minor surgical procedures, the mid-range loss in gross revenue would be from $45,900 to $54,900.

At this juncture, the question as to whether the assumption that a latent minor surgical workload exists is correct or not becomes crucial. Should the assumption prove valid, and a rise in inpatient admissions occurred that was sufficient to offset the patient days lost to day surgery, the hospital would be providing a useful service which would prove beneficial to patients, third-party payors, physicians, and the institution. Should the assumption prove erroneous, and admissions did not increase to the extent that patient days lost to day surgery were offset, the result would be significantly different. While patients, physicians, and third-party payors would still benefit, the institution would find itself in the position of indirectly underwriting the day surgery program by having to accept revenue losses in the inpatient area.

Based upon an analysis of FY 72-73 workload data, it has previously been estimated that at least 819 patients would have been candidates for day surgery. Had the day sur-

gery program been operational during that period and all eligible day surgery patients processed in that mode, the hospital would have had 819 fewer admissions. In FY 72-73, the 819 patients would have represented approximately 4.9 per cent of all categories of admissions and 8.6 per cent of all admissions less those of Medicare patients. Between FY 71-72 and FY 72-73, the hospital experienced an overall increase of only 1.5 per cent, or 245 patients, for all categories of admissions. The net result of a day surgery program in FY 72-73 would have been to reduce that fiscal year's total admissions for all categories of patients to a level approximately 3.3 per cent below the previous year's total admissions of 16,551. To offset patient admission shortfalls to the extent that admissions for FY 72-73 remained stable at the FY 71-72 level would have required an additional 554 patient admissions from the latent minor surgical workload that is reputed to have existed. Had such a latent minor surgical workload actually existed in FY 72-73, when there were sufficient bed and operating room resources available to accommodate it, there should have been a greater increase in total admissions for FY 72-73 than the 245 patient admission increase actually experienced. In short, analysis of historical admission trends does not indicate that a latent minor surgical workload has existed in the past and, in the absence of conclusive evidence to the contrary, tends to

indicate that such a latent minor surgical workload probably does not exist at the present and would not exist in the near future. In the final analysis, a day surgery program would probably result in a lower bed occupancy, a reduction in the days of patient care rendered, and a loss in gross daily service revenue for the institution.

A final consideration which must not be overlooked is the fact that it is the administration's intent to render operational all unused ward assets through a renovation and remodeling program, with the goal being to bring the hospital up to its full 500 bed licensed capacity within the next three years.[39] The area selected for the day surgery program's observation ward has the capacity to accommodate approximately 14 patients were it dedicated to use as an inpatient ward with 14 private rooms. Assuming it were used as such, with an average daily census of nine patients (64 per cent of its capacity), the gross patient revenue from daily service charges would approximate $151,000 annually, based upon a weighted average private room daily service charge of $46.00. In this respect, dedication of the observation ward to inpatients rather than day surgery patients would provide for a much greater gross revenue intake and, based upon a target figure of a 6 per cent margin of profit, a greater return on the operation and the invest-

ment in resources. By continuing to use the area as an observation ward, the hospital would encounter an opportunity cost approximately equal to the difference between the estimated gross revenue intake realized by using the area for inpatients and that which would be realized by dedicating the area to the support of a day surgery program for only four days per week. As depicted at Table 22, the estimated

TABLE 22

GROSS REVENUE OPPORTUNITY COST
INVOLVED WITH USE OF WARD AREA
FOR DAY SURGERY PATIENTS INSTEAD OF INPATIENTS

Gross annual patient revenue intake for area if used as inpatient ward with 14 private rooms at a daily census of 9 patients ($46.00 X 9 X 365)	$151,110
Gross annual patient revenue intake for area if used for day surgery under a Modified Weekly Program plan ($25.00 X 832 patients per year)	$ 20,800
Estimated Opportunity Cost in Gross Revenue	$130,310

opportunity cost would be approximately $130,000 annually were the area utilized as a day surgery observation ward in lieu of the more profitable inpatient ward operation. Such an opportunity cost estimate is, admittedly, gross in nature, for it presupposes a number of variables to be constants, such as future room charges, the probable daily census of

inpatients, and the actual inpatient bed capacity of the area after renovation. It does serve to illustrate the fact that, at some point in the near future, a realistic assessment of the cost-benefit aspect of the day surgery program's observation ward operation would have to be made. That assessment would ultimately necessitate a decision as to whether the dedication of potential inpatient bed space to observation ward operations warranted continuance in light of the disparities in gross revenue intakes involved.

Footnotes

[1] West Central Texas Council of Governments, Draft Copy of "Objectives Plan, Health Coordinating Committee," Abilene, Texas, December, 1973, p. II-15.

[2] Private interview with Bob Gallagher, Executive Director, West Central Texas Council of Governments, Abilene, Texas, March 5, 1974,

[3] Ibid.

[4] Ibid.

[5] Abilene Chamber of Commerce, "Community Audit--1974," Abilene, Texas, 1974, (Mimeographed), p. 7.

[6] Private interview with Boone Powell, Jr., President, Hendrick Memorial Hospital, Abilene, Texas, March 15, 1974.

[7] West Central Texas Council of Governments, Draft Copy of "Objectives Plan, Health Coordinating Committee," Abilene, Texas, December, 1973, pp. I-1 to I-5.

[8] Ibid., p. I-1.

[9] Ibid., pp. I-1 to I-2.

[10] Private interview with Joel Allison, Administrative Assistant, Hendrick Memorial Hospital, Abilene, Texas, March 12, 1974.

[11] T. H. Berrill, "A Year in the Life of a Surgical Day Unit," British Medical Journal, IV (November, 1972), 349.

[12] West Central Texas Council of Governments, Draft Copy of "Objectives Plan, Health Coordinating Committee," Abilene, Texas, December, 1973, p. II-7.

[13] Ibid., pp. I-3 to I-4, p. II-5.

[14] Joint Commission on Accreditation of Hospitals, Accreditation Manual for Hospitals (Chicago: Joint Commission on Accreditation of Hospitals, 1973), Section entitled "Outpatient Services," Standards I-VI.

[15] Private interviews with: Dr. F. Carlton Hodges, Chief of Surgery Service, Hendrick Memorial Hospital, Abilene, Texas, March 13, 1974; Dr. Paul Mani, Chairman, Ad Hoc Committee of the Medical Staff on Ambulatory Surgery, Hendrick Memorial Hospital, Abilene, Texas, March 6, 1974; Dr. Richard B. Johns, Member, Ad Hoc Committee of the Medical Staff on Ambulatory Surgery, Hendrick Memorial Hospital, Abilene, Texas, March 5, 1974; Dr. R. Lee Rode, Member, Ad Hoc Committee of the Medical Staff on Ambulatory Surgery, Abilene, Texas, March 6, 1974; Dr. W. Orlan Akin, Member, Ad Hoc Committee of the Medical Staff on Ambulatory Surgery, Abilene, Texas March 6, 1974; L. Livingston, Assistant Director of Nursing, Hendrick Memorial Hospital, Abilene, Texas, March 12, 1974; and, Edgar Vaughn, Vice-President, Hendrick Memorial Hospital, Abilene, Texas, March 8, 1974.

16 Private interview with Dr. F. Carlton Hodges, Chief of Surgery Service, Hendrick Memorial Hospital, Abilene, Texas, March 13, 1974; Dr. Richard B. Johns, Chief of Anesthesia Service, Hendrick Memorial Hospital, Abilene, Texas, March 5, 1974.

17 Private interview with John Karr, Vice-President for Finances, Hendrick Memorial Hospital, Abilene, Texas March 15, 1974.

18 Harold T. Davenport, Chandrakant P. Shah, and Geoffrey C. Robinson, "Day Surgery for Children," Canadian Medical Association Journal, CV (September, 1971), 498.

19 Private interview with Edgar Vaughn, Vice-President, Hendrick Memorial Hospital, Abilene, Texas, March 8, 1974.

20 Private interview with L. Livingston, Assistant Director of Nursing, Hendrick Memorial Hospital, Abilene, Texas, March 12, 1974.

21 Don E. Detmer, Comments on "The Ambulatory Surgical Unit," Annals of Surgery, CLXXV (June, 1972), 862.

22 Vaughn interview.

23 Private interview with Bobbie Mason, Supervisor, Operating Suite, Hendrick Memorial Hospital, Abilene, Texas, March 12, 1974.

24 Vaughn interview.

25 "Outpatient Clinic for Surgery," Medical World News, XII (October, 1971), 59.

26 U. S. Department of Defense, Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) Program Manual (Washington, D.C.: Government Printing Office, 1973), pp. 4.03-4.05.

27 Private telephonic interview with Fred Holden, Provider Relations Section, Blue Cross/Blue Shield of Texas, San Antonio, Texas, April 2, 1974.

28 Powell and Vaughn interviews.

29 Mason interview.

30 Vaughn interview.

31 Mason interview.

32 Private interview with Dr. Richard B. Johns, Chief, Anesthesia Service, Hendrick Memorial Hospital, Abilene, Texas, March 5, 1974.

33 Mason interview.

34 James E. Davis and Don E. Detmer, "The Ambulatory Surgical Unit," Annals of Surgery, CLXXV (June, 1972), 856.

35 "Outpatient Clinic for Surgery," Medical World News, XII (October, 1971), 58.

36 Vaughn interview.

37 Karr interview.

38 Hodges interview.

39 Powell interview.

CHAPTER III

CONCLUSION

Conclusion

From the short-term, operational viewpoint, implementation of a day surgery program would be feasible at the present time. Analysis of historical data indicates that there would be a sufficient number of eligible minor surgery patients to support a day surgery program four days a week at an annual programmed capacity of 832 patients. The physician survey indicates that the vast majority of physicians holding surgical privileges consider day surgery to be a viable and professionally acceptable alternative to inpatient hospitalization for minor surgery, and it is probable that the program would enjoy the support of the medical staff. Similarily, all commercial third-party payors responding to the questionnaire indicate a conceptual willingness to reimburse the hospital and private physicians for reasonable day surgery charges incurred by their beneficiaries. An expansion capacity with respect to operating room workload exists, and a day surgery program utilizing idle minor surgery suites could contribute to a more effective utilization of major operating suite facilities and the nursing staff assigned to same. The anesthesia service could support an increase in surgical workload, especially with respect to minor surgery. A more effective utilization

of inpatient nursing staff could be achieved, in that a day surgery program would reduce the number of patients on surgical wards who required only minimal postoperative nursing care. Nursing personnel could thereby devote proportionately more time to acutely ill inpatients requiring a greater amount of nursing support. Unused ward space is currently available which would prove ideal for the operation of the observation ward.

From the respective perspectives of the patient, third-party payors, and physicians, a day surgery program would prove beneficial and desirable. It has been demonstrated that the program would result in lower costs to the individual patient for a minor surgical procedure, the savings realized being proportionately greater with successive reductions in the length of inpatient hospitalization that would be routinely required. As a result, the program would probably enable the hospital to better serve a larger percentage of the population, specifically low-income families which were not eligible for federally subsidized health care programs or were unable to afford commercial insurance coverage, but were forced to pay out-of-pocket for all health care charges incurred. Third-party payors would benefit by a reduction in the charges incurred by beneficiaries and in the amount of reimbursement required. Physicians would benefit by having access to a mechanism that

provided a greater and safer surgical capability than could be realized in the office or private clinic, but which would not necessitate the time-consuming follow-up visits on inpatient cases from one to three days before final discharge.

Although indisputable evidence cannot be presented to either prove or disprove the assumption that sufficient latent minor surgical workload exists to completely offset any bed occupancy shortfall perpetrated by a day surgery program, analysis of historical data relating to surgical workloads and bed occupancy rates tends to indicate that the assumption is probably invalid. As a result, a day surgery program could be expected to further depress a bed occupancy rate that has consistently exhibited an annual decrease over the past five fiscal years. Such a development would result in a concomitant reduction of the hospital's gross revenue intake from daily service (room) charges to inpatients.

While it would be operationally, technically, and administratively feasible to implement a day surgery program, the potentially adverse impact on gross revenue intake raises a pertinent question as to the financial feasibility of the program as conceptualized. The hospital is not utilizing to the maximum extent possible all the available resources dedicated to the support of the inpatient surgical program. No standing waiting list exists for hospital beds, specifically surgical beds. No operating room backlog exists and

a considerable increase in operating room workload could be absorbed before existing surgical suites proved inadequate to accommodate the demand. In effect, a day surgery program would tend to contribute to the underutilization of inpatient supportive resources, primarily beds, and would translate to a loss in operating income.

Recommendation

It is concluded that a day surgery program, while it would perhaps prove beneficial to patients, third-party payors, and physicians, would prove to be a tenuous financial venture for the institution, and should not be implemented until such time as the hospital's surgical bed capacity proved chronically inadequate to support the surgical workload demand.

An Alternative Approach

Most of the benefits offered by a day surgery program could be as well achieved by the implementation of an early-discharge program. Under such a program, the patient would be admitted as an inpatient in the early afternoon, undergo all diagnostic and administrative workups, and remain at the hospital overnight. The next morning, the surgical procedure would be performed, preferably as an early surgical posting, and the patient returned to his bed in the surgical ward.

Final anesthetic arousal and ambulation would be achieved in the surgical ward environment, with the patient being discharged in the early afternoon, or at least by 6:00 pm.

Such a program would offer several advantages beyond those of a day surgery program. First, it would prove considerably more flexible from the standpoint of patient processing capacity, for the number of patients handled on a particular day would be limited only by the availability of early surgical postings in the operating suites. Physicians and patients would not be restricted to only certain days of the week when they could elect to utilize the early-discharge program option. Secondly, operational problems would not be posed if none of the early-discharge category patients were actually admitted on a particular day. A day surgery program presupposes the accommodation of a certain workload each functional day in order to realize sufficient patient revenue intake to offset observation ward expenses; a shortfall from the programmed daily capacity would mean underutilization of observation ward resources and a proportionately greater operating expense per patient processed. It would be somewhat immaterial whether one, nine, or any number of early-discharge patients were processed on a given day; no special facilities or nursing staff would have been dedicated to their support, for which a certain revenue-producing workload was essential to achieve fiscal parity with the

investment in resources. Thirdly, admission of patients on the day before surgery would provide for better patient control concerning compliance with preoperative instructions, such as restricting the ingestion of food or liquids. Fourthly, the fact that patients were actually hospitalized for a twenty-four hour period would mean that Blue Cross would provide reimbursement for reasonable physician and hospital charges, as those charges would relate to inpatient care rather than a form of outpatient service as with the day surgery program. Finally, no start-up costs would be involved to render the program operational, as early-discharge category patients would be treated as a portion of the routine inpatient workload on nursing units that were already functional.

The early-discharge program would reduce total costs to a large number of patients undergoing minor surgery, even if standard inpatient rates were charged for private or semi-private rooms during the one-day hospitalization period. The additional cost over that of a day surgery program to the patient occupying a semi-private room would only be approximately $15.50. The savings to the patient occupying a private room for only one day, instead of three days of hospitalization, would be nearly as great as that realized under a day surgery program.

As with the day surgery program, the fiscal effects

of an early-discharge program would most probably prove to be adverse from the institution's standpoint. Daily service revenue would be lost for each patient who was discharged after a one-day stay instead of the usual two or three-day stay, the total amount of gross patient revenue lost on an annual basis being related to the number of patients processed under the program. In this respect, the hospital's administration would still be confronted with the necessity of deciding to what extent it was willing to incur operating revenue losses in the provision of a service it felt to be necessary.

Should the hospital's administration decide, in the final analysis, that the financial ramifications were of lesser importance than the provision of the service, it is recommended that consideration be given to the implementation of an early-discharge program rather than a day surgery program.

APPENDIX A

CONCEPTUAL MODEL OF THE

DAY SURGERY PROGRAM

PROPOSED CONCEPTUAL MODEL
FOR THE DAY SURGERY PROGRAM

I. Day Before Surgery

Step 1 - Physical Examination/Medical History Workup: Accomplished by attending physician or surgeon to whom referred. May be accomplished several days prior to day of surgery. Workup includes:
a. Explanation of procedure, to include advising patient of hazards/complications that could arise.
b. Preliminary determination as to type of anesthetic to be employed.
c. Physician telephonically coordinates with Hendrick Memorial Hospital to schedule patient for day surgery.
d. Patient records to be forwarded by attending physician so as to arrive at Hendrick Memorial (HMH) admitting desk not later than 9:00 am. on the day before surgery.
e. Consent form preparation.

Step 2 - Preadmissions Workup: Patient reports at 1:00 pm. to the HMH admitting desk the day before surgery is scheduled:
a. Insurance form preparation, arrangement for payment of charges.
b. Patient identification materials prepared.
c. Other administrative actions as required.

Step 3 - Laboratory Workup: Following preadmissions workup, patient reports to laboratory for core battery of tests:
a. Core battery of tests for all procedures includes: CBC; Urinalysis; Bleeding/Clotting Time.
b. Other appropriate preoperative tests (Blood Serology, Blood Typing, etc.) as considered appropriate by the attending physician.

Step 4 - Patient Orientation/Instructions: Following laboratory workup, patients report to observation ward area of the day surgical unit for orientation by day surgery supervisor (RN):
a. Orientation pertains to arrival time on the day of surgery, what to bring, etc.
b. Explanation of instructions--reference NPO, fasting, cleansing of body surface, etc.--to be followed by the patient prior to arrival for surgery. Instructions will be written,

providing explicit guidance as pertains to preparation for each specific day surgery procedure.

Step 5 - Patient Preparation (as applicable): Patients scheduled to undergo procedures requiring removal of body hair, special preparation, etc. Accomplished in observation ward's preparation room.

II. Day of Surgery

Step 1 - 6:00 am. to 9:00 am.: Patients report to observation ward area for pre-surgical check:
a. Registered Nurse in charge of day surgery observation ward:
-Takes and records vital signs.
-Completes patient questionnaire (to ascertain if patient instructions were followed).
-Secures personal effects of patients.
-Prepares patient--gowning, scrubbing, etc.--for surgery, if applicable.
b. Visit by attending anesthesiologist or nurse anesthesist to confirm anesthetic selection.

Step 2 - 7:00 am. to 10:00 am.: Patients moved following preparation to minor operating rooms where procedures are done. Day surgery procedures should be those minor procedures that require less than 60 minutes of operating room time to be accomplished.

Step 3 - 8:00 am. to 11:00 am.: Patients moved to recovery room following procedure:
a. Monitoring and support of patient consistent with routine recovery room operations.
b. Clearance by attending physician, surgeon, anesthesiologist, or nurse anesthesist for patient to be moved to observation ward.
c. Patient time in recovery room--preferably--should be 120 minutes or less; each patient should be cleared from the operating room to the observation ward within 120 minutes after his arrival in same--notwithstanding complications.

Step 4 - 10:00 am. to 1:00 pm.: Patients received in observation ward:
a. Periodic vital signs taken/observations of patient.

b. Patient arousal completed to extent that patient is able to ambulate without assistance.

Step 5 - 1:00 pm. to 6:00 pm.: Patients discharged from HMH.

a. Patient discharge clearance granted only by attending physician, surgeon, or anesthesiologist (MD).
b. Medical record will have been completed prior to patient discharge.
c. Attending physician provides patient and attending relative/friend with preprinted instructions concerning:
   -Postoperative care.
   -Complication symptoms that would warrant calling the hospital during the night.
   -Instructions for postoperative care will be written and explicit for the specific procedure's postoperative period.
d. Patient permitted to depart only in the company of a friend or relative. Patient will be instructed to remain within 60 minutes travel time of HMH for a 24 hour period.
e. Completed records transferred to HMH emergency room for overnight retention. (in event complications arise during the night that necessitate return to the hospital).

Step 6 - 6:00 pm.: Patients who are insufficiently aroused or for whom complications are detected or anticipated will be transferred to an acute surgical bed as an inpatient admission--for overnight observation/further treatment as required.

III. Day after Surgery: Observation ward telephonically contacts all patients from previous day's surgery to ascertain if each patient has progressed satisfactorily. Patients who are experiencing difficulties will be referred to the appropriate attending physician or surgeon for examination.

IV. Approximately One Week after Surgery: Followup questionnaire to determine the patient attitude towards/ acceptability of the day surgery program.

APPENDIX B

PHYSICIAN SURVEY

Hendrick Memorial Hospital

Abilene, Texas 79601

Dear Doctor:

A graduate student in Hospital Administration is conducting a research project for Hendrick Memorial Hospital concerning the implementation of a day surgery program. The purpose of this survey is to ascertain your feelings towards a day surgery program as an integral part of that research project.

Enclosure one outlines the program as presently conceptualized. Your comments are solicited with respect to the conceptual model presented.

Enclosure two lists a number of reasons cited in current literature as to why other hospitals have established day surgery programs. It would be appreciated if you could selectively identify what you feel to be the five most compelling reasons for implementing a day surgery program.

Enclosure three provides a composite listing, by specialty, of day surgery procedures as are performed in US, British, and Canadian hospitals. It should be noted that not all the procedures are done in any one hospital. The medical staffs of a number of US hospitals have restricted their respective day surgery programs to the accomodation of only selected procedures from the composite list. Others have excluded certain procedures from day surgery programs as being medically inappropriate for other than inpatient hospitalization. Your comments are again solicited with respect to each procedure cited.

Enclosure four contains several general questions related to the establishment and support of a day surgery program. An affirmative answer should not be construed to constitute a committment on your part, but will merely serve as an indicator of your feelings with respect to the concept of a day surgery program as herein presented.

Your assistance in expeditiously completing and returning the survey to Mr. Ed Vaughn will be appreciated. A stamped self-addressed envelope is enclosed for your convenience.

Sincerely yours,

Carlton Hodges, M. D.
Chief of Surgery

INCLOSURE 1 TO PHYSICIAN SURVEY

PROPOSED CONCEPTUAL MODEL
FOR THE DAY SURGERY PROGRAM

Inclosure 1 to the Physician Survey contained the identical information as contained at APPENDIX A of this study and has been deleted in this appendix to reduce unnecessary repetition of material.

INCLOSURE 2 TO PHYSICIAN SURVEY

REASONS FOR ESTABLISHING
A DAY SURGERY PROGRAM

Place the number "1" by the statement you feel should be the major reason for establishing a day surgery program. Place the number "2" by the second most important reason and continue the same procedure until five (5) reasons have been selected. Please mark only five (5) entries in the listing. If you feel an important reason has not been cited, please add at the end of the listing and mark accordingly as 1,2, etc.

Place Number Here	REASON: The Day Surgery Program Should:
_____	Result in a lower total cost to patients who must pay all or part of the cost out-of-pocket.
_____	Release inpatient surgical beds for more major surgical procedure cases.
_____	Reduce/eliminate use of the emergency room for the performance of minor surgical procedures.
_____	Increase the number of minor surgical procedures that could be performed in the hospital.
_____	Reduce psychological trauma to very young children who are separated from mothers during hospitalization.
_____	Reduce the waiting period for operating rooms for patients who are referred for elective surgery.
_____	Reduce or eliminate waiting lists for surgical beds for patients referred for elective surgery.
_____	Permit the hospital to reach a larger population base through lesser total costs for minor surgery.
_____	Provide for the better utilization of nursing staff by reducing the number of acute surgical beds that are filled with patients requiring minimal care.
_____	Continued on next sheet.

_____ Permit more efficient use of physician time.

_____ Overcome surgical bed shortages by permitting the accommodation of minor procedures and discharge the same day.

_____ Reduce the time that mothers are separated from the home and small children.

_____ Reduce physicians' susceptibility to medical tort liability arising out of minor surgical procedures performed in private offices away from the hospital.

_____ Overcome underutilization of minor procedure operating rooms by increasing the volume of minor surgical procedures.

_____ Provide an alternative to hospitalization for those patients having an aversion to an inpatient stay.

_____ Other reasons you may feel to be applicable:

_____

_____

_____

_____

INCLOSURE 3 TO PHYSICIAN SURVEY

DAY SURGERY PROCEDURES

The following procedures are identified in current literature as being performed in the day surgery units of US, British, and Canadian hospitals. It is requested that you check the list and indicate those procedures which you feel would be appropriate for any day surgery unit established by Hendrick Memorial Hospital.

A check in the "YES" column indicates that you would generally be in favor of the procedure's being done as day surgery.

A check in the "NO" column indicates that you would not prefer to see the procedure done as day surgery.

A check in the "NO COMMENT" column indicates that you do not currently perform such a procedure or do not wish to comment on the procedure's appropriateness for day surgery.

If you desire to qualify or elaborate your comment concerning a specific response, please place a number in the blank you checked and key your comment to that number on the reverse of the page.

For purposes of this study, it is important that all procedures bear one of the three checks as cited, or a comment on the reverse of the page keyed to the specific procedure listed. Again, for purposes of the study and subsequent analysis, please indicate below which major category would cover the majority of the surgical procedures you perform:

General Surgery_____
Neurosurgery_____
Orthopedic_____
Urology_____
Ophthamology_____
Otolaryngology_____
Plastic Surgery_____
Other_____

Check this space if you are an anesthesiologist _____

EXAMPLE

YES	NO	NO COMMENT	PROCEDURE
___	(1)	_____	Inguinal Hernia Repair
✓	___	_____	Vasectomy
✓	___	_____	Scar Revision
___	✓(2)	_____	Appendectomy
___	___	✓	Therapeutic Abortion

(1) and (2) indicate that you have placed a comment on reverse side of the sheet concerning the procedure listed.

General Surgery

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Pionidal Cyst - I&D or Excision
___	___	_____	Endoscopies (Diagnostic) - Gastric/Colon
___	___	_____	Rectal Surgery, Perianal Area - I&D
___	___	_____	Excisions of Hipomas, Sebaceous Cysts, Skin Lesions, Nodes
___	___	_____	Varicose Veins - Recurrent Ligation
___	___	_____	Tumor Excisions (Benign)
___	___	_____	Biopsies (Simple)
___	___	_____	Inguinal Hernia Repair
___	___	_____	Other Abcesses - I&D
___	___	_____	Hemorrhoidectomy

Continued on Next Sheet

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Lipectomy
___	___	_____	Fissurectomy
___	___	_____	Fistulotomy
___	___	_____	Fistulectomy
___	___	_____	Sigmoidoscopy (Diagnostic)
___	___	_____	Sigmoidoscopy (Polyp Removal or Papilloma)
___	___	_____	Arteriography
___	___	_____	Esophagoscopy
___	___	_____	Umbilical Herniorrhaphy
___	___	_____	Excision of Simple Thyroid Nodules
___	___	_____	Excision of Thyroglossal Duct
___	___	_____	Breast Tumor Excision (Benign)
___	___	_____	Venectomy
___	___	_____	Ganglionectomy
___	___	_____	Subcutaneous Excision
___	___	_____	Other procedures as you feel may be appropriate:
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

Continued on Next Sheet

Orthopedic Surgery

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Reductions, Closed - Simple Fractures of Upper Extremities (Wrist, Hand, Arm, Elbow, Shoulder)
___	___	_____	Internal Fixation Devices, Simple Removal of Pins and Wires
___	___	_____	Colle's Fracture Procedure
___	___	_____	Reductions - Open and Closed - of Phalanges
___	___	_____	Excision of Lesion*
___	___	_____	Suture* (* Reference
___	___	_____	Division* Muscle,
___	___	_____	Stretching* Tendon,
___	___	_____	Resection* or Fascia)
___	___	_____	Freeing of Adhesions*
___	___	_____	Hammer Toe Procedures
___	___	_____	Carpal Tunnel Syndrome
___	___	_____	Tenectomy, Hand or Foot
___	___	_____	Cast Changes
___	___	_____	Joint Manipulation
___	___	_____	Exostosis, Excision
___	___	_____	Nail Removals
___	___	_____	Phalangectomy
___	___	_____	Tenosynovectomy
___	___	_____	Other procedures as you feel may be appropriate:

Continued on Next Sheet

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

Gynecological Surgery

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Dilation and Currettage (Diagnosis)
___	___	_____	Therapeutic Abortions
___	___	_____	Excision of Cysts
___	___	_____	Excisions of Lesions - Vagina, Vulva, Perineum, Uterus, Cervix
___	___	_____	Marsupilization of Bartholin's Cyst
___	___	_____	Colpotomy - Hymenotomy
___	___	_____	Laparascopy
___	___	_____	Tubal Ligation
___	___	_____	Biopsies (Simple, Diagnostic) - Vulva, Vagina, Cervix
___	___	_____	Excision of Vaginal Septum
___	___	_____	Culdotomy
___	___	_____	Hysteroscalpinogram
___	___	_____	Removal of IUD

Continued on Next Sheet

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Conization
___	___	_____	Other procedures as you feel may be appropriate:
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

Ophthamological/Otolaryngological Procedures

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Photocoagulations
___	___	_____	Blepharoplasties
___	___	_____	Excisions of Lesions - Eyelid, Conjunctiva
___	___	_____	Pterygiums
___	___	_____	Lacrimal Probes
___	___	_____	Strabismus, Unilateral
___	___	_____	Photocoagulation of Retina
___	___	_____	Cataract Removal (Single Eye)
___	___	_____	Biopsies (Simple) - Nose, Ear, Throat, or Mouth
___	___	_____	Reductions (Simple) - Nasal Fracture

Continued on Next Sheet

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Polypectomies
___	___	_____	Tympanoplasty
___	___	_____	Excision of Facial Skin Lesions
___	___	_____	Excision of Cysts (Minor) - Ear or Nose
___	___	_____	Excision of Nasal Polyps
___	___	_____	Dermabrasion
___	___	_____	Otoplasty
___	___	_____	Tonsillectomy and/or Adenoidectomy
___	___	_____	Myringotomy
___	___	_____	Endoscopic Procedures (including Bronchoscopy and Laryngoscopy)
___	___	_____	Rhinoplasty
___	___	_____	Antral Puncture
___	___	_____	Ethmoidectomy
___	___	_____	Septal Reconstruction, SMR
___	___	_____	Plicotomy of Middle Ear
___	___	_____	Esophageal Dilation
___	___	_____	Other procedures as you feel may be appropriate:
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

Continued on Next Sheet

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	_____

Urological Procedures

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Cystoscopy (Diagnostic)
___	___	_____	Urethroscopy
___	___	_____	Cystoscopy and Retrograde
___	___	_____	Circumcisions (Adult)
___	___	_____	Prostatic Needle Biopsy
___	___	_____	Vasectomy
___	___	_____	Local Incisions or Excisions - Lesions of Penis, Scrotum
___	___	_____	Orchiopexy
___	___	_____	Testicular Biopsy
___	___	_____	Meatomy
___	___	_____	Urethral Dilation
___	___	_____	Other procedures as you feel may be appropriate:
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

Continued on Next Sheet

Plastic Surgery

YES	NO	NO COMMENT	PROCEDURE
___	___	_____	Scar Revisions
___	___	_____	Small Skin Grafts
___	___	_____	Rhytidectomies
___	___	_____	Revision of Ears
___	___	_____	Other procedures as you feel may be appropriate:
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

End of Enclosure 3

INCLOSURE 4 TO PHYSICIAN SURVEY

GENERAL QUESTIONS PERTAINING TO
A DAY SURGERY PROGRAM

1. Would you generally be in favor of the establishment of a day surgery program?
   YES____NO____YES, but with qualifications____
   (place comments on back of sheet)

2. If "yes" to question number 1, would you recommend the program to your patients who require minor surgical procedures such as those with which you concurred on a previous enclosure?
   YES____NO____YES, but with qualifications____
   (place comments on back of sheet)

3. Should there be a medical-staff approved list of criteria which delineates what categories of patients would not be eligible for day surgery (diabetics, cardiac conditions, etc.)? Or should the determination be up to the attending physician?
   YES to list____ NO to list____
   YES to attending physician determination___
   NO to attending physician determination___
   Place any comments you desire on the back of sheet.

4. Should selected day surgery patients be served a light repast in the observation ward?
   YES____NO____YES, but with qualifications____
   (place comments on back of sheet)

5. What days of the week should the day surgical unit be operational (other hospitals have from 3 to 6 days each week when their units are operational)? Check the days when you feel the unit should be operational:

MON	TUE	WED	THUR	FRI	SAT
___	___	___	___	___	___

6. Which day of the week would you be most likely to use the day surgery unit? Check the applicable day:

MON	TUE	WED	THUR	FRI	SAT
___	___	___	___	___	___

Continued on Next Sheet

7. Assuming the unit was operational 5 days a week, would you prefer one day a week when your patients received priority for day surgery procedures?
   YES___ NO____
   If "Yes", which day?_____

8. Should the relative/friend/parent be allowed to stay with the patient in his room after his return from surgery?
   YES____NO____YES, but with qualifications____
   (place comments on back of sheet)

9. A day surgery program can logically be expected to reduce bed occupancy by accommodating minor surgery patients that would normally be hospitalized for 2-3 days. Do you believe that there exists a latent minor surgical workload that will potentially make up the bed shortfall experienced as a result of a day surgery program?
   YES____NO____YES, but with qualifications____
   (place comments on back of sheet)

Your views concerning day surgery programs are extremely important in any study designed to ascertain the feasibility of establishing such a program at Hendrick Memorial Hospital. If you have any further comments you feel are pertinent, please address them below:

End of Enclosure 4

APPENDIX C

THIRD-PARTY PAYOR QUESTIONNAIRE

THIRD-PARTY QUESTIONNAIRE

The third-party questionnaire consisted of a personal letter from the author to the 14 commercial agents identified by the Business Office of Hendrick Memorial Hospital, the contents of said letter being as follows:

Dear Sirs;

I am a student in the US Army-Baylor University Program in Health Care Administration. In partial fulfillment of requirements leading to the Masters Degree in Hospital Administration (MHA), I am conducting research for a thesis which will address outpatient surgical procedures in an ambulatory setting. My specific thesis assignment is to determine the feasibility of establishing an outpatient (ambulatory) surgical unit at Hendrick Memorial Hospital, Abilene, Texas. Concomitant with the feasibility study, I am to develop a model for possible implementation.

A major criterion in ascertaining the feasibility of implementing a day surgery program is the acceptability of the program to third-party payors. Since your company has been identified by the institution's Vice-President for Finances as a major third-party reimburser, the purpose of this letter is to determine if your company would be conceptually willing to reimburse the attending surgeon and Hendrick Memorial Hospital for reasonable charges incurred by one of your beneficiaries under a day surgery program. The specific question is as follows:

> Would your company generally be agreeable to the reimbursement of reasonable charges as presented by the attending surgeon and institution for one of your beneficiaries who elected to participate in a day surgery program?

It is recognized that your company probably issues a multiplicity of policy options with respect to services covered. It is further recognized that the degree to which reimbursement would be made would be related to the specific policy's limits of coverage and the services rendered to the beneficiary. Additionally, it should be emphasized that it is not my intention to elicit a firm or official committment on your company's part as to the question posed. The response will be viewed as a non-committal and conceptual indication of your company's general position as to the reimbursement of charges under a day surgery program.

The day surgery model as developed for the hospital envisions

the patient reporting on the day of surgery--all administrative and laboratory workups having been completed during pre-admission processing the previous day--and returning home that same day. In this sense, the patient would not constitute an inpatient admission but would be treated as a special category of surgical outpatient. Charges are expected to remain basically the same for laboratory, operating room, recovery room, anesthesia, and the surgeon's fees. The day surgery bed charge for postoperative observation would be approximately $10.00 less than is the current daily charge for an adult room (semi-private) in a surgical ward. Reimbursement savings to your company could be expected to increase consistent with the number of days the patient would normally have been hospitalized as an inpatient. It is also assumed that savings in other charges (medications, non-medical supplies, etc.) would be realized if the patient were not hospitalized on a surgical ward. To illustrate the point, a tonsillectomy and adenoidectomy performed on an inpatient basis and involving three days of hospitalization would currently involve approximately $122.00 in room (semi-private) charges. All other charge factors remaining equal, that same patient would have incurred approximately $30.00 in observation ward bed charges had the procedure been performed on a day surgery basis. This one case would have resulted in a net reduction of the hospital bill by $92.00, a savings that would be realized by the third-party insurer of the patient beneficiary (in total or in part).

I would appreciate your assistance in the provision of a prompt reply, as I have just completed the on-site survey and am in the process of writing the thesis at present. For your convenience, I have enclosed a stamped, self-addressed envelope for your reply.

Sincerly yours,

Samuel A. Brown, Jr.

APPENDIX D

DAY SURGERY PROCEDURES ENCOUNTERED

DAY SURGERY PROCEDURES ENCOUNTERED

The procedures as subsequently cited are those as performed at "Surgicenter" of Phoenix, Arizona (1040 East McDowell Road, 85006). The presence or absence of a given procedure should not be taken to imply that that procedure is or is not appropriate for other--or any--day surgery program. Although the listing as herein presented is by no means exhaustive, it is fairly representative of the broad variety of day surgery procedures as are frequently found, to varying degrees, in other day surgery programs throughout the United States.

PROCEDURE	PROCEDURE
Adenoidectomy & myringotomy	Antral puncture
Arch bars, removal	Closed reduction, nose or zygoma
Interior turbinate fracture	Laryngoscopy with operative procedure
Myringotomy with or without tubes	Otoscopy with or without removal of foreign body
Nasal polypectomy	Septal reconstruction, SMR
Ethmoidectomy	Tympanoplasty
Wiring of fractured jaw	Rhinoplasty
Bronchoscopy with operative procedure	Tonsillectomy with or without Adneoidectomy
Esophagoscopy with operative procedure	Laryngoscopy with operative procedure
Cystoscopy	Cataract removal
Chalazion	Discission
Ectropian & entropian	Eye exam under anesthesia
Eye muscle operation - recession (unilateral) recession (bilateral) resection (unilateral) resection (bilateral)	Iridectomy
Lacrimal Duct probing	Prolapsed iris, excision

PROCEDURE	PROCEDURE
Pterygium	Reconstruction of Lacrimal Duct
Insertion of glass tube into Lacrimal Duct	Baker's cyst, excision
Breast masses, excision	Cervical node biopsies
Foreign body, removal	Frenulectomy - tongue
Hemorrhoidectomy	Thrombotic hemorrhoidectomy
I&D abcess	Inguinal herniorrhaphy - infant (unilateral) infant (bilateral) adult (unilateral) adult (bilateral)
Lipoma, excision	Muscle biopsies
Orchidectomy	Orchiopexy
Pilonidal cystectomy	Rectal polypectomy
Skin Lesions, excision	Thyroglossal duct cyst
Umbilical herniorrhaphy with bilateral Inguinal herniorrhaphy	Varicose vein ligation with or without stripping
Fistulectomy	Bartholin cystectomy
Cervical amputation (Stermdorf)	Cryotherapy (alone)
Cryotherapy with biopsy and/or D&C	Culdoscentesis
Culdoscopy	Dilation and currettage (D&C)
Episiotomy	Exam under anesthesia
Hymenotomy	Hysterosalpingogram
Laparascopy	Cervical cone
Perinorrhaphy	Removal IUD

PROCEDURE	PROCEDURE
Condylomata Acuminata (removal of)	Arthrotomy nenesectomy
Arthroscopy	Bunion operation, bilateral
Bursae, removal of (Olecranon)	Closed reduction, fracture
Finger or toe nails, removal	Hammertoes with tenotomies and resection of bones, bilateral
Hardware, removal, hip	Kidney cannula, revision
Manipulation of joints	Metatarsal heads, excision (unilateral and bilateral)
Morton's neuroma	Nerve repair
Phalangectomy	Plantar wart, excision
Repair of medical ligament knee	Tendon repair
Tenosynovectomy	Tenotomy, hand or foot
Open reduction fractures	Cast change with manipulation
Excision of foreign body	Exostosis, excision
Ulnar nerve transfer	Neuroma (other)
Carpal tunnel depression	Intercostal neurectomy
Neuroma	Morton's neuroma
Augmentation mammoplasty (revision unilateral) bilateral	Blepharoplasty (upper or lower only) combined
Dermabrasion (partial) full-face	Otoplasty bilateral unilateral
Rhinoplasty	Rhytidectomy with blepharoplasty
Cystoscopy	Dorsal slit

PROCEDURE	PROCEDURE
Skin graft	Circumcision pediatric adult
Meatotomy	Prostrate, biopsy
Urethral dilation	Vasectomy
Impacted wisdom teeth, removal	Nerve blocks
Perodontal surgery (full)	Perodontic (full)

APPENDIX E

SUMMARIZATION AND ANALYSIS OF PHYSICIAN RESPONSES TO PART FOUR OF THE PHYSICIAN SURVEY

SUMMARIZATION AND ANALYSIS OF
PHYSICIAN RESPONSES TO PART FOUR OF
THE PHYSICIAN SURVEY

QUESTION #1: Would you generally be in favor of the establishment of a day surgery program?

RESULTS: Of 21 respondents:

YES 21
NO 0
YES, but with qualifications 0
No reply to question 0

ANALYSIS: Responding physicians appear to unanimously agree with the concept of day surgery and the conceptual model as was included as part of the physician survey.

QUESTION #2: If yes to question number one, would you recommend the program to your patients who required minor surgical procedures such as those with which you concurred on a previous enclosure?

RESULTS: Of 21 respondents:

YES 18
NO 2
YES, but with qualifications 0
No reply to question 1

ANALYSIS: The proposed day surgery program would apparently enjoy sufficient support among members of the physician staff having surgical privileges to insure its viability.

QUESTION #3: Should there be a medical-staff-approved list of criteria which deliniates what categories of patients would not be eligible for day surgery (diabetics, cardiac conditions, etc.)? Or should the determination

ANALYSIS: Physicians appear to be fairly evenly divided on the subject of an approved list of criteria for patient selection, and almost totally

be up to the attending physician?

RESULTS: Of 21 respondents:

YES to list 7
NO to list 7
No reply to question 7

YES to attending physician determination 13
NO to attending physician determination 2
No reply to question 6

in agreement with allowing the physician to ascertain if the patient is actually eligible for day surgery procedures. Most authors stress the need for prudent selection of day surgery patients to eliminate those who would pose anesthetic or procedural difficulties. It would be adviseable, therefore, to employ a listing of conditions which contraindicated day surgery. Such would insure uniformity in patient selection and reduce the potential for unexpected complications.

QUESTION #4: Should selected day surgery patients be served a light repast in the observation ward?

RESULTS: Of 21 respondents:

YES 10
NO 4
YES, but with qualifications 3
No reply to question 4

ANALYSIS: In general, physicians are in agreement with the serving of a light repast postoperatively, the qualified responses relating primarily to the potential problem of emesis with certain categories of patients and anesthetics. The literature reflects some diversity of opinion in this area. Certain authors view the light repast as a means for speeding up recovery, enhancing patient morale, and evaluating motor responses. Others feel that the in-

gestion of food or liquid is hazardous until it is determined that no immediate post-operative complications have developed. Still others feel that hunger pains serve to expedite recovery, as the patient knows he will receive nothing to eat until he is discharged and returns to his home. In any case, the light repast was not incorporated in the conceptual model. If it were decided to do so, the per patient charge would require a slight upward adjustment to offset the additional expense of serving the light repast.

QUESTION #5: What days of the week should the day surgical unit be operational (other hospitals have from 3 to 6 days each week when their units are operational)? Check the days when you feel the unit should be operational:

RESULTS: Of 21 respondents:

MON	TUE	WED	THUR	FRI	SAT
14	16	17	18	19	9

Number of physicians indicating preference for the days cited.

ANALYSIS: In general, more physicians prefer that the day surgery unit should be operational from mid to end-week, with the most popular day being Friday. Over two-thirds of the physicians responding felt the unit should be operational each day of the week. The days of operation for the Modified Weekly Program were selected to take the exhibited physician preferences into account.

QUESTION #6: What days of the week would you be most likely to use the day surgery unit? Check the applicable day:

RESULTS: Of 21 respondents:

MON	TUE	WED	THUR	FRI	SAT
11	10	10	12	15	8

Number of physicians indicating preference for the days cited.
No reply to question 0

ANALYSIS: Friday was selected as the most popular day, followed by Thursday. A problem arises with operating the day surgery unit on Friday in that telephonic follow-up the next day by the Day Surgery Unit Supervisor would mean that that individual would have to be present in the unit on Saturday. Additionally, private physicians would generally not be in their offices on Saturday morning in the event a complication was detected by the nurse that warranted referral.

QUESTION #7: Assuming the unit were operational 5 days a week, would you prefer one day per week when your patients received priority for day surgery procedures?

RESULTS: Of 21 respondents:

YES 11
NO 8
If yes, which day? Thursday
No reply to question 2

ANALYSIS: Of the 11 physicians answering yes, 3 had no preference as to day, 1 preferred every day, and the majority preferred Thursday.

QUESTION #8: Should the relative/friend/parent be allowed to stay with the patient in his room after his return from surgery?

ANALYSIS: Generally, physicians were in agreement that the patient's companion be

RESULTS: Of 21 respondents:

YES 16
NO 4
YES, but with qualifications 1
No reply to question 0

allowed to remain in the observation ward with the patient. The one physician answering with a qualified answer did not elaborate. Most authors agree that allowing the companion to remain in the room is beneficial. They can assist in getting the patient to ambulate, serve to extend the nursing staff resources of the observation ward, and provide continuous observation of the recovering patient until he is ready for discharge. A number of authors indicate that the presence of a familiar face serves to enhance recovery.

QUESTION #9: A day surgery program can logically be expected to reduce bed occupancy by accommodating minor surgery patients that would normally be hospitalized for 2-3 days. Do you believe that there exists a latent minor surgical workload that will potentially make up the bed shortfall experienced as a result of the day surgery program?

RESULTS: of 21 respondents:

YES 8
NO 8
YES, but with qualifications 0
No reply to question 5

ANALYSIS: Physicians responding to the question were evenly divided in their expressed opinions. As physicians serve as a sort of input control valve with respect to admissions, the fact that half of the respondents answered in the negative raises a salient question as to the validity of the assumption concerning the presence of a latent surgical demand that would serve to offset bed shortfalls caused by a day surgery program.

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ABSTRACT

A STUDY TO DETERMINE THE FEASIBILITY OF IMPLEMENTING A DAY SURGERY PROGRAM AT HENDRICK MEMORIAL HOSPITAL, ABILENE, TEXAS

A Problem-Solving Thesis Submitted to the Faculty of Baylor University in Partial Fulfillment of the Requirements for the Degree of
Master of Hospital Administration

by
Captain Samuel A. Brown, Jr., MSC

August, 1975 159 Pages

A copy of this document may be obtained from University Microfilms, University of Michigan, Ann Arbor, Michigan, 48108.

The study was undertaken to determine the feasibility of establishing a day surgery program at Hendrick Memorial Hospital, Abilene, Texas.

The study methodology employed personal interviews, a limited-scope community study, analysis of historical data for a five-year period, a written physician survey, a third-party payor questionnaire, and a review of current literature. A conceptual model was developed and three alternative implementing plans were formulated. For each of the plans, annual costs of operation were projected and per patient charges were estimated. Physician and third-party payor responses were favorable and indicated support for the proposed program. It was determined that the potential day surgery workload would prove sufficient to support a program as a viable endeavor. It was estimated that substantial savings could be realized by patients electing a day surgery option in lieu of hospitalization for minor surgery.

Analysis of workload data, however, indicated that the hospital had historically underutilized available inpatient resources. Neither a chronic waiting list for beds nor operating room backlog was found to exist. It was concluded that implementation of a day surgery program would serve to reduce inpatient bed occupancy, days of inpatient care rendered, and gross revenues from inpatient operations. In light of the adverse financial ramifications, it was concluded that the hospital should not implement a day surgery program until inpatient beds and operating room resources proved chronically inadequate to meet the surgical workload encountered. A final recommendation pertained to the hospital's giving consideration to the implementation of an early-discharge program as a mechanism for reducing health care costs to patients, rather than a day surgery program.