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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE EMERGENCY ROOM IN A COMMUNITY GENERAL HOSPITAL
A STUDY OF CHARACTERISTICS, ATTITUDES, AND USAGE PATTERNS BY PATIENTS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PUBLIC HEALTH

BY

LYNN L. WALKER

Oklahoma City, Oklahoma

1972

THE EMERGENCY ROOM IN A COMMUNITY GENERAL HOSPITAL

A STUDY OF CHARACTERISTICS, ATTITUDES, AND

USAGE PATTERNS BY PATIENTS

APPROVED BY

DISSERTATION COMMITTEE

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PREFACE

The practice of medicine in the United States traditionally has been a private contractual agreement between a patient and a private physician, with the physician providing the point of entry into the health care system. Through the years, this arrangement became steeped in tradition, ingrained in societal patterns, and bound with legal restrictions. For many patients, this arrangement still exists, but for others, the situation has changed markedly. Many factors contributed to this change and are worthy of comment, but it is sufficient to say here that the traditional patient-physician relationship has not been universally sustained.

In recent years, patients, out of necessity, sought other means of obtaining medical attention, but only a few alternative arrangements were found to be available in this country. The emergency room at the local hospital represented one of these alternatives, and it has become a major point of reference for health care. Indeed, the emergency room is now a focal point of public and professional attention as it has reluctantly assumed the monumental task of providing care for patients who had no other point of entry into the health care system.

It is the purpose of this paper to deal with the evolution of the emergency room and the problems associated with this additionally assumed burden. The literature on hospital emergency rooms was examined

to document the evolution, the problem areas, the quality of care, the previous studies on emergency rooms, and the proposed solutions to the point-of-entry problem. The research portion of this paper identifies the methodology and setting of the research prior to examining the five areas of investigation which are pertinent to understanding the reasons and factors associated with patient use of the emergency room. It is hoped that an understanding of the reasons and factors could be incorporated into management decisions to provide better care for the population and new modes in the health care delivery system.

The preface is the customary place to acknowledge the assistance necessary for accomplishment of such a project. This author is indebted to many people who contributed immensely to this study. The acknowledgment of those individuals is but a token indication of my true appreciation of their efforts. However, many who remain unnamed have also contributed generously.

It is a pleasure to acknowledge the assistance for the two-year sequence of this project of Dr. Jeptha W. Dalston, advisor and director of this study. The quality of this study is a result of his encouragement, guidance, criticism, concern, and high expectations. Appreciation is also extended to Dr. Charles M. Cameron, Jr., Chairman of the Department of Health Administration, for his guidance and the opportunities allowed me while a student in the department.

Mr. Dan Tipton, Administrator of South Community Hospital, William Gillispie, Assistant Administrator, and Dr. Thomas Garrett deserve recognition for allowing this study to be conducted at South Community Hospital. The emergency room staff deserves a special thanks for

its cooperation and assistance with the study. Enduring the intrusion of a researcher into its established work routines merits noteworthy recognition.

The graduate faculty of the College of Health, University of Oklahoma Health Science Center, provided valuable suggestions and recommendations, and especially the members of the dissertation committee: Dr. William R. Hood, Dr. Bobbie L. Foote, Dr. Thomas R. McGowan, and Dr. Robert W. Ketner. Dr. Donald E. Parker and Mr. Paul Costiloe of the Department of Biostatistics and Epidemiology and Miss Susan Early of the Medical Computing Center, University of Oklahoma Health Science Center, provided necessary advice and assistance regarding statistical analysis and information retrieval. Dr. Robert W. Hetherington, School of Public Health, University of California, Los Angeles, assisted with the design of the symptom sensitivity portion of the study.

The writer is particularly grateful to his wife, Lavilla, for her constant encouragement, understanding, and moral support through this period of graduate study, and to his two teenage sons, Michael and Boyd, for endurance and sacrifice during this period.

Special recognition is extended to a Mother who provided and instilled in her Son the desire to attain higher educational goals through her actions, efforts, and example.

TABLE OF CONTENTS

Page

LIST OF TABLES ix

LIST OF ILLUSTRATIONS xii

Chapter

I. INTRODUCTION 1

Statement of the Problem 1
The Evolution 2
The Utilization Problem 4
Use of Services for Non-Emergent Conditions 4
Role of the Emergency Room 7
Factors Affecting Emergency Room Use 11
Philosophies Relative to Emergency Room Utilization 13
Elements of Good Medical Care 16
Quality of Care 16
Accessibility of Care 17
Cost as an Efficiency Measure 19
General Considerations 21
Staffing of the Emergency Room 21
Patient-Physician Relationships 23

II. REVIEW OF THE LITERATURE 26

Previous Studies 26
Proposed Solutions 34

III. DESIGN OF THE INVESTIGATION 37

The Setting 37
Methodology of the Study 39
Hypotheses 42
Definitions 43

IV. FINDINGS AND DISCUSSION 45

The Geographic Service Area 45
Characteristics of the Geographic Service Area Serving South Community Hospital 53
Age of the Population 53
Sexual Characteristics 55
Marital Status 57
Social Class 61
Race 61

TABLE OF CONTENTS—Continued

Chapter		Page
	Emergency Room as an Integrated Hospital Function	64
	Admission and Visits by Day of the Week	64
	Number of Previous Visits	64
	Time of Emergency Room Visits	67
	Physician Contact	67
	Inpatient Admissions Admitted through the Emergency Room	68
	Inpatient Admissions to ICU/CCU	70
	Evaluation of the Patients' Medical Needs	70
	Symptom Sensitivity of Patients	75
	Medical Conditions	81
	Urgency Ratings	81
	Marital Status and Sex	83
	Social Class	83
	Day of the Week	85
	Physician Contact	85
	Previous Visits	87
	Age and Sex	88
	Time of Arrival	89
	Distance	90
	Attitudes of Patients	90
	Attitudes toward the Health Care System	93
	Attitudes toward Acceptance of "Convenience Clinics"	94
	Attitudes toward Redirection to a Centralized Emergency Room Facility	96
	Composite View of Attitude Scores	96
	Visits	97
	Urgency Rating, Sex, and Social Class	98
	Age	98
	Physician Contact	101
V.	SUMMARY, CONCLUSION, AND RECOMMENDATIONS	103
	Summary	103
	Conclusion	103
	Population Characteristics	103
	Usage Patterns	107
	Evaluation of Patient's Condition	109
	Symptom Sensitivity	110
	Attitude of Patients	111
	Composite of Attitudes	112
	Significance of this Study to the Health Care Field	114
	Recommendations for Further Research	116

TABLE OF CONTENTS—Continued

Chapter — Page

SELECTED BIBLIOGRAPHY 119

APPENDIXES 124

A. Patient Information Questionnaire 124

B. Symptom Complaint Form 126

C. Health Care Opinion Questions 128

D. Physician Evaluation of Patient's Condition 132

E. Symptomatic Criteria of Magnitude Sufficient to Necessitate Use of the Emergency Room 134

F. Interview Plan 136

G. Sampling Schedule by Time of Day and Day of Week 139

H. Determination of Utilization Rate for South Community Hospital Emergency Room within Service Area 141

I. Determination of Inpatient Utilization Rate for South Community Hospital within Service Area 143

J. Symptom Sensitivity Scale 145

K. Number of Patients' Responses within Range of Scores 147

LIST OF TABLES

Table		Page
1.	Comparison of Emergency Room Patients and Inpatients by Distance from South Community Hospital	50
2.	South Community Hospital Service Area by Census Tracts and Usage Patterns	51
3.	Comparison of Population Service Area, Inpatient Admissions and Emergency Room Admissions by Age	54
4.	Comparison of Population Service Area, Inpatient Admissions and Emergency Room Visits by Sex	56
5.	Comparison of Inpatient Admissions to Emergency Room Visits by Marital Status	58
6.	Comparison of Population Service Area, Inpatient Admissions, and Emergency Room Visits by Marital Status—All Patients 14 Years of Age and Older	60
7.	Comparison of Emergency Room Visits and Inpatient Admissions by Social Class	62
8.	Comparison of Hospital Service Area and Emergency Room Visits by Race	63
9.	Comparison of Inpatient Admissions to Emergency Room Visits by Day of Week	65
10.	Number of Visits to the Emergency Room in Previous Years	66
11.	Number of Emergency Room Visits by Time of Day	67
12.	Number of Emergency Room Patients by Physician Contact	68
13.	Inpatient Admissions Admitted through Emergency Room by Day of Week	69
14.	Inpatient Admissions to ICU/CCU after Examination in Emergency Room by Day of Week	71
15.	Number of Patients in Each Category of Symptomatic Criteria Scale	73
16.	Appropriateness of Emergency Room Use by Comparison with Severity Rating	74

LIST OF TABLES—Continued

Table		Page
17.	Symptom Sensitivity Scale Usable on Emergency Room Population	77
18.	Number of Positive Responses to Nine Question Symptom Sensitivity Scale	78
19.	Number of Patients by Symptom Category	80
20.	Comparison of Symptom Categories by Medical Condition	82
21.	Comparison of Symptom Categories by Urgency Rating	82
22.	Comparison of Symptom Categories by Marital Status	84
23.	Comparison of Symptom Categories by Sex	84
24.	Comparison of Symptom Categories by Social Class	85
25.	Comparison of Symptom Categories by Days of Week	86
26.	Comparison of Symptom Categories by Physician Contact	86
27.	Comparison of Symptom Categories by Previous Visits	87
28.	Comparison of Symptom Categories by Age and Sex	88
29.	Comparison of Symptom Categories by Time	90
30.	Comparison of Symptom Categories by Distance	91
31.	Number of Visits to Emergency Room Compared to Attitude Score toward the Health Care System	91
32.	Number of Visits to Emergency Room Compared to Attitude Score toward Convenience Clinics	95
33.	Severity Rating by Physician Compared to Attitude Score toward Convenience Clinics	95
34.	Attitude Score for Acceptance of Care Compared to Attitude Score toward Redirection to Centralized Facility	97
35.	Mean Scores on Attitude Questions Compared to Number of Visits to Emergency Room	98

LIST OF TABLES—Continued

Table		Page
36.	Mean Scores on Attitude Questions Compared to Urgency Rating by Physicians of Patients Visiting Emergency Room	99
37.	Mean Scores on Attitude Questions Compared to Sex of Patients Visiting Emergency Room	99
38.	Mean Scores on Attitude Questions Compared to Social Class of Patients Visiting Emergency Room	100
39.	Mean Scores on Attitude Questions Compared to Age of Patients Visiting Emergency Room	100
40.	Mean Scores on Attitude Questions Compared to Physician Contact before Visiting the Emergency Room	101
41.	Symptom Sensitivity Scale	146
42.	Number of Patients' Responses within Range of Scores	148

LIST OF ILLUSTRATIONS

Figure		Page
1.	Service Area of South Community Hospital	46
2.	Emergency Room Visits by Place of Residence	48
3.	Inpatient Admissions by Place of Residence	49
4.	Distribution of Patient Symptom Sensitive Scores	79
5.	Sampling Schedule by Time of Day and Day of Week	140

THE EMERGENCY ROOM IN A COMMUNITY GENERAL HOSPITAL
A STUDY OF CHARACTERISTICS, ATTITUDES, AND USAGE PATTERNS BY PATIENTS

CHAPTER I

INTRODUCTION

Statement of the Problem

The role of the emergency room in the health care system of the future is unknown. Few definitive patterns or solutions are developing to meet this complex problem. The problem in the emergency room mirrors increasing public demand as well as basic changes in our social system. The complexity of the problem is such that the contributing factors are inseparable and cannot be studied and examined independently. A generally accepted fact is that no amount of administrative effort can revert the usage pattern back to the prewar era when the emergency rooms were used primarily as trauma centers.

The administrative efforts to correct these problems have been feeble and ineffective. A concerted effort must be made to develop alternative modes and models of health care which utilize the strong features of the emergency department and minimize the deficiencies. Most importantly, the service arrangement developed must be acceptable to the general public.

This study will focus on the emergency room of a community general hospital, providing information on factors which affect usage, exploring patients' reasons for using emergency room care and their acceptance of alternative models of health service.

The Evolution

The emergency room as a distinguishable hospital facility and service is approximately 40 years old. During these four decades, the role and function of the emergency room have undergone expansive changes as noted by Dr. George James:

> The emergency room was used as a separate "trauma center" of the hospital. But now the emergency department seems to be merging with the outpatient department and the physician's private offices so that it has become an ambulatory patient-care facility functioning 24 hours a day, seven days a week.[1]

Factors such as transportation, leisure time, education, knowledge, charity, and professionalism have all influenced the changing functions of emergency rooms. No single factor can be identified as the source of this phenomenon.

In the last decade, as increased emergency room usage has overloaded this system of health care delivery, there has been an increased pressure to respond to this problem. After studying 300 hospitals, Dr. James McCarrol of Cornell University Medical Center substantiated the conclusions expressed by Dr. James. The study suggested that the emergency room, which originally was the "accident clinic," now served the dual functions of outpatient department and trauma center. The emergency room has often become a substitute for the private physician and

---

[1]George James, "The Emergency Room: Entry to the Health-Care System," Hospital Topics, XLVII (October, 1969), p. 69.

the first choice of medical care for a large number of patients.[1]

An authority in the trauma field, Dr. Robert H. Kennedy dated the beginning of the changes at the end of World War II and stated:

> Something happened to medical practice following the second war, but apparently not because of it. Use of the hospital for in-patients increased rapidly; house calls became more rare; the doctors disliked coming to their offices except for regular hours, they were frequently unavailable nights, weekends, holidays, and the weekly golfing afternoon. They often sent their ambulatory patients to the hospital since there was always some doctor there.
>
> No longer were the problems limited to injuries. The accident room became the emergency room where patients with colds, headaches, fever, pain or fright appeared rather than in a doctor's office. Gradually, the wealthy began to appear here when they could not get their own doctor immediately, and the charity character of the emergency room disappeared. So there had to be more examining rooms added for privacy, some kind of admitting office, central stations for nurses, and so on. One could not call this an emergency room when it had twenty or thirty rooms. Also, it served two or three times as many patients as were admitted to hospital beds, many of them requiring immediate proper sorting. So, with the greatly increased responsibility of all concerned, it had become the emergency department, an indispensable cog in the hospital system.
>
> Only about one-third of the patients now come as a result of injury. Sixty per cent are medical and pediatric cases. The emergency department has become the community medical center.[2]

As the emergency room evolved from the trauma center and accident room to the community medical center, overwhelming numbers of patients began circumventing established medical care patterns, and the widespread use of the emergency room severely strained the system. This evolution created a monumental utilization problem.

---

[1]John R. McGibony, Hospital Emergency Services, U. S. Department of Health, Education, and Welfare, Publication No. 930-C-3 (Washington: U. S. Government Printing Office, 1963), p. 1.

[2]Robert H. Kennedy, "Emergency Facilities and Services," Proceedings of the Rochester Forum on Emergency Health Services (Rochester, New York: Rochester Academy of Medicine, June 15, 1967), pp. 20-21.

The Utilization Problem

Use of Services for Non-Emergent Conditions

The utilization of emergency room services has grown steadily out of proportion to concomitant increases in hospital admissions, clinic visits, or population growth in a service area. A major aspect of this trend has been the growing proportion of visits to the emergency facility for a wide variety of non-emergent conditions rather than for accidental injury and emergency medical conditions. The increased use of these facilities indicates a basic shift in the patterns of medical care and a change in the facilities.

The validity of emergency room statistics may be questioned due to the lack of a uniform criteria and a central registry. It is generally accepted, however, that 18 million visits were made to emergency room facilities in 1968, while in 1970 over 60 million visits were recorded--an approximate three-fold increase in 12 years.[1]

Based on national figures, it is estimated that only ten per cent of the patients presenting themselves for service in the emergency room will be admitted to the hospital. However, 50 per cent of the patients in one general hospital providing short-term care were admitted through the emergency department.[2]

Studies of emergency rooms in the United States have shown that these services are in a rapid state of transition with the non-emergent patient often outnumbering the "true" emergency patient.

---

[1]James, loc. cit.

[2]The Pennsylvania Medical Society, Emergency Medical and Health Services in Pennsylvania, A Report Prepared by the 1970 Commission on Emergency Medical Services (Philadelphia: The Pennsylvania Medical Society, June, 1971), p. 57.

Hospital size and community location are local conditions which affect utilization and the percentage of emergent to non-emergent cases. The following studies indicate the magnitude of the problem:

> A 1960 study of 330 hospitals in four geographic regions of the U.S. found 58% of the patients were true emergencies with 18% of emergent patients admitted to the hospital.[1]
>
> A 1964 study of the Yale-New Haven Hospital in New Haven, Connecticut, found 6% were classified as emergent, 37% were urgent, and 57% were non-urgent.[2] Ten years previously, 1/2 to 2/3 of the patients would have been considered in the emergent and urgent categories.[3]
>
> A 1964-65 study of the patients of five medical practices in Vermont found that 27 of the patients in the study incidentally used the emergency room. Only 6 had traumatic conditions while 8 had respiratory disorders.[4]
>
> A Michigan Blue Cross study in 1965 of the emergency room patients in 22 hospitals indicated that 57.1% of the patients had traumatic injuries.[5]
>
> A study of Boston City Hospital in 1965 found that 2/3 of the patients using the emergency services were non-accident and non-emergency cases.[6]

---

[1]James R. McCarroll and Paul A. Skudder, "Conflicting Concepts of Function Shown in National Survey," Hospitals, J.A.H.A., XXXIV (December 1, 1960), p. 35.

[2]E. Richard Weinerman, et al., "Yale Studies in Ambulatory Medical Care," American Journal of Public Health, LVI (July, 1966), p. 1046.

[3]"Emergency Room Crisis: How They're Coping with It," Medical Economics, XLV (August 5, 1968), p. 107.

[4]John M. Last, "The Content of Medical Care in Primary Practice," Medical Care (January-February, 1969), p. 48.

[5]Henry F. Vaughn and Charles E. Gomester, "Hospital Emergency Room Utilization in Michigan," Inquiry, III (May, 1966), p. 55.

[6]John R. Kirkpatrick and Leon J. Taubenhaus, "The Non-Urgent Patient on the Emergency Floor," Medical Care, V (January-February, 1967), p. 21.

A USAF emergency room study of Wright-Patterson Base Hospital in 1966 found that only 35% of visits were classified as true emergencies while 78% of the visits were for medical conditions other than injuries.[1]

A 1966 study of Alexandria Hospital in Alexandria, Virginia, indicated that 50 to 75% of the patients were not emergency patients.[2]

A 1966-67 study of the emergency room in Saginaw General Hospital in Saginaw, Michigan, found 60% of their patients to be rated emergent or urgent.[3]

A 1968 study of the emergency room of Bon Secours Hospital in Maryland found that 5% of their patients were extremely urgent; 40%, emergent; and 55% were non-emergent.[4]

A 1970 study of Cook County Hospital in Chicago found that only 10% of the nearly one million emergency room patients were "true" emergencies.[5]

A study conducted recently by the Philadelphia County Medical Society disclosed that only 50% of the people in that service area who came to emergency rooms had emergency problems. Another study by the Rochester, New York, Regional Health Planning and Hospital Council found that 2/3 of the people who called at emergency rooms did not really need emergency treatment.[6]

---

[1]Vernon L. Seese, "A Study of Selected Characteristics of Emergency Room Patients at the USAF Hospital Wright-Patterson" (unpublished Master's thesis, Program in Hospital Administration, University of Michigan, 1966), p. 65.

[2]Ronald A. Jydstrup, "The Role of a Planning Council in Providing Adequate Emergency Health Services," Proceedings of the Rochester Forum on Emergency Health Services (Rochester, New York: Rochester Academy of Medicine, June 15, 1967) p. 45.

[3]Hal A. White and Patricia A. O'Connor, "Use of the Emergency Room in a Community Hospital," Public Health Reports, LXXXV (February, 1970), p. 168.

[4]William E. Beaven, Juan F. Sordo, and Patricia Whettle, "Emergency Room Problems of an 'Inner Core' City Hospital: An In-depth Analysis of the Emergency Department Bon Secours Hospital," Maryland State Medical Journal, XVIII (October, 1969), p. 63.

[5]"Emergency Care—Too Late, or None at All," Medical World News, XII (February 5, 1971), p. 5.

[6]John Corlova, "The Widening Emergency Room Crisis-Mayhem in the Emergency Room," Medical Economics, XLVIII (January, 1971), p. 110.

> A superficial journalistic survey of the emergency room use of Oklahoma City hospitals in April, 1971, reported the non-emergent patients outnumbered true emergencies as much as seven to three.[1]
>
> A 1971 study of 71 hospitals in Pennsylvania found the average of 44.5% of the total number of emergency room cases to be non-urgent.[2]

It is expected that the widespread use of emergency facilities for non-emergent purposes in the future can only occur at the expense of decreased efficiency in the cases of actual emergencies. Consequently, the objective of hospitals and health care providers interested in improving emergency room care is the redirection of non-emergent cases before entry to the emergency room.

Role of the Emergency Room

The emergency room assumes various roles and functions in the process of providing care to patients. The literature abounds with discrepancies and inconsistencies when an emergency room in one hospital is compared to that in another hospital. This type of comparison has shown significant variation in areas of emergent-nonemergent, social class, time of admission, peak hours, distance, and economic status. The conclusion is that there are great disparities among emergency rooms and that no two perform the same role for their patients.

A study conducted in New York with patients at four hospital emergency rooms clarified this function-role problem by identifying three major roles for the emergency room, namely:

---

[1]Erwin Watson, "Emergency Rooms Do It All Now," Oklahoma City Times, April 26, 1971, p. 1N.

[2]The Pennsylvania Medical Society, loc. cit.

1. Trauma treatment center.
2. Physician substitute when a private practitioner or out-patient clinic is not available.[1]
3. "Family physician" to the urban poor.

These roles, which are expanded in the following section, are not mutually exclusive for any one hospital emergency room, and all are present to some degree in most emergency rooms. However, the variation between comparable factors can more nearly be explained based on the percentage of patients utilizing a specific role. The role of the emergency room as the trauma treatment center is the traditional function offering care for the severely sick and injured and is the role with which the emergency room is most commonly identified. Nationally, only 15 per cent of cases were estimated to fall within this role, although the figure for individual emergency rooms ranged from 10 to 40 per cent.

Many factors have contributed to the use of the emergency room as a physician substitute. John Carlova attributes the shortage of physicians in private practice, the decline of the general practitioner, and the availability of doctors at only certain times as the reasons that more people are turning to the emergency room as a substitute for a family physician. He believes that the patient is influenced by reading about advances in medical science and believes the hospital is the best place to benefit from such advances.[2] A study conducted by Michigan Blue Cross found that two-thirds of the emergency room utilization

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[1]Paul Torrens and Donna Yedvab, "Variations among Emergency Room Population: A Comparison of Four Hospitals in New York City," Medical Care, VIII (January-February, 1970), pp. 72-73.

[2]Carlova, loc. cit.

visits were a direct result of physician instructions or a result of the patient's belief that his physician was unavailable.[1]

Selman states that as the practicing physician becomes busier, and it becomes increasingly difficult for patients to obtain appointments without prolonged delays in waiting areas, patients would naturally gravitate toward the hospital emergency room where the service is faster, and no appointment is necessary.[2] In another study patients who had been to the emergency room were asked, "If another emergency situation developed in the future, would you attempt to contact your own physician or go directly to the emergency room at the hospital?" Twenty per cent of the patients responded that they would go directly to the emergency room, and an additional 25 per cent replied that the emergency room was a satisfactory substitute when their doctor was not available.[3]

The most rapidly expanding emergency services are occurring in hospitals which are situated in the suburbs or have recently moved to the suburbs from inner city areas. Other studies have found the central urban hospital emergency room functioning as a general clinic, while the suburban hospital was used primarily for genuine emergencies or when the patient could not locate his personal physician.[4] This shift indicates a change in the socioeconomic status of patients

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[1]Vaughn and Gamester, op. cit., p. 42

[2]Joseph Selman, "The Nightcall Dilemma," Hospital Progress, L (April, 1969), p. 56.

[3]William N. Jeffers, "How Patients Feel about Doctors Today," Medical Economics, XLVII (June 8, 1970), p. 87.

[4]Paul R. Torrens and Donna G. Yedvab, "Outpatient Care," Hospital Topics, XLIV (December, 1966), p. 71.

utilizing the service and the use of the service as the physician substitute.

The emergency room has been recognized, historically, as the "family physician" to the urban poor who have no point of entry into the regular health care system. Dr. Robert J. Freeark, the director of Cook County Hospital which handles one-third of all the emergency room visits in the Chicago metropolitan area, identifies the factors which he believes contribute to the "family physician" role for the emergency room:

> As the nation's population has become more transient and government and private insurance plans encourage people to seek medical care, the emergency department is often the initial contact for patients with all manner of services and non-serious ailments. In Chicago, for example, the emergency care problems result largely from increased demand and decreasing supply. The demand is a direct result of population shifts which brought greater number of indigent patients into the city and their rising expectations for improvements in health services. The emergency care supply has decreased as physicians have left the city in general, and the ghettos in particular, while support personnel have become more difficult to obtain, especially for night duty. The result is a maldistribution of patients to available facilities.[1]

A questionnaire response by a medical resident on problems in the emergency room also substantiated the family physician role. His opinion was that the hospital should not charge people for emergency room visits even though the cases were not emergencies. He felt the people who came to the emergency room where he was assigned were poor, did not have the money for payment, and did not know any better. They responded because the emergency room is the hospital to them; they

---

[1]"The Great Emergency Game," Medical World News, XII (March 5, 1971), p. 35.

believed they were sick and had no other place to go.[1]

A two-week study, conducted in conjunction with the University of Michigan Hospital emergency room, found that two-thirds of the patients had no private medical care arrangements while the remaining one-third relied upon the clinics of the hospital.[2] Another study conducted at the Massachusetts Children's Hospital Medical Center found that as income increased, the likelihood of a family having a physician for the children also increased. Only 16 per cent of families on welfare had a physician relationship while 85 per cent of families with income over $10,000 had such a relationship.[3]

In summary, the emergency room, in addition to the traditional role as a trauma treatment center, has become an alternate source of care for the self-supporting community when private care is not available and a base for primary medical care for the urban poor.

Factors Affecting Emergency Room Use

Numerous social and economic factors have been suggested by Booker, Vansant, and a committee of the American Medical Association,

---

[1]"What's Wrong with Emergency Rooms," Resident and Staff Physician, XVII (August, 1971), p. 98.

[2]Donald Kraushaar, "A Study of Emergency Service Utilization at University Hospital" (unpublished Master's thesis, University of Michigan, 1969), p. 29.

[3]Joel J. Alpert, et al., "The Types of Families That Use an Emergency Clinic," Medical Care, VIII (January-February, 1969), p. 59.

to explain the increased utilization of the emergency room.[1,2] The reasons become complex and interrelated with the social development and the economic system of our society. The reasons commonly expressed are:

1. Increased mobility of the population which leaves many people without family doctors. This phenomenon is referred to as medical disengagement.

2. Large concentrations of low-income groups in metropolitan areas who cannot afford payment for customary services. Due to economic conditions, primary care personnel are absent from these areas.

3. A bypassing of physicians' offices and direct use of the hospital emergency service because

   a. The patient has difficulty locating a physician at night, on weekends, or on holidays; or because the physician is less and less available;

   b. The patient chooses not to inconvenience his physician at irregular hours.

4. The availability of 24 hour coverage at hospitals and the awareness of this fact by the general public.

5. The realization by many physicians that hospital facilities are often better for diagnosing and treating certain conditions than those in their own offices. Consequently, the physicians are using the emergency room as an adjunct to their offices.

6. The increased use of the emergency department by physicians as an "after hours office." This phenomenon is known as "mutual convenience visits" and operates in lieu of opening the office after hours or making house calls.

7. The effect of health insurance plans and other third party payment mechanisms which more frequently pay for emergency room care than physician office visits.

---

[1]Michael H. Silver, Richard F. Manegold, and John E. Gartland, "The Emergency Department Problem," Journal of American Medical Association, CXCVIII (October 24, 1966), p. 146.

[2]Judson Booker and John H. Vansant, "Changing Status of the Emergency Room," Virginia Medical Monthly, XCVI (July, 1969), p. 397.

8. The tendency of industries, schools, police, fire departments, and ambulances to refer sick or injured persons to hospital emergency departments.

9. The decreasing number of general and family practitioners to care for the normal population with a greater percentage of physicians entering medical specialties.

Three overriding factors are particularly significant in their effect on utilization. First, advances in medical science and technology over the past 25 years have been identified with hospital care and have given confidence to their service. Secondly, the availability of complex and costly equipment operated by highly skilled personnel has, by necessity, become institutionalized. Thirdly, the maldistribution and unavailability of the physician has required a new point of entry into the health care system for a large number of patients.

Philosophies Relative to Emergency Room Use

Two distinct philosophies exist concerning the management of the non-emergent patient in the hospital emergency room. One philosophy suggests that this type of patient should not be treated but rather should be educated to the true functions of the emergency room. The second philosophy emphasizes that the patient should be treated regardless of his condition.[1]

The first philosophy asserts that the emergency room should not serve in the following ways: act as family drop-in clinics, supplement the works of the private practitioner, screen evening and night admissions, perform minor surgical procedures, operate as an evening clinic for patients unable or unwilling to attend day clinics, function as an

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[1]Silver, Manegold, and Gartland, op. cit., p. 381.

alternative for the patient unable to contact his own physician, or function as an auxiliary office for the medical staff. The emergency room would treat only acute traumatic problems that require immediate medical attention with all other cases referred to a family physician. In order to operationalize this philosophy, the providers and consumers would need to be re-educated to this approach.

The second philosophy asserts that anyone who comes to the emergency department wanting attention by a physician should be given necessary medical attention. This point of view would embrace the axioms that what may not be emergent to the physician may be emergent to the patient—and the patient deserves to receive medical attention within a reasonable period of delay.

Although the two positions are extremes on a continuum, aspects of both are apparent in emergency care. Treatment is seldom denied to patients, but attempts are made to educate the patients in the proper functions of the emergency department. Attempts to adhere rigorously to the extreme as stated in the first philosophy have generally not been satisfactory. An attempt to discourage the growing number of patients presenting themselves at the emergency room was made at Fairfax Hospital in Falls Church, Virginia. The hospital staff, after a trial effort, concluded that there appeared to be no effective way to discourage patients.[1]

The Pontiac General Hospital in Pontiac, Michigan, developed a policy of refusing to treat non-emergent patients in the emergency room.

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[1] "Emergency Room Crisis: How They're Coping with It," op. cit., p. 111.

Patients were referred to their own physician or assigned a physician from a roster. The efforts resulted in unfavorable community relations, and the decision was made to revert to the practice of treating everyone who presented himself to the emergency room.[1]

Legal interpretations and legislation have generally favored the second philosophy. For example, numerous states have passed legislation requiring that every "hospital" have an emergency room and provide emergency treatment to any person needing care. Some states, for example, Illinois, also have legislatively stipulated the availability of the doctor to cover the emergency room by requiring a 15 to 20 minute availability 24 hours a day.[2]

The basic Principle for Emergency Service as stated in the "Accreditation Manual for Hospitals, 1970," published by the Joint Commission on Accreditation of Hospitals, requires adherence to the concept of the second philosophy. The principle states, "Adequate appraisal, and advice or initial treatment shall be rendered to any ill or injured person who presents himself at the hospital."[3] This theme is reemphasized with supplemental standards requiring 24-hour coverage, facilities to insure effective care, and written procedures in cases where patients are referred to other institutions. Therefore, hospitals are required to embrance the second philosophy in the management of emergency rooms to meet legislative requirements and to secure

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[1] Ibid.

[2] Kennedy, op. cit., p. 25.

[3] Joint Commission on Accreditation of Hospitals, Accreditation Manual for Hospitals, 1970 (Chicago, December, 1970), p. 69.

accreditation of their institutions by the Joint Commission on Accreditation of Hospitals.

Elements of Good Medical Care

Quality of Care

High quality medical care is defined, by the Committee on Medical Care Administration of the American Public Health Association, as that care which implements current knowledge and techniques known to the health sciences. The goal is the achievement of the most desirable effect for the patient which these techniques and knowledge make possible.[1] Using this criterion, most providers and consumers agree that emergency room care is of relatively low quality. Robert M. Segmond, Executive Vice President of Albert Einstein Medical Center, has expressed this concern as follows: "Emergency room care is inherently impersonal and episodic and therefore fails to conform to any definition of high quality primary care."[2]

Numerous factors inherent in the organizational framework of hospitals contribute to the low quality of care and lack of continuity in the emergency room. Some of these factors are:

1. A new case history is originated for the patient each time he visits the emergency room.
2. Little or no continuity of care is provided to the patient in cases of multiple visits to the emergency room.
3. A medical plan is not developed for the patient's care.

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[1]Beverlee A. Myers, ed., A Guide to Medical Care Administration, Vol. 1 (Chicago, Program Area Committee on Medical Care Administration, American Public Health Association), p. 27.

[2]"Emergency Room Reforms You Can Expect to End It," Medical Economics, XLVIII (January 4, 1971), p. 150.

4. A particular medical situation may be presented by a patient, but the patient may be seen by a physician who may not have the interest, knowledge, or time to diagnose the problem.

5. Care emphasis is upon treatment which can be given quickly and which gives the patient temporary relief.

6. Medical staff surveillance does not usually extend to the emergency room and the review of records, as is required in other settings.

7. Integration of the emergency room department is generally lacking in the functional organizational structure.

Unless these factors are changed or modified, high quality and continuity of care cannot be provided in an emergency room facility.

Accessibility of Care

The criterion of accessibility, as proposed by the American Public Health Association, demands that care be available to the individual at the time and place where he needs it.[1] Accordingly, the emergency room excels in this area, although usually at the expense of comprehensiveness and orderly organization.

Most non-emergent patients who are demanding emergency care realize they do not need immediate care--such as in a life-threatening situation. What they are seeking is <u>immediate attention at their own convenience</u>. These patients realize that the physician's office and other health providers are organized primarily for the convenience of the provider rather than the consumer. The increased demand for emergency room services does not necessarily reflect a public preference for this impersonal type of care. Evidence would suggest that patients prefer the traditional physician-patient relationship; however, the

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[1]Myers, <u>op. cit.</u>, p. 24.

familiarity with the benefits of modern medical care leads patients to want care at their own convenience.

Various authors have delineated a basic problem associated with the utilization of the emergency room—the need for a point of entry into the health care system. An Ohio cardiologist responded to a questionnaire on the emergency room problem with the following statement:

> The phenomenal growth in emergency room use is really a symptom of a failing in our health care system. What the public is saying—and what the physicians should be listening to is: We want a clearly defined point of entry to the health care system. Since you haven't provided it for us, we're making one ourselves.[1]

Efforts to improve the services in an emergency department will only contribute to their overuse by drawing resources from other services. This paradox makes it more difficult for the public to obtain primary care at facilities other than the hospital emergency room. For example, if every emergency room in every general hospital were adequately staffed with a physician in attendance, at least one-fifth of the entire practicing physician supply would be absorbed for this purpose.[2] As more and more physicians are employed full-time in the emergency rooms, the patient demand will be accelerated requiring the services of even more physicians. The American College of Emergency Physicians recommends that hospitals should anticipate an increase in patient volume of 50 per cent to 100 per cent within the first two years after instituting full-time emergency room physician coverage. An increase

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[1]Corlova, op. cit., p. 112.

[2]"Emergency Room Reforms You Can Expect to End It,", loc. cit.

of 15 to 20 per cent annually thereafter is usually expected.[1] This cumulative phenomenon will result in increased numbers of non-emergent patients with decreased accessibility and care for the patient needing immediate lifesaving action.

The patient concerned with accessibility does not realize that today's effective medical care necessitates an orderly organization at all levels and especially at the point of intake. Although he prefers the personalized continuity of care, he will sacrifice this preference to obtain attention at his convenience and at a minimum of effort. The patient realizes that he can get this at the hospital emergency room where he will not be refused.

Cost as an Efficiency Measure

Cost of providing care in the emergency room is generally higher than for comparable services in the health care system. Walter C. Bornemeier, former President of the American Medical Association, in discussing the rising cost of medical care to the population, condemned the use of the emergency room and stated it is like fuel being added to the fire of costs. He contended that emergency room care is not only episodic and unsatisfactory but is also the most expensive way to deliver care to the people.[2]

John Burnsey, Chairman of the American Medical Association Council on Medical Services, in discussing the problem of the patient

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[1]Commission on Hospitals, American College of Emergency Physicians, Emergency Department Management Guide (East Lansing, Michigan, 1971), p. 8.

[2]"Emergency Room Trouble Can Mean Trouble for You," Medical Economics, XLVIII (January 4, 1971), p. 118.

paying a premium for treatment in the emergency room, said:

> A patient using the emergency department pays a dual rate for its convenience—a hospital charge for the use of the facility and a physician's fee for professional services. The provision of backup facilities necessary for true emergencies and efforts to avoid the possibility of malpractice litigation, have led in some instances to additional testing and charges. It would (therefore) appear that the use of the emergency department for non-emergent conditions is contributing to the rising cost of medical care.[1]

However, Dr. Robert H. Kennedy believes the patient is receiving a bargain in health care by using the emergency room, especially in institutions which have interns, residents, or salaried physicians and where no professional fee is charged for their services. He states:

> One factor is too often forgotten—the basic emergency room charge plus extras is made by the hospital, but there is no charge for professional attention. The patient is really coming to a bargain basement, and it takes little time for him to awake to this fact and repeat the visit when required. It made little difference when most of these patients were charity cases. Now they come from all walks of life and many can well afford average fees.[2]

Hospital emergency room charges have often been set at rates higher than the prevailing community rate for doctor office visits in an attempt to price the service out of the market and to deter the growing numbers of emergency room visits. Numerous studies have shown that the expense of care and treatment in the emergency room is generally higher than comparable treatment in a doctor's office. However, the issue is not the initial cost which the public is willing to pay as a convenience, but the cost to the system in terms of the economics

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[1] Ibid.

[2] Robert H. Kennedy, "Salaried Physicians in Emergency Rooms," Hospital Progress, XLVI (August, 1965), p. 156.

and efficiency of utilizing scarce resources and personnel for care and treatment through this mode. For optimum use of the health care dollars, better methods for care of off-hour elective or semi-elective care must be developed. However, costs were often a function of other considerations which were controlled by market supply and medical-legal standards.

General Considerations

Staffing of the Emergency Room

Changes in the usage patterns of emergency rooms have also affected the staffing patterns for physician coverage. During the early era, with low numbers of patients, the physicians came to the emergency room as they were called to treat one of their patients. As the emergency room use became greater, the need became more evident for coverage on an organized basis. In general, this necessitated intern and resident coverage or rotation by members of the attending staff.

Approved intern and residency programs have declined in numbers in hospitals, and fewer of these educational programs are allocated to the emergency room service. At the same time, the attending medical staff have become increasingly dissatisfied with the demand upon their time for emergency room coverage.

Physicians in private practice are generally too busy to be concerned with the "other" patients that are being seen in the emergency room of a hospital. Many physicians are unable to take on new patients even if patients could be referred. A survey by the Regional Health Planning and Hospital Council in Rochester, New York, found that two-thirds of the private practitioners could not take on any new patients.

The results of this survey apply to most populated areas of the United States.[1]

Many physicians fear the malpractice risks of treating patients in the emergency room for medical problems which are outside their medical specialty. With the increased utilization by the non-emergent patient, the demand upon the specialties extends beyond first-aid care and diagnostic capabilities of these specialists.

In the past, physicians were amenable to providing voluntary service in the emergency room. However, with the advent of payment mechanisms to reimburse the hospital for the services provided in an emergency room, the concept of the physician providing a charitable contribution has disappeared. The physician feels contempt for a system in which the hospital collects for services while he "volunteers" his time. New and more innovative approaches to coverage needed to be developed.

Early plans which were developed to meet this need for coverage utilized some provision of employing physicians to cover the emergency room on an organized basis. One of the early plans used as a model was the Alexandria Plan, developed in June, 1961, in Alexandria Hospital in Alexandria, Virginia. Two other plans developed somewhat later, but were also influential models. These were the Pontiac Plan developed in June, 1966, in Pontiac Hospital in Pontiac, Michigan, and the Chicago Wesley Plan which evolved at Chicago Wesley Memorial Hospital in Chicago, Illinois. The three plans differ in their organizational structure, but all have in common the feature of the hospital developing contracts with

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[1] "What Kind of Emergency Room Staffing Will Solve It?" Medical Economics, XLVIII (January 4, 1971), p. 119.

licensed physicians to assume responsibility for the care of patients in the emergency rooms.

The utilization of paid groups of physicians to provide medical care in the emergency rooms is one of the fastest growing trends in the United States, especially in the more populous areas. A study conducted by the Chicago Hospital Council found more than one-half of the hospitals in the Cook County area have arrangements with paid physicians for coverage of their emergency rooms.[1]

The professional status of the paid emergency room physician is being elevated. Over 1,000 physicians are members of the American College of Emergency Physicians, and indications are that this practice may be the next recognized specialty under the jurisdiction of the American Medical Association. Incomes of up to $60,000 for a forty-hour week are common in the field. The presently evolved pattern of emergency room coverage by physicians is characterized by salaried full-time emergency room practitioners who comprise a distinguishable professional specialty.

Patient-Physician Relationships

Various categories have been developed to describe the patient-physician relationship from the perspective of the patients using the emergency room in a hospital. These categories are an indication of the patient's situation at the time he visits the emergency room and do not necessarily represent a continued pattern or status for any one patient.

The general categories are:

1. Patients having a private physician and wishing his services.

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[1] Ibid.

2. Patients having a private physician but unable to locate him.

3. Patients referred to the emergency room by the private physician to obtain the services of the hospital's physician and/or the private physician.

4. Patients with no private physician.

5. Patients having a private physician but preferring the services of the hospital emergency room.[1]

Legal questions have been raised regarding the implications of the patient-private physician relationship if the patient chooses to use the emergency room for an intervening care situation. Some situations have arisen where private practitioners would prefer to refuse to give follow-up treatment when one of his patients has received care in the emergency room for a non-emergent condition. These physicians take the position that the patient has removed himself from the care of the private physician and thus relieved the physician of any further responsibility. An attorney familiar with medical-legal relationships writing in Medical Economics stated that physician refusal to follow-up on patients originally treated in the emergency room could result in abandonment cases against the private practitioner. His conclusion was that the patient's visit to the emergency room, regardless of urgency, usually does not affect the patient-private physician relationship in contrast to the patient's visit to another private physician.[2] The patient has the option of visiting the emergency room or his private

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[1]Robert William Lawrence, Jr., "A Survey of the Emergency Room Physician Staffing Patterns in the General, Non-Profit Hospitals of Connecticut" (unpublished Master's thesis, Public Health, Yale University, 1969), pp. 28-29.

[2]"Emergency Room Trouble Can Mean Trouble for You," op. cit., p. 116.

physician for the care he wishes to receive, without the choice affecting his relationship with his private physician.

CHAPTER II

REVIEW OF THE LITERATURE

Previous Studies

Many studies have been conducted to identify the various factors which affect the utilization of emergency room services. The majority of these, however, are merely numerical tabulations of usage factors as they apply to a specific hospital emergency room rather than attempts to identify significant clusters of factors which may be common to hospital emergency room usage in general. Consequently, the multitude of studies in the literature have limited comparative value to other institutions or to the field generally. The following studies were selected because of their application to the field as a whole.

In 1969 a study at Vancouver General Hospital found that age, sex, occupational class, time of visit, and methods of seeking care were non-significant. The conclusion was that socioeconomic characteristics were the significant factors which accounted for usage of the emergency room. The study indicated that fifty per cent of the non-emergent patients resided close to the hospital and were in the lower socio-economic group.[1]

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[1]Geoffrey C. Robinson, et al., "Use of a Hospital Emergency Service by Children and Adolescents for Primary Care," Canadian Medical Association Journal, CI (November, 1969), pp. 543-547.

Patients who used one hundred twenty-three hospitals in the Chicago area were studied regarding travel distance and the type of hospital facility from which they sought services. The results showed that the people in the city core area traveled shorter distances to seek hospital attention, but that the distance traveled did not relate to the bed size of the hospital or the type of services offered. The overall conclusion was that travel distance was a factor only for patients in the inner city core areas.[1]

The Kaiser Foundation Health Care Plan in Oregon attempted to equate the effects of social class and distance from the center with contacts to the medical care system. They concluded that distance did appear to affect the initiation of contact with physicians, but social class was the more powerful variable. The working class population, in comparison to the middle class population at equal distances, tended to use fewer regularly scheduled contacts with physicians and appeared to use emergency room contacts rather than telephone calls.[2]

At Boston Children's Hospital Medical Center an attempt was made to identify the types of families that used an emergency room and the family's relationship with the physician and the hospital. The results of this study indicated that 42 per cent of the families had a stable relationship with a physician whom they usually consulted when the children were ill, while 58 per cent did not have such a relation-

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[1]Richard L. Morrill, "Hospital Variation and Patient Travel Distances," Inquiry, V (December, 1968), pp. 26-34.

[2]James E. Weiss and Merwyn R. Greenlick, "Determinants of Medical Care Utilization: The Effect of Social Class and Distance on Contacts with the Medical Care System," Medical Care, VIII (November-December, 1970), pp. 456-462.

ship. In addition, 85 per cent of the families with incomes in excess of $10,000 had physicians who usually provided medical care for the children, and families who lived more than three miles from the hospital were more likely to have a regular physician who cared for their children. Furthermore, 92 per cent of all visits were between the hours of 9:00 A.M. and 9:00 P.M., and patients seen during these hours were not significantly different from those seen at other hours.[1]

A study conducted at Barnes Hospital in St. Louis found two distinctive groups using the emergency room. The first group had the following characteristics: (1) were largely Caucasians who came as private patients from the entire metropolitan area, (2) had illnesses that were emergent and surgical in nature, (3) were more likely to be admitted, and (4) had a higher proportion of admissions. The characteristics of the second group follow: (1) were predominantly Negroes who lived in the limited area close to the hospital, (2) had non-emergent illnesses, (3) were less likely to be admitted, and (4) had a lower proportion of admissions.[2]

Beth Israel Hospital in Boston conducted a study to determine the patterns of care among the patients who used the hospital outpatient department. The results indicated that a greater percentage of patients in all age categories used Beth Israel Hospital over a private physician as their central source of care. The outpatient department was the

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[1]Alpert, et al., op. cit., pp. 55-61.

[2]Gerald T. Perkoff and Mary Anderson, "Relationship between Demographic Characteristics, Patient's Chief Complaint, and Medical Care Destination in an Emergency Room," Medical Care, VIII (July-August, 1970), pp. 309-323.

overwhelming choice for [illegible] patients. A greater percentage of females than males had a central source of care (a private physician).

Occupation tended to correlate with the level of use of the outpatient department. In Salon's study, 51 per cent of retired persons made exclusive use of the outpatient department, while 40 per cent of the housewives, 34 per cent of service workers, 25 per cent of manual workers, and 16 per cent of white collar workers used the outpatient department. One hypothesis proposed was that economic status may be a minor determinant of public clinic use compared to an individual's posture toward medical dependence upon community-supported resources.[1]

Studies on emergency room usage and factors relative to that use have been conducted at Yale-New Haven Hospital for nearly a decade. The continuity of these studies, the in-depth analysis, and the rigorous statistical analysis of the data allows more validity to be placed in the results.

The major characteristics of the patient population which used the emergency room in comparison to the larger population at risk were found to be:

1. More children and young adults.
2. More males.
3. More unmarried, divorced, and separated.
4. More nonwhite.
5. More "inner city" residents.

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[1]Jerry A. Salon, "Patterns of Medical Care: Sociocultural Variations among a Hospital's Outpatients," American Journal of Public Health, LVI (June, 1966), pp. 886-887.

6. Similar level of education.

7. Similar tenure of residence.

8. Lower socioeconomic status.

An attempt was also made to establish the relative importance of selected factors which would have a significant effect upon the general medical condition of the patient who visits the emergency room. The factors which were found to be significant were:

1. Age of the patient--between 15 and 55 years old.

2. A regular relationship with a personal physician.

3. A professional referral to the emergency service.

4. Number of years at current address.

5. Minority population group status.

6. Location of residence in city area.

No significant differences were found in emergency cases among various days of the week, and only borderline significance was found in the proportion of non-emergent cases coming to the emergency service at various times of the day or night.[1]

A study carried out at the Saginaw General Hospital Emergency Room followed the methodology of the Yale-New Haven studies. A comparison was made of the characteristics of the patients and population at risk. The results of the Michigan study were:

1. More males.

2. More nonwhites.

3. Similar age distribution to the general population.

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[1]E. Richard Weinerman, et al., "Yale Studies in Ambulatory Medical Care: Determinants of Use of Hospital Emergency Services," American Journal of Public Health, LVI (July, 1966), pp. 1037-1056.

4. Higher level of education than the general population.

5. Lower socioeconomic status than the general population.

The emergency rating varied for different time intervals. The highest per cent of emergency cases occurred from midnight to 8:00 A.M. The highest per cent of urgent cases was between 4:00 P.M. to midnight.[1]

A household attitude survey was conducted in Monroe County, New York (Rochester Area), to measure attitudes toward medical care and the medical profession. A portion of this survey included attitudes regarding the emergency room. Some of the results were:

1. Only 15 per cent of the population went personally to the emergency room in the previous 12 months.

2. Total household use of the emergency department was 30 per cent in the previous 12 months.

3. Most people who had visited the emergency department in the last 12 months had also visited it the year prior.

4. A definite group of people appeared to exist who utilized the emergency department for care.

The study found that the major group who tended to disapprove of a personal physician were people who had been to the emergency room in the past three years. Women who did not use the emergency department tended to have a fairly high opinion of a personal physician, whereas women who used the emergency room are almost as likely to have a negative as a positive view of their last visit to a personal physician. Women who had a positive view of their physician tended to be older and poorer and made more visits to personal physicians in the past year. No comparative evidence was found for men.

Thirty per cent of the patients with emergency room use

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[1]White and O'Connor, op. cit., pp. 163-168.

experience were judged to have an unfavorable view of the emergency department; however, no reasons were found as explanations for the unfortunate attitudes. The survey also found that men utilized the emergency room more than women, and the patients who used the emergency room represented the general cross section of the population in income and education with no tendency of overuse in the lowest income or educational groups. The ages of the users of the emergency rooms were young—generally between the ages of 20 to 49 with a marked decrease in use after age 50.[1]

Two studies have been conducted to identify the consumer's perception of symptoms and his resulting orientation toward action or inaction. A study developed by the UCLA School of Public Health utilized an index for measuring the perception of symptoms—an index scale known as "symptom sensitivity." The respondents were divided into three categories based on their evaluation of the seriousness of a list of symptoms. The categories were symptom insensitive, symptom sensitive, and hyper-symptom-sensitive, with the middle class category defined as a normative response and the two extremes as types of deviant response. In the study, demographic, socioeconomic, and cultural independent variables were compared to each of the sensitivity categories. The following conclusions were reached in the study:

1. Middle-aged respondents were significantly hyper-sensitive with the relationship specific for females, for those formerly married, and those in high occupational categories.

2. Increased formality of religion was related to hyper-

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[1]Donald Apostle and Frederic Oder, "Factors that Influence the Public's View of Medical Care," Journal of American Medical Association, CCII (November 13, 1967), pp. 592-598.

sensitivity for respondents with high status occupations and ethnic backgrounds.

3. Low income was related to symptom insensitivity for those with high status ethnic and religious backgrounds and those who were either downwardly mobile or not mobile occupationally.[1]

The second study, the Washington (D.C.) Heights Master Sample Survey, was a household survey which attempted to measure psychosocial factors influencing health behavior and attitudes. A scale was used to measure health orientation, the extent of their belief in, and the acceptance of, modern scientific medicine. The health orientations of patients fell into two categories, the "popular" and "scientific." The study attempted to analyze the relationship between social and medical factors in terms of a framework linking demographic factors to social group structure. Both of these were related to health status and medical care through the intervening variables of health orientation. In relating health orientation to social group structure, the demographic characteristics and social structure were found to contribute independently to medical orientation.

The following significant relationships were found in the study for the five sets of variables:

1. Demographic factors contributed to social group factors, medical orientation, health status, and the source of medical care.

2. Social group structure (age, sex, and social class) related to medical orientation and source of medical care. No relationship was found with health status.

3. Medical orientation was found to relate to sources of medical

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[1]Robert W. Hetherington and Carl E. Hopkins, "Symptom Sensitivity: Its Social and Cultural Correlates," Health Services Research, IV (Spring, 1969), pp. 63-75.

care, but not to health status (measured by percentage of respondents with chronic attending or mental conditions).

4. Health status of the patient was found to be related to the sources of medical care (private physician, outpatient, or both).[1]

A study of nearly 3,000 emergency room patients and outpatients in four New York City hospitals revealed that outpatient clinic patients received relatively little emergency room care, although they were high hospital users. Emergency room users tended to use the emergency room mainly and usually had short-term illnesses. The results indicated that non-emergent emergency room patients would not be satisfied with referrals to outpatient clinics.[2]

Proposed Solutions

Numerous articles have been written regarding the emergency room problem, but few solutions have been proposed, and even fewer actual programs have been initiated to relieve the problem.

The most common proposal suggested is the "convenience clinic" which would function 24 hours a day with its own staff separate from the emergency room. Its intent would be to manage whatever problem the patient presented at the convenience of the patient. It is anticipated that as much as 60 per cent of the present emergency room use would be eliminated in the Philadelphia area if such facilities were available. A convenience clinic was established at Children's Hospital in the District of Columbia. It functions as a walk-in clinic from 5:00 P.M. to

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[1]Edward A. Suchman, "Social Patterns of Illness and Medical Care," The Milbank Memorial Fund Quarterly, XLVII (January, 1969), Part II, pp. 78-84.

[2]Torrens and Yedvab, "Outpatient Care," op. cit., p. 71.

10:00 P.M. on weekrights and from 1:00 P.M. to 10:00 P.M. on weekends. Its intention was to divert non-emergencies from the emergency room. The effectiveness of this program has been illustrated by a decrease of 16 to 20 patients a night and 25 to 30 patients on Saturdays.[1]

The Council on Medical Services of the American Medical Association suggested two other approaches to the problem. It recommended the establishment of off-hour clinics by physicians in private practice to share the responsibility for evenings and weekend staffings. An alternative recommendation was that numerous group practices should keep their offices open after normal office hours to handle the elective and semi-elective needs of their patients.[2]

Another solution proposed to the problem is the consolidation of emergency room services into fewer hospitals. In the interests of high quality care as well as economical and efficient uses of resources, consideration would have to be given to the centralization of the emergency rooms and outpatient services at one hospital in a geographic area. As an example, it is estimated that five to eight emergency rooms could supply the entire needs of Allegheny County (Philadelphia), Pennsylvania, instead of the 30 presently serving the area.[3]

Neighborhood health centers have had an effect upon the utilization of emergency rooms in areas of their establishment. A 38 per cent reduction in child visits to the emergency room was noted from the

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[1]"Emergency Room Reforms: You Can Expect to End It," op. cit., p. 150.

[2]Ibid., p. 146.

[3]"Emergency Room Crisis: How They're Coping with It," op. cit., p. 127.

area served by a neighborhood health center in Rochester, New York, while the remainder of the city had a stable rate, and the comparable age group in the suburban area had a 29 per cent increase.[1]

Triage has been suggested as a solution to the emergency room problem by diverting non-emergent patients to other sources of care. The Yale-New Haven Hospital instituted a formal triage program on July 1, 1963. The original studies indicated that almost half of the patients were returned home without further follow-up treatment in the emergency services which indicated the minor nature of the conditions presented. A follow-up study after triage found that 18 per cent of the patients were screened by the triage officer and discharged or referred for other care without definitive treatment. The hospital staff concluded that the one-fifth reduction affected by the triage officer had contributed to the increased efficiency within the emergency room.[2]

The solutions proposed have achieved some success with the emergency room problem on a local basis. However, nationally, the problem continues to increase in proportion. To correct the situation, more information is needed to understand the present patterns of utilization, the awareness which patients have of medical conditions, and the attitudes of patients which influence their behavior. This study is designed to investigate the above-mentioned features.

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[1]Louis I. Hochheiser, Kenneth Woodward, and Evan Charney, "Effect of the Neighborhood Health Center on the Use of Pediatric Emergency Department in Rochester, New York," New England Journal of Medicine, CCLXXXV (July 15, 1971), p. 148.

[2]E. Richard Weinerman, Robert S. Rutzen, and David A Pearson, "Effects of Medical 'Triage' in Hospital Emergency Service," Public Health Reports, LXXX (May, 1965), pp. 389-399.

CHAPTER III

DESIGN OF THE INVESTIGATION

The Setting

South Community Hospital was founded as a community trust in 1963 as an expressed response to efforts by the South Oklahoma City Chamber of Commerce to build a hospital to serve the southern sections of Oklahoma City. In 1965, the efforts resulted in a completed building with a bed capacity of 77 at 1001 Southwest 44th Street in Oklahoma City. The second phase of development, initiated in 1967 and completed in 1969, brought the hospital to its present capacity of 197 beds and 22 bassinets. Future plans call for doubling the present hospital size to approximately 400 beds, enlarging the space allocated to the emergency room by about 300 per cent, and developing the capabilities for performing outpatient surgery. In the facilities available last year, the hospital had 12,500 inpatient admissions with over 20,700 patients using the emergency room facility. During this time, the medical staff consisted of 180 doctors and dentists.

The hospital had provided organized physician coverage of the emergency room since 1965. Initial organized efforts had employed residents to provide the night and weekend coverage of the emergency room. This arrangement was only marginally satisfactory and resulted in an

investigation of alternate methods of coverage. In 1969, a contract was developed with Thomas Garrett, M.D., to provide 24-hour physician coverage of the emergency room. This contractual arrangement currently remains in force with salaried licensed physicians, employed by Dr. Garrett, providing scheduled coverage of the emergency room.

The philosophy of operation of the emergency room originally was the treatment of every patient who presented himself. However, this philosophy has been modified to meet local conditions and the approval of the medical staff of South Community Hospital. At the present time, the emergency room physicians do not encourage patient usage, but do attempt to provide medical service when the patient's family physician is not available and to redirect patients to appropriate physicians within the health care system. The general operational rules under which the emergency room physicians function are as follows:

1. The emergency room physicians perform no follow-up treatment such as removing sutures and casts or changing dressings.

2. All patients are asked to designate a follow-up physician upon admission and are instructed to contact this physician for necessary follow-up treatment.

3. A copy of the patient's treatment record is sent to the physician designated by the patient.

4. The emergency room physicians do not accept or complete insurance forms. All insurance transactions are arrangements between the patient, the designated physician, and the hospital.

5. Patients are redirected to private physicians' offices if the condition is an obvious non-emergency or if the patient is known to be under the treatment program of a private physician.

6. Patients are readily referred to specialists upon presentation if their condition requires such action. Obviously more referrals are made to specialists during hours when specialists' offices are open than during the night or

weekend hours.

7. A small number of physicians on the medical staff wish to be notified before treatment is initiated if they are the physician designated by the patient. These physicians then may choose three options:

   a. Request that the emergency room physician treat the patient,

   b. Treat the patient themselves in the emergency room as a "convenience visit", or

   c. Have the patient referred to their office for treatment.

8. Specialists are called into cases which exceed the competence and time restrictions placed on the emergency room physician. Cases involving orthopedics or lengthy surgical procedures are examples.

9. The cost of treatment in the emergency room is generally priced above the similar treatment in a private physician's office.

10. Collection efforts are initiated in the emergency room.

11. Generally, patients are brought into the emergency room suite on a first-come, first-serve basis with the exception of emergencies and ambulance cases which receive immediate priority. Thus, emergencies and urgent cases receive highest priority as to the order in which they are seen by the physicians.

As can be noted from the above practices, the emergency room does not attempt to encourage or discourage patients, but is used to provide a stop-gap measure for immediate problems, a referral process to a private physician, an available physician for a true emergency case, and a triage method to route serious medical conditions to appropriate medical treatment.

Methodology of the Study

The data for the study were gathered over a 28-day period with the use of a standardized, structured interview with 662 emergency room

patients. Additional information on these patients was obtained from an evaluation of case severity completed by the attending physician, a symptom check-list completed by nursing personnel, and some information retrieved from the patient's emergency room record. These forms are found in Appendixes A, B, C, and D. The Interview Plan is found in Appendix F.

A pretest of instrumentation was conducted on February 18 and 20, 1972, when approximately fifty patients were interviewed. Minor refinements were made in techniques and interview scheduling.

The study was conducted from February 24, 1972, to March 22, 1972. Twenty-eight days were required to complete the data-gathering phase of the study. Forty-four per cent of the patients who visited the emergency room in the research period were included in the study. The patient interviews were personally conducted by the author.

The sampling technique for the emergency room patients involved blocks of randomly selected time segments. All patients who used the emergency room during a designated time segment were included in the study. This time segment sequence was developed by the Yale-New Haven Emergency Room Studies to give appropriate weight to weekend and night hours. The sequence was established in two-week intervals and was repeated a second time to obtain the 500-patient figure, excluding convenience visits, which was established as the minimum sample size. The sampling schedule is found in Appendix G.

Information on inpatient admissions for this same 28-day period was obtained from copies of the admission forms. Additional information was obtained by the admitting department personnel for a

one-week period for the purpose of determining the social class of in-patients. A copy of this record is found in Appendix A. Children between the ages of 0 to 16 years were included in the study; however, the interview was conducted with the accompanying parent.

Emergency and severe trauma cases were included in the study; obviously, the patient's condition often restricted the duration of the interview and, consequently, the completeness of the data. Initially, attempts were made to follow-up on those who were admitted to the hospital to obtain additional data. This approach was abandoned due to limited success and time restrictions.

Some groups of patients were excluded from the study due to their inability to participate or their lack of interest in cooperating with the study. Patients under legal confinement by authorities and older and/or incompetent patients brought to the emergency room by friend, relative, or institutional representative were automatically excluded. Intoxicated patients, drug overdosed patients, and attempted suicide cases were not interviewed, but information from emergency room records was obtained and included in the study.

The data were compiled on data processing cards for ease of tabulation. Computer programs were written when required due to complexity of tabulation.

A large census map (8 feet by 8 feet) of Oklahoma City was obtained and mounted on a classroom wall in South Community Hospital. Map pins were inserted at the residence site of the emergency room patients who were included in the study. A photograph was taken of this map to show usage patterns of the emergency room. The pins were then

removed, and new pins were inserted to indicate the residency sites of the inpatients who were admitted in the 28-day study period. This map was also photographed and is illustrated in the results section of the study.

The study utilized the 1970 census information for population determinants. Although the information was two years old, the census data were the most current and reliable information for segments of a city.

The attitude portion of the study utilized Likert Scales and a five-stage agreement-disagreement continuum. Values were assigned to these answers to determine group response variations. The Hollingshead Two Factor Index was used to determine social class for both inpatients and emergency room patients.[1]

The study was designed to investigate five areas which affected the usage of the emergency room. These areas were: (1) the characteristics of the geographic service area, (2) the emergency room as an integrated hospital department, (3) an evaluation of the patient's medical needs, (4) the symptom sensitivity of patients, and (5) the attitudes of patients toward health care. Each area was presented as a separate subsection in Chapter 4. The findings and null hypotheses were discussed as they related to each subsection area of investigation.

Hypotheses

The following null hypotheses were proposed and tested in this study:

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[1]August B. Hollingshead and Frederic C. Redlich, Social Class and Mental Illness (New York: John Wiley and Sons, 1958), pp. 398-407.

1. The evaluation of the patient's medical need measured by the Symptomatic Criteria does not differ from the physician's urgency rating.

2. The characteristics of the population who use the emergency room do not differ from the characteristics of the hospital's general service area.

3. Geographic factors affecting emergency room use do not differ from the geographic factors affecting hospital inpatient use.

4. Patient attitude toward the health care system does not relate with the number of visits to the emergency room.

5. Patient attitude toward acceptance of "convenience clinics" has no relationship to the severity rating of the physician.

6. Patient attitude toward acceptance of "convenience clinics" is not affected by the number of visits to the emergency room in the previous year.

7. Patient attitude toward redirection to a central emergency service facility does not differ from attitude toward care received in the emergency room.

8. Symptom sensitivity of the patient does not relate to the physician's urgency rating.

Definitions

The following definitions and terms are used in this study and are defined as follows:

Ambulatory Care - All services which may be provided on an outpatient basis, in contrast to services provided in the home or to persons who are inpatients. The term implies that the patient comes to a medical location to receive services and departs that same day after receiving these services.

Emergency Room - An area of a hospital in which emergencies can be treated immediately and disposition made to appropriate facilities or services. The area will also serve urgent and non-emergent cases.

Emergency Room Visit - A situation in which the patient utilizes the emergency room and receives medical attention and/or treatment.

Mutual Convenience Visit - The use of the emergency room for the observation and/or treatment of a private patient by a private physician and the patient. These visits often take place after office hours or on weekends and holidays, primarily because the physician chooses not to open his office.

Convenience Clinic - A clinic established for general public use to provide 24-hour medical care and attention. The clinic would operate without appointments, would minimize waiting time, and would be staffed with appropriate medical personnel at all times.

Medical Disengagement - The term to describe the decline or total absence of a relationship with a personal physician either by individuals or families.

Emergent or Trauma - A condition requiring immediate medical attention; time delay would be harmful to the patient; disorder is acute and potentially threatening to life or function.

Urgent - A condition requiring medical attention within the period of a few hours; a possible danger exists to the patient if medically unattended.

Non-emergent - A condition which does not require the resources of an emergency service. Referral for routine medical care may or may not be needed. Disorder is non-acute or minor in severity.

Symptom Sensitive Person - The attitudinal and behavioral aspects which affect an individual to the extent that he believes that a given symptom is serious enough to see a physician and institute treatment.

CHAPTER IV

FINDINGS AND DISCUSSION

The Geographic Service Area

South Community Hospital is located at the intersection of Southwest 44th and Western Avenue in the south portion of Oklahoma City. The exact service area of South Community Hospital was difficult to determine with the small sample size of this study. The difficulty lay in the fact that the urbanized portion of south Oklahoma City is ringed by areas of low population density. These low density areas yielded too few admissions to allow any definite conclusions. These low population density areas were illustrated in Figure 1 by barred markings.

The concentration of population in the urbanized portion of south Oklahoma City generally resided within the following boundaries:

1. The North Canadian River on the north
2. The Will Rogers Airport and Meridian Avenue on the west
3. The Interstate Highway (I-35) on the east
4. 119th Street west of Western Avenue and 89th Street east of Western Avenue on the south.

This area, which was the service area for South Community Hospital illustrated in Figure 1 by the dark boundary line, was generally 3 to 3.5 miles in radius. Approximately 70 per cent of the emergency

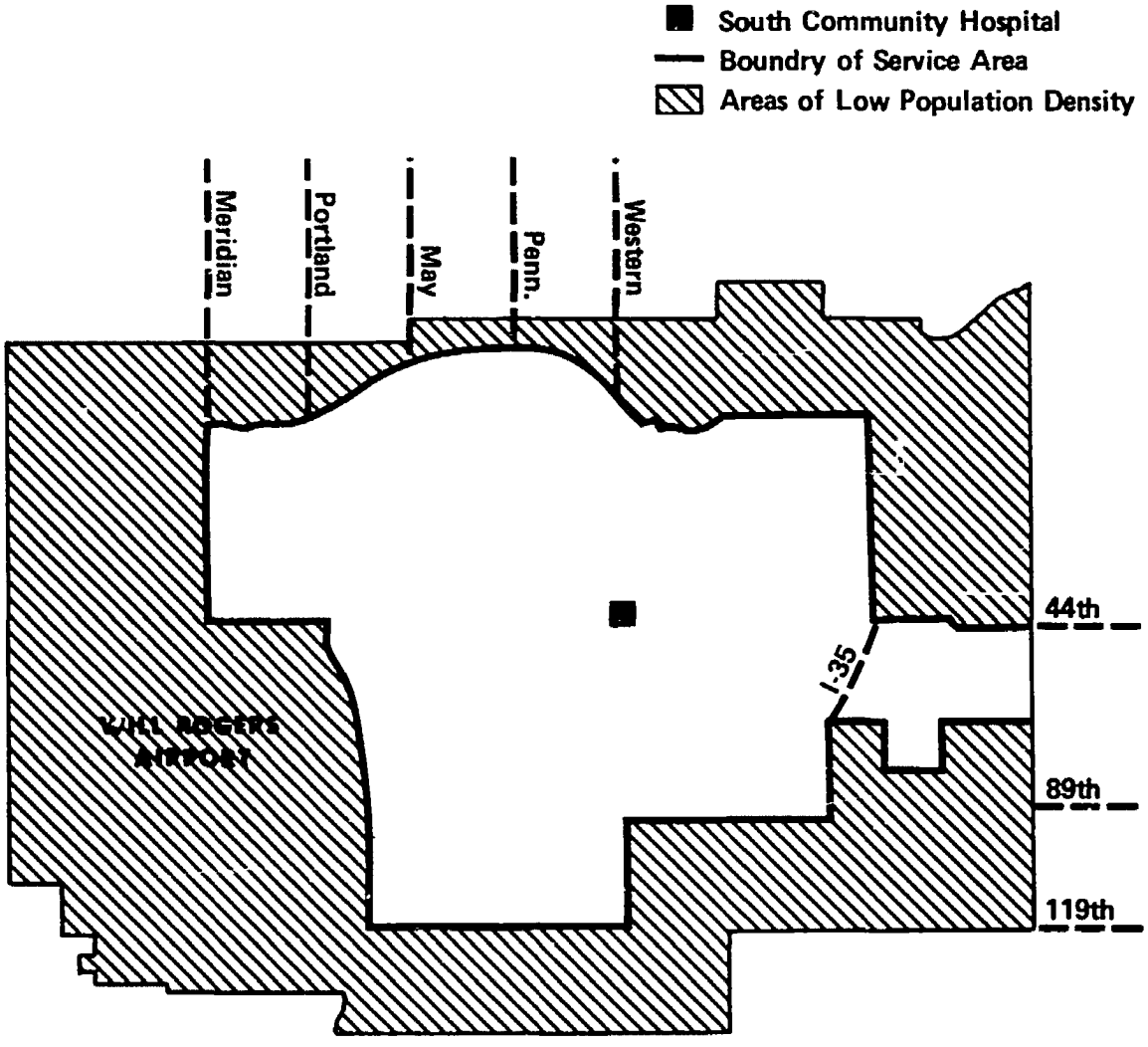

Fig. 1—Service Area of South Community Hospital.

room patients and inpatients resided within this service area. The pin map photographs of Figure 2 and Figure 3 revealed that the hospital emergency room and inpatient service areas were nearly the same and also indicated the heavy concentration within the described urbanized service area.

The service area, as defined in mile distances from place of residence to the hospital, is shown in Table 1 to indicate differences in inpatients and emergency room patients. Seventy-five per cent of the emergency room patients resided within a 3 to 3.5 mile radius, while only 69 per cent of inpatients resided within this same service area. The service areas for inpatients and for emergency room patients generally conformed and were not significantly different from each other with the following exception. The service area for inpatients and emergency room patients for 20 miles or more was significantly different from the under 3.5 miles (Chi squared = 3.36, significant at the 10 per cent level). This figure revealed that the inpatient service area included a significantly greater number of patients from the over 20-mile distance. This distance variability might possibly be explained by a referral pattern from outlying physicians to city specialists or by the assumption that patients who make appointments with city physicians expect greater expertise. Also, a comparison between Figure 2 and Figure 3 indicated that a greater number of inpatients resided in Moore, Del City, and Mustang, whereas a smaller number of emergency room patients who used South Community Hospital resided in these cities.

The census tracts within the urbanized area are shown in Table 2. This table illustrates the population base and the usage of the emergency room by each census tract. Basing projections on the service

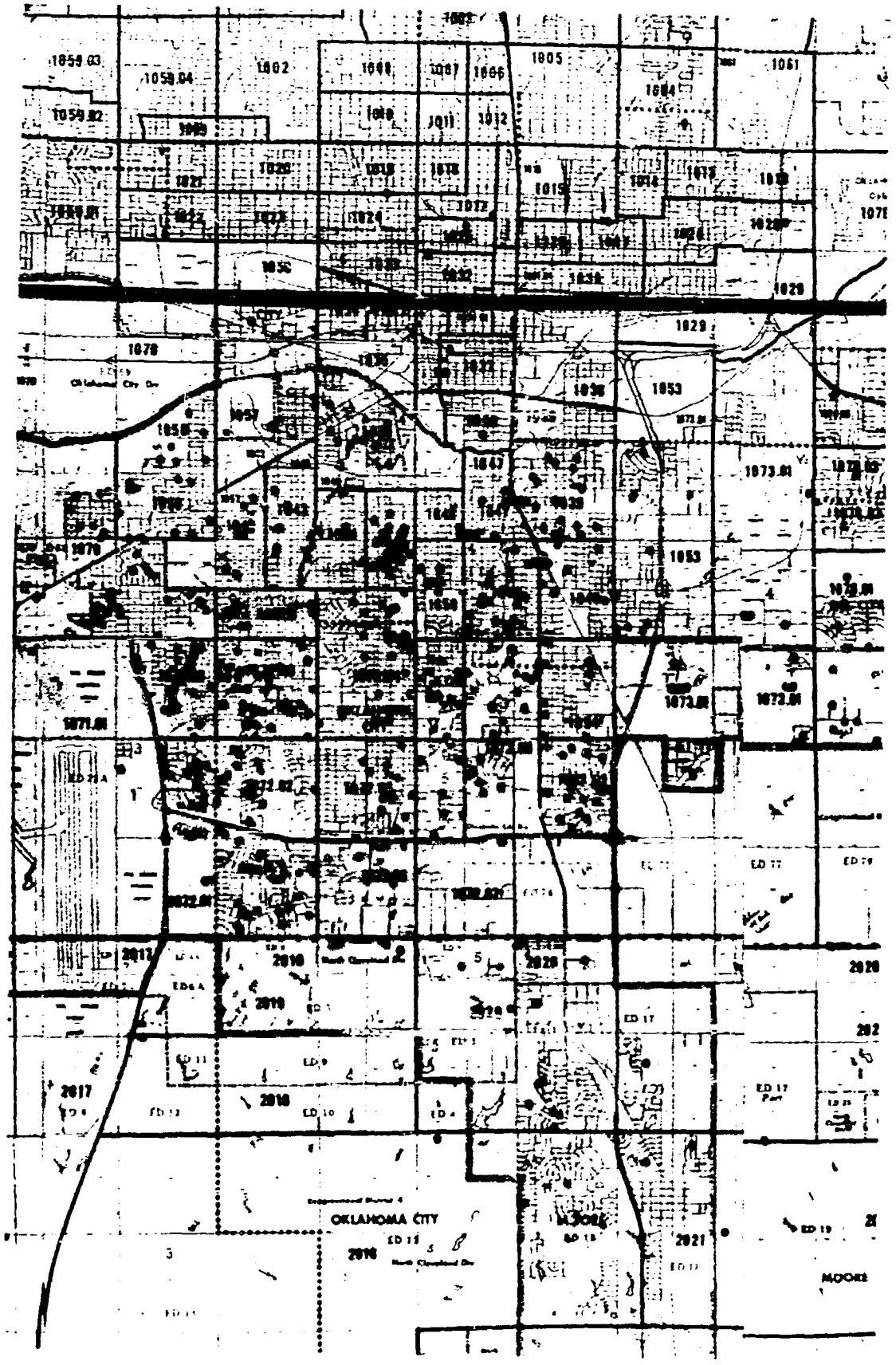

Fig. 2—Emergency Room Patients by Place of Residency.

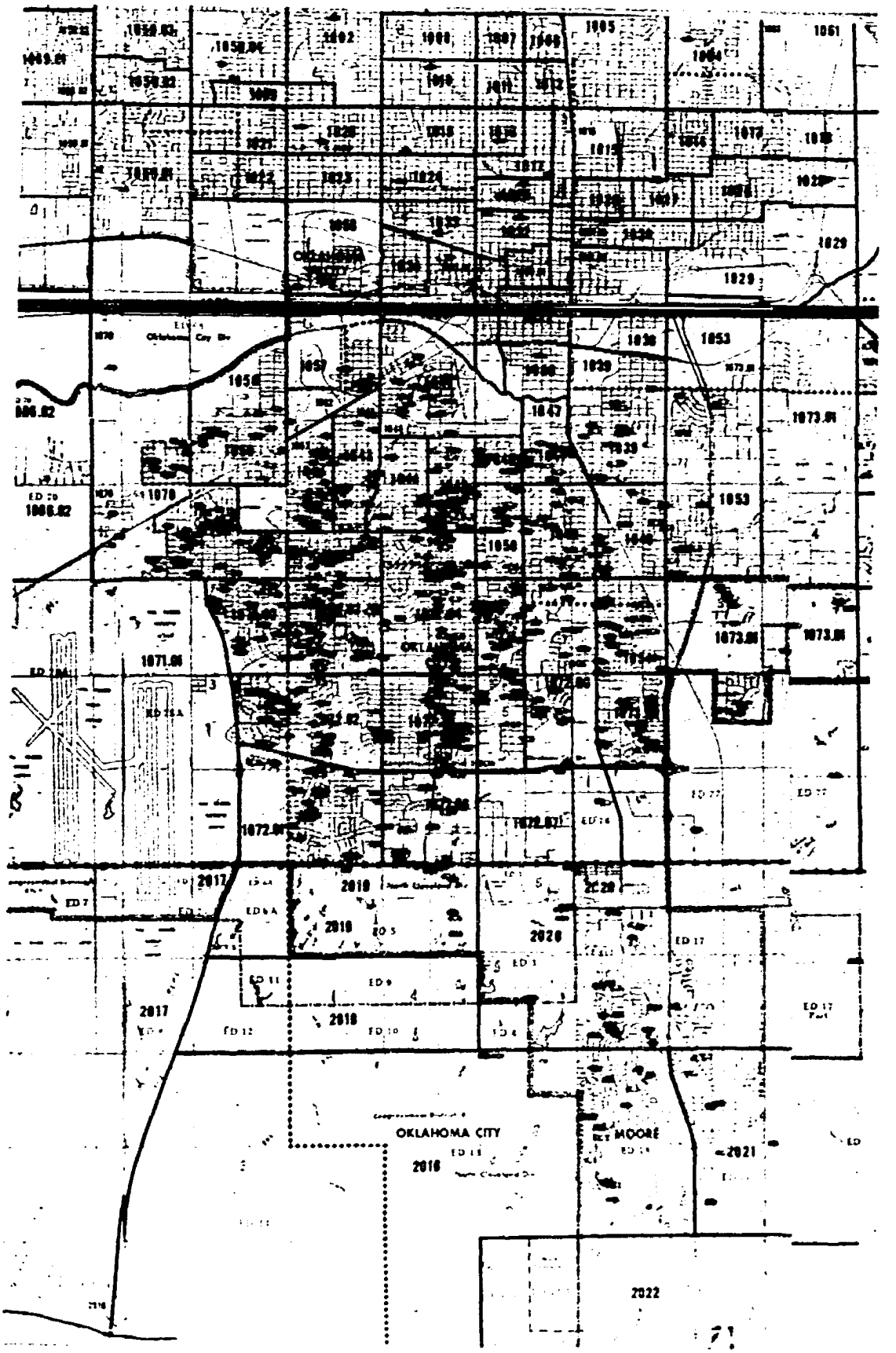

Fig. 3—Inpatient Admissions by Place of Residency.

TABLE 1

COMPARISON OF EMERGENCY ROOM PATIENTS
AND INPATIENTS BY DISTANCE FROM
SOUTH COMMUNITY HOSPITAL

Distance in Miles	Emergency Room			Inpatients		
	Number of Patients	Percentage	Cumulative Percentage	Number of Patients	Percentage	Cumulative Percentage
0.0–0.5	40	6.04	6.04	52	6.62	6.62
1.0–1.5	152	22.96	29.00	192	24.43	31.05
2.0–2.5	202	30.51	59.51	211	26.84	57.89
3.0–3.5	103	15.56	75.07	87	11.07	68.95
4.0–4.5	29	4.38	79.45	28	3.56	72.52
5.0–5.5	25	3.79	83.24	37	4.71	77.23
6.0–6.5	19	2.88	86.12	19	2.42	79.65
7.0–7.5	12	1.82	87.94	25	3.18	82.83
8.0–8.5	5	0.77	88.71	14	1.78	84.61
9.0–9.5	9	1.36	90.07	8	1.02	85.63
10.0–15.5	15	2.27	92.34	31	3.94	89.57
16.0–19.5	7	1.01	93.35	8	1.02	90.59
20.0 +	36	5.44	98.79	60	7.63	98.22
Unknown	8	1.21	100.00	14	1.78	100.00
Total	662	100.00		786	100.00	

TABLE 2

SOUTH COMMUNITY HOSPITAL SERVICE AREA
BY CENSUS TRACTS AND
USAGE PATTERNS

Census Tract	Population	Number of Emergency Room Admissions	Number of Inpatient Admissions
1039*	4,140	22	13
1041	3,425	16	18
1042	2,263	10	23
1043	3,656	9	12
1044	3,409	5	6
1045	2,967	19	25
1046	1,157	3	5
1047	1,343	10	11
1048	3,525	15	12
1049	3,928	21	14
1050	2,022	8	9
1053*	3,289	12	11
1054	2,621	9	20
1055	2,836	15	15
1056	5,166	17	13
1057*	1,357	6	6
1070*	9,069	38	48
1071.02	5,441	25	22
1072.01	7,689	34	24
1072.02	7,670	30	31
1072.03	7,473	36	38
1072.04	8,218	27	37
1072.05	6,318	16	33
1072.06	3,145	10	11
1072.08	4,882	[illegible]	29
1072.09	4,135	25	18
1073.01	3,554	15	12
1073.02	3,780	19	18
Totals	**118,478**	**488**	**534**
Total Patients in All Census Tracts		**662**	**786**
Per Cent of Patients within Census Tracts		**73.7**	**67.9**

* Partial Census Tracts

area population of 118,478, the data indicated that approximately 120 emergency room visits per thousand population per year can be expected within this prescribed service area, whereas inpatient data indicated approximately 58 admissions per thousand population per year within the service area. Computations for these figures are found in Appendixes H and I. The figure of 58 admissions per thousand population was very low when compared to 145 inpatient admissions per thousand population as reported in 1970 for all community general hospitals throughout the United States.[1]

Several reasons might account for this large discrepancy between inpatient admissions per thousand population for South Community Hospital and the national average. First, the present facility of South Community Hospital has been utilized at a very high occupancy level; consequently, a situation might exist whereby no more beds were available for additional admissions. Secondly, other hospitals also served this same geographic area—notably Hillcrest Osteopathic Hospital in the same service area and the other large downtown hospitals which served the entire citywide area.

The null hypothesis which was tested in this section was:

> Geographic factors affecting emergency room use do not differ from the geographic factors affecting inpatient use.

This null hypothesis was accepted. The service areas and distances from the hospital were not significantly different between the emergency room patients and inpatients. The exception to this conclusion was that more inpatients from distances greater than 20 miles came to the hospital than did emergency room patients from that distance.

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[1] "The Nation's Hospitals: A Statistical Profile," Hospitals, J.A.H.A., VL, Part 2 (August 1, 1971), p. 447.

Characteristics of the Geographic Service Area Serving South Community Hospital

A hospital, in serving its humanitarian role, has generally been expected to provide care and service to the immediate population contingent to that institution and within its service area. Therefore, the population characteristics of age, sex, race, and marital status represented in the constituency of inpatients and emergency room patients would be anticipated to be proportional to those characteristics found in the hospital service area. To determine if the hospital was serving the constituency, the characteristics of age, sex, race, marital status, and social class were compared in detail among the service area population served by South Community Hospital, the inpatients admitted to the hospital, and the patients visiting the emergency room.

Age of the Population

Age comparisons between the general population, inpatients, and emergency room patients are indicated in Table 3. Approximately 20 per cent of the general population was in the 0-9 age grouping while 28 per cent of the emergency room visitors and only 10 per cent of inpatients were of this age. This information substantiated the higher utilization of the emergency room for the 0-9 age group with about one-third more visits and a corresponding low utilization of inpatient services at about one-half the rate that their population number would suggest.

In the age group 10-19, the information indicated that the emergency room was the more common mode with approximately the same proportional overuse of the emergency room as underuse of the inpatient service (Emergency Room 22.51 per cent, Inpatient 13.87 per cent,

TABLE 3

COMPARISON OF POPULATION SERVICE AREA,
INPATIENT ADMISSIONS AND EMERGENCY
ROOM ADMISSIONS BY AGE

	Service Area		Emergency Room		Inpatients	
Age	Population	Percentage	Visits	Percentage	Admissions	Percentage
0– 9	23,651	19.97	183	27.64	81	10.31
10–19	22,403	18.91	149	22.51	109	13.87
20–34	25,709	21.70	160	24.17	207	26.34
35–64	37,796	31.90	121	18.28	240	30.52
65 +	8,919	7.52	49	7.40	149	18.96
Totals	118,478	100.00	662	100.00	786	100.00

General Service Population, 18.91 per cent). In both categories (the 0-9 and the 10-19 ages) the health status of the youth and the types of activities in which they were engaged more nearly lent themselves to emergency room treatment in cases of medical need in contrast to in-patient admission types of care.

The 20-34 age groups utilized the services at approximately the same rate as expected by their percentage in the service area population. The high 26 per cent associated with inpatient admissions possibly can be explained by the addition of obstetrical services to that age category.

The age group of 35-64 had a utilization of emergency room services of only 18 per cent as compared to the 32 per cent that would have been anticipated by their numbers in the service area. Inpatient admissions were approximately as predicted. This age group might have established physician contacts and might not be as subject to accidents which require the type of care given in emergency rooms.

The over 65-year age group had about the anticipated number of emergency room visits, but had approximately two and one-half times as many inpatient admissions as would have been anticipated by their numbers in the service area population. The increase for over-65 year age for hospital admissions could be partially explained by the higher number of hospital admissions for chronic conditions.

Sexual Characteristics of the Population

The distribution of the population by sex is shown in Table 4 with a comparison to numbers in the population service area, emergency room visits, and inpatient visits. In the service area 48.42 per cent

TABLE 4

COMPARISON OF POPULATION SERVICE AREA,
INPATIENT ADMISSIONS AND EMERGENCY
ROOM VISITS BY SEX

	Service Area		Emergency Room		Inpatients			
Sex	Population	Percentage	Visits	Percentage	Admissions Less Newborn	Percentage	Admissions Less O.B.	Percentage
Males	57,358	48.42	369	55.74	350	44.53	350	49.40
Females	61,120	51.58	293	44.26	436	55.47	405	51.60
Totals	118,478	100.00	662	100.00	786	100.00	755	100.00

of the population were males, and 51.58 per cent were females. The patients who used the emergency room were 56 per cent male and 44 per cent female. These figures indicated that a greater number of males used the emergency room than females. This fact may be explained in part by the roles men perform, either in vocations or avocations, which lend themselves to accidents and injuries of the type which would be treated in an emergency room. The percentage of inpatient admissions by sex was similar to the distribution in the general population when obstetrical cases were removed from considerations.

Marital Status

The marital status of patients using the emergency room and inpatient facilities is illustrated in Table 5. This table shows the percentage relationship between marital categories for both inpatients and emergency room patients. Over 50 per cent (53.99) of the emergency room patients were single compared to nearly 25 per cent (24.68) of inpatients. This high percentage could be explained by the high number of youths using the emergency room and has been illustrated and discussed in conjunction with Table 3.

Sixty per cent of the inpatient admissions and 38 per cent of emergency room patients fell in the married category. About one and one-half times more married people were being admitted as inpatients than were being treated as emergency room patients.

Patients with separated marital status accounted for approximately three times as many emergency room visits as inpatient admissions, whereas divorced marital status patients had approximately three times as many inpatient admissions as emergency room visits. Patients with

TABLE 5

COMPARISON OF INPATIENT ADMISSIONS TO EMERGENCY ROOM VISITS BY MARITAL STATUS

	Emergency Room		Inpatients	
Marital Status	Visits	Percentage	Admissions (Less Newborn)	Percentage
Single	352	53.99	194	24.68
Married	248	38.04	473	60.18
Separated	26	3.99	11	1.40
Widowed	16	2.45	70	8.91
Divorced	10	1.53	38	4.83
Subtotal	652		786	
No Information	10		0	
Total	662	100.00	786	100.00

widowed marital status accounted for approximately 9 per cent of the inpatient admissions. This heavy utilization pattern might be explained by the high number of patients 65 and older admitted as inpatients.

The marital status of all patients and of the general population 14 years of age and older is shown in Table 6. Percentage relationships were indicated among the population service area, inpatient admissions, and emergency visits by male and female categories. The data compared a 6 per cent higher rate for both the single male (20.19) and married categories for males (72.34) in the general service area population to the same categories for females (single female 14.90, married female 66.06). The higher single categories could be explained in that males generally do not marry as young as females. The married categories were higher because of fewer males than females in the population service area.

The female widowed categories (10.65) were approximately five times the rate for males (1.94) indicating the greater life expectancy for the female sex in our population. The separated category for both male and female appeared to have higher use (male 2.61, female 2.25) of the emergency room than their proportional ratio in the general population service area (male 1.01, female 1.58). Literature sources noted in Chapter 2 predicted that members of this marital status category were high users of the emergency room.

Widowed females had a lower emergency room visit ratio (6.74) than would be expected from the service area, but had a higher ratio of inpatient usage (16.30). This evidence would support the fact that older widowed females generally exhibit chronic conditions requiring

TABLE 6

COMPARISON OF POPULATION SERVICE AREA, INPATIENT ADMISSIONS, AND EMERGENCY ROOM VISITS BY MARITAL STATUS— ALL PATIENTS 14 YEARS OF AGE AND OLDER

	Service Area		Emergency Room		Inpatients (Less Newborn)		
	Number	Percentage	Number	Percentage	Number	Percentage	Percentage (Less O.B.)
Males							
Single	8,348	20.19	69	30.00	48	17.39	
Married	29,909	72.34	143	62.17	192	69.57	
Separated	417	1.01	6	2.61	4	1.45	
Widowed	802	1.94	4	1.74	18	6.52	
Divorced	1,868	4.52	8	3.48	14	5.07	
No Information	0	0.00	8	0.00	0	0.00	
Total	41,344	100.00	238	100.00	276	100.00	
Females							
Single	6,899	14.90	41	23.03	35	8.79	10.03
Married	30,587	66.06	103	57.87	280	70.35	65.20
Separated	729	1.58	4	2.25	7	1.76	1.25
Widowed	4,931	10.65	12	6.74	52	13.07	16.30
Divorced	3,154	6.81	18	10.11	24	6.03	7.22
No Information	0	0.00	2	0.00	0	0.00	0.00
Total	46,300	100.00	180	100.00	398	100.00	100.00

inpatient admission rather than emergency room services.

Divorced females had a higher rate of emergency room use (10.10) than their percentage in the service area (6.81). The ratio for inpatient usage (7.21) was similar to the service area. Evidence of other studies noted in the Review of the Literature section indicated that members of this marital status category also were predictably high users of emergency room services.

Social Class

Social class on both inpatient and emergency room patients was determined by using the Hollingshead Two Factor Index. This index used education and job position to determine a score for ranking into one of five social classes. Ranking was from highest Class 1 to lowest Class 5. The information on 587 emergency room patients and 63 inpatients is presented in Table 7.

A comparison of percentages between each social class indicated almost no deviation between the percentages for emergency room patients and for inpatients. The conclusion could be drawn that the hospital was serving the social classes in exact proportions for both inpatients and emergency room patients. No differences were evidenced between social class of the emergency room patients and inpatients.

Race

The race of the population in the hospital service area and the patients who used the emergency room is illustrated in Table 8. In the hospital service area approximately 96 per cent were white, and 4 per cent were non-white. However, only 1 per cent of the total population

TABLE 7

COMPARISON OF EMERGENCY ROOM VISITS AND INPATIENT ADMISSIONS BY SOCIAL CLASS

	Emergency Room Visits		Inpatient Admissions	
Social Class	Number	Percentage	Number	Percentage
Class I	2	0.34	0	0.00
Class II	18	3.07	2	3.17
Class III	111	18.91	13	20.64
Class IV	313	53.32	33	52.38
Class V	143	24.36	15	23.81
Subtotal	587	100.00	63	100.00
No Information	75	0.00	723	0.00
Total	662	100.00	786	100.00

TABLE 8

COMPARISON OF HOSPITAL SERVICE AREA AND EMERGENCY ROOM VISITS BY RACE

	Service Area		Emergency Room	
Race	Population	Percentage	Patients	Percentage
White	113,492	95.79	643	97.13
Non-White (Black)	4,986 (1,207)	4.21 (1.01)	19 (0)	2.87 (0)
Total	118,478	100.00	662	100.00

was black.

The race of patients using the emergency room was 97 per cent white and 3 per cent non-white. The information for this section was obtained by observation by the author. Because non-white racial characteristics were often difficult to determine, only limited conclusions could be drawn from the above table. However, the information would apparently indicate that the hospital was not excluding minority racial groups within the hospital service area. Racial information on inpatients was not maintained.

The null hypothesis on the characteristics of the patient population which was tested in this section was:

> The characteristics of the population who use the emergency room do not differ from the characteristics of the hospital's general service area.

This null hypothesis was rejected. The characteristics of the hospital's general service area were generally different from the population

who used the emergency room.

The young used the emergency room at a higher rate than their proportion in the hospital service area. Males also used the emergency room at a higher rate than their proportion in the hospital service area as well as single and separated people.

Emergency Room as an Integrated Hospital Function

As an integrated hospital department and function, the emergency room served the hospital service area as a point of entry into the health care system. However, it also functioned as an integral part of the hospital operation and worked to complement the hospital inpatient service and the medical professional community.

Admissions and Visit by Day of the Week

A comparison of inpatient admissions to emergency room visits by day of the week is shown in Table 9. The percentage column of inpatient admissions indicated that Sunday and Thursday accounted for about 40 per cent of all admissions. The days of Thursday and Saturday accounted for over 40 per cent of the emergency room visits. The high number of emergency room visits on Thursday and Saturday might partially be explained by the office schedule of physicians in the community and the reluctance which people felt toward waiting until Monday when they could see their own private physician.

Number of Previous Visits

The number of previous visits to the emergency room was obtained from the patients to determine the extent to which the emergency room was being used as a substitute for the family physician. Patients

TABLE 9

COMPARISON OF INPATIENT ADMISSIONS TO EMERGENCY ROOM VISITS BY DAY OF WEEK

	Inpatient Admissions		Emergency Room Visits	
Day of Week	Number	Percentage	Number	Percentage
Sunday	161	18.61	86	12.99
Monday	150	17.35	56	8.47
Tuesday	122	14.10	89	13.44
Wednesday	141	16.30	79	11.94
Thursday	164	18.96	137	20.69
Friday	77	8.90	69	10.42
Saturday	50	5.78	146	22.05
Total	865	100.00	662	100.00

were asked the question, "How many times have you been a patient in any emergency room in the past year?" The results are illustrated in Table 10. Numerous sources cited the underenumeration of information obtained

TABLE 10

NUMBER OF VISITS TO THE EMERGENCY ROOM IN PREVIOUS YEARS

Visits	Number of People	Percentage of People
0	407	69.93
1	112	19.24
2	32	5.50
3	10	1.72
4-5	9	1.55
6+	12	2.06
Subtotal	582	100.00
No Information	80	0.00
Total	662	100.00

in recall fashion.[1] Consequently, the information in Table 10 is also probably underestimated as to the number of previous visits.

The information in Table 10 indicated that approximately 70 per cent of the patients had no previous visits to an emergency room in the past year, and 19 per cent had only one previous visit. Based on this information, the emergency room was being used for initial treatment and was not being used as a substitute for the private physician.

[1]U.S. Dept. of Health, Education, and Welfare, "Reporting Health Events in Household Interviews: Effects of an Extensive Questionnaire and a Diary Procedure," Vital and Health Statistics, Series 2, No. 49 (Rockville, Md.: April, 1972), p. 1.

Time of Emergency Room Visits

The number of emergency room visits by time of day is presented in Table 11. The information indicated that 36 per cent of the visits

TABLE 11

NUMBER OF EMERGENCY ROOM VISITS
BY TIME OF DAY

Time	Number of Patients	Percentage of Patients
Midnight - 6:00 A.M.	24	3.63
6:00 A.M. - Noon	99	14.95
Noon - 6:00 P.M.	241	36.40
6:00 P.M. - Midnight	296	44.72
Total	662	100.00

were between noon and 6:00 P.M., and 45 per cent were between 6:00 P.M. and midnight. Over 80 per cent of the visits occur in the afternoon and evening as compared to less than 20 per cent in the morning.

Physician Contact

Information on the contact or attempted contact with a private physician was obtained from each patient to determine the referral pattern and the extent to which private physicians were contributing to the patient load. Table 12 illustrates the number of emergency room patients by physician contact that occurred before the patients presented themselves to the emergency room.

The greatest number (66 per cent) arrived at the emergency

TABLE 12

NUMBER OF EMERGENCY ROOM PATIENTS
BY PHYSICIAN CONTACT

Physician Contact	Number	Percentage
Convenience visit	63	10.34
Referred by family physician	78	12.81
Attempted contact with physician--unsatisfactory response or no assistance	67	11.00
No attempted contact	401	65.85
Subtotal	609	100.00
No information	53	0.00
Total	662	100.00

room without attempting to contact a private physician. Eleven per cent attempted to contact their private physician but were unable to make contact or were not satisfied with the physician's instructions. The family physician referred 12.81 per cent of the patients to the emergency room while 10.34 per cent of the patients were seen by their private physician in the emergency room facilities.

Inpatient Admissions Admitted through the Emergency Room

The inpatient admissions admitted through the emergency room for a 4-week period by day of week is presented in Table 13. The information indicated a consistent number of admissions by day of week with the exception of Saturday which appeared to be very low, about one-half the rate for the other days. The information in Table 9

TABLE 13

INPATIENT ADMISSIONS ADMITTED THROUGH
EMERGENCY ROOM BY DAY OF WEEK

Day of Week	Number of Admissions *
Sunday	25
Monday	22
Tuesday	18
Wednesday	24
Thursday	21
Friday	22
Saturday	11
Total	143
Number of Inpatient Admissions	786
Percentage of Inpatient Admissions Admitted through the Emergency Room	18.19

* Represents total admissions for 4-week period.

showed that 22 per cent of the emergency room patients presented themselves on Saturday—the highest number for any day.

The data also indicated that for the 4-week period of February 24-March 22, 1972, 143 emergency room patients were admitted as inpatients. The data indicated that 18.9 per cent of all inpatient admissions were first examined in the emergency room.

Inpatient Admissions to ICU/CCU

The inpatient admissions to Intensive Care Unit/Coronary Care Unit are illustrated for a 4-week period in Table 14 after first being examined in the emergency room. The information indicated the low number of admissions to the ICU/CCU on Saturday, which reconfirmed the information in Table 13. The data also show that 29 of 35 admissions (83 per cent) in the 4-week period were first examined in the emergency room. Only 17 per cent of the admissions to the ICU/CCU unit were admitted directly to the unit from a doctor's office.

Evaluation of the Patient's Medical Needs

Much criticism has been leveled at emergency rooms for treating patients who did not need the services of an emergency room. Although much has been written and discussed regarding this subject, few criteria have been developed to limit the cases which should be cared for in the emergency room or should be referred to a physician's office. A list of nine symptoms was developed by the author as an attempt to delineate a criterion for appropriate use of an emergency room. This list, known as a Symptomatic Criteria of Magnitude Sufficient to Necessitate Use of the Emergency Room, is illustrated in Appendix E.

TABLE 14

INPATIENT ADMISSIONS TO ICU/CCU AFTER EXAMINATION IN EMERGENCY ROOM BY DAY OF WEEK

Day of Week	Number of Admissions to ICU/CCU *	
Sunday	4	
Monday	2	
Tuesday	5	
Wednesday	6	
Thursday	4	
Friday	6	
Saturday	2	
Total	29	83 per cent
Admitted directly to ICU/CCU from doctor's office	6	17 per cent
Total admissions to ICU/CCU for 4-week study period	35	100 per cent

* Represents total admissions for 4-week period.

Every patient was evaluated against the symptomatic criteria by the head nurse in the emergency room by reviewing the patient's chart. The appropriate symptom was circled or "none" was checked if no symptom applied. Results of the tabulation of the checked symptoms are found in Table 15. Convenience visit cases were excluded from this portion of the study.

The information in Table 15 indicated that the greatest number of cases observed in the emergency room were cases of symptom number 3—overt trauma cases involving bleeding, concussion, fracture, internal injuries, or loss of body fluid. The second highest number of cases was symptom number 5—unexplained and/or severe pain of sudden onset causing restriction of movement or labored breathing. Two hundred and seventy-two cases of 605 total patients evaluated did not meet any of the nine criteria. In the study 60 per cent of the emergency room cases were the result of accidents while only 40 per cent were medical problems.

The emergency room physician completed a form entitled "Physician Evaluation of Patient's Condition." This form is found in Appendix D. The physician was asked to evaluate the severity of the patient's disorder, the harmfulness of time delay, and the urgency of medical attention. Three responses were available for each of the three questions. From these three answers the patient was categorized into severity ratings of emergent, urgent, and non-emergent.

The severity ratings determined by the emergency room physician were compared to the number of patients who had presented symptoms within the symptomatic criteria versus those patients who did not exhibit symptoms on the symptomatic criteria. The tabulation of this data is

TABLE 15

NUMBER OF PATIENTS IN EACH CATEGORY
OF SYMPTOMATIC CRITERIA SCALE

Symptomatic Criteria	Number of Patients
1. 103° temperature or above for a pediatric patient (14 years of age or under).	3
2. 101° temperature or above for an adult patient (15 years of age or older).	1
3. Overt trauma case involving bleeding, concussion, fracture, or internal injuries, or loss of body fluids	265
4. Complications of pregnancy involving severe or unusual pain, or excessive hemorrhaging, or indications of eclampsia.	2
5. Unexplained and/or severe pain of sudden onset causing restriction of movement or labored breathing.	45
6. Apparent or suspected case of poisoning	4
7. Acute panic state and/or psychiatric gestures of impending psychosis, or drug over-use.	8
8. State of disorientation, semicoma, and coma.	3
9. Severe cases of vomiting or diarrhea in infants or in the aged and infirmed.	2
10. None of the above criteria.	272
Total Number of Patients Evaluated	605

illustrated in Table 16.

TABLE 16

APPROPRIATENESS OF EMERGENCY ROOM USE
BY COMPARISON WITH SEVERITY RATING

Severity Rating	Patients' Medical Condition within Symptomatic Criteria		
	Yes	No	Total
Emergent	39	11	50
Urgent	246	127	373
Non-Emergent	41	125	166
No Information	7	9	16
Total	333	272	605

For statistical purposes, the data were analyzed using all possible severity rating combinations with full recognition that this resulted in non-independent testing. However, this action was considered necessary to properly interpret the data. The 2 x 2 Chi Square test was used for this analysis.

The emergent versus urgent rating was found to be not significant at the 0.10 level. However, all other possible combinations of severity ratings, emergent versus non-emergent, urgent versus non-emergent, emergent-urgent versus non-emergent, and emergent versus urgent-non-emergent, were significant at the 0.005 level of significance. The analysis indicated that the emergent and urgent severity catagories were not statistically differentiable using the Symptomatic Criteria Scale as

the independent variable. All other categories of the severity rating scale were statistically differentiable.

The conclusion drawn from this data was that the Symptomatic Criteria of Magnitude to Necessitate Use of the Emergency Room was an excellent instrument to differentiate between emergent cases and non-emergent cases, and between urgent cases and non-emergent cases; however, its weakness lay in predicting differences between emergent and urgent cases.

The null hypothesis which was tested was:

> The evaluation of the patient's medical need measured by the symptomatic criteria does not differ from the physician's urgency rating.

This null hypothesis was accepted. The Symptomatic Criteria of Magnitude to Necessitate Use of the Emergency Room was an excellent predictor of the physician's evaluation of the patient's condition.

Symptom Sensitivity of Patients

It has been reported that patients who used the emergency room were hyper-symptom-sensitive meaning that they were overreacting to symptoms which were not considered very serious by the medical profession. The implications of this belief were that the expanded use of the emergency room might be a result of hyper-symptom-sensitive patients and that proper screening of these people might be necessary to preserve the present emergency room system.

The sensitivity of emergency room patients was examined in this study using a scale developed by Hetherington and Hopkins to determine

the patient's perception of symptoms and their severity.[1] The patient was asked to select from the list of eleven symptoms those which he felt were serious enough to contact and see a private physician. The list of symptoms and their weighted values of seriousness is found in Appendix J.

The eleven-item scale was checked for scalability on the emergency room population using the Guttman analysis technique.[2] The elimination of two items in the scale produced a reproducibility of 0.908. This list of nine remaining scalable items and their appropriate weights is illustrated in Table 17. A scalability of 0.900 or better indicated that a patient with the same score was likely to have obtained that score by checking the same symptoms.

The number of symptoms checked compared to the number of people is shown in Table 18. For example, the table indicated that four patients checked none of the symptoms; 91 patients checked two of the symptoms; and 67 patients checked all nine of the symptoms.

The profile of scores of the nine scalable items as compared to number of patients is illustrated in Figure 4. This profile indicated that 95 patients had a score of between 0 and 1.99 units; 90 patients had a score of between 2.0 and 3.99 units; and 70 patients had a score between 16 and 17.99. Patients were assigned into three categories dependent upon their response to the list of symptoms. Those patients who checked symptoms which were considered minor by professional

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[1]Hetherington and Hopkins, op. cit., pp. 63-75.

[2]A. N. Oppenheim, Questionnaire Design and Attitude Measurement (New York: Basic Books, Inc., 1966), pp. 143-151.

TABLE 17

SYMPTOM SENSITIVITY SCALE USABLE ON
EMERGENCY ROOM POPULATION

Symptom	Weight
Blood in the Urine	0.60
Chest Pain	0.78
Unexplained Weight Loss	0.85
Persistent Joint or Muscle Pain	2.00
General Fatigue	2.08
Gaseousness	2.50
"Nerves"	2.67
Unexplained Weight Gain	2.68
Insomnia	3.02

TABLE 18

NUMBER OF POSITIVE RESPONSES TO NINE QUESTION SYMPTOM SENSITIVITY SCALE

Number of Symptoms Checked	Number of Patients Who Checked Symptoms
0	4
1	29
2	91
3	105
4	84
5	60
6	50
7	31
8	31
9	67
Total	552

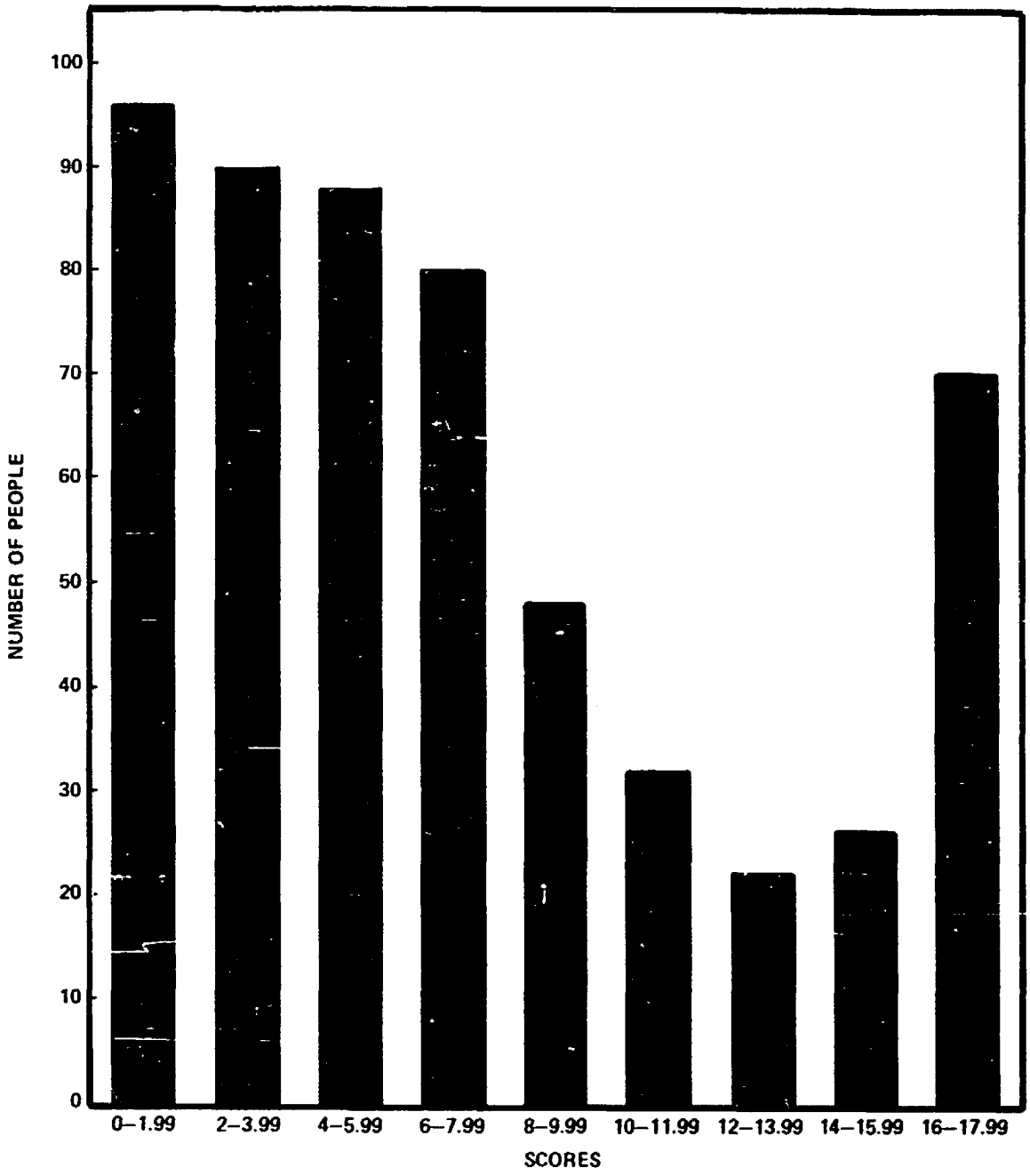

Fig. 4 – Distribution of Patient Symptom Sensitive Scores

judgment were considered hypersensitive to symptoms. Those who did not check symptoms which were considered serious were referred to as symptom insensitive while those patients who generally agreed with professional opinion were considered normative and were called symptom sensitive. Those patients with a score of less than 6.31 were categorized as symptom insensitive. Those with a score of 6.31 were categorized as symptom sensitive, and those with a score of greater than 6.31 as hyper-symptom-sensitive (or hypersensitive).

The number of patients in each category is illustrated in Table 19. The information indicated that 306 of the patients were in-

TABLE 19

NUMBER OF PATIENTS BY SYMPTOM CATEGORY

Symptom Category	Number of Patients
Insensitive	306
Sensitive	2
Hypersensitive	244
Total	552

sensitive while 244 were hypersensitive. This information concluded that a predominance of patients who used the emergency room were insensitive as opposed to the prediction that the patients would be hypersensitive. Studies in California have been conducted by Hetherington and Hopkins using this symptom sensitive instrument on a large random sample population. Based on these results the anticipated data for this

study would have been a bi-modal score distribution with approximately equal sizes in the two distributions. The sensitive category would have been expected to have about 10 per cent of the total population size.

The results of this study showed a uni-modal distribution with less than 0.5 per cent in the sensitive category. If one could assume that the general populations of California and Oklahoma were the same in regard to sensitivity, one could conclude that the patients who used the emergency room had a different symptom perception than a random sample of the population.

The categories of symptom sensitivity were checked against selected attributes of the population to determine if these attributes of the population were significantly different from the general sample population. The sensitivity category was eliminated from consideration in this part of the study due to the extremely small number of responses.

Medical Conditions

Emergency room population characteristics by medical condition were compared to the symptomatic categories. This information is found in Table 20. A Chi Square analysis indicated no significant difference between the accidents and medical conditions which brought patients to the emergency room.

Urgency Ratings

The urgency rating of the emergency room population was compared to the symptomatic categories and illustrated in Table 21. A

TABLE 20

COMPARISON OF SYMPTOM CATEGORIES
BY MEDICAL CONDITION

	Symptom Category		
Medical Condition	Insensitive	Sensitive	Hypersensitive
Accident	200	1	149
Medical Problem	106	1	95

TABLE 21

COMPARISON OF SYMPTOM CATEGORIES
BY URGENCY RATING

	Symptom Category		
Urgency Rating	Insensitive	Sensitive	Hypersensitive
Emergent	10	0	15
Urgent	180	2	149
Non-emergent	96	0	56

Chi Square test was performed on the data, and the following results were obtained. Emergent-urgent versus non-emergent was found to be significant at the 10 per cent level with Chi Square equal to 3.51. Emergent versus non-emergent was found to be significant at the 5 per cent level with Chi Square equal to 3.87. The non-emergent patients were statistically more insensitive than emergent and urgent patients.

The null hypothesis to be tested was as follows:

> Symptom-sensitivity of the patient does not relate to the physician's urgency rating.

This null hypothesis was rejected. The symptom-sensitivity of the patient did correlate highly with the physician's urgency rating.

Marital Status and Sex

Marital status and sex characteristics of emergency room patients were compared to the symptomatic categories. Marital status is found in Table 22, and sex in Table 23. Statistical analyses indicated no significant differences for these characteristics. No differences between symptom categories were observed by marital status or between males and females.

Social Class

Social classes of the patients who used the emergency room were compared with the symptom categories. The information is presented in Table 24. A Chi Square test was run comparing Class 1, Class 2, and Class 3 versus Class 4 and Class 5. The results were significant at the 10 per cent level with Chi Square equal to 3.02. The social classes of 4 and 5 were significantly more insensitive than Classes 1, 2, and 3.

TABLE 22

COMPARISON OF SYMPTOM CATEGORIES
BY MARITAL STATUS

Marital Status	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
Single	167	1	145
Married	119	1	84
Separated	5	0	2
Widowed	3	0	6
Divorced	11	0	7

TABLE 23

COMPARISON OF SYMPTOM CATEGORIES
BY SEX

Sex	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
Male	176	0	135
Female	130	2	109

TABLE 24

COMPARISON OF SYMPTOM CATEGORIES
BY SOCIAL CLASS

Social Class	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
Class 1	1	0	1
Class 2	13	0	5
Class 3	51	0	52
Class 4	175	1	124
Class 5	66	1	62

Day of the Week

The day of the week was compared with the symptom categories and is illustrated in Table 25. More patients were insensitive than were hypersenitive on all days of the week except Monday and Friday. In comparing Monday and Friday with all other days of the week, the Chi Square test showed a significant difference (Chi Square equaled 6.35 which was significant at the 5 per cent level). The data indicated that the patients seen on Monday and Friday were more hypersensitive than those seen on other days of the week.

Physician Contact

Physician contact was compared to the symptom categories and this comparison is presented in Table 26. The data indicated that, for all categories, except convenience visits, the greater number of patients were in the insensitive categories. In the category of convenience

TABLE 25

COMPARISON OF SYMPTOM CATEGORIES
BY DAYS OF WEEK

Day of Week	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
Sunday	34	0	34
Monday	22	0	28
Tuesday	43	0	33
Wednesday	40	0	22
Thursday	56	0	45
Friday	22	1	30
Saturday	79	1	52

TABLE 26

COMPARISON OF SYMPTOM CATEGORIES
BY PHYSICIAN CONTACT

Physician Contact	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
Convenience Visit	19	0	25
Referred by Family Physician	39	0	33
Contact Attempted—No Assistance or Dissatisfied with Care Program	34	1	28
No Contact	211	1	157

visits, more hypersensitive than insensitive patients were evident although the number of patients in this category was very small. The Chi Square test comparing convenience visits with those patients with no contact before coming to the emergency room, resulted in a Chi Square of 2.64. The results were not significant (Chi Square at 10 per cent level equals 2.71), but indicated a strong directional possibility of significance if the sample size were larger. The evidence might lead to the speculation that physicians see more symptom sensitive people in their offices than are seen in the emergency room.

Previous Visits

The number of previous visits to the emergency room was compared to the symptom categories and was illustrated in Table 27. Statistically, tests of the data indicated no significant difference between the symptom categories by the number of previous visits to the emergency room.

TABLE 27

COMPARISON OF SYMPTOM CATEGORIES BY PREVIOUS VISITS

Visits	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
0	224	2	160
1	56	0	48
2	15	0	15
3	4	0	5
4 +	7	0	14

Age and Sex

The age category divided by sex was compared with the symptoms category in Table 28. The data indicated that, for all age groups, more

TABLE 28

COMPARISON OF SYMPTOM CATEGORIES
BY AGE AND SEX

	Symptom Category		
Age	Insensitive	Sensitive	Hypersensitive
0-15	136	1	126
Male	68	0	75
Female	68	1	51
16-20	31	0	14
Male	19	0	6
Female	12	0	8
20-34	70	1	62
Male	47	0	33
Female	23	1	29
35-54	46	0	21
Male	29	0	10
Female	17	0	11
55 +	23	0	21
Male	13	0	11
Female	10	0	10

patients were insensitive than were hypersensitive. However, the sex determination between each group indicated that some sex-age groups were more hypersensitive than insensitive. Two of these categories were males in the 0-15 age group and females in the 20-34 age group. However, due to the way the data were gathered by having parents complete the form for 0-15 years-old age group, the data might have been a reaction of the same female hypersensitive population group.

The data also indicated a high ratio of insensitive patients to hypersensitive (31 insensitive to 14 hypersensitive) patients in the 16 to 28 year age group. The Chi Square test comparing the 16 to 20 year group to the sum of all other age categories indicated a significant difference (Chi Square equaled 3.33, significant at the 10 per cent level). The 16 to 20 year age group was significantly more insensitive to symptoms than the other patients who used the emergency room.

The male population was added excluding the ages of 0-15, and the results were found to be 108 males insensitive and 60 males hypersensitive. The same procedure was used for females, and the sums were 62 females insensitive and 58 females hypersensitive. A Chi Square test on this data indicated that males were significantly more insensitive to symptoms than were females (Chi Square equaled 4.10, significant at the 5 per cent level).

Time of Arrival

The time of arrival in the emergency room was categorized into 6-hour intervals and compared to the symptom category. This information is illustrated in Table 29. The data indicated that three of the four time categories had more insensitive than hypersensitive patients. The exception was the time category from 6:00 A.M. to noon when more hypersensitive patients than insensitive patients were in the emergency room. A Chi Square test comparing the 6:00 A.M. to noon time category with the 6:00 P.M. to midnight time category indicated that the patients seen in the 6:00 A.M. to noon category were significantly more hypersensitive than the patients in the 6:00 P.M. to midnight time category (Chi square equaled 7.22, significant at the 5 per cent level).

TABLE 29

COMPARISON OF SYMPTOM CATEGORIES
BY TIME

Time	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
Midnight - 6:00 A.M.	13	0	7
6:01 A.M. - Noon	38	0	52
12:01 P.M. - 6:00 P.M.	111	2	87
6:01 P.M. - Midnight	144	0	98

Distance

The distances which patients traveled to reach the emergency room were compared to the symptom criteria. These data are presented in Table 30. These data indicated that for most distances under four miles, the patients were more insensitive than hypersensitive. However, the patients from 4.5 miles through 19.5 miles distance had a greater instance of hypersensitivity. A Chi Square test on these data (under 4.5 miles versus 4.5 to 19.5 miles) indicated a significant difference between the two populations (Chi Square equals 3.15, significant at the 10 per cent level).

The patients who traveled greater distances (4.5 miles to 20 miles in this case) were more hypersensitive than those that came the shorter distances to the emergency room.

Attitudes of Patients

The attitudes of patients regarding health care have been

TABLE 30

COMPARISON OF SYMPTOM CATEGORIES

BY DISTANCE

Distance in Miles	Symptom Category		
	Insensitive	Sensitive	Hypersensitive
0.0	4	0	2
0.5	19	0	14
1.0	33	1	22
1.5	43	0	31
2.0	53	0	37
2.5	34	1	36
3.0	42	0	33
3.5	9	0	5
4.0	6	0	3
Subtotal	241	2	183
4.5	6	0	9
5.0- 9.5	25	0	32
10.0-19.5	10	0	7
20.0 +	19	0	11
Total	303	2	242

extremely involved, especially as they interrelated with the behavioral activities of utilization of health care facilities. Attitudes affected the disposition of people toward health, the utilization of health facilities, and the satisfaction which people experienced with their care. Originally, economic reasons were advocated as the restrictive element which caused people not to use the service. Now it has become known that the social-psychological reasons were equally or more important. Since the delivery of health care to the people was related to their proper attitude toward the service, the following sections of study were designed to measure attitudes in these areas.

The questionnaire entitled "Health Care Opinion Questions" (Appendix C) was completed by the patient and was intended to measure the patient's views between a traditional and contemporary view of the health care system. The traditional view was characterized by a belief that: (a) every family should have a private physician who takes a personal interest in patients and does not mind being inconvenienced for his patient, (b) this private physician's office should be the source of primary care, and the physician should be seen for all medical needs; the patient should not inconvenience the physician more than necessary to obtain needed medical treatment, (c) the emergency room should be equipped with highly trained professional people available in a local community for all serious accidents and serious medical problems; because of the seriousness of the cases seen in the emergency room, the facilities should be within close travel distance, and a centralized facility is not within consideration.

The contemporary view was characterized by a belief that: (a)

the availability of medical service when needed is more important than an ongoing relationship with a private physician; thus, the physician's office is organized for the convenience of a physician in contrast to the interest of the patient, (b) the emergency room is equal or superior as a source of primary care and its 24-hour availability is of paramount importance, (c) the patient is interested in the best utilization of equipment, personnel, and facilities at a most reasonable cost; time restraint and distance to a facility are not paramount considerations.

Attitudes toward the Health Care System

The patient's attitudes toward the traditional health care system were measured by three questions—A, B, and C of the health care opinion questions. The score obtained on this attitude section was correlated with the number of visits to an emergency room in the previous year. The assumption which was the basis of this comparison was that a high score on the attitude section would indicate non-conformity with the traditional modes of the health care system, and this attitude would be manifested in an increased number of visits to the emergency room. The information is illustrated in Table 31. The Chi Square test indicated no significant correlations. The null hypothesis which was tested in this section was:

> Patient attitude toward the health care system does not relate with the number of visits to the emergency room.

This null hypothesis was accepted. No correlation was found between the number of visits and patient attitude toward the health care system.

TABLE 31

NUMBER OF VISITS TO EMERGENCY ROOM COMPARED TO ATTITUDE SCORE TOWARD THE HEALTH CARE SYSTEM

Number of Visits	Attitude Score 3 - 7	8 - 11	12 - 15
0	149	224	9
1	38	63	1
2-3	14	23	0
4 +	9	11	0
No Information	1	0	0

Attitudes toward Acceptance of "Convenience Clinics"

The attitude of patients toward the acceptance of convenience clinics was measured by four questions, D, E, F, and G, on the health care opinion questionnaire. The score obtained on this attitude section was correlated with the severity rating of the physician and with the number of visits to the emergency room. The assumption upon which these four questions were based was that patients who now use the emergency room for non-emergency care situations and have the highest number of visits will be more favorably disposed toward convenience clinics. The attitude scores correlated with visits are shown in Table 32, and severity ratings, in Table 33. Chi Square analysis of the data in both tables indicated no significant differences. The null hypotheses which were tested were:

> Patient attitude toward acceptance of convenience clinics has no relationship to the severity rating of the physician.

TABLE 32

NUMBER OF VISITS TO EMERGENCY ROOM COMPARED TO ATTITUDE SCORE TOWARD CONVENIENCE CLINICS

Number of Visits	Attitude Score 3 - 7	8 - 11	12 - 15
0	7	275	99
1	3	69	30
2-3	1	27	8
4 +	0	18	2

TABLE 33

SEVERITY RATING BY PHYSICIAN COMPARED TO ATTITUDE SCORE TOWARD CONVENIENCE CLINICS

Severity Rating	Attitude Score 4 - 7	8 - 11	12 - 15	16 - 20
Emergent	0	19	6	0
Urgent	7	239	77	1
Non-emergent	4	102	43	1
No Information	0	29	11	0

> Patient attitude toward acceptance of convenience clinics is not affected by the number of visits to the emergency room in the previous year.

These two null hypotheses were accepted. The conclusion was that the number of previous visits to the emergency room and the severity rating by the physician had no relationship to attitudes toward convenience clinics.

Attitudes toward Redirection to Centralized Emergency Room Facilities

The attitudes of patients toward redirection to a centralized emergency room facility were measured with questions H, I, and J on the health care opinion questionnaire. The score obtained on this attitude section was correlated with the score of questions K, L, and M which dealt with the personal acceptance of care received in the emergency room. It was assumed that patients who had a favorable attitude toward the acceptance of care would not be disposed to accept redirection to a centralized emergency room service facility. The data on this section are illustrated in Table 34. The Chi Square test indicated no significant difference. The null hypothesis which was tested was:

> Patient attitude toward redirection to a central emergency facility does not differ from attitudes toward care received in the emergency room.

The conclusion from this data would indicate that the attitude toward care received in the emergency room had no relationship to attitudes toward redirection to a centralized emergency service facility.

Composite View of Attitude Scores

The sums of all scores of all the questions were added to determine if the composite of attitude scores toward either the

TABLE 34

ATTITUDE SCORE FOR ACCEPTANCE OF CARE COMPARED TO ATTITUDE SCORE TOWARD REDIRECTION TO CENTRALIZED FACILITY

Acceptance of Care Scores	Attitude Score 3 - 7	8 - 11	12 - 15
3 - 7	1	2	0
8 - 11	53	61	7
12 - 15	144	150	12

traditional or contemporary view of health care was related to the characteristics of the population. The characteristics examined were: age, sex, social class, physician contact, number of visits, and urgency ratings of the population.

Visits. The mean score of all attitude questions compared to previous visits to the emergency room is illustrated in Table 35. A mean score was obtained for each category, and the Duncan Multiple Range Test was conducted on the data using the 5 per cent level of significance. The mean scores from the patients with no previous visits (26.54) and those with one previous visit (26.55) were significantly different than the scores of those patients with two or more previous visits (25.59 and 24.50). The conclusion was that patients with no previous visit and one previous visit had a more contemporary view of the health care system than those patients with two or more visits, and patients with two or more visits tended to have a more traditional view of the health care system.

TABLE 35

MEAN SCORES ON ATTITUDE QUESTIONS COMPARED TO NUMBER OF VISITS TO EMERGENCY ROOM

Number of Visits	Number of Patients	Total Score	Mean Score of All Questions
0	383	10,166	26.54
1	102	2,708	26.55
2-3	37	947	25.59
4 +	20	490	24.50

Urgency Rating, Sex, and Social Class. The mean scores of all attitude questions were compared to the urgency ratings, to sex, and to social class. The information on each category is found in Tables 36, 37, and 38. For each category, the Duncan Multiple Range Test was conducted using the 5 per cent level of significance. No significant differences were observed between the urgency ratings, between males and females, or between the five social classes.

Age. The mean scores of all attitude questions compared to age categories of patients who visited the emergency room are presented in Table 39. A mean score was obtained for each age category, and the Duncan Multiple Range Test was conducted on the data using the 5 per cent level of significance. The mean score of the age group under 15 was significantly different from the mean scores of age groups 35 to 64 and 65 and above. The conclusion was that in the age group 0-15 (for which the information was obtained from parents), the more traditional view of a medical care system was maintained in contrast to a moderate

TABLE 36

MEAN SCORES ON ATTITUDE QUESTIONS COMPARED TO URGENCY RATING BY PHYSICIANS OF PATIENTS VISITING EMERGENCY ROOM

Urgency Rating	Number of Patients	Total Score	Mean Score of All Questions
Emergent	25	655	26.20
Urgent	324	8,55[illegible]	26.39
Non-emergent	151	4,002	26.50

TABLE 37

MEAN SCORES ON ATTITUDE QUESTIONS COMPARED TO SEX OF PATIENTS VISITING EMERGENCY ROOM

Sex	Number of Patients	Total Score	Mean Score of All Questions
Male	306	8,122	26.54
Female	236	6,189	26.22

TABLE 38

MEAN SCORES ON ATTITUDE QUESTIONS COMPARED TO SOCIAL CLASS OF PATIENTS VISITING EMERGENCY ROOM

Social Class	Number of Patients	Total Score	Mean Score of All Questions
1	2	50	25.00
2	18	493	27.39
3	102	2,679	26.26
4	296	7,797	26.34
5	124	3,292	26.55

TABLE 39

MEAN SCORES ON ATTITUDE QUESTIONS COMPARED TO AGE OF PATIENTS VISITING EMERGENCY ROOM

Age	Number of Patients	Total Score	Mean Score of All Questions
0-15	243	6,298	25.92
16-20	61	1,647	27.00
21-34	122	3,178	26.05
35-64	93	2,536	27.27
65 +	23	652	28.35

or contemporary view by the 35–64 and 65–year plus age group. This conclusion could possibly be explained as a belief that a family physician was more necessary for the young children in the family.

Physician Contact. The mean score of all attitude questions was compared to the patient's physician contact before coming to the emergency room. The information is presented in Table 40. A mean score was

TABLE 40

MEAN SCORES ON ATTITUDE QUESTIONS COMPARED TO PHYSICIAN CONTACT BEFORE VISITING THE EMERGENCY ROOM

Physician Contact	Number of Patients	Total Score	Mean Score of All Questions
Convenience Visit	43	1,094	25.44
Referred by Private Physician	70	1,751	25.01
Attempted Contact No Assistance	65	1,791	27.55
No Contact	362	9,627	26.59

obtained from each type of physician contact, and the Duncan Multiple Range Test was conducted on the data at the 5 per cent level of significance. The data indicated that the referred patients were significantly different from the patients who had no contact or the patients who attempted contact with a physician before coming to the emergency room. The conclusion from the data indicated that referred patients had a significantly more traditional view to the health care system than patients who came to the emergency room without physician

direction. The second test results indicated that convenience visit patients and patients who were referred by physicians were significantly different from the patients who attempted to contact a physician and were unsuccessful or obtained no satisfaction with the contact. The conclusion from this data indicated that those patients with an established physician relationship had a significantly greater traditional view of the health care system. Those patients who attempted to contact a physician and were unsuccessful might have been indicating their feelings for the contemporary view as a frustration to the shortcomings of the present system.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

The health care system and the emergency room, as an integral part of the system, has continued to expand and adapt as a result of the pressures exerted upon it. Providing emergency and point of entry care to patients in our health care system has continued to be a major problem. This study has attempted to identify factors, conditions, and attitudes which have influenced usage of the emergency room and have exerted pressures upon the present system.

The setting for this study was South Community Hospital, a community general hospital of 197 beds in an urban area of Oklahoma City, staffed with full-time emergency room physicians. The study compared and contrasted emergency room patients and inpatients, but placed greater emphasis on the emergency room patients. Information was gathered over a 4-week period from interviews with 662 emergency room patients, emergency room records, physicians and nursing personnel, and records of 786 inpatients.

Conclusion

Population Characteristics

The service areas for inpatients and emergency room patients

were determined to ascertain if the two areas were identical in an urbanized area. Distances from the hospital were established for both inpatients and emergency room patients by measuring the distance in miles from the hospital to the place of residence. Generally, the service areas were found to be similar when compared by distance intervals, with the exception that more inpatients came to the hospital from a distance greater than 20 miles. This phenomenon could possibly be explained by a referral pattern from outlying physicians, by the maintenance of contact with a physician after moving to a new location, and by the expectation of greater expertise by patients from greater distances who made appointments with city physicians.

The conclusion drawn was that the emergency room and inpatient service areas were nearly identical and that the hospital served the same population areas for both inpatients and emergency room patients. The data also indicated that other hospitals had overlapping service areas with South Community Hospital and that South Community Hospital was providing for only one-third of the inpatient admissions for the service area defined in this study.

The null hypothesis which was tested was:

> Geographic factors affecting emergency room use do not differ from the geographic factors affecting inpatient use.

This hypothesis was accepted. The service areas and distances were not significantly different between emergency room patients and inpatients.

The characteristics of the portion of the population in the general service area which used the emergency room, and those who were admitted as inpatients were compared to determine differences in usage patterns. The emergency room was found to be the more common mode of

treatment for the population age group of 0 to 19. Only 19 per cent of the population in the service area were within the 0 to 19 age group, but 23 per cent of emergency room use and 14 per cent of inpatient use was attributable to this age group. The health status of youth in this age group and the type of activities in which they engaged lent themselves to emergency room treatment of medical needs in contrast to inpatient types of care.

The age group 35 to 65 had a lower emergency room usage pattern than its percentage in the general population, but almost the same ratio as anticipated for inpatient admissions. This age group might be more permanently established, might have developed physician contacts, and might not be subject to accidents which require the type of care given in the emergency room.

The 65-years-of-age-and-over group experienced two and a half times as many inpatient admissions as its number in the general service area would suggest. This pattern could be explained partially by the higher number of admissions and extended length of stay for chronic conditions in the aged population.

More males than females utilized the emergency room. Fifty-six per cent of the patients were male while only 44 per cent were female. This pattern might be explained in part by the roles men perform, either in vocations or avocations which lend themselves to accidents and injuries of the type which would be treated in the emergency room.

Marital status corresponded closely to age categories when compared to usage patterns; consequently, the high use of the emergency room by the 0 to 19 age group influenced the predominantly single marital

status. In contrast, approximately one and a half times more married people were admitted as inpatients in comparison with emergency room patients.

Patients with separated marital status accounted for nearly three times the rate of emergency room visits as inpatient admissions and were higher users of the emergency room than their ratio in the general service area would have predicted. Divorced females had a higher rate of emergency room use than anticipated by their number in the service area. This information confirmed other sources which stated that divorced and separated marital status patients were greater users of the emergency room.

Widowed marital status patients accounted for nine per cent of inpatient admissions. Widowed females had a lower emergency room usage than anticipated by their proportion in the general service area, but had a higher ratio of inpatient usage. This pattern could partly be explained by the high number of over-65 patients admitted to hospitals, the greater life expectancy of the female, and the health neglect associated with living alone.

Social classes of the emergency room patients and inpatients were obtained to determine if social class influenced the mode of treatment. No differences were evidenced between the social classes of the emergency room patients and the inpatients; therefore, the conclusion was that the physicians served the social classes in the community in nearly exact proportions for both inpatients and emergency room patients.

Racial characteristics of the hospital service area indicated that almost four per cent of the population was non-white. Three per

cent of the patients at the hospital were noted, by observation, to be non-white. This indicated that the hospital was not excluding minority racial groups within the hospital service area.

The null hypothesis tested was:

> Characteristics of the population who use the emergency room do not differ from the characteristics of the hospital's general service area.

This hypothesis was not accepted. Significant differences between the patients who used the emergency room and the population in the hospital's service area do exist.

Usage Patterns

The number of admissions to the inpatient service and the number of emergency room visits varied by day of the week. Sunday and Thursday accounted for about 40 per cent of all inpatient admissions while the two days of Thursday and Saturday accounted for 40 per cent of the emergency room visits. The Sunday-Thursday pattern of hospital admissions is a common occurrence where a large number of elective cases are admitted. The high number of emergency room visits on Thursday and Saturday might be explained by the office schedule of physicians in the community and by the urgency which people felt which precluded waiting until Monday when they could see their own private physician. The pattern of usage of the emergency room at South Community Hospital on Saturday resembled a typical outpatient clinic situation with 22 per cent of the week's volume being examined on this day.

Seventy per cent of the patients who visited the emergency room had no previous visits to an emergency room in the preceeding twelve months, and 19 per cent had only one previous visit. This evidence

indicated that the emergency room was being used by the community for initial treatment of patients and does not appear to be acting as a substitute for the private physician.

The emergency room visits were predominantly in the afternoon and evening with 80 per cent in this section of the day. The rate was highest at times when physicians' offices were not open.

The patients' contacts with physicians before coming to the emergency room were checked to determine the referral patterns. Sixty-six per cent of the patients arrived without having attempted to contact their private physician; 11 per cent had attempted to contact their private physician but were not able to make contact; 13 per cent made contact and were referred; and 11 per cent were seen by their private physician in the emergency room. Much criticism has been leveled at the emergency room and the hospital because physicians believed that much of the care and treatment provided in the emergency room should be rerouted to private physicians' offices; however, the evidence indicated that 34 per cent of the utilization of the emergency room was a direct result of actions by the physicians or a visit by default for reasons regarding inaccessibility or an unacceptabity of care by the physician in private practice.

Nineteen per cent of the inpatient admissions were first examined in the emergency room, and 83 per cent of the patients admitted to the ICU/CCU were first examined in the emergency room. This evidence supported the contention that the hospital was dependent upon the emergency room as a source of referral for inpatient admissions.

These data also substantiated the need for a close physical

arrangement between the emergency room, ICU/CCU, and the surgical suite. These nursing units were usually operated independently from other nursing units, and the proximity of ICU/CCU to the emergency room and surgical suite eliminated the transportation problems of moving seriously ill patients great distances in the hospital.

The admission rate to inpatient units and to ICU/CCU after first being examined in the emergency room was approximately half the rate on Saturday as compared to other days of the week. This phenomenon was difficult to explain and deserves further study to determine if this pattern is univeral or if it represents an unusual sampling situation.

Evaluation of Patient's Condition

A list of symptoms was developed to determine if the conditions which brought patients to the emergency room were appropriate for emergency room treatment. A symptom instrument completed by nursing personnel compared the physician's rating of the seriousness of each patient's condition.

The preponderance of cases observed in the emergency room were a result of a symptom of "overt trauma involving bleeding, concussion, fracture, or internal injuries, or loss of body fluids." Sixty per cent of the emergency room cases were the result of accidents while 40 per cent were medical problems.

The data support a conclusion that the instrument, "Symptomatic Criteria of Magnitude Sufficient to Necessitate Use of the Emergency Room," was an excellent differentiator between emergent cases and non-emergent cases and between urgent and non-emergent cases. However, a weakness of the instrument was relative to predicting differences

between emergent and urgent cases.

The null hypothesis which was tested was:

> The evaluation of the patient's medical need measured by the symptomatic criteria does not differ from the physician's urgency rating.

This hypothesis was accepted. The Symptomatic Criteria was an excellent predictor of the physician's evaluation of the patient's condition.

Symptom Sensitivity

The symptom-sensitivity of patients was tested to determine the type of sensitivity expressed by different groups of the population. The emergency room patients were given a list of eleven symptoms and asked to indicate which symptoms were serious enough to warrant seeing a physician for medical attention. In the study, 306 of the patients were symptom-sensitive while only 244 were hyper-symptom-sensitive.

The factors of medical conditions, marital status, sex, and number of previous visits were found to have no correlation to sensitivity. However, the factors of urgency ratings, social class, day of the week, time of arrival, and distance were found to be significant. Emergent and urgent patients were more hypersensitive than non-emergent patients. The social Classes 1, 2, and 3 were significantly more hypersensitive than Classes 4 and 5. The patients seen on Monday and Friday were more hypersensitive than those seen on other days of the week. The patients seen from 6:00 A.M. until noon were more hypersensitive than the patients seen between 6:00 P.M. and midnight. The patients from distances of 4.5 miles to 20 miles were more hypersensitive than those who lived closer than 4.5 miles.

A large number of patients in this study was noted to be in the

insensitive category. This condition suggested that many persons in the service area were not knowledgable about severe symptoms, in contrast to their being overly concerned about minor symptoms. The obvious response to this situation, although admittedly difficult to administer, would be an educational program to familiarize the population with serious medical conditions.

The null hypothesis which was tested was:

> Symptom sensitivity of the patient does not relate to the physician's urgency ratings.

This hypothesis was rejected.

Attitude of Patients

A Likert Attitude Scale Questionnaire was administered to the emergency room patients in the study. The possible responses to the thirteen questions ranged from strongly agree to strongly disagree on a five-step continuum. Statements were prepared to measure attitudes of a traditional view of the health care system versus a contemporary view. The questions were divided into three sections—Attitudes Toward the Health Care System, Attitudes Toward the Acceptance of "Convenience Clinics," and Attitudes Toward Redirection to Centralized Emergency Room Facilities.

No statistically significant results were found in this section. Possible explanations might be that the questionnaire was not specific enough or that too few questions were asked to gain a broad enough response pattern. However, the attitude score for each of the three sections were totaled to form a composite score. These composite scores will be discussed in the next section. Although this section had no

significant findings, the section dealing with the composite scores had some dimension which was significant. The existence of such findings would apparently indicate that the attitude questions had measurable qualities.

The null hypotheses which were tested were:

> Patient attitudes toward the health care system do not relate with the number of visits to the emergency room.

This hypothesis was accepted because no correlation was found between number of visits and patient attitudes toward the health care system.

> A patient attitude toward acceptance of convenience clinics had no relationship to the severity rating of the physician.

This hypothesis was accepted.

> Patient attitudes toward acceptance of convenience clinics are not affected by the number of visits to the emergency room in the previous year.

This hypothesis was accepted.

> Patient attitudes toward redirection to central emergency facilities do not differ from attitudes toward care received in the emergency room.

This hypothesis was accepted.

The results of this section were inconclusive, either because of shortcomings of the instrument or because of patients who did not have definite feelings about the areas tested in this study. An assumption could be made that both reasons contributed to the inconclusiveness.

Composite of Attitudes

The sums of all the attitude questions were added to form a composite score. This score was compared to the characteristics of the population.

The number of previous visits to the emergency room was compared

to the attitude scores of these patients. These comparisons support a conclusion that patients with no previous visits or only one previous visit had more contemporary attitudes toward the health care system than do the patients with two or more visits.

This phenomenon was difficult to explain because the pattern was exactly the opposite of the predicted results. One probable explanation lay in the supposition that emergent patients recognized the absence of comprehensive care in the emergency room and preferred the services rendered by physicians in private practice.

The characteristics of urgency ratings, sex, and social class were compared to the composite attitude scores. The lack of significant differences indicated that the patient's condition, sex, and social class did not have any relationship to attitudes toward the health care system.

The age of patients was compared to the composite attitude score, and significant differences were noted. The parents completed the form for children 0-15 who were seen in the emergency room, and the results suggest that these parents had a more traditional attitude of the health care system. In contrast, the age groups 35 to 64 and 65 and over had a more contemporary attitude about the health care system. This pattern might be partially explained by the concern which parents have for the health of their children and the parent perception of the need for an established physician relationship for their children. This attitude might be partly responsible for the high use of the emergency room by children when parents had not established a physician relationship or when their physician was unavailalbe.

The patient's contact with a physician before coming to the emergency room was compared to the composite attitude score. Two categories of patients, those who were referred to the emergency room by their personal physician, and those who were seen in the emergency room by their personal physician, had a more traditional attitude toward the health care system. This pattern was expected because these patients were within the usual functioning activities of the health care system and were obviously satisfied. Contrarily, the patients who attempted to contact a physician and were unsuccessful or who obtained no satisfaction from the contact had a very contemporary attitude toward the health care system. This attitude might have been the result of frustration or an immediate reaction to the situation. The lasting or long-term effect of this attitude was not measured and deserves further study.

Significance of this Study to the Health Care Field

The results of this study confirmed that the emergency room in an urban setting was not being used for its intended purpose—the treatment of emergencies. In this study, the ratio was 1:5:3 for emergent, urgent, and non-emergent respectively. Obviously, the need existed for a care mode which would provide medical attention for the urgent and non-emergent cases in a facility outside the traditional emergency room setting.

This study substantiated the need for some new mode such as "convenience clinics," either operated as an adjunct of the hospital or operated by physicians as suggested by the AMA. Patients did not favor the emergency room as a permanent alternative to a private physician; rather, they used the emergency room because it was the only facility

available to them. Patients also indicated a preference for a community based clinic in contrast to a centralized or citywide facility.

Five utilization factors were relevant to the overall field and to this setting in particular. These factors are listed and individually discussed below as to their effect upon the use of the emergency room.

1. A preponderance of children and young adults used the emergency room and accounted for over 50 per cent of all emergency room visits.

2. A heavy usage pattern was noted in the 6:00 P.M. to midnight time sequence when approximately 45 per cent of all emergency room cases were seen.

These two factors might be attributable to the concern for their children that the parents felt when they arrived home from work and the decision they made to seek treatment after physicians' offices were closed.

3. A usage pattern in the emergency room on Thursdays and Saturdays accounted for 43 per cent of all the emergency room visits.

This factor was probably the result of physician's office hours and office scheduling. The physicians apparently took off on Thursdays and were unavailable for additional appointments on Saturday.

4. The patient usage of the emergency room by physician referral or by default for reasons of inaccessibility or unacceptability of care by the physician in private practice accounted for 34 per cent of all emergency room visits.

This information indicated that physicians were responsible for a high percentage of the emergency room visits.

5. Fifty-five per cent of the patients seen in the emergency room were insensitive to serious symptoms.

This percentage indicated that health information was not being appropriately assimilated into public knowledge. Physicians have an excellent opportunity to educate patients regarding symptoms when patients

are in their offices and are seeking treatment

Based on the above factors, the inference would be that the "solution" to the emergency room problem might well lie with the physicians and not with the hospital which has been traditionally burdened with the problem. Patients preferred the use of private physicians and, generally, did not make repeated use of the emergency room, even though the physicians were not maintaining office hours and a contact system which allowed the patients to obtain medical attention at the time the patients decided they needed treatment. The central issue to the problem is office scheduling and the availability of physicians after office hours. An awareness by each physician in the community that he is contributing to the problem would be a necessary requisite. He then could participate in developing a cooperative referral system to alleviate the problem. A convenience clinic would be an obvious solution although other possibilities are equally feasible. Another solution might be a rotating schedule of late office hours operated by physicians with an appropriate referral system. Any modificational design of the two solutions mentioned above would appear to have an excellent potential to "solve" the emergency room problem.

Recommendations for Further Research

As mentioned throughout this report, emergency room usage is a major problem in the health care system. Few new solutions are being proposed which appear to have the potential to change the nature of the problem. Perhaps new modes and evolutionary changes will place the emergency room in a proper prospective and will provide a prescribed operational function within the health care system. In the meantime, much

research is necessary to study the present system and monitor the evolving changes.

First, there is need for research in the area of patient commitment to a physician. This research, by necessity, needs to be in two dimensions. One dimension would determine a commitment level of an ongoing patient-physician relationship for the patients who come to an emergency room. The second dimension would be the evaluation of the effectiveness of the follow-up referrals of emergency room patients to private physicians. This patient-physician commitment is an area about which little is understood in relation to emergency room usage.

Secondly, research needs to be conducted in areas of "precautionary" and/or "insurance-will-pay" types of emergency room visits. In this study, 60 per cent of the cases had experienced some type of accident or injury before coming to the emergency room. Some of these cases were brought to the emergency room to obtain professional judgment and to <u>confirm</u> that the accident or injury was not serious. This usage pattern is compounded because insurance companies will often pay for emergency room treatment within 24 hours of an accident or injury. This practice deserves further investigation.

Thirdly, several experimental models of health care delivery systems need to be established in communities like South Oklahoma City. These alternatives to the emergency room pattern of health care could be closely monitored to determine the number and types of patients redirected from an emergency room. These types of models are, and will continue to be, fertile areas of research for many areas including the emergency room.

Fourthly, research needs to be conducted into a new activity which predictably will add substantially to the emergency room volume. In essence, this activity is an extension of the answering-service practice which physicians have used for years; however, under the new activity, some physicians are "signing out" to an answering service when their offices are closed. The answering service develops a contract with a private physician to respond to all calls which come to the answering service. Some of the effects of this situation are that the physician who returns the call has no information or knowledge of the patient or his condition, can only provide telephone consultation, and generally chooses, for legal reasons, to use very conservative medical judgments. Consequently, many of the patients who attempt to call doctors associated with an answering service are ultimately referred to an emergency room with full-time physician coverage. This practice needs close monitoring to determine the effects upon the usage patterns of emergency rooms.

And, lastly, the research methodology used in this study needs to be repeated in other emergency rooms and in other communities across the country. Only in this way can the findings be confirmed or refuted and new meaningful variables added to the knowledge of emergency room usage.

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APPENDIX A

Patient Information Questionnaire

Patient Information Questionnaire

A. Hospital Number _____

B. Address _____

C. Date (Day, month, year) _____

D. Day of Week _____

E. Time (A.M. - P.M.) _____

F. Sex _____

G. Race _____

H. Age (Last birthday) _____

I. Marital Status _____
(Single, married, separated, widowed, divorced)

J. Distance from Hospital _____

K. Name of treating physician _____

L. Number of Visits to Emergency Room in Previous Year _____

_____

M. Physician Contact before Coming to Emergency Room

Convenience Visit _____

Referred to House Physician _____

Contacted Private Physician/No Assistance _____

No Contact with Private Physician _____

N. Census Tract _____

O. Occupation of Patient or Head of Household _____

_____

P. Education Level of Patient or Head of Household _____

_____

APPENDIX B

Symptom Complaint Form

Symptom Complaint Form

Which of the following complaints do you think are serious enough to see a doctor about?

_____ allergy

_____ unexplained weight loss

_____ insomnia

_____ blood in urine

_____ "nerves"

_____ general fatigue

_____ unexpected weight gain

_____ persistent joint or muscle pains

_____ gaseousness

_____ pain in the chest

_____ frequent sore throats

APPENDIX C

Health Care Opinion Questions

Health Care Opinion Questions

Please check the response which most nearly expresses your opinion to each statement.

A. Every family should have a regular family physician whom they can contact for all illnesses.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

B. Private physicians do not like to be bothered with drop-in visits or calls after office hours.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

C. The service received in an emergency room facility is superior to a physician's office.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

D. Every ill person should be able to get medical treatment when he wants it—including nights, weekends, and holidays.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

E. A person should generally see the same physician each time he needs medical attention.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

F. Generally, emergency room facilities have too many professional personnel and too much expensive equipment to handle the majority of patients who use the emergency room.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

Health Care Opinion Questions
Continued

G. One large, centrally located emergency room facility could handle the entire emergency room needs of Oklahoma City.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

H. Twenty-five (25) minutes traveling time in Oklahoma City is a reasonable time to reach an emergency room facility.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

I. The cost of treatment in emergency room facilities would be lower for everyone if fewer hospitals operated emergency room facilities.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

J. More professional personnel and needed equipment would be available for one large emergency room facility than numerous small facilities.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

K. The attitude of personnel in this emergency room facility was:

Very Courteous and Helpful	Somewhat Courteous and Helpful	About Average	Somewhat Discourteous and Unhelpful	Very Discourteous and Unhelpful
☐	☐	☐	☐	☐

L. The medical treatment received in this emergency room facility was:

Greatly More than Expected	More than Expected	About as Expected	Less than Expected	Considerably Less than Expected
☐	☐	☐	☐	☐

Health Care Opinion Questions
Continued

M. The overall consideration of service received in this emergency room facility was:

Greatly above Average	Above Average	About Average	Below Average	Considerably below Average
☐	☐	☐	☐	☐

APPENDIX D

Physician Evaluation of Patient's Condition

Physician Evaluation of Patient's Condition

Please answer the three evaluation questions on the Patient's Condition by checking one response under each question which best describes the situation.

The patient's disorder is: (answer one only)

_____ Non acute and minor in severity.

_____ Acute but not necessarily life threatening.

_____ Acute and potentially threatening to life or function.

Time delay: (answer one only)

_____ Would be immediately harmful to the patient.

_____ Represents a possible danger if medically unattended.

_____ Would <u>not</u> be harmful to the patient.

The patient's condition: (answer one only)

_____ Required medical attention within the period of five hours.

_____ Required immediate medical attention. 0-1 hours.

_____ Was established and could have been handled routinely in a non-emergency facility.

_____ The patient was DOA, refused treatment, or was not seen by the physician.

EMERGENCY ROOM NUMBER _____

APPENDIX E

Symptomatic Criteria of Magnitude Sufficient to Necessitate Use of the Emergency Room

Symptomatic Criteria of Magnitude
Sufficient to Necessitate Use
of the Emergency Room

1. 103^{0} temperature or above for a pediatric patient (14 years of age or under).

2. 101^{0} temperature or above for an adult patient (15 years of age or older).

3. Overt trauma case involving bleeding, concussion, fracture, or internal injuries, or loss of body fluids.

4. Complications of pregnancy involving severe or unusual pain, or excessive hemorrhaging, or indications of eclampsia.

5. Unexplained and/or severe pain of sudden onset causing restriction of movement or labored breathing.

6. Apparent or suspected case of poisoning.

7. Acute panic state and/or psychiatric gestures of impending psychosis, or drug over-use.

8. State of disorientation, semicoma, and coma.

9. Severe cases of vomiting or diarrhea in infants, or in the aged and infirm.

_____ None of the above criteria.

APPENDIX F

Interview Plan

Interview Plan

The emergency room admission clerk was the initial contact-person with the patient who presented himself for care and treatment. The admission clerk completed portions or all of the Patient Information Questionnaire as part of the admission processes. The form was forwarded to the author.

The author then made contact with the patient while he was awaiting treatment. Interviews were generally conducted in the emergency room waiting areas, in examination rooms, or in X-ray or laboratory waiting rooms.

When contacting the patient, the author introduced himself and informed the patient as follows: "The Hospital is conducting a study of the emergency room patients in conjunction with the University of Oklahoma Medical Center and would like your assistance with this study. It will take about five minutes of your time."

The author proceeded to ask the patient for information to complete the Patient Information Form. The patient was then handed a pencil and asked to complete the next two forms. If it appeared that the patient was unable to read or would have difficulty filling out the forms, the author read the questions to the patient and solicited responses.

For the Symptom Complaint Form, in addition to the printed instructions, the patient was given the following oral instructions:

> "On this sheet are a list of complaints that patients sometimes see physicians about. I would like you to check those complaints that you think are serious enough to make contact with a physician and see a physician about...."

The patient was given the following oral instructions in addition to those printed on the Health Care Opinion Questionnaire:

> "In this section are thirteen statements. There are no right or wrong answers. Some people will read this statement and strongly agree while others will strongly disagree. I would like you to read the statement and check the box that indicates your feelings about the statement. I am not associated with this Hospital, and your name is not on this form, so we would appreciate your honest opinions."

After the forms were completed by the patient, they were collected by the author, and the patient was thanked for his assistance with the study.

APPENDIX G

Sampling Schedule by Time of Day and Day of Week

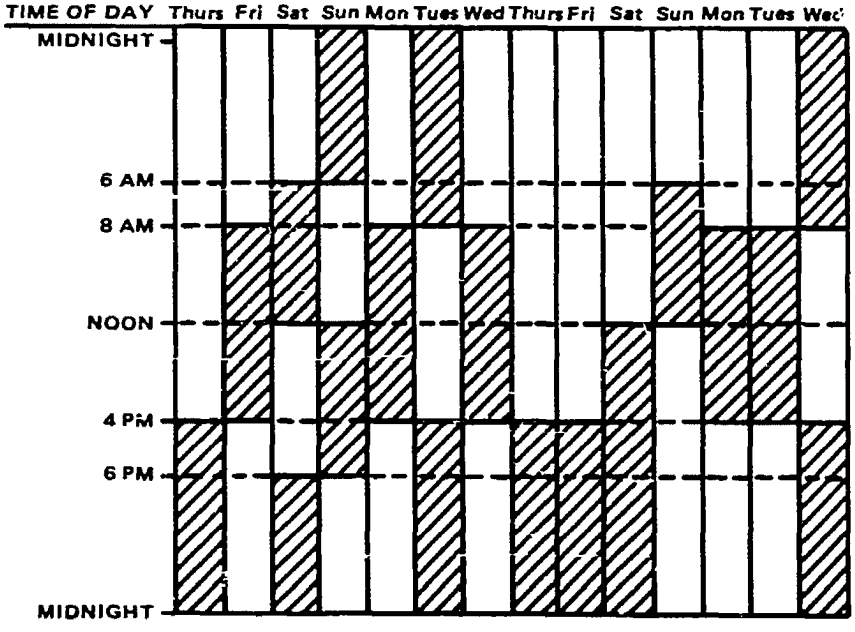

Fig. 5—Sampling Schedule by Time of Day and Day of Week.

APPENDIX H

Determination of Utilization Rate for South Community Hospital Emergency Room within Service Area

Determination of Utilization Rate for South Community Hospital Emergency Room within Service Area

Total Number of Patients in Emergency Room February 24, 1972 through May 22, 1972 (28 days)	1,483		
Sample Number of Patients	662		
Percentage of Same to Total		44.64	
Total Population within Service Area			118,478
Total Number of Patients Residing within Service Areas ad Defined in Table 2 from 44.64 per cent Sample	488		
Projected Number of Emergency Room Patients who Resided in Service Area, February 24, 1972 through March 22, 1972, based on 100 per cent Sample	1,093		

$$\frac{488}{662} = \frac{X}{1483}$$

$$662X = 723.704$$
$$X = 1093.2$$

Number of Visits per 28-day Period Per Thousand Population within Service Area

$$\frac{1093.2}{118,478} = \frac{X}{1,000}$$

$$118,478X = 109,300$$
$$X = 9.225$$

Visits Per Thousand Population Per Year within Service Area

4 weeks x 13 = 52 weeks (1 year) $\quad 9.225 \times 13 = 119.925$

APPENDIX I

Determination of Inpatient Utilization Rate for South Community Hospital within Service Area

Determination of Inpatient Utilization Rate for South Community Hospital within Service Area

Total Number of Inpatients Admitted February 24, 1972 through March 22, 1972	786
Total Number of Inpatients Residing within the Service Area as Defined in Table 2	534
Percentage Residing within Service Area	67.9
Total Population within the Service Area	118,478

Number of Admissions Per Thousand Population Per 28-day Period within Service Area

$$\frac{534}{118,478} = \frac{x}{1,000}$$

$$x = 4.507$$

Admissions Per 1,000 Population Per Year within Service Area

4 weeks x 13 = 52 weeks = 1 year

$$4.507 \times 13 = \underline{\underline{58.591}}$$

APPENDIX J

Symptom Sensitivity Scale

TABLE 41

SYMPTOM SENSITIVITY SCALE*

Symptom	Weight
Blood in Urine	0.60
Chest Pain	0.78
Unexplained Weight Loss	0.85
Persistent Joint or Muscle Pain	2.00
General Fatigue	2.08
Frequent Sore Throats	2.23
Gasecueness	2.50
"Nerves"	2.67
Unexplained Weight Gain	2.68
Allergy	3.00
Insomnia	3.02

* Developed by Hetherington and Hopkins and modified through personal correspondence with Robert Hetherington, Ph.D.

APPENDIX K

Number of Patients' Responses within Range of Scores

TABLE 42

NUMBER OF PATIENTS' RESPONSES
WITHIN RANGE OF SCORES

Scores Ranges of Symptoms	Number of Patients in Each Range
0-1.99	96
2-3.99	90
4-5.99	88
6-7.99	80
8-9.99	48
10-11.99	32
12-13.99	22
14-15.99	26
16-17.99	70
	552