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**Smith, Earlene Heaton**

SCOPE OF PROGRAMS IN ACADEMIC HEALTH CENTERS IN HIGHER  
EDUCATION

*The University of Oklahoma*

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THE UNIVERSITY OF OKLAHOMA  
GRADUATE COLLEGE

SCOPE OF PROGRAMS IN ACADEMIC HEALTH CENTERS  
IN HIGHER EDUCATION

A DISSERTATION  
SUBMITTED TO THE GRADUATE FACULTY  
in partial fulfillment of the requirements for the  
degree of  
DOCTOR OF EDUCATION

BY  
EARLENE HEATON SMITH  
Norman, Oklahoma  
1985

**SCOPE OF PROGRAMS IN ACADEMIC HEALTH CENTERS  
IN HIGHER EDUCATION**

**APPROVED BY**

Harold D. Bengt  
Richard R. Ricker  
W. H. Higgins  
Blanche Sammers  
Paul F. Sharp

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## ABSTRACT OF DISSERTATION

### SCOPE OF PROGRAMS IN ACADEMIC HEALTH CENTERS IN HIGHER EDUCATION

BY: EARLENE HEATON SMITH

MAJOR PROFESSOR: HERBERT R. HENGST, PH.D.

During the past two decades the academic health center has emerged as an organizational entity defined by the Association of Academic Health Centers as "a medical school, a teaching hospital, and at least one additional program." Many programs that provide for the education and training of the health professionals are not associated with higher education institutions. The purpose of this study was to locate the existing academic health centers that are a part of a university system in the United States and to identify the programs that culminate in a baccalauerate degree or higher. This study has generated and tested a method of investigating these centers in terms of their geographic location, size, and control. Since the literature conclusively supports the health care team concept as a most appropriate approach to practice in the health delivery system today, a conceptual model academic health center was designed as a subsystem of a university to include those programs deemed most essential for its completeness in relation to the health professions most essential in the health care team.

A questionnaire was developed specifically for this research and mailed to the chief administrative officer at each of the 108 medical



schools that are a part of a university system in the United States. There were 83 respondents for a 77 percent return rate. The data were analyzed using the T-test of Means; Spearman Rank-Order Correlation test; and the Pearson R, Spearman Rho, and Kendall Tau Correlation Coefficient tests. Findings revealed eight health profession programs that showed a significant relationship at the .05 level of significance to the health professions in the health care team. These were dentistry, medical technology, medicine, nursing, pharmacy, physical therapy, radiography, and respiratory therapy. The model was designed with three divisions: undergraduate, graduate, and professional. The location of the minimum eight health profession programs was dictated by the level of degrees awarded upon completion of the specific programs of study.

The conclusion of this study recommends a broader definition of an academic health center to be "an educational community of essential health profession disciplines located within an institution of higher education with multiple hospital affiliations."

## RESUME

EARLENE HEATON SMITH  
1406 Westbrooke Terrace  
Norman, Oklahoma 73069

EDUCATION:

Doctoral Candidate, University of Oklahoma, Norman, Oklahoma

Anticipated Date of Completion: May, 1985

**Dissertation Topic:** Scope of Programs in Academic Health Centers in Higher Education

Concentration: Higher Education Administration

M. Ed. Degree. University of Oklahoma  
Norman, Oklahoma

Concentration: **Counseling and Guidance**

B. S. Degree. Northwestern Oklahoma State University  
Alva, Oklahoma

**Concentration:** Physical Education, English, Speech and Dramatics

PROFESSIONAL EXPERIENCE:

January 1985      Advisor, Health Sciences Division  
to                    Rose State College  
Present            Midwest City, Oklahoma

June 1980 to July 1984  
Coordinator, Health Professions Counseling Center  
University of Oklahoma Health Sciences Center  
Norman, Oklahoma

June 1977 Counselor/Instructor, College of Nursing  
to University of Oklahoma Health Sciences Center  
July 1984 Norman, Oklahoma

August 1968      Teacher, Science and Physical Education  
to                  Norman Public Schools  
June 1977        Norman, Oklahoma

June 1961      Assistant Dean of Women and General Counselor  
to              University of Oklahoma  
August 1965      Norman, Oklahoma

August 1953      Teacher, Physical Education and English  
to                   Southeast High School  
March 1955      Oklahoma City, Oklahoma

GRADUATE HONORS:

Scholar Designate for Oklahoma Scholar's Leadership Programs:  
Transition and Transformation in Higher Education  
Education and Race Relations  
Selected one of twenty doctoral students nationally to attend  
National Seminar on Federal Programs in Higher Education  
Washington, D. C.  
National Dissertation Study Award presented by Phi Delta Gamma  
National Award for Communication Supremacy presented by Zeta Phi Eta

PROFESSIONAL AND HONORARY ORGANIZATIONS:

American Educational Research Association  
American Association of Higher Education  
Association for the Study of Higher Education  
Oklahoma College Personnel Association  
Kappa Delta Pi, Honorary Education Fraternity  
Alpha Psi Omega, Honorary Dramatic Fraternity  
Phi Delta Kappa, National Education Fraternity  
Zeta Phi Eta, National Communication and Speech Arts Fraternity  
Phi Delta Gamma, National Graduate Fraternity

COMMUNITY ORGANIZATIONS, HONORS, AND ACTIVITIES:

Woman's Auxiliary to the Student American Medical Association  
National President  
Outstanding Young Alumnae, University of Oklahoma  
Selected by the University Alumni Association  
Outstanding Jayne of the Year  
Designated by the Norman Junior Chamber of Commerce  
Who's Who in the South and Southwest, 1981 Edition  
Outstanding Young Women in America, 1966 Edition  
Delta Zeta, Province Alumnae Director  
United Methodist Women, Honorary Life Membership  
Board of Global Ministries, United Methodist Women  
Special Recognition Awards: 1975-76-77-78-80-81-83  
McFarlin United Memorial Methodist Church, Norman, Oklahoma  
Administrative Board  
Commission on Education  
Commission on Stewardship  
Academy Board of Directors  
Deaf Ministry Advisory Board  
Campus Ministry Council  
Wesley Foundation, University of Oklahoma  
Board of Directors, President  
Alpha Tau Omega Mother's Club, University of Oklahoma  
President  
University of Oklahoma Alumni Association, Life Membership  
Alumnae Advisory Council, University of Oklahoma

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# **SCOPE OF PROGRAMS IN ACADEMIC HEALTH CENTERS IN HIGHER EDUCATION**

## **CHAPTER I**

### **INTRODUCTION**

The health care delivery system of the United States has been characterized as having an enormously complex structure involving the preparation and development of many different types of health professionals. With the present concern about the costs of health care, the cost of producing health personnel, and the emphasis on accountability in education, it is appropriate to consider the adequacy of the education of the health professional.

While all education experienced unprecedented growth during the decades following World War II, the expansion was especially great in the environment where health professionals taught students, conducted research, and treated patients. As the numbers, size, and complexity of health professional schools increased, some universities grouped such schools into an organizational unit under one administrative officer. Thus, the academic health center defined as "a school of medicine, a teaching hospital, and at least one additional

health educational program,"<sup>1</sup> evolved as an identifiable organizational entity.

Prior to the Second World War, the academic health center, as it is known today, did not exist. Research and technological developments in the health fields have contributed to the growth of a variety of medical sciences. Things that doctors once did, if they were done, are now handled by other health professionals.<sup>2</sup>

One of the pertinent ramifications for the development of an academic health center concept has been the emergence of the health industry as the number one industry in this country.<sup>3</sup> As never before, problems and issues in the health world are taking on political, social, economic, and, particularly, educational connotations. As a result of these problems and issues, the United States is experiencing a period of drastic change in the pattern of medical care. The United States Government is feeling the pressure for greater availability and improved health care and is responding to the appeals of the citizens.

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<sup>1</sup>Association of Academic Health Centers, Report of the Organization and Governance Project of the Association of Academic Health Centers 3 vols. (Charlottesville: Papercraft Printing and Design Company, 1980): 1, p. 1.

<sup>2</sup>Everett C. Hughes, et. al., Education for the Professions of Medicine, Law, Theology, and Social Welfare (New York: McGraw-Hill Book Company, 1973), p.7.

<sup>3</sup>U.S. Department of Education, "Tactical Plan Statement by the Assistant Secretary for Health," Forward Plan for Health (Washington D.C.: U.S. Government Printing Office, 1976), p. 1.

Health educators and particularly those affiliated with academic health centers are aware that exact medical sciences, if ever, are no longer synonymous with health care. As long ago as 1959, modern science boasted of many startling achievements in the health fields. Its role has not been so unique, and its effectiveness not so complete as is commonly claimed. "It is man's dignity to value certain ideals above comfort, and even above life."<sup>1</sup> This human trait makes medicine a philosophy that goes beyond exact medical sciences.<sup>2</sup> Dubos adds, "It must encompass not only man as a living machine but also the collective aspirations of mankind."<sup>3</sup>

Due to the change of medical and more inclusively all health sciences into a philosophy, traditional curricula and clinical methodology are being questioned. This is evidenced by the establishment of centers across the nation where the different health professional schools are being located in close proximity and perhaps objectively being brought together for teaching purposes.<sup>4</sup> Ideally, all of the health professions should be represented, and interaction

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<sup>1</sup>Rene' Dubos, Mirage of Health (Garden City, N.Y.: Doubleday and Company, 1959), p. 30.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid.

<sup>4</sup>Directory of American Medical Education 1983-84 Vickie L. Wilson, ed. (Washington D.C.: Association of American Medical Colleges, 1983), p. 6.

contributing to the team approach in future practice should occur.

Health care delivery by the team approach represents health professionals, such as the physician, nurse, pharmacist, and allied health specialists, working together in the best interest of the patient. In regard to the team approach, Haviland,<sup>1</sup> speaking at the 1965 Health Conference of the New York Academy of Medicine, advocated as a reasonable goal for the programs of the United States the provision of appropriate health care for all at an attainable cost. The attainment of this goal called for many readjustments in the present methods of providing for the health needs of our population. One of the significant changes was an attempt to establish health centers to provide comprehensive services, such as diagnosis, treatment, and therapy. Such an approach would attempt to take care of the total health needs of the patient at one physical location by the team of health professionals.

One of the principal health delivery problems today is the disorganization and/or fragmentation of health care resources. Regardless of age, financial status, or geographic location, Americans share an essentially common set of health needs; however, the level of health care they receive varies greatly. The system works for some, and for others it is

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<sup>1</sup>James W. Haviland, "Next Steps in Meeting the Nation's Health Goals," New York: Academy of Medicine 41 (1965): 1255-67.

grossly inadequate. The shortcomings are primarily lack of quality, availability, and excessive costs. All three of these areas are affected by the supply of health workers. It has become increasingly evident in recent years that in some occupational categories of health personnel, the number is insufficient, and the distribution has not matched the need. Existing education and incentive systems are unsatisfactory, and, consequently, a wide range of new health care system initiatives is emerging. These include new concepts, financing, incentives, technology, education, medical practice, organization and the role of the government in all of these.<sup>1</sup>

The Federal Government is assuming a continually more prominent position in the provision of health care and services. As indicated by the legislation of the 1960's a great variety of governmental activity was aimed at correcting deficiencies in the health professional schools to critically reexamine their programs to assure adequately and properly trained practitioners.<sup>2</sup>

Traditionally, each health professional has been educated without regard to other related health fields. Jacobs outlined recent trends in education, health care, and society in general that have stimulated serious efforts to find

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<sup>1</sup>U.S. Department of Health, Education, and Welfare, Health Maintenance Organization Pub No. 75-4 (Washington, D.C.: U.S. Government Printing Office, August 1974), pp. 1-2.

<sup>2</sup>Ibid.

alternatives to the traditional approaches to the education of the health professional.<sup>1</sup> These new trends included the following developments:

1. The growing pressure to "humanize" our health care system through a relaxation of the restrictive, biologically oriented admissions criteria to the health professions' colleges;

2. Increasing efforts to provide options for upward mobility and to implement a career ladder concept by establishing interprofessional educational equivalencies and multiple points of entry to health professional curricula;

3. Growing student dissatisfaction, if not agitation, with the uninspiring instructional methods and rigid organization of the professional curricula;

4. The growing evidence that the standards of "success" in professional schools are virtually unrelated to the "real-life" yardsticks of success and productivity in professional practice; and

5. The growing realization that increasing the health manpower supply alone does not represent the real answer to the health challenges facing the nation.<sup>2</sup>

There are reasons to believe that the societal expectations and individual aspirations reflected by the above outlined trends could not effectively be fulfilled in the context of the traditional highly regimented and stereotyped health professions education program.<sup>3</sup>

Even if Dubos' concept that medicine is a philosophy could be refuted, proper health care would still face the

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<sup>1</sup>Richard M. Jacobs, A Flexible Design for Health Professions Education (New York: John Wiley and Sons, Inc. 1970), pp. 1-2.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid.

disturbing gap between what is scientifically and technologically possible, and what is being accomplished, particularly when health care is proclaimed as a right rather than a privilege. While dedicated effort continues to enlarge the body of medical knowledge, there is a need for a critical look at the scope of health profession programs needed to assure maximum utilization of such knowledge to contribute to positive health care.

### Need for the Study

Much of the literature about academic health centers has been concerned with a small number of institutions or observations of one or a few administrators. The initial in-depth study, sponsored by the Association of Academic Health Centers and funded by the W.K. Kellogg Foundation was published in 1980 and focused mainly on the issues of organization and governance.<sup>1</sup> No study has identified the programmatic structure for completeness of the academic health center or considered the relationship of the academic health center with the university community and the health delivery system in the United States today.

### Statement of the Problem

The problem of this study is: What kinds of health profession programs have evolved with the recently emerging

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<sup>1</sup>Association of Academic Health Centers, Report of the Organization and Governance Project.



academic health center in higher education, and which programs are most essential to a conceptual model?

### Objectives of the Study

In connection with the basic problem, the following specific objectives were pursued:

Is the present educational structure for preparing health care professionals adequate for the health care team concept of practice?

How did the academic health center evolve?

What is the relationship of the academic health center with the institutions of higher education?

Where are existing academic health centers located?

What various names are used to identify this organizational unit of higher education?

What is the historical development of the various health professions and the changes experienced in education and training requirements?

What relationship exists between the health profession programs of the academic health center and the types of health practitioners required by the health care system?

Are there similarities and differences in the characteristics of the academic health centers that are publicly controlled and the academic health centers that are independently controlled?

Are there similarities and differences in the characteristics of the academic health centers that are located in different geographic regions?

### Definition of Terms

Academic Health Center - "A medical school, a teaching hospital, and at least one additional program."<sup>1</sup>

Accreditation - A professional judgment as to quality of a program of study with an institution of higher education.

Affiliated/Contracted - Those institutional teaching and training facilities whose management and operating costs are not a part of the university.

Classification - Arrangement on the basis of their resemblance to numbers of programs.

College/University - Terms used interchangeably to refer to institutions of higher education which grant baccalaureate, graduate, and professional degrees.

Concept - A descriptive relation.

Conceptual Model - A highly abstract umbrella of multidimensional concepts.

Essentials - The minimum accreditation standards for a program of study in higher education.

Health Care Team - A group of health care professionals who work together to form a single group of collective talent

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<sup>1</sup>Ibid., vol. 1, p. 1.

and knowledge for the prevention and cure of illnesses and diseases.

Health Education - "Any combination of learning experiences designed to facilitate voluntary adaptations of behavior conducive to health."<sup>1</sup>

Health Professional - "An individual who requires knowledge of an advanced type in a field of health science or learning customarily acquired by a prolonged course of specialized intellectual instruction and study in an institution of higher learning...as distinguished from a general academic education or from an apprenticeship."<sup>2</sup>

Interdisciplinary - An integrated educational process involving the interdependent contributions of several relevant disciplines to enhance a professional growth as it relates to training, service and research.

Isomorphism - Similarity between a thing and a model.

Model - To explain and predict the multi-variety of health profession education programs and to serve as a standard for the evaluation of completeness.

System - An arrangement of groups that are related to and affected by each other.

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<sup>1</sup>U.S. Department of Health and Human Services, Public Health Services, Office of Health Research, Statistics, and Technology Cooperating, Grants for Research on Health Promotion and Disease Prevention, Pubn. No. 80-3292 (Washington, D.C. U.S. Government Printing Office), p. 10.

<sup>2</sup>Dennis D. Pointer and Norman Metzger, The National Labor Relations Act (New York: Spectrum Publications, Inc., 1975), p. 206.

### Significance of the Study

The findings of this study may contribute to a greater coordination of health related schools and programs. Additionally, health care planners in local, state and federal agencies may be aided in assessing the validity of proposals involving the expanded role of the academic health center, especially in view of the emerging health care team concept.

The conceptual model will provide a framework for the planning, development and organization of a more comprehensive and complete academic health center.

The compilation of data and information may be of value for all academic health centers in higher education in the United States to be referenced under one cover according to demographic characteristics and program components.

## CHAPTER II

### RELATED LITERATURE

A survey of the literature on academic health centers and related topics is quite diverse. Such disciplines as social science, behavioral science, educational administration, hospital administration, economics and political science, as well as health-oriented organizations have examined some aspect of the education of health professionals. These writings reflect a variety of understandings of the health delivery system and of the problems and issues in academic health centers; however, there is a noticeable lack of studies dealing directly with the kinds of professional programs essential for the delivery of adequate health care in the United States today.

In the past the art and practice of most health professions in this country were learned under an apprenticeship position. According to Luckey,<sup>1</sup> most medical schools and other professional programs for health care were proprietary. These programs which were a part of the university had only the most tenuous relationship with their

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<sup>1</sup>E.Hugh Luckey, "The United States:," in The University and Medicine, edited by John Z. Bowers and Elizabeth F. Purcell (New York: Josiah Macy, Jr. Foundation, 1977), p. 160.

parent institution, little, if any contact with other health programs, and almost no access to the teaching hospitals. Medical schools ran teaching hospitals to accommodate the needs of their faculty and students and to provide for the welfare of their patients. Schools of nursing were most often hospital-based and produced nurses whose sole function was to follow the physicians' orders. Dental schools and other health schools, while a part of the university, had little contact with the medical school.<sup>1</sup>

The Flexner Report of 1910 profoundly influenced and revolutionized medical education.<sup>2</sup> This study provided the stimulus for the demise of the proprietary schools and the rise of university education in the medical professions.

### The University

The medieval Latin term "universitas" was originally employed to denote any community or corporation.<sup>3</sup> Toward the latter part of the fourteenth century the exclusive meaning of the university was a community of teachers and scholars whose corporate existence had been recognized and sanctioned by civil or ecclesiastical authority. The schools out of which

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<sup>1</sup>Association of Academic Health Centers, Organization and Government Report, vol. 1, p. 1.

<sup>2</sup>Abraham Flexner, Medical Education A Comparative Study (New York: The Macmillan Company, 1925).

<sup>3</sup>Encyclopaedia Britannica, 1972 ed. s.v. "University."

the university arose started as scholastic guilds attached to the cathedral.<sup>1</sup>

The origins of the universities in the United States are to be found in the colleges established in the colonies before the nation was formed.<sup>2</sup> Even though the first institution of higher education was founded in 1636 at Harvard, the term, university, did not enter the lexicon of American higher education until 1791.<sup>3</sup> Prior to this date the term, college, was used to identify post secondary institutions.

An analysis of American higher education since the founding of Harvard will show changes of many kinds that are to a great extent reflections of changes in our society. The early colonial colleges were dominated by Protestant sectarian beliefs and practices.<sup>4</sup> As society changed, the religious influence gradually decreased. Examining the intentions of the founders of the different institutions of higher education documents this change. Tewksbury<sup>5</sup> found the move from the

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<sup>1</sup>Ibid.

<sup>2</sup>Frederick Rudolph, The American College and University (New York: Alfred A. Knopf, Inc. and Vantage Books, 1962) pp. 3-22.

<sup>3</sup>Arnold W. Thackray, "The United States:," in The University and Medicine, edited by John Z. Bowers and Elizabeth F. Purcell, (New York: Josiah Macy, Jr. Foundation, 1977), p. 21.

<sup>4</sup>Rudolph, The American College and University, p. 18.

<sup>5</sup>Donald G. Tewksbury, The Founding of American Colleges and Universities before the Civil War: With Particular Reference to the Religious Influences Bearing Upon the College Movement(New York: Teachers College Columbia Press, 1932), p.261

elite to mass came as a result of competition, challenge and growth in a marketplace which knew no educational monopolies. Who might properly benefit from higher education was the matter of practical economics.

In the years before the Civil War, higher education did little more than keep pace with population increase. Statistics show that more than 700 colleges had tried and failed prior to the Civil War; however, two hundred and fifty colleges survived.<sup>1</sup> This represented a marked growth from the nine established institutions at the start of the Revolutionary War.<sup>2</sup>

The increasing industrialization and urbanization of America pressured education to break away from its limitation of the elite group. The developments of science at an exponential rate produced an increase in technological knowledge and an insatiable demand for such major fields of study in the university.<sup>3</sup> This trend was accentuated by the inauguration of the land-grant college system with the passage of the Morrill Act in 1862.<sup>4</sup> The ensuing development of state-supported institutions catered to the mass of residents.

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<sup>1</sup>Rudolph, The American College and University, p. 47.

<sup>2</sup>Ibid.

<sup>3</sup>Peter M. Blau, The Organization of Academic Work (New York: John Wiley & Sons, 1973), p. 2.

<sup>4</sup>Thackray, "The United States:," p. 27.



Higher education has become increasingly accessible to all segments of the population.

The 1982-83 academic year showed 3,280 institutions in higher education in the United States.<sup>1</sup> Enrollment figures from the Department of Education, National Center for Education Statistics indicate the great shift from elite to "open higher education." The number of undergraduates has increased from less than 600,000 to nearly 6,500,000 in the last 50 years.<sup>2</sup>

A characteristic of higher education in this country is its diversity. American universities offer a wide range and great variety of programs. Total enrollment in all major fields of study in doctoral level universities in the United States for fall 1980 was 12,234,644.<sup>3</sup> Of the total bachelor degrees conferred in 1965-66, 22.5 percent were in business and management, engineering, and the health professions, and in 1980-81, these same areas accounted for 41.8 percent.<sup>4</sup> (See Figure 1 for the number of degrees: bachelor's, master's and doctor's conferred by universities in the United States in 1980-81.

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<sup>1</sup>U.S. Department of Education, Office of Educational Research and Improvement and National Center for Education Statistics Co-operating, Digest of Education Statistics 1983-84 (Washington, D.C.: U.S. Government Printing Office, 1983), p. 85.

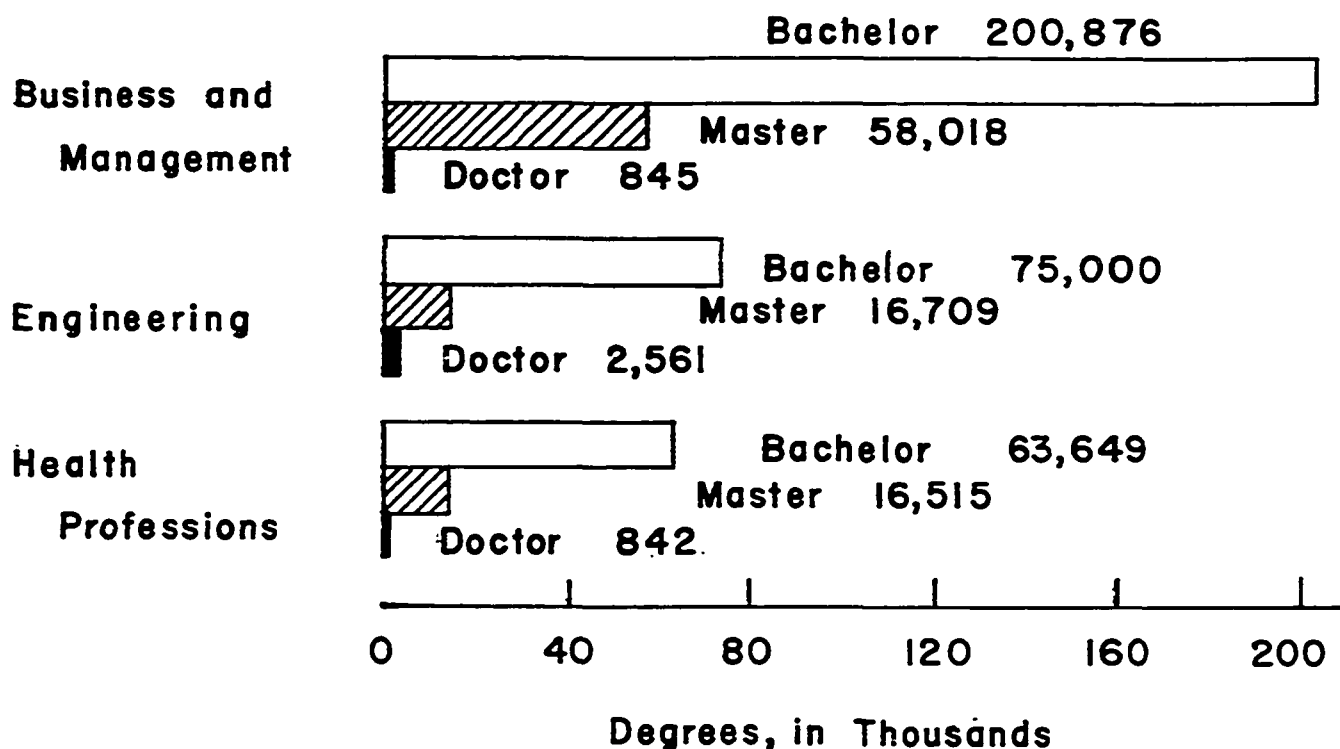
<sup>2</sup>Blau, The Organization of Academic Work, p. 5.

<sup>3</sup>U.S. Department of Education, Digest of Education Statistics, p. 95.

<sup>4</sup>*Ibid.*, p. 118.

Figure 1

Conferred Bachelor's, Master's and Doctor's Degrees: 1980-81<sup>1</sup>



The College Entrance Examination Board asked the college-bound high school seniors of 1982 about their majors, the response showed the health and medical professions second with 14.2 percent.<sup>2</sup> Business was first with 18.7 percent, and engineering was third with 12.6 percent.<sup>3</sup> A comparison of college enrollment by major fields of study for the years 1966

<sup>1</sup>Ibid., p. 118.

<sup>2</sup>Ibid., p. 118.

<sup>3</sup>Ibid.

and 1982 can be seen in Table 1.<sup>1</sup> It is apparent that the health professions are becoming an increasingly popular chosen field of study.

Table 1  
COLLEGE ENROLLMENT  
BY MAJOR FIELDS OF STUDY  
1966 and 1982

MAJOR FIELD OF STUDY	1966		1982	
	Total*	%	Total*	%
Total Enrollment <sup>2</sup>	5,999	100.0	10,919	100.0
Agriculture, Forestry	73	1.2	259	2.4
Health, Medical Professions	602	10.0	1,623	14.9
Business, Commerce	888	14.8	2,586	23.7
Education	1,118	18.6	732	6.7
Engineering	534	8.9	1,229	11.3
English, Liberal Arts	620	10.3	852	10.6
Law	(NA)	(NA)	252	2.3
Mathematics, Statistics	236	3.9	187	1.7
Physical Science	226	3.8	258	2.4
Social Science	642	10.7	763	7.0

\*Enrollment totals, in thousands.

Source: U.S. Department of Commerce, P-20, No. 260;  
Statistical Abstracts of the United States, 1979 edition.

The emergence of the graduate division in universities can be traced to the founding of Johns Hopkins University in 1876, Clark University in Massachusetts in 1889, and the

<sup>1</sup>Ibid., p. 97.

<sup>2</sup>Not all fields of study are shown.

University of Chicago in 1892.<sup>1</sup> Johns Hopkins, a version of the German model, is regarded as the first all-graduate institution in the United States, emphasizing the pure sciences.<sup>2</sup>

Johns Hopkins was in existence as a graduate, and later undergraduate, institution for only thirteen years before building a hospital. It started medical instruction four years later, thus probably establishing the first academic health center.<sup>3</sup>

From the beginning of the graduate program at the University of Chicago, President Harper had the vision of a major university including a medical school, for he wrote his "work," wanting to see the establishment of schools of music, technology and medicine.<sup>4</sup> However, it was not until 1927 that the University of Chicago could boast of having fulfilled the dream of Harper to establish a medical school. The relationship of the medical school and all other health profession education programs is significant to the graduate level of organization. To a large extent, the research

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<sup>1</sup>Howard G. Sachs and W. Ann Reynolds, "Graduate Programs in Health Sciences," in Handbook of Health Professions Education, edited by Christine H. McGuire, Richard P. Foley, Alan Gorr, Ronald W. Richards, and Associates (San Francisco: Jossey-Bass Publishers, 1983), p. 142.

<sup>2</sup>L. R. Veysey, The Emergence of the American College (Chicago: University of Chicago Press, 1965), p. 174.

<sup>3</sup>Sachs, and Reynolds, "Graduate Programs in Health Sciences," p. 142.

<sup>4</sup>Ibid.

enterprise in the academic health center has created the demand for a graduate division.

Programs of study in the graduate level consist of specialized and advanced courses, independent study, and research. Most commonly conferred degrees are the master of science and the doctor of philosophy.<sup>1</sup>

Even though universities may vary in size and by types of funding sources, their mission remains the same: to preserve, transmit, and advance knowledge. Above all else, the university exists for learning and scholarship of a breadth and depth that result in excellence in all the university's major functions: teaching, research, and service.<sup>2</sup> Stehbens finds a general agreement that the university's function is research and education. "The search for truth is basic to the concept, and advancement of knowledge rather than its communication in the primary business of the university."<sup>3</sup>

### The Academic Health Center (AHC)

The evolution of the academic health center began following World War II with the great growth of federal support for biomedical research.<sup>4</sup> Evans describes this period

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<sup>1</sup>Encyclopaedia Britannica, p. 760.

<sup>2</sup>University of Oklahoma Health Science Center, Faculty Handbook, 1977, Sect. 3.6.

<sup>3</sup>William E. Stehbens, "Membership of Policy-Determining Committees in the University and Medical School," Vestes 24 (1981): pp. 36-37.

<sup>4</sup>Hughes, Education for the Professions of Medicine, Law, Theology, and Social Welfare, p. 22.

as "a transformation of medical schools from reasonably circumscribed educational endeavors to academic medical centers."<sup>1</sup> Hastings and Crispell<sup>2</sup> have found that the academic health center is not widely recognized as an organization, and since there has been little written about them, it is necessary to explain the meaning of the term to those outside the health field. An indefinite nomenclature for this organization has contributed to the lack of identity of the academic health center both within and outside the university.

Many influences led to the evolution of the academic health center as a part of the university. The Flexner Report is most often cited as the landmark that influenced the joining of the health professions and the university. Stevenson,<sup>3</sup> Eisenhower,<sup>4</sup> and Smythe<sup>5</sup> all find the historical and proper home of the academic health center is the university.

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<sup>1</sup>John R. Evans, "Organizational Patterns for New Responsibilities," Journal of Medical Education 45 (December 1970): 988.

<sup>2</sup>Douglas A. Hastings and Kenneth R. Crispell, "Policy Making and Governance in Academic Health Centers," Journal of Medical Education 55 (April 1980): 325.

<sup>3</sup>L.G. Stevenson, "The University and the Medical School," Journal of Medical Education 42 (1967): 22.

<sup>4</sup>M.S. Eisenhower, "An Arch Upon These Pillars," Journal of Medical Education 42 Part II (1967): 18.

<sup>5</sup>C.M. Smythe, "Developing Medical Schools: An Interim Report," Journal of Medical Education 42 (1967): 995.

Krevans addressed the topic of the university at the annual meeting of the Association of American Colleges in 1981 and declared, "Our academic medical centers are a part of the university and as such have special obligations and special privileges."<sup>1</sup> Newman<sup>2</sup> and Gilman<sup>3</sup> had earlier supported the same statement.

DiBiaggio<sup>4</sup> finds the eras of acquisition and development have apparently come to an end with most outstanding universities proudly pointing to the accomplishments of their academic health centers. Each of the health profession programs must be carefully scrutinized for its current usefulness and its potential contributions, as the medical centers are now "interwoven with the fabric of the university."<sup>5</sup>

The manner of development of academic health centers has not been conducive to the establishment of clear administrative lines within the university. Considerable attention has been paid to the problems of the chief

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<sup>1</sup>Julius R. Krevans, "The Idea of the University," Journal of Medical Education 57 (1982): 24.

<sup>2</sup>J.H. Newman, The Idea of a University (New York: Longmans Green, 1947), p. 206.

<sup>3</sup>D.C. Gilman, University Problems in the United States (New York: The Century Company, 1898), p. 179.

<sup>4</sup>John A. DiBiaggio, "A 20-Year Forecast for Academic Medical Centers," New England Journal of Medicine 304 (January 1981): 230.

<sup>5</sup>Ibid.

administrative officers. Hogness and Akin<sup>1</sup> studied the governing structure, and found in 1976 there were 93 of the 116 health centers that had a vice president of health affairs position. Dennis<sup>2</sup> supports the need to distinguish between the positions of dean and vice president, as his study revealed 35 percent of the vice presidents also served as dean.

The trend toward interdisciplinary research and study has created problems to the traditional departmental structure of academic institutions. Jencks and Riesman<sup>3</sup> have found the flexibility of the departmental structure significant to educational organizations. However, Charns, Lawrence, and Weisbord<sup>4</sup> analyzed the organization of nine academic medical centers and found the traditional departmental structures did not facilitate the interdisciplinary approach. This represents another problem area for the academic health center, as change toward integrated curriculum is forecast.

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<sup>1</sup>John Hogness and Gwynn Akin, "Administration of Education Programs in Academic Health Centers," The New England Journal of Medicine 296 (March 24, 1977): 656-63.

<sup>2</sup>James Dennis, "Internal Institutional Relationships and their Effect on the Planning Process in the 1980s," unpublished paper, 1977, cited by AAHC Report, 4: 21.

<sup>3</sup>Christopher Jencks and David Riesman, The Academic Revolution (Garden City, New York: Doubleday & Co. and Anchor Books, 1969), p. 525.

<sup>4</sup>Martin Charns, Paul Lawrence, and Marvin Weisbord, "Organizing Multiple Function Professions in Academic Medical Centers," in Perscriptive Models of Organization, P.C. Nystrom and W.H. Starbuck, eds. (Amsterdam: North Holland Publishing, 1977), pp. 71-88.



Stinchcombe<sup>1</sup> observes that structural characteristics of a type of organization tend to persist. This does not mean that institutions never change. He notes that "ossification of institutional structure that sets in with increasing age is especially dangerous in academia."<sup>2</sup> A flexible structure of organization is of great significance for the academic health center to enable the institutionalizing of new specialities and to train professionals to effectively collaborate with each other in an interdisciplinary process.

The identification of programs of study for the graduate level and for the professional level has created confusion for many of the academic health centers. Sachs and Reynolds<sup>3</sup> find the graduate education and the professional education as two distinct and unique educational entities in the academic health center. The responsibility for studies after the baccalaureate degree in the health sciences lies with both the graduate and the professional schools.

Hastings and Crispell<sup>4</sup> find the key to the uniqueness of the academic health center is that instruction in the health sciences cannot be accomplished except in a setting of

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<sup>1</sup>Arthur L. Stinchcombe, "Social Structure and Organizations," in Handbook of Organizations, edited by James March (Chicago: Rand McNally, 1965), p. 159.

<sup>2</sup>Ibid., p. 168.

<sup>3</sup>Sachs and Reynolds, "Graduate Programs in Health Sciences," p. 141.

<sup>4</sup>Hastings and Crispell, "Policy-Making and Governance in Academic Health Centers," p. 328.

service. Along with education and research, the health care delivery is an equal function of the academic health center.<sup>1</sup> No other academic department or professional school in a university setting shares this degree of service orientation. This service function also results in many interventions from external sources. The relationship between the academic health center and the university includes the service obligations and the traditional isolation of health profession education.

Bircher<sup>2</sup> suggests that the essence of the health sciences center concept lies at the intersection of three essential components: 1) the scientific body of knowledge; 2) the health needs of the population; and 3) the endeavors of the health professions and health occupations. The quality of health care positively correlates with the extent to which health care providers apply scientific knowledge to meet the health needs of the population.<sup>3</sup> An understanding of each of the elements which intersects the academic health center concept is vitally important to the planning and development of the educational process for all health professions.<sup>4</sup> (See Figure 2 for this concept as it relates to the academic health center.)

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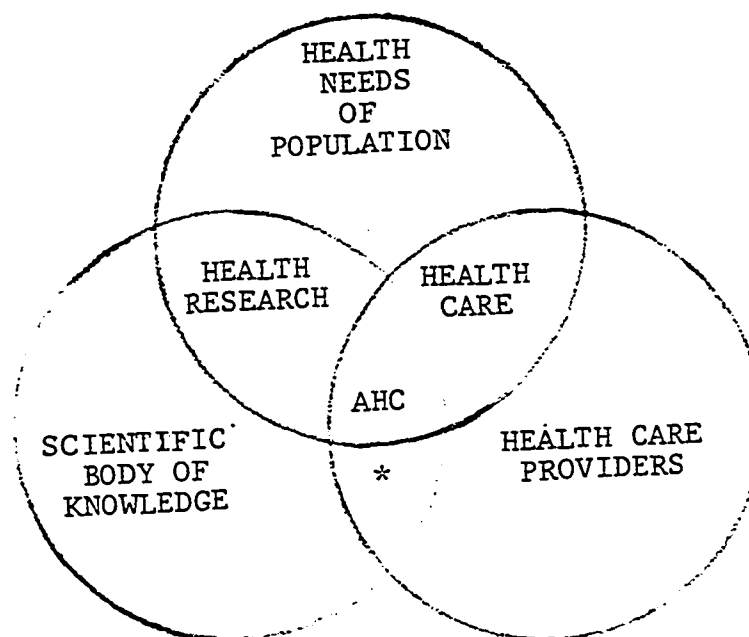
<sup>1</sup>Ibid.

<sup>2</sup>Andrea U. Bircher, "The Health Sciences Center Concept Application of Clinical Process to Health Sciences Center Literature," Unpublished paper, 1976.

<sup>3</sup>Ibid., p. 1.

<sup>4</sup>Ibid.

Figure 2  
The AHC Concept



\* HEALTH CARE PROVIDER EDUCATION

Millis<sup>1</sup> explores the role of the academic health center and recommends certain changes to be achieved through collaboration and a commitment to a shared goal for all health professionals. According to Mawby,<sup>2</sup> requisite to an effective health care delivery system is an academic health center that focuses on comprehensive interprofessional education in relation to the needs of the population.

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<sup>1</sup>John S. Millis, A Rational Public Policy in Medical Education and Its Financing (New York: National Foundation of Medical Education, 1971).

<sup>2</sup>Russell G. Mawby, "Setting New Goals for Health Professions Reform," in Handbook of Health Professions Education, p. 491.

### The Health Care Team (HCT)

Landers in Man's Place in the Dybosphere states, "Perhaps the widespread use of nature's answers to solve man's technical problems had to await the formation of a working team."<sup>1</sup> The emergence of primary health care teams for delivery of comprehensive health care services is a recent development. Although the roots of this approach to health care delivery go back to World War II, it was not until large amounts of federal funding were poured into OEO neighborhood health centers in 1965, that health teams began to develop as a growing method of delivering primary care.<sup>2</sup>

At the 1967 Conference on Health Education, a number of recommendations were suggested for prompt implementation. Several were concerned with relationships among the health professionals and the continuous recognition of health needs of the public to be considered basic in revising or in devising roles of the doctor, nurse, pharmacist and other allied health professionals.<sup>3</sup> Other proposals were that each health professional should strive to understand the roles of

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<sup>1</sup>Richard R. Landers, Man's Place in the Dybosphere (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1966), p. 121.

<sup>2</sup>Richard M. Magraw and Daniel B. Magraw, "Interdisciplinary Teamwork for Medical Care and Health Sciences," Annals of Internal Medicine 69 (October 1968): 825.

<sup>3</sup>U.S. Department of Health, Education, and Welfare, "Proceedings of an Invitational Conference on Pharmacy Manpower," by Joe B. Graver and Donald C. Brodie, Challenge to Pharmacy in the 70's, (Washington, D.C.: U.S. Government Printing Office, September 1970): 3.

the other members of the health team, attempt to facilitate more fully the functioning of the health team concept and achieve better communication among members of the team. The Conference focused on the "unfortunate habit of different professional groups speaking only to themselves." Pharmacists, physicians, nurses, and dentists trained almost independently of one another, were told to "go forth and make themselves a team."<sup>1</sup>

A Work Group on the Education of the Health Professions and the Nation's Health was established by the National Center for Health Services Research, Department of Health, Education and Welfare in January 1976 to identify the most promising areas for research into the effectiveness of education of the health professions in improving the health status of the American people. The theme of their findings was discontinuity -- "the absence of a reciprocal relationship between practice and education and between education of health professionals as mediated through practice and the health of the American people."<sup>2</sup> This group recommended that research should address the effect of educational programs aimed at diminishing professional and disciplinary insularity on practice patterns and, subsequently, on the health status of

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<sup>1</sup>Ibid.

<sup>2</sup>Richard M. Magraw; Daniel M. Fox; and Jerry L. Weston, "Health Professions Education and Public Policy: A Research Agenda, Journal of Medical Education 53 (July 1978): 539-40.

the population served.<sup>1</sup> Their report further stated, "Isolation during education, professional chauvinism in practice and lack of knowledge about the potential contributions of teamwork have fostered lack of communication among the health disciplines."<sup>2</sup>

An article by Szasz<sup>3</sup> outlined some of the barriers between several professions. These included goals, training, technology of professions, status of professionals, lack of defined areas of responsibility, public and professional stereotypes and a clear definition of goals in health areas.

A second article by Szasz<sup>4</sup> explains how the Office of Interprofessional Education at the University of British Columbia was organized with the assumption that if student members of various health professions are educated in the same manner and participate in common training experiences, they can be expected to learn to work together. The plan included lectures given to joint classes to discuss various perspectives of professional groups, utilization of problem-solving methods by collaboration, and intensive studies of health specialization sciences. An internship included team

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<sup>1</sup>Ibid., p. 544.

<sup>2</sup>Ibid.

<sup>3</sup>George Szasz, "Interprofessional Education in the Health Sciences," Milbank Memorial Fund Quarterly 47 No. 4 (October 1969): 449-475.

<sup>4</sup>George Szasz, "Education for the Health Teams," Canadian Journal of Public Health 61 (September-October 1970): 386-390.

care of patients. Basic conclusions drawn from this experience were that students of one profession reacted positively to students of another profession and developed an awareness of the need for a comprehensive approach to a broad spectrum of human problems.<sup>1</sup>

Bredemier and Stephenson<sup>2</sup> and Lyman<sup>3</sup> stressed the importance of the team to cooperate rather than compete. For the composition of the team to function respectfully and effectively is justification for the educational process of one program to comply with the educational process of all.<sup>4</sup>

Landers states, "Somewhat paradoxically, an individual does not lose personal satisfaction when he becomes part of a well organized and successful team, although he invariably loses his individuality. Without any loss of dignity, a person should become a specialist, even though it means joining a team of other specialists."<sup>5</sup> The problems that offer a challenge to each member of the team should work to fuse it together into a working group.<sup>6</sup>

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<sup>1</sup>Ibid., pp. 388-390.

<sup>2</sup>Henry C. Bredemeir and Richard Stephenson, The Analysis of Social Systems (New York: Holt, Rinehart and Winston, Inc., 1962), pp. 47-50.

<sup>3</sup>Richard W. Lyman, "Professionalization -- Are the Critics Justified?" Educational Record 50 (Winter 1969): 90.

<sup>4</sup>Ibid.

<sup>5</sup>Landers, Man's Place in the Dybosphere, p. 239.

<sup>6</sup>Ibid.

Identity of membership on the health care team can lead to controversy with so many health professions, each with concise concerns and divergent views as to which professionals are most essential to the group. Since the health team must focus on the whole person, care must embrace all realms of experience and knowledge. Bircher<sup>1</sup> discusses professional services essential to the health team in relation to Maslow's hierarchy of needs: the biological, physical-environmental, socio-cultural, psychological and spiritual-humanistic realms. Various other health care team combinations are suggested by Mashburn,<sup>2</sup> Banta and Fox,<sup>3</sup> and Eichenberger and Gloor.<sup>4</sup>

Bredemeir and Stephenson<sup>5</sup> imply another aspect for consideration is the number of professionals on the team. No more than nine members are recommended to avoid havoc. To support this number, the composition of several athletic teams

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<sup>1</sup>Andrea U. Bircher, "On the Development and Classification on Diagnosis," Nursing Forum XIV (1975): 11.

<sup>2</sup>U.S. Department of Health, Education and Welfare, Public Health Services Administration, Bureau Community Health Services Cooperating, "The Hot Springs Health Program," by Linda Mashburn, Conference on Primary Health Care in Appalachia: Report of Proceedings Pub No. 75-6608, (Washington, D.C.: U.S. Government Printing Office, 1974), pp. 29-32.

<sup>3</sup>David H. Banta and Renee C. Fox, "Role Strains of a Health Care Team in a Poverty Community," Social Science and Medicine 6 (1972): 697-722.

<sup>4</sup>Ralph W. Eichenberger and Robert F. Gloor, "A Team Approach to Learning Community Health," Journal of Medical Education 44 (August 1969): 655-662.

<sup>5</sup>Bredemeir and Stephenson, The Analysis of Social Systems, pp. 33-37.



is cited. To function to expert capacity, all members must be involved. Team building requires a commitment to develop and consider the resources of the group rather than trying to control it.<sup>1</sup>

Pellegrino reports, "The purpose of the team approach is to optimize the special contributions in skills and knowledge of the team members, so that the needs of the persons served can be met more efficiently, competently and more considerately than would be possible by independent and individual action."<sup>2</sup>

It is obvious that the ultimate in health care cannot be delivered by one person. Therefore, a major part of the intense educational preparation of each health professional is the knowledge, understanding and acceptance of the team concept. In terms of health professions educational reforms, this means the academic health center must focus on interprofessional education to remove professional barriers that stand in the way of more effective, patient-centered health care.<sup>3</sup>

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<sup>1</sup>Ibid.

<sup>2</sup>Edmund Pellegrino, "Planning the Health Sciences within a University Context: The Health Sciences Center at Stonybrook," Annals of New York Academy of Sciences 66 (December 1969): 876.

<sup>3</sup>Mawby, "Setting New Goals for Health Professions Reform," p. 491.

### The Federal Government

The reason health planning efforts did not begin until the nation was almost 75 years old can be explained by the following quotation.

Our forefathers were much more interested in the preservation of human souls than human bodies and the promotion of spiritual rather than physical welfare. Disease, at first considered as a visitation of Providence, was later believed to be propagated and spread by decomposing animal and vegetable matter and other environmental influences...health organizations as such were non-existent...health acts were measures relating to the promotion of municipal cleanliness as a means of protecting public health.

--William O. Smillie<sup>1</sup>

Although a chronology of health planning in the United States can be traced in a sequential fashion, actual progress of these endeavors, with regard to planning methods and techniques, has not flowed in such an orderly and systematic fashion. This evolution has been complicated by the changing face of America over the past two hundred years.

Changes of an almost cataclysmic nature have occurred in the population, environment, significant health problems and scientific knowledge to be mobilized. Of greatest significance have been changes regarding the solution of individual health problems and the shifting foci for governmental initiatives from the local level to the national

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<sup>1</sup>Wilson G. Smillie, Public Health Administration in the United States (New York: Macmillan Company, 1936): p. 11.

level. (See Table 2 for a summary of milestones of health planning in the United States since 1850.)

Table 2

**MILESTONES OF HEALTH PLANNING IN THE UNITED STATES<sup>1</sup>**

- |      |   |
|------|---|
| 1850 | <u>Shattuck Report.</u> By the Sanitary Commission of Massachusetts that developed the first state comprehensive health plan which identified the need for citizen action at the local level to obtain data about the health status of the population.  |
| 1910 | <u>Flexner Report.</u> An assessment of medical education in the United States and Canada that provided a model for professional education within colleges and universities.  |
| 1917 | <u>Public Health Federation of Cincinnati, Ohio.</u> By virtue of its establishment to achieve better coordination among public and private health programs, this organization lays claim to being the first area-wide health planning body in the United States.                               |
| 1926 | <u>Geis' Report.</u> The dental equivalent of the Flexner report that hastened the integration of dental education into the university.   |
| 1929 | <u>Councils of Social Agencies/Health Welfare.</u> Organizations initiated in many communities as a mechanism for the exchange of information concerning multiple social programs, to set priorities among community needs, and to set fund raising goals.                                      |
| 1933 | <u>Final Report on Cost of Medical Care.</u> As the Great Depression focused attention upon the rising costs of medical care and the inequities in the distribution of health and medical services in the nation, this report included proposals for prepayment systems for medical care needs. |

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<sup>1</sup>Charles M. Cameron, Jr., "Opportunities and Issues in New Health Planning Legislation," Journal of the Oklahoma State Medical Association (February 1976): 42-47; Lloyd E. Burton and Hugh H. Smith, Public Health and Community Medicine for the Allied Medical Professions (Baltimore: Williams and Wilkins Company, 1975, p. 73; and Dale L. Hiestand and Miriam Ostow, eds., Health Manpower Information for Policy Guidance (Cambridge, Mass.: Ballinger Publishing Co., 1976), pp. 10-22.

# **MILESTONES OF HEALTH PLANNING IN THE UNITED STATES (continued)**

- 1935     Social Security Act.     First major Federal intervention into state and local medical affairs that subsidized health services outside of the uniformed services.
  
- 1938     Hospital Council of Greater New York.     Established to meet the need for a "permanent" representative, and authoritative community agency to plan and coordinate hospital facilities and services. Claims to be the first health planning organization.
  
- 1945     Emerson Report.     By a joint committee of the American Public Health Association and the National Health Council that provided a blueprint for a system of regionalized public health services.
  
- 1946     Hill-Burton Act.     Authorized grants to states for surveying needs, developing construction plans and assisting in the building and equipping of general, mental, tuberculosis and chronic disease hospitals and public health centers.
  
- 1947     Commission on Chronic Illness.     Created by three professional organizations: American Medical Association, American Hospital Association and the American Public Health Association, for consumer groups to conduct a detailed study of the extent and nature of chronic illnesses in the nation.
  
- 1959     Bane Report.     Led to the passage of the Health Professions Educational Assistance Act of 1963, the Nurse Training Act of 1964, and the Allied Health Professional Act of 1966 to overcome the national deficits of health professionals with funds to assist states in opening new schools.
  
- 1961     Community Health Services and Facilities Act.     Provided financial assistance for the development of community and area health facility planning councils. during the ensuing five years there were 80 councils in existence.
  
- 1965     Medicare (Title 18) and Medicaid (Title 19).     Federal assistance programs that profoundly changed medical accessibility and medical financing in the United States.
  
- 1965     Comprehensive Rehabilitation Act.     Delegated health planning responsibilities to the states. Required state-wide health planning, as distinguished from facilities and/or service planning.

### MILESTONES OF HEALTH PLANNING IN THE U.S. (continued)

- 1965     Regional Medical Program. Emphasized funding of projects at medical institutions and hospitals.
- 1965     Comprehensive Health Planning Act. Called the "Partnership for Health" Act intended to link all planning of health resources into a cooperative, coordinated approach.
- 1965     Neighborhood Health Centers Act. Funded ambulatory care projects to provide services to inner city poverty area to reform the health care delivery system and establish team relationships among various providers of health services.
- 1973     Health Maintenance Act. Provided aid in the establishment of organizations, HMOs, to provide complete health services to an enrolled population.
- 1974     Health Planning and Resources Act. Provided for coordination of health planning by combining functions in state and local health agencies.

To say the federal government has been somewhat involved in the health care delivery system in the United States and the education of the health professional would be an understatement. Richmond<sup>1</sup> calls the Eighty-Ninth Congress in 1965 as the bumper crop of health care legislation which so drastically altered the direction of the health care system. The impetus provided by social concerns, by legislation, and by federal agencies has resulted in substantial gains in the education of the health disciplines.

Recent federal health strategy has highlighted both health promotion and disease prevention. Some of these efforts culminated in the publication of the Surgeon General's

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<sup>1</sup>J.B. Richmond, Currents in American Medicine (Cambridge, Mass.: Harvard University Press, 1969), p. 53.

Report, Healthy People.<sup>1</sup> This report represents over a hundred years of efforts in the United States to utilize the health team approach to seeking solutions to the problems of the health care delivery system.

### **The Health Professions**

The education of the health professions involves many disciplines. Allen observed that most groups of health practitioners either have already or are proceeding to professionalize their services.<sup>2</sup> This study is designed to limit the kinds of health professions to those which require a minimum baccalaureate degree for preparation to be licensed.

Flexner developed the following criteria for professions.

1) Professions must be intellectual in their judgmental components, possessing a large body of knowledge unique to their own pursuits.

2) They must be practical in that this knowledge can be applied to real situations.

3) They must possess teachable techniques that can be used for problem solving.

4) They must be organized into associations committed to the regulation, education and protection of their members.

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<sup>1</sup>U.S. Department Public Health Service, Surgeon General's Report on Health Promotion and Disease Prevention, Healthy People, Pub. No. 79-55071 (Washington, D.C.: U.S. Government Printing Office, 1979), p. 3.

<sup>2</sup>Anne S. Allen, Introduction to Health Professions (St. Louis: The C.V. Mosby Company, 1976), p. 1.

5) They must be governed by altruism.<sup>1</sup>

During the 1970s another criterion was added, "A profession must deal with matters of urgency and significance."<sup>2</sup> If a group of practitioners establish their credentials according to this criteria, they are recognized as professionals.

### Medicine

If the development of the history of the individual health professions could be treated from antiquity, quite possibly one would parallel the others. However, it is probably more accurate to say that until the time of Christ, these professions coexisted almost inseparably as the profession of medicine.

Robinson defines medicine as "a natural art concerned in sympathy and born of necessity; from these instinctive procedures developed the specialized science that is practiced today."<sup>3</sup> As in other countries governed or influenced by theocratic rule, medicine was supposed to have originated with mythologic deities, notably Thoth, Osiris, Tsis, Horus and Imhotep in Egypt.<sup>4</sup>

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<sup>1</sup>Ibid.

<sup>2</sup>Ibid., p. 2.

<sup>3</sup>Victor Robinson, The Story of Medicine (New York: Tudor Publishing Company, 1931), p. 1.

<sup>4</sup>Glenn Sonnedecker, Kremers and Urdang's History of Pharmacy (Philadelphia: J.B. Lippincott Company, 1976), p. 10.

During the Renaissance of 1500-1700, medical education found its way into the university framework. However, the first school of medicine started in the 9th century at the first great studium, Salerno.<sup>1</sup> In 1224 it was licensed by Frederick II as the only school of medicine in the kingdom of Naples.<sup>2</sup>

Norwood<sup>3</sup> reported that prior to 1820 most United States' medical schools followed the continental-Scottish tradition of affiliation with a university. In the United States, at that time, this meant a liberal arts college. In 1840 a few medical schools were established within hospitals. Independent proprietary medical schools flourished in the middle and late nineteenth century, but many of these schools were short-lived.<sup>4</sup> Luckey<sup>5</sup> states that Johns Hopkins with its university connection was an exception to the more than one hundred and fifty American medical schools which were proprietary and supported solely by student's fees. Medicine has undergone more rapid growth in the last few decades than in the preceding several centuries. The basic framework of

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<sup>1</sup>Encyclopaedia Britannica, "University," p. 756.

<sup>2</sup>Ibid.

<sup>3</sup>William F. Norwood, Medical Education in the United States before the Civil War (Philadelphia: University of Pennsylvania Press, 1941), p. 34.

<sup>4</sup>Hughes, et. al., Education for the Professions of Medicine, Law, Theology, and Social Welfare, p. 19.

<sup>5</sup>Luckey, "The United States:," p. 160.



medical education has remained relatively unchanged since the Flexner Report. Although specialties have increased, and there have been alterations in the length, complexity and, of course, content of knowledge.

In the early 1970s, the medical schools were propelled toward the three-year curriculum primarily because of federal financial incentive. Beran<sup>1</sup> says that where the specific support disappeared, so did the programs.

Today, the majority of medical schools have a four year curriculum, and the majority of students complete four years of undergraduate work before entering medical school. The American Association of Medical Colleges indicates in the 1981-82 Curriculum Directory that twelve schools admit students after high school for a combined undergraduate-graduate program, and 109 schools admit students after the third year of college.<sup>2</sup>

Matlack<sup>3</sup> comments that there is one thing for certain -- physicians must comprehend an overwhelming quantity of information drawn together from the natural sciences, the social sciences and the humanities in the treatment of each patient.

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<sup>1</sup>R.L. Beran, "The Rise and Fall of the Three-year Medical School Programs," Journal of Medical Education 54 (1979): 248-249.

<sup>2</sup>AAMC Curriculum Directory, 1981-82 (Washington, D.C.: Association of American Medical Colleges, 1981).

<sup>3</sup>D.R. Matlack, "Changes and Trends in Medical Education," Journal of Medical Education 47 (1972): 612-619.

### Nursing

Since the beginning of history, some form of nursing has existed. In the late nineteenth century the work of Florence Nightingale and her School of Nursing at St. Thomas was well known in America. The main contribution of Florence Nightingale was to identify nursing, outside the family context, as an acceptable social role for women and, thus, make the first step in differentiating the nursing profession.<sup>1</sup> The Crimean War, the endeavors of Florence Nightingale, and the Civil War had focused attention on the necessity for nurses and on the importance of an educational system in which to prepare them.<sup>2</sup>

Early efforts to establish nursing education in this country were disorganized and isolated experiments until the importation and establishment of the Nightingale plan for three training schools in 1873.<sup>3</sup> Dock<sup>4</sup> reports that these early schools held to Nightingale's tenets that control of all aspects of the educational program should be administratively separated from hospital control. The movement out of hospitals and away from the apprenticeship type of training

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<sup>1</sup>Josephine A. Dolan, History of Nursing XII edition (Philadelphia: W.B. Saunders Company, 1963), p. 214.

<sup>2</sup>Ibid., p. 247.

<sup>3</sup>Ibid., pp. 251-259.

<sup>4</sup>L.L. Dock, A Short History of Nursing: From the Earliest Time to the Present Day (New York: Putnam Books, 1920), p. 155.

toward professional preparation in educational institutions had begun at the turn of the century.

Though only seven baccalaureate nursing programs had been established by 1935, the opposition to this development was formidable.<sup>1</sup> As the Kalisches describe the situation, "Opposition came from many private physicians who argued that nurses were overtrained, that the service they gave was too costly, and that brief training in hospital routines would be just as satisfactory."<sup>2</sup> Partridge notes that the move toward academically based education, the baccalaureate in particular, is an overt effort to change nursing into an autonomous, independent role.<sup>3</sup>

In the early stages of nursing education, content was limited primarily to the communication, usually by physicians, of basic knowledge of diseases and their treatment, plus a code of proper behavior. More recently, emphasis has been placed on the scientific base, both biological and behavioral, for the practice of nursing.

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<sup>1</sup>Helen K. Grace, "Nursing," in Handbook of Health Profession Education, p. 99.

<sup>2</sup>P.A. Kalisch and B.J. Kalisch, The Advance of American Nursing (Boston: Little, Brown, 1978), p. 340.

<sup>3</sup>R. Partridge, "Education for Entry into Professional Nursing Practice," Journal of Nursing Education 20 (1981): 42.

### Dentistry

Dentistry is the fourth largest health profession. Only nursing, medicine, and pharmacy have greater numbers of practitioners.<sup>1</sup> In the early days of the United States, dentists learned their skills through an apprenticeship system. Formal dental education began with the founding of Baltimore College of Dental Surgery in 1840. The first university-sponsored dental school was established at Harvard in 1867.<sup>2</sup>

The dental equivalent of the Flexner Report is the Gies' Report in 1926. According to Brown,<sup>3</sup> it hastened the integration of dental education into the university by recommending two years of predental education followed by a three-year dental curriculum. Greater application of the basic sciences to clinical dentistry and improved teaching facilities and equipment were recommended.

### Pharmacy

The early history of pharmacy defies separation from the history of the other health professions. Records recovered from ancient civilizations provide documentation for the

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<sup>1</sup>Gordon H. DeFriesse and Ben D. Barker, "The Status of Dental Manpower Research," Journal of Dental Education 47 (1983): 730.

<sup>2</sup>William E. Brown, "Dentistry," in Handbook of the Health Professions, p. 51.

<sup>3</sup>Ibid.

prelude to pharmacy beginning in Babylonia and Assyria.<sup>1</sup> In sequence it can be traced to Egypt, to Greece and Rome, to Arabia, to countries in Europe, through the Renaissance and finally to the North American colonies.<sup>2</sup> Drug shops, especially around Baghdad, appeared by the early ninth century. Though often in the hands of uneducated dispensers, pharmacy emerged as a calling distinct from medicine.<sup>3</sup>

The Revolutionary and Civil War did much to alter the practice of pharmacy. The dire need for medicaments fostered the growing and production many more plants, and new drugs were discovered.<sup>4</sup> Spawned by World War II and the discovery of penicillin, the pharmaceutical industry developed and blossomed into one of the foremost industries in the United States.<sup>5</sup>

No organized formal instruction in pharmacy of any consequence was available in colonial America for a few decades following the revolutionary War.<sup>6</sup> In 1789 the College of Philadelphia included pharmacy in the title of one of the

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<sup>1</sup>Sonnedecker, Kremers and Urdang's History of Pharmacy, p. 4.

<sup>2</sup>Ibid., p. 28.

<sup>3</sup>Ibid.

<sup>4</sup>Ibid., pp. 181-186.

<sup>5</sup>August P. Lemberger, "Pharmacy," in Handbook of Health Professions Education, p. 68.

<sup>6</sup>Richard A. Deno, et. al., The Profession of Pharmacy (Philadelphia: J. B. Lippincott Company, 1959), p. 29.

professors in medical school. This was a prelude to the founding of the first school of pharmacy, the Philadelphia College of Pharmacy, in 1821.<sup>1</sup>

Flexner's Report in 1910 excluded pharmacy from the definition of a profession because of a clear lack of primary social responsibility with autonomy. However, with the assistance of the American Council on Education in 1932, an accrediting council was formed, and pharmacy received full acceptance as a health profession education program.<sup>2</sup>

The Report of the Study Committee by John Millis in 1975 probably did more to determine the direction of pharmacy in America than any other effort.<sup>3</sup>

Kalman and Schlege<sup>4</sup> note that the years of college education required for licensure of pharmacists has progressed from two to three to four, and finally in 1960, to five years of study. Internships vary from one to two years in different states.

The pharmacy graduate of today is highly educated, experienced and trained in depth in regard to clinical pharmacy.

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<sup>1</sup>Ibid., p. 30.

<sup>2</sup>Robert Mrtek, "Pharmaceutical Education in the United States: An Interpretive Historical Essay of the 20th Century," American Journal of Pharmaceutical Education 40 (November 1976): 343.

<sup>3</sup>Ibid., p. 254.

<sup>4</sup>S.H. Kalman and J.F. Schlege, "Standards of Practice for the Profession of Pharmacy," American Pharmacy 19 (1979): 133-45.

### Public Health

Specialized education for public health had its beginnings in the United States with the establishment of a school of public health at Johns Hopkins University in 1916.<sup>1</sup> By 1960, twelve such schools existed, and since 1960 the number of schools has almost doubled.<sup>2</sup> There are now numerous programs, in a variety of specialized fields provided in the universities.

The definition of public health which seems most appropriate is that developed by the Milbank Memorial Fund Commission, "Public Health is the effort organized by society to protect, promote and restore the people's health. The programs, services and institutions involved emphasize the prevention of disease and the health needs of the population as a whole. Public health activities change with changing technology and social values, but the goals remain the same: to reduce the amount of disease, premature death and disease-produced discomfort and disability."<sup>3</sup>

As the scope of public health has broadened, the knowledge base from which its activities are drawn has expanded far beyond its beginnings in medicine and engineering to include a widening range of biological and physical

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<sup>1</sup>Cecil G. Sheps, "Public Health," in Handbook of Health Professions Education, p. 127.

<sup>2</sup>Ibid.

<sup>3</sup>Milbank Memorial Fund Commission, Higher Education for Public Health (New York: Prodist, 1976), p. 3.

sciences, the social sciences, law and ethics. Hall, Jackson and Parsons,<sup>1</sup> on the basis of their review, concluded that most studies of public health personnel tend to be quite limited in scope and setting and are more apt to be descriptive than analytical. The basic need in this field is the establishment and implementation of a national public health manpower data base and monitoring system.<sup>2</sup> Without a basic data and surveillance system to monitor the need, demand and production of professional manpower for public health, effective planning of educational programs at any level is impossible.<sup>3</sup>

### Allied Health

In the broadest use of the term, all health professions can be considered as allied in the sense that all work together for a common goal, the giving of quality care to all patients. However, today the term is used in a much more restricted way. It denotes health professionals other than the physician, nurse, dentist or pharmacist. Some of the literature included nurse and pharmacist as "allied health

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<sup>1</sup>U.S. Department of Health & Human Services, Schools of Public Health: Trends in Graduate Education, by T.L. Hall, R.S. Jackson and W.B. Parsons, (Washington, D.C.: U.S. Government Printing Office, May 1980), p. 57.

<sup>2</sup>Milbank Memorial Fund Commission, Higher Education for Public Health, p. 49.

<sup>3</sup>Sheps, "Public Health," p. 138.



professions."<sup>1</sup> Though the origin of the term is not clear, according to McTernan<sup>2</sup> its widespread use is a direct result of the definition arising from federal legislation. Credit for first using the term, allied health, for an educational unit was Indiana University which in the 1950s established a Division of Allied Health Science as a part of the School of Medicine.<sup>3</sup> The National Commission on Allied Health Education endorsed the following definition of allied health, "All health personnel working toward the common goal of providing the best possible services in patient care and health promotion."<sup>4</sup>

Most of the disciplines that are considered allied health professions are relatively young. Many of them did not start until the 1950s. Federal legislation of the 1960s was successful in stimulating a rapid growth in the number of allied health education programs. There were 2,500 programs in 1966, and this figure grew to 8,000 in 1980.<sup>5</sup>

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<sup>1</sup>E.J. McTernan, "Introduction: The Philosophy of Allied Health," in Educating Personnel for the Allied Health Professions and Services, edited by E.J. McTernan and R.O. Hawkins (St. Louis: Mosby, 1972), p. 67.

<sup>2</sup>Ibid.

<sup>3</sup>Charles W. Ford, "Allied Health," in Handbook of Health Professions Education, p. 117.

<sup>4</sup>National Commission on Allied Health Education, The Future of Allied Health Education: New Alliances for the 1980s. (San Francisco: Jossey-Bass Publishers, 1980), p. 14.

<sup>5</sup>Ford, "Allied Health," p. 118.

In 1933, a medical specialty society, the American Society of Clinical Pathologists (ASCP), and an allied health organization, the American Occupational Therapy Association (AOTA), requested the American Medical Association (AMA) to assist in setting standards for allied health practitioners.<sup>1</sup> These standards were called Essentials and contained minimum educational requirements for graduates from an accredited allied health program. The first Essentials adopted were for the profession of occupational therapy in 1935.<sup>2</sup> The following year through the collaboration of the American Physical Therapy Association (APTA) and the Council on Medical Education, Essentials were adopted for physical therapy. In subsequent years twenty-six allied health educational programs have had standards developed and adopted.<sup>3</sup>

In 1967 due to the great increase in the variety of allied health programs, the American Medical Association formed the Advisory Committee on Allied Health Education.<sup>4</sup> This led to the formation of the Committee on Allied Health

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<sup>1</sup>Allied Health Education Directory, 10th Edition, edited by James J. Balijs and Hannah L. Hedrick, (Chicago: American Medical Association, 1981) p.1.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid., p. 3.

<sup>4</sup>Ibid.

Education and Accreditation (CAHEA).<sup>1</sup> This group now serves as the "umbrella" accrediting organization for all allied health educational programs.

As determined by the Board of Trustees of the American Medical Association, the fourteen members of the Committee on Allied Health Education and Accreditation would include the following:

1. Members of the allied health professions who have competencies in educational matters;
2. Hospital administrators having jurisdiction over multiple allied health programs; and
3. Practicing physicians interested in the health care team concept.

### Cytotechnology

Cytotechnology is the study of the structure and function of cells.<sup>2</sup> Cytotechnologists are trained medical technologists who work with pathologists to detect changes in body cells which may be important in the early diagnosis of cancer. Essentials were adopted in 1962.<sup>3</sup>

In the pioneer days of clinical pathology, it was the rare pathologists who did not have a more or less highly trained person having little or no formal education working with him. These first assistants were the product of an

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<sup>1</sup>Ibid., p. 9.

<sup>2</sup>Marjorie L. Brunner, "Medical Technology," in Introduction to Health Professions, p. 78.

<sup>3</sup>Allied Health Education Directory, p. 21.

apprentice-type of training. Most cytotechnologists work in hospitals or private laboratories.<sup>1</sup>

### Dental Hygiene

Dental hygiene is an auxiliary profession of dentistry. Its function, as defined by the American Dental Association (ADA), is to assist the members of the dental profession in providing oral health care to the public.<sup>2</sup>

Between 1957 and 1974 the number of accredited dental hygiene programs in the United States increased from thirty-four to one hundred and sixty.<sup>3</sup> All programs are required to meet the standards established by the Council on Dental Education of the American Dental Association.<sup>4</sup>

### Medical Technology

Following the first World War, various states required that all hospitals have laboratories. This legislation and the expanded use of new testing methods led to a significant jump in the demand for and use of adequately trained medical laboratory workers.<sup>5</sup> The emphasis on education is predominant in the story of medical technology.

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<sup>1</sup>Ibid.

<sup>2</sup>Nancy M. Reynolds, "Dental Hygiene," in Introduction to Health Profession, p. 9.

<sup>3</sup>Ibid., p. 10.

<sup>4</sup>Ibid.

<sup>5</sup>Allied Health Education Directory, pp. 77-78.

Medical technologists develop and analyze data on the blood, tissues and fluids in the human body by using precision instruments such as microscopes and automatic analyzers.<sup>1</sup>

### Medical Records

Medical record professionals are those individuals who maintain records and reports for each person treated in a medical care facility.<sup>2</sup> This allied health profession combines a knowledge of both health care and business administration. Pariser<sup>3</sup> states that increasing demands to ensure quality patient care are placing more emphasis on the uses of medical records and the role of the medical record administrator.

Because medical record administrators deal with medical records, they should not be confused with medical librarians, who work chiefly with medical publications.<sup>4</sup>

### Nuclear Medicine

Nuclear medicine is the scientific and clinical discipline concerned with diagnostic, therapeutic and investigative use of radionuclides.<sup>5</sup> Essentials for this

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<sup>1</sup>Ibid.

<sup>2</sup>Ibid., p. 76.

<sup>3</sup>Melanie M. Pariser, "Medical Records Administration," in Introduction to Health Professions, p. 69.

<sup>4</sup>Allied Health Education Directory, p. 76.

<sup>5</sup>Ibid., p. 78.

program were adopted in 1969 after about fifteen years of deliberations.<sup>1</sup> This program is often included as a specialty of radiography.<sup>2</sup>

### Occupational Therapy

From the beginning of the development of the occupational therapy program, these health professionals have worked closely with those representing the profession of physical therapy.<sup>3</sup> In 1925, the Council on Physical Therapy was created "to investigate and report on the value and merits of all non-medical apparatus and contrivances offered for sale to physicians and hospitals."<sup>4</sup> Also, they were asked to publish the results of these investigations in the Medical Journal.<sup>5</sup>

Occupational therapists help individuals attain the highest possible function levels when their ability to cope with tasks of living have been impaired.

### Physical Therapy

Physical therapy is concerned with the restoration of function and the prevention of disability following illness or

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<sup>1</sup>J. Robert Bullock and Phillip W. Ballinger, "Radiologic Technology," in Introduction to Health Professions, p. 145.

<sup>2</sup>Ibid.

<sup>3</sup>Allied Health Education Directory, p. 79.

<sup>4</sup>Ibid., p. 44.

<sup>5</sup>Ibid.

disease of the muscles, nerves, joints, or bones.<sup>1</sup> In addition, emphasis is placed on preparing the patients psychologically for treatment. Standards were developed and adopted in 1936.<sup>2</sup>

### Physician Associate/Assistant

The physician associate or assistant's program was an innovation that began at Duke University in 1965.<sup>3</sup> It was initiated following the Vietnam War to provide an additional two years of training for returning medical corps men. Funding for this program was appropriated under the authority of the Health Manpower Act of 1972.<sup>4</sup>

Fowkes, O'Hara-Devereaux and Andrus<sup>5</sup> observed that arguments have been frequently heard that denounce the need for the physician associate/assistant. It was declared that nurses could fill the roles of the physician associates.

### Radiation Therapy

Radiation therapy technologists assist in all aspects of radiation therapy treatment. Their primary responsibility

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<sup>1</sup>Ibid., p. 81.

<sup>2</sup>Ibid., p. 49.

<sup>3</sup>Ibid., p. 52.

<sup>4</sup>Ibid., p. 52.

<sup>5</sup>V. Fowkes, M. O'Hara-Devereaux and L.H. Andrus, "A Cooperative Education Program for Nurse Practitioners/Physician's Assistants," Journal of Medical Education, 54, (1970): 781-787.

consists of exposing specific areas of the patient's body to prescribed doses of ionizing radiation.<sup>1</sup>

Radiation therapy has been recognized as a separate discipline within radiologic technology since 1964.<sup>2</sup>

### Radiography

A long process of stabilizing standards of education for registration of the radiologic technologist was culminated in 1944 with the adoption of the first Essentials of an Accredited School of X-Ray Technology.<sup>3</sup>

Radiographers are qualified by education to provide patient services using imaging modalities, as directed by a physician.<sup>4</sup>

### Respiratory Therapy

The respiratory therapist administers various types of gas, aerosol and breathing treatments; assists with long-term continuous artificial ventilation; clean, sterilize and maintain respiratory equipment.<sup>5</sup> Prior to 1972, this group of professionals was known as inhalation therapists.<sup>6</sup>

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<sup>1</sup>Allied Health Education Directory, p. 81.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid., p. 56.

<sup>4</sup>Bullock and Ballinger, "Radiologic Technology," p. 141.

<sup>5</sup>Allied Health Education Directory, p. 82.

<sup>6</sup>Ibid.



### Summary

The development of an organization within the university for the explicit responsibility of grouping health profession education programs has had phenomenal growth since 1960. Evans<sup>1</sup> states that the university should be recognized for the location of health profession programs and should proceed with even greater energy in the broad area of health profession education.

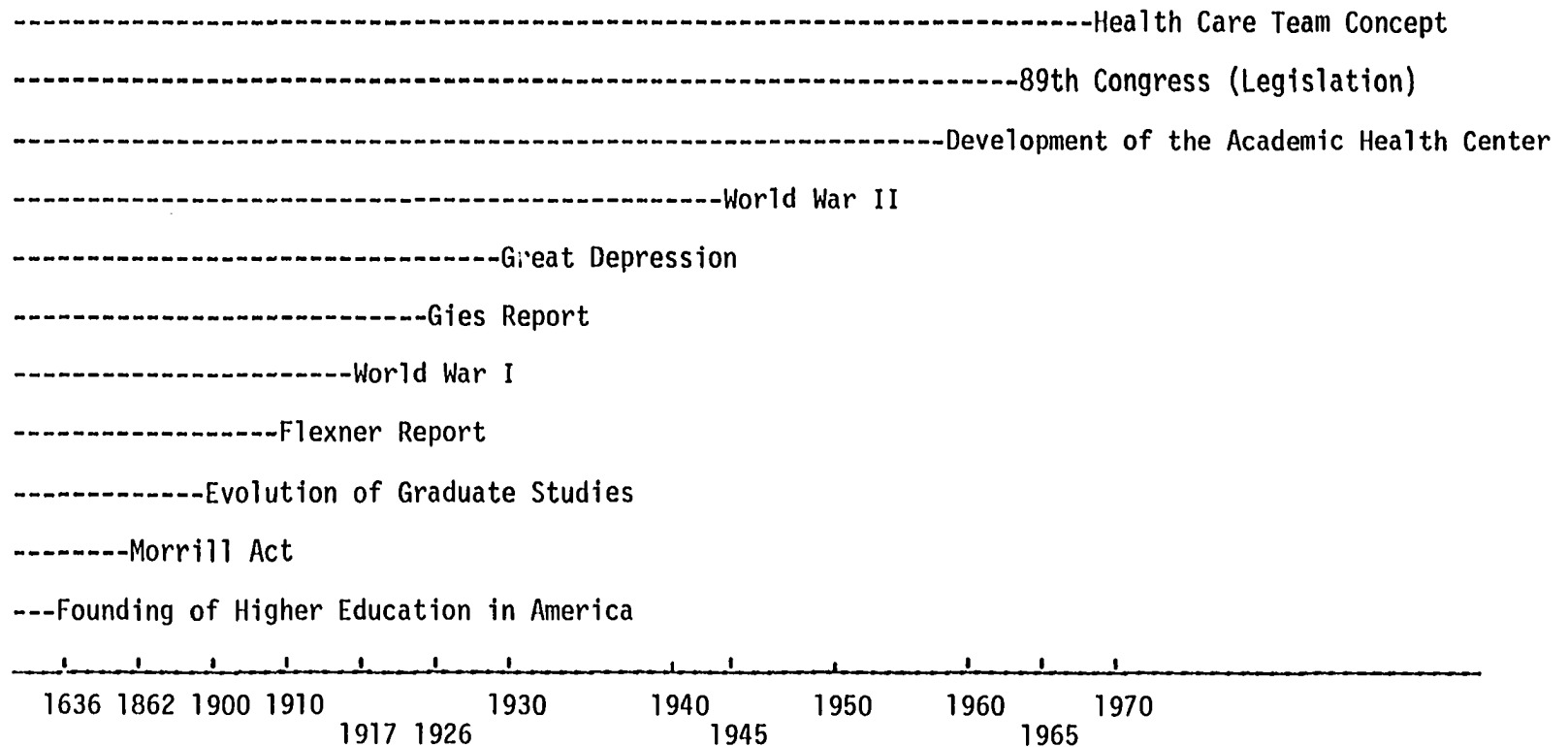
Professional education has largely been a different world from professional practice. With an integrated approach to the educational process of the health professional, learning and practice will be intertwined. Thus, the connections are inescapable between education and practice and the health needs of the population.

Major events which are contributory factors to the present structure and function of the education of health professions are illustrated in Figure 3.

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<sup>1</sup>Lester J. Evans, The Crisis in Medical Education (Ann Arbor, Michigan: The University of Michigan, 1965), p. 4.

TABLE 3  
 DATES OF MAJOR EVENTS AFFECTING  
 HIGHER EDUCATION IN THE U.S.



## CHAPTER III

### THEORETICAL FRAMEWORK

#### Systems

A system has been defined as an identifiable collection of elements that are interrelated and presumed to function as an organizational entity in generating observable or inferable products.<sup>1</sup> The term "systems" has been around since the 1950s, when the general systems theory was introduced by Ludwig von Bertalanffy.<sup>2</sup> Later, the development of systems' philosophy by Ervin Laszlo<sup>3</sup> and the analysis of the system in terms of integrated conceptual levels by Talcott Parsons<sup>4</sup> have contributed to viewing the academic health center and its disparate functions as a system.

Hearn lists several properties as inclusive characteristics of systems in general:

- 1) Every order of system except the smallest has subsystems.

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<sup>1</sup>Ervin Laszlo, The Systems View of the World (New York: George Brazillar, 1972), p. 120.

<sup>2</sup>Ludwig von Bertalanffy, General Systems Theory (New York: George Braziller, 1969).

<sup>3</sup>Laszlo, The Systems View of the World.

<sup>4</sup>Talcott Parsons, Structure and Process in Modern Societies (Glencoe, Illinois: The Free Press, 1960).

- 2) All but the largest have supersystems.
- 3) Every system has a boundary which distinguishes it from its environment.
- 4) Higher order systems are always part of the environment of lower order systems.<sup>1</sup>

The academic health center system is not "real" in the sense of being a physical entity. It is an analytical system of roles, positions and groups. Because of its nature the environment is comprised of other kinds of social systems, i.e., groups, organizations, communities, which make direct demands upon the academic health center system or whose structures are directly affected by the policies of those in authoritative positions in the system. Empirically, the social systems which make direct demands upon the academic health center system would include faculty members; students; hospital and clinic personnel; legislatures; accrediting agencies; health-related local, state and national organizations; practicing health professionals; parents, and other citizen groups. Of course, the various organizations within the university would also make demands of the academic health center system. This conception of the relationship between the academic health center system and its environment may not appear firm enough because of its lack of specificity and the fluidity of interactions between positions within and outside the environment.

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<sup>1</sup>Gordon Hearn, Theory Building in Social Work (Toronto, Canada: University of Toronto Press, 1958), pp. 38-51.

The conceptualization of an academic health center system leads to the matter of delineation of boundaries. Easton described a boundary line as "a symbol or spatial embodiment of the criteria of inclusion-exclusion with respect to a system."<sup>1</sup> A system's boundary can be signalized by four properties:

- 1) The degree of distinction of roles and activities from other system's roles and activities.
- 2) The extent to which those performing the roles form a separate and distinguishable group and possess a sense of identity and cohesion.
- 3) The extent to which positions comprised take the shape of a hierarchy which is distinguishable from other hierarchies based upon some criteria.
- 4) The extent to which the recruitment processes and criteria of selection differ from the occupants of positions in other systems.<sup>2</sup>

From these descriptions it is possible to draw the boundary of the academic health center system, as it relates to others.

It will be noted that some groups or organizations will make demands and respond to policy; while others will only make demands. The reason for this is found in the conceptualization of the academic health center as a system of authoritative positions.

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<sup>1</sup>David Easton, A Systems Analysis of Political Life (New York: John Wiley and Sons, 1965), p. 66.

<sup>2</sup>Ibid., p. 69.

Authority of one position over another position or group implies that the occupant of the first position can legitimately expect the occupant of the second position or set of positions (a group) to respond to some directive.<sup>1</sup> Occupants of the second position do not have authority over occupants of the first position so they cannot expect them to respond to their directives in turn.<sup>2</sup> This conceptualization of a flow of demands is basic to the idea of hierarchial structures in general and the academic health center system in particular.

An example may illustrate this relationship and help to clarify the operation of the academic health center system. A legislature might make legitimate demands of the system for policies which call for a university to develop a program in nursing. If the university system responded to this demand and created a program, it would result in structural changes in those organizations over which the system has authority. On the other hand, the university cannot authoritatively demand that the legislature change its committee or sub-committee structures.

At first systems are governed by the dynamic interaction of their components. Communication is more feasible within the system because of the likeness of both dimensions of

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<sup>1</sup>Daniel Katz and Robert L. Kahn, The Social Psychology of Organization (New York: John Wiley and Sons, 1966), p. 259.

<sup>2</sup>Ibid.

energy and information. Sometimes restraints are imposed on the free interplay of the functional subsystems which would seem to limit the degree to which the system can achieve its potentiality. Each health professional program represents a subsystem of the academic health center. What is really significant is not how the subsystems function separately, but how they interact and integrate into the system as a whole for the purpose of achieving goals. The interrelationship of the health disciplines increases the permeability of the boundary of the academic health center to involve the teaching hospitals and the health delivery system. For the academic health center to function as a system, it must secure compliance with all these groups as well as the university system.

Systems are differentiated in terms of open or closed.<sup>1</sup> The essential difference is that open systems are related to and exchange matter with their environment while closed systems do not.<sup>2</sup> Closed systems move toward a state of homogeneity of maximum organization, and the open systems have a continuous flow of component energy and information.<sup>3</sup> When a component is added, the open system reacts in a way so as to reestablish a steady state, and if external conditions change

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<sup>1</sup>Laszlo, The Systems View of the World, p. 37.

<sup>2</sup>Mary E. Hazzard, "An Overview of System's Theory," in Theoretical Foundations for Nursing, edited by Margaret E. Hardy (Boston: MSS Information Company, 1973), p. 179.

<sup>3</sup>Laszlo, The Systems View of the World, p. 37.

in any major way, the system can react in such a way as to establish another steady state.<sup>1</sup> An important quality of the academic health center, as an open system, is its ability to self-regulate. In self regulation the system must be capable of initiating corrective action.<sup>2</sup>

The educational process continually takes in energy and information from the environment and releases energy and information to the environment. Therefore, the environment not only affects the health professional student, but also determines the future of the student as a practitioner. This supports the need for a working relationship between the educational system, the academic health center, and the health delivery system, the health care team.

The knowledge and skills required to provide health care have been continuously subdivided by specialization and programs. Laszlo's total approach that every system is a subsystem of another system still provides for systems within systems to maintain autonomy.<sup>3</sup> When systems interact with systems to collaboratively form supersystems, the supersystem is not limited by anything other than availability of participating systems.<sup>4</sup> High quality care depends not only on the effectiveness of each system, but also on these systems

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<sup>1</sup>Ibid.

<sup>2</sup>Hazzard, "An Overview of System's Theory," pp. 180-181.

<sup>3</sup>Laszlo, The Systems View of the World, p. 50.

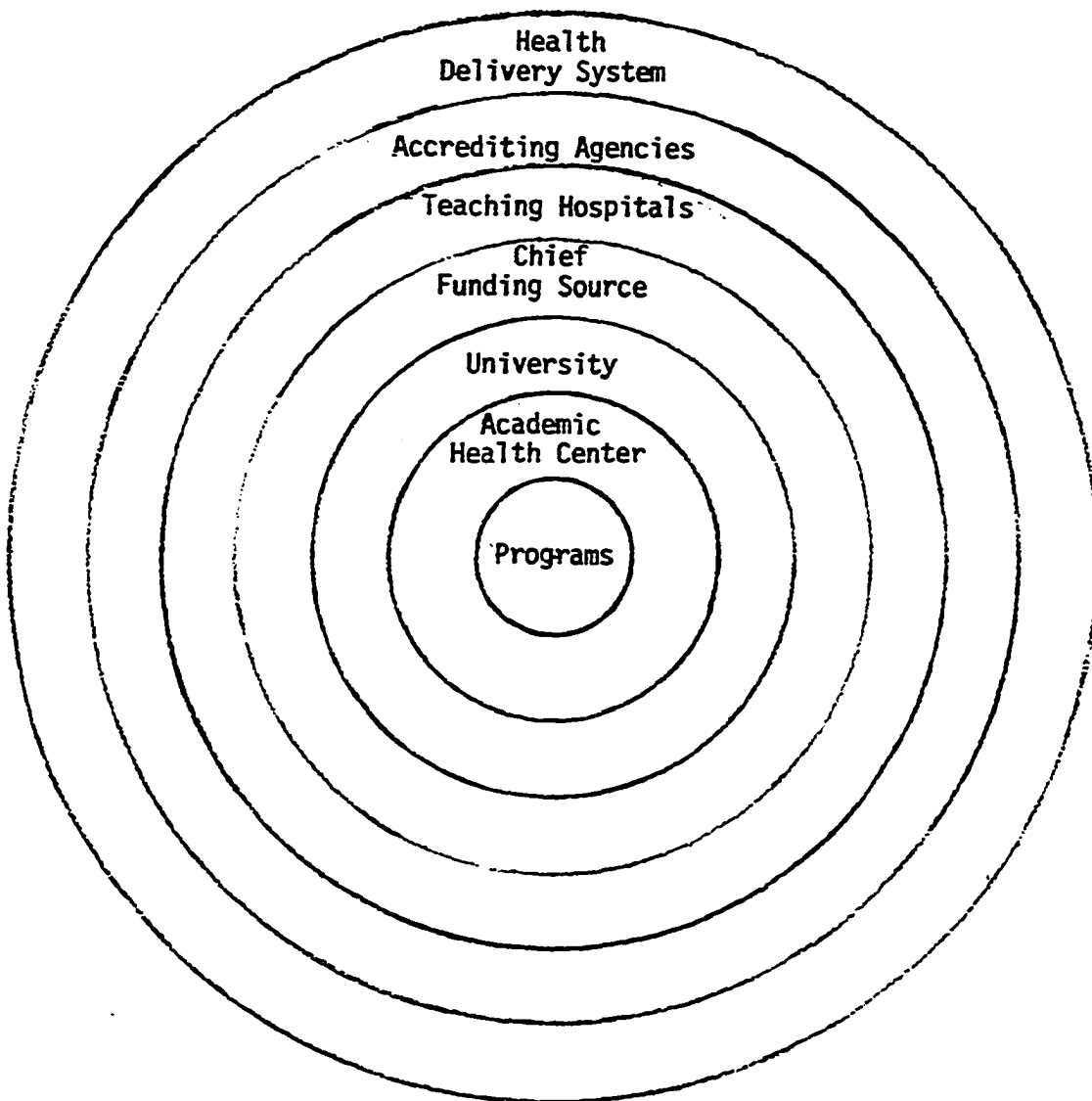
<sup>4</sup>Ibid.



being meshed into an integrated super system. The systematic order of the academic health center and its environment in relation to Laszlo's theory is seen in Figure 3.

Figure 3

A SYSTEMS MODEL OF THE AHC  
IN RELATION TO LASZLO'S THEORY



Parsons suggests there are three levels in every organization:

- 1) A "technical" level directly concerned with producing a product.
- 2) A "managerial" level that coordinates the activities of the technical groups.
- 3) An "institutional" level that links the organization to its environment by securing needed "inputs" and disposing of "outputs."<sup>1</sup>

The institutional level tends to develop specialized groups of "boundary roles" in which the principal job is to link the university and the outside world.<sup>2</sup> These groups include university personnel who tend to "reach out to the world beyond the walls," such as recruitment, public relations and government liaison personnel. For the academic health centers, officials with boundary roles would include the chief administrative officers. These are the key administrators who occupy the "institutional" level. The academic health center is extremely dependent on its external environment, the teaching hospitals, accrediting agencies and the health delivery system. The technical level in the academic health center represents the actual processes of teaching. Figure 4 illustrates the academic health center's social structure, the external environment, in relation to Parson's three levels of an organization.

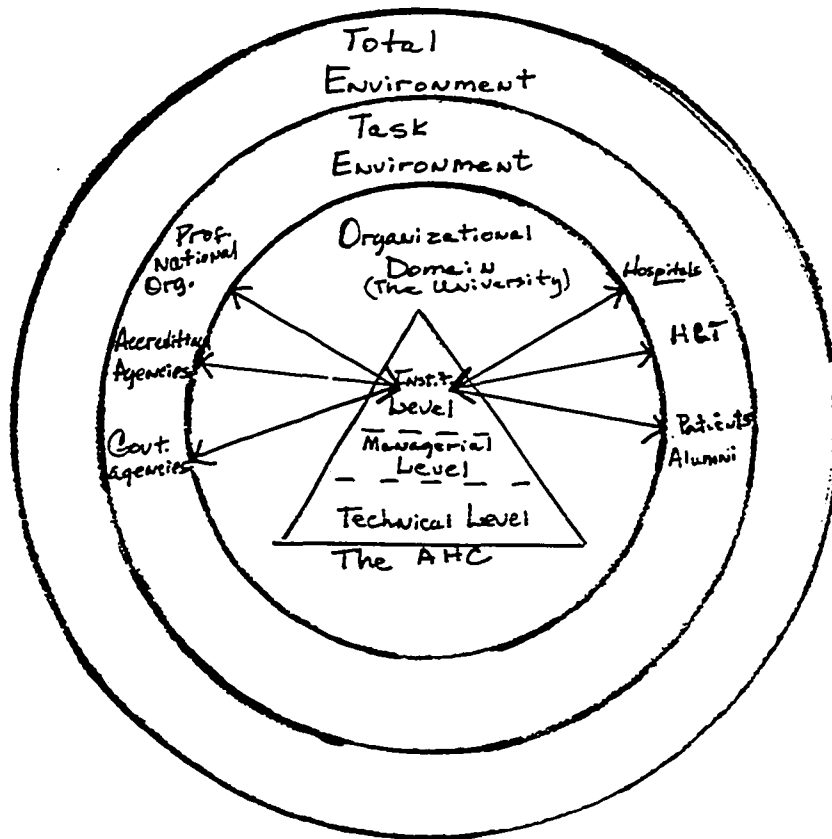
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<sup>1</sup>Parsons, Structures and Process in Modern Societies, pp. 59-96.

<sup>2</sup>Ibid.

Figure 4

THE ACADEMIC HEALTH CENTER'S SOCIAL STRUCTURE:  
THE EXTERNAL ENVIRONMENT  
IN RELATION TO PARSON'S THREE LEVELS OF AN ORGANIZATION



Task Environment: Gives Inputs and receives outputs.  
 Organizations directly relevant to AHC.

Total Environment: Category for any other external factors.

In Parson's system model, concern is largely focused on the needs of the system as a whole. He identifies the involvement of two key elements. First, is interdependence, and second is self-maintenance.<sup>1</sup> A number of parts which are engaged in mutual interchanges may, at one extreme, be totally dependent on each other for the satisfaction of needs. Or, the parts may have a varying amount of their needs satisfied by and, thus, have varying degrees of dependence upon other elements within the system. The academic health center with its involvement in the university system and community system is considered highly interdependent.

Gouldner<sup>2</sup> comments that the notion of interdependence is crucial to the concept of a system. He conceptualizes a system in terms of its functional autonomy which focuses on the parts in relation to each other.<sup>3</sup> All parts possess some degree of autonomy and must be expected to seek to maintain their boundary. It must then be assumed that parts with some degree of functional autonomy will resist full or complete integration into a larger system.<sup>4</sup> Consequently, there may be some tension between the health profession programs to

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<sup>1</sup>Ibid., p. 119.

<sup>2</sup>Alvin W. Gouldner, "Reciprocity and Autonomy in Functional Theory," in Symposium on Sociological Theory, edited by Llewellyn Gross (Evanston, Illinois: Row, Peterson, and Company, 1959), p. 252.

<sup>3</sup>Ibid., p. 254.

<sup>4</sup>Ibid.

maintain an existent degree of functional autonomy. Gouldner further adds, however, that the system should not focus solely on the "wholeness" of the system and neglect the functional autonomy of the parts.<sup>1</sup> This may be a reason for some academic health centers to decline integrated study within the system or a desire to remain outside the university system.

### Model Building

A conceptual model is a highly abstract umbrella of related multidimensional concepts. The source of data used will distinguish one model from another. The conceptual model is derived from unsystematic empirical observations and intuition and is developed primarily through the process of induction.

Torgerson<sup>2</sup> states that a conceptual model may be evaluated only on logical grounds, since the multidimensional nature of its concepts prevent empirical testing. Brodbeck<sup>3</sup> provides descriptive terms for showing similarities and differences between a real thing and a model. The notion of having the same form is essential to one important use of a model.

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<sup>1</sup>Ibid.

<sup>2</sup>Warren S. Torgerson, Theory and Methods of Scaling, (New York: John Wiley and Sons, 1958), p. 4.

<sup>3</sup>May Brodbeck, "Models, Meaning, and Theories," in Symposium on Sociological Theory, edited by Llewellyn Gross (Evanston, Illinois: Row, Peterson, and Co., 1959), pp. 373-402.

Criteria for the model will be derived from the literature and influenced by the responses of the chief administrative officers at existing academic health centers in regard to the program components considered most essential for a complete academic health center. Programs in the model will possess a sense of identity and cohesion from their roles and functions.

Kerr<sup>1</sup> contributes to the development of a model by calling attention to the degree and extent of involvement of the American university with other organizations and institutions of society and the diversity or plurality of interests of those involved with the university. However no explicit hypotheses about the conditions or circumstances in which one or more interests will triumph over others are offered.

Perkins<sup>2</sup> emphasizes the relationship between three aspects of knowledge--communication, acquisition, and application--and the three primary functions of the university--teaching, research and service. He indicates that these functions should be in balance for the university to maintain internal coherence.

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<sup>1</sup>C. Kerr, The Uses of the University (Cambridge, Mass.: Harvard University Press, 1963), p. 164.

<sup>2</sup>J.A. Perkins, The University in Transition (Princeton: Princeton University Press, 1966), p. 42.

The concepts of systems theory can be utilized to develop models. Models may offer an array of approaches for investigating systems. The units of a conceptual system are terms which represent operations.<sup>1</sup>

The model of an academic health center is indicated by its descriptive terms to duplicate the relative parts of the real thing, as it relates to the three aspects of knowledge and the three primary functions of the university.

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<sup>1</sup>Hazzard, "An Overview of Systems Theory," pp. 183-184.

## CHAPTER IV

### DESIGN OF THE STUDY

#### Methodological Approach of the Study

The purpose of this study has been to identify the scope of health profession programs that are offered in academic health centers in universities in the United States today.

Since this study deals with a subject area that has not been specifically or previously studied, it has, therefore, been exploratory in nature. For this reason, the basis upon which this research has been conducted was derived from a broad array of available literature about the academic health center and those groups external to the university which might affect its decision making tasks. It is in line with the proposed purpose of this study to develop a conceptual model of a comprehensive academic health center to include those health profession programs most essential for its completeness. The health profession programs selected in this model were determined in large part by responses given by the chief administrative officers at existing academic health centers to a survey instrument on the academic health center.

Because a major effort of this study has been to develop a pattern of investigation and analysis of existing academic health centers in universities, a detailed description of the



procedures used in the study is presented. This chapter also describes the instrument designed for gathering the data, and methods used in analyzing data and in determining each of the many areas of data analysis.

### Selection of the Sample

According to the 1983-84 Medical Directory,<sup>1</sup> there are 126 accredited medical schools in the United States. Of this listing there are 108 medical schools which function as a part of a university or college. Because the emphasis of this study is placed on the academic health center as a part of a university, only the medical schools with a parent university or college are used.

All medical schools may or may not be a part of an academic health center, as defined by the literature as "a medical school, a teaching hospital, and at least one additional program;"<sup>2</sup> therefore the entire population of medical schools within university systems is included for the purpose of this study in order to locate the existing academic health centers.

### Pattern of Investigation

The following procedures were employed to conduct this study of academic health centers in higher education in America:

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<sup>1</sup>AAMC Directory of American Medical Education, 1983-84

<sup>2</sup>AAHC, Organization and Governance Report, Vol. 1, p. 1.

1. The following steps were taken to identify the names of medical schools and/or academic health centers believed to be a part of a college or university system in the United States during the years 1983-84:

a. A basic list of 126 medical schools was compiled from the 1983-84 edition of the Medical Directory.<sup>1</sup>

b. Each of the medical school listings was reviewed, and a list was compiled of those 108 medical schools that were located in a university or college in the United States.

2. The following information was recorded from the Directory<sup>2</sup> for each of the 108 medical schools:

a. Name of medical school and/or center;

b. Name and location of parent institution;

c. Name and address of chief administrative officer;

d. Date medical school and/or academic health center were established, where such information was available.

3. Medical schools and/or centers were then alphabetized by states and listed numerically. A master mailing list was compiled that included the following information:

a. Name of medical school and/or center;

b. Name of chief administrative officer of the medical school and/or center; (Titles were included, if available.)

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<sup>1</sup>AAMC Directory of American Medical Education

<sup>2</sup>Ibid.

c. Mailing address for the chief administrative officer;

d. Name of parent institution;

e. Date medical school and/or center was established, if information was available.

4. It was necessary to identify the allied health profession programs that would most likely be included in a comprehensive university. The following procedure was employed:

a. A list was made of the twenty-six allied health profession programs as indexed in the Allied Health Directory.<sup>1</sup>

b. The Essentials for each of these programs were reviewed in the Directory.<sup>2</sup> The list was reduced to eleven allied health profession programs whose standards recommended two years of prerequisite courses and two years of professional study.

5. A questionnaire was developed to obtain general information about the academic health center, the programs offered for study at the academic health center, the relationship of the academic health center with the parent institution and teaching hospitals, and the health professions perceived most essential to least essential for inclusion in an academic health center and a health care team. (See

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<sup>1</sup>Allied Health Education Directory, 10th Edition.

<sup>2</sup>Ibid.

Appendix A for a copy of the Academic Health Center Questionnaire.)

6. Each chief administrative officer on the master mailing list was contacted by letter which briefly explained the study. Accompanying the letter was the questionnaire. Where information was available, dates medical schools and other programs were established was filled in on the questionnaire to assist in its completion. A stamped, self-addressed envelope was enclosed. (See Appendix B for a copy of the letter.)

7. One month after the initial mailing, a follow-up letter containing a second questionnaire and a stamped, self-addressed return envelope was sent to the non-respondents in an effort to increase the number of subjects. (See Appendix C for a copy of the follow-up letter.)

8. Each returned questionnaire was coded according to control of the parent institution, regional location of the academic health center and number of health profession programs offered.

The following coding system was used:

a. A capital letter was used to identify the control of the parent institution:

- (1) P = Public institution;
- (2) I = Independent (private) institution; and
- (3) P/I = Both public and independent.

b. Academic health centers were classified according to the number of health professions programs offered by the respective roman numeral:

- (1) I = Seven or more programs;
- (2) II = Four to six programs; and
- (3) III = One to three programs.

c. Each academic health center was identified numerically by the geographic location of the campus according to the U.S. Bureau of Census map dividing the United States into nine regions:<sup>1</sup>

(1) 1 = New England Region: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont;

(2) 2 = Middle Atlantic Region: Delaware, Maryland, New Jersey, New York and Pennsylvania;

(3) 3 = South Atlantic Region: Florida, Georgia, North Carolina, South Carolina, Washington, D.C., West Virginia and Virginia;

(4) 4 = East-South-Central Region: Alabama, Arkansas, Kentucky, Louisiana, Mississippi and Tennessee;

(5) 5 = West-South-Central Region: Arizona, New Mexico, Oklahoma and Texas;

(6) 6 = East-North-Central Region: Ohio, Michigan and Indiana;

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<sup>1</sup>U.S. Bureau of Census, Map; Nine Regions in the United States (Washington, D.C.: U.S. Government Printing Office, 1981).

(7) 7 = West-North-Central Region: Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota and Wisconsin;

(8) 8 = Mountain Region: Colorado, Idaho, Montana, Utah and Wyoming;

(9) 9 = Pacific Region: California, Nevada, Oregon, Washington, Hawaii and Alaska.

(See Appendix D for a copy of the map, Nine Regions in the United States.)

9. Several statistical tests were applied to the data to identify the health profession programs that are most essential for the completeness of an academic health center and to determine if relationships exist in the health professions in the academic health center and the health care team.

10. A conceptual model academic health center was designed.

#### Data Gathering Instrument

Because of the exploratory nature of this study, it was necessary to develop an original questionnaire. Items were selected for inclusion in the questionnaire to provide the demographic characteristics and programmatic structure of existing academic health centers. Specifically, the instrument asked questions about the organizational structure, the relationship of the academic health center to the parent institution and teaching hospitals; characteristics of programs offered, including years established and degrees

awarded; and the rating of health profession programs perceived from most essential to least essential as components of an academic health center and as members of the health care team. The idea for the general form and layout of the instrument itself was suggested by Berdie and Anderson.<sup>1</sup>

The instrument was designed in three parts. Parts I and II included objective style answers for an easy response. Where the information sought did not lend itself to such a response, questions were asked leaving space for written responses by the subjects. Part III of the questionnaire was designed employing the Likert procedure in order to facilitate the statistical analysis of the results.<sup>2</sup> A commonly employed five point scale was used where each health profession could be rated from most essential to least essential. The responses were credited with a score of 5, 4, 3, 2 or 1 respectively, with 1 being most essential, and 5 being least essential. (See Appendix A for a copy of the Academic Health Center Questionnaire.)

### Treatment of the Data

Data were prepared for input to the Statistical Analysis System computer in the Merrick Computer Center at the University of Oklahoma. The statistical package applied to

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<sup>1</sup>Douglas R. Berdie and John F. Anderson, Questionnaires: Design and Use (Metuchen, New Jersey: The Scarecrow Press, Inc., 1974).

<sup>2</sup>Anna Anastasi, Psychological Testing, Fourth Edition (New York: MacMillan Publishing Co., Inc., 1976), pp. 550-551.

the data included frequency and percent of responses; the t-test of means differences; and the correlation coefficient tests of significance, the Pearson Product Moment, the Spearman Rho and the Kendall Tau-b.

In order to answer questions relevant to the research, it was necessary to compare the data compiled with the corresponding objectives outlined in Chapter I. Firm conclusions and recommendations were drawn from the information compiled, as the data were converted to meaningful information by use of the identified traditional comparative methods.

Because this study was actually a two-part investigation, it was necessary to analyze the data first to identify and investigate existing academic health centers, and secondly, to determine those health profession programs most essential to the completeness of an academic health center for the design of a model. This study dealt with original data to produce meaningful information to add knowledge to a conceptual model of an academic health center.

The data were examined by regional distribution of academic health centers and by control of the parent institutions. Because of the diverse nature of the collected data, the different statistical procedures were employed to determine the characteristics of existing academic health centers and to determine if significant relationships exist between the health profession programs perceived most essential as components in an academic health center and those



health professions perceived most essential as members of the health care team.

The t-test was used to find if a difference of the means exists between the health profession programs identified by publicly controlled institutions and independently controlled institutions. The Pearson product-moment correlation coefficient test was applied to the data to determine if a significant relationship exists between the health profession programs perceived as most essential components of the academic health center and the health professions perceived as most essential members of the health care team. The Kendall Tau-b correlation coefficient test of significance was computed for correlations of comparisons of the same pairs of observations, and the Spearman Rho correlation coefficient test of significance was done for correlations of the rank-order of the health professions as most essential components of the academic health center and the health professions as members of the health care team. For the purpose of this study the null hypotheses were used, and a .05 level of significance was chosen.<sup>1</sup>

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<sup>1</sup>N.M. Downie and R.W. Heath, Basic Statistical Methods (New York: Harper and Row, Publishers, 1974), pp. 207-262.

### Validity

The validity of the questionnaire was established through an analysis of experts. Sellitz, Wrightsman, and Cook<sup>1</sup> define validity as the extent to which data-collection techniques and the rules for using the data correspond to the "true" position of the object on the characteristic being measured.

Consequently, four former chief administrative officers of academic health centers were asked to field test the instrument to measure the extent to which it measured what it purported to measure. These subjects were unanimous in their judgments that the questionnaire's design adequately solicited data about clearly stated aspects of the academic health center domain. The subjects had no difficulty completing the form, and they stated that if this instrument had been sent to them while serving as chief administrative officers, they would have readily participated in the study. Such comments as "a very thorough instrument" and "well thought-out questionnaire" were expressed.

### Reliability

Another crucial aspect of an instrument is its reliability, the extent to which measures give consistent results.<sup>2</sup> Sellitz, Wrightsman and Cook concluded, "If we knew

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<sup>1</sup>Claire Sellitz, Lawrence S. Wrightsman, and Stuart W. Cook, Research Methods in Social Relations (New York: Holt, Rinehart and Winston, 1976), p. 161.

<sup>2</sup>Ibid.

that a measuring instrument had satisfactory validity for the purpose for which we intended using it, we would not need to worry about its reliability."<sup>1</sup> Because the subjects involved in the field tests of the questionnaire were unanimous as to the validity of the instrument items and because of the specific nature of the items and the targeted subjects of the study, no specific quantitative technique was employed to establish the reliability of the instrument.

It is specifically contended in the context of this study that the level of sophistication of the subjects of this study deemed it of particular importance that the questionnaire not attempt to measure anything not specifically stated or implied by any of the items in the questionnaire. Therefore, a test of the instrument's consistency would have added no additional strength that would not have already been inherent within the instruments's validity test.

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<sup>1</sup>Ibid., p. 181.

## CHAPTER V.

### RESEARCH FINDINGS AND ANALYSIS

#### Characteristics of Subjects

Because this study was a two-part investigation, it was necessary first to analyze the data about existing academic health centers to identify the scope of programs offered and secondly, to develop a conceptual model of a comprehensive academic health center as a subsystem of the university.

The respondents of an initial and follow-up mailing which included 108 medical schools and/or centers in the United States accredited by the Liaison Committee on Medical Education (LCME) and listed as institutional members in the 1983-84 Directory<sup>1</sup> were subjects of this study. The total response rate to these mailings was 83 (77%). Of this number, 13 (16%) had only a medical school and, therefore, did not meet the definition for an academic health center, defined earlier as "a medical school, a teaching hospital and at least one additional program."<sup>2</sup>

The characteristics and statistics to follow are based on the responses of the chief administrative officers of these 70

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<sup>1</sup>AAMC Directory, 1983-84.

<sup>2</sup>AAHC, Organization and Governance Report, vol. 1, p. 1.

existing academic health centers to the items found in the Academic Health Center Questionnaire developed specifically for the purposes of this study. (See Appendix A for a copy of the Academic Health Center Questionnaire.)

### Names of the Academic Health Centers

Various descriptive names that are health-related are used to identify this subsystem of the university. Of the respondents, 2 (3%) use only School of Medicine in their name, and 3 (4%) include the name Medical College or Medical University. The name most frequently used is that of Medical Center with 40 (57%) reported. There are 20 (29%) that include the names Health Sciences or Health Sciences Center. Names of 5 (7%) include: Medical Sciences, Medical and Research Center, Medical Institute, Medical Authority, Health Center and Health Affairs. One institution had a name change occur in 1983 from Health Sciences Center to Health Science University. Hastings and Crispell<sup>1</sup> state that over the years the term "academic health center," or "academic health science center," has come to replace academic medical center as the name for this phenomena as a result of the entry of numerous health professions into the university.

### Control of Parent Institution

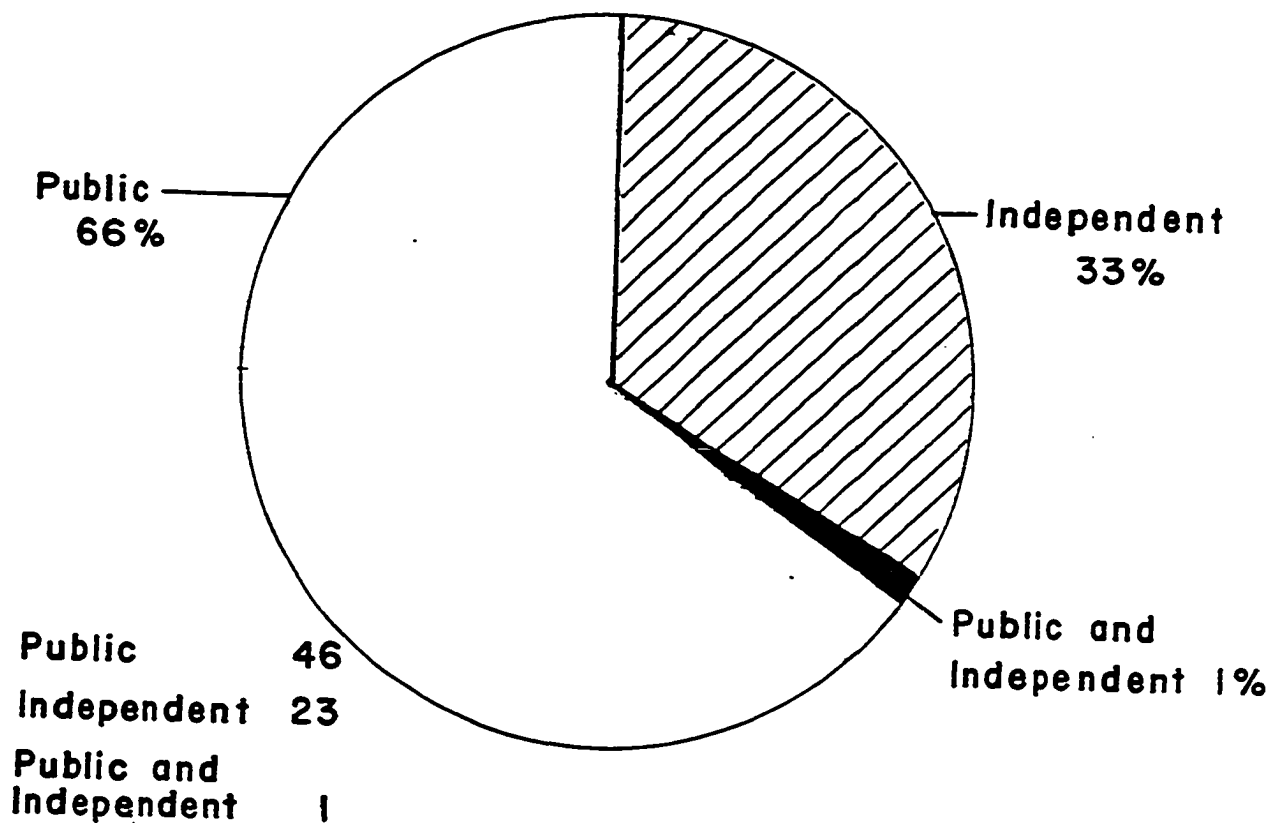
Of the 70 respondents, 46 (66%) are organized as academic health centers within a university considered a publicly

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<sup>1</sup>Hastings and Crispell, "Policy-Making and Governance in Academic Health Centers," p. 325.

controlled institution, 23 (33%) are a part of an institution controlled by independent sources, and 1 (1%) is identified as an institution controlled by public and independent sources. (See Figure 5 for the percent distribution of academic health centers by control of the institutions.)

**Figure 5**

**PERCENT DISTRIBUTION OF AHCs BY CONTROL OF INSTITUTIONS**



There is a greater percent of publicly controlled institutions in the sample as compared to the percent of independently controlled institutions than in the 1980 statistics given by the United State Department of Education, National Center for

Education Statistics. According to that report,<sup>1</sup> there were 561 (28%) universities and other 4-year institutions identified as publicly controlled and 1,420 (72%) privately controlled universities and other 4-year institutions.

#### Location by Regions

There were 3 (4%) of the responding academic health centers located in Region 1, the New England states, 13 (19%) were in Region 2, the Middle Atlantic states, 12 (17%) were in Region 3, the South Atlantic states and 9 (13%) were in the East-South-Central Region, Region 4. Located in Region 5, the West-South-Central area, were 8 (12%) of the responding academic health centers. Region 6, the East-North-Central States, had 5 (7%) academic health centers participating, and Region 7, the West-North-Central Region, had 12 (17%) academic health centers. Only 1 (1%) academic health center was located in the Mountain states, Region 8, and the Pacific area, Region 9, had 7 (10%) academic health centers.

Region 2 has the most institutions that are independently controlled sources. The most institutions that are publicly controlled are located in the East-South-Central, Region 4. (See Figure 6 for the location of academic

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<sup>1</sup>U.S. Department of Education, Digest of Education Statistics 1983-84, "Number of Postsecondary Institutions, by Control and Type of Institutions," The Condition of Education, p. 136.

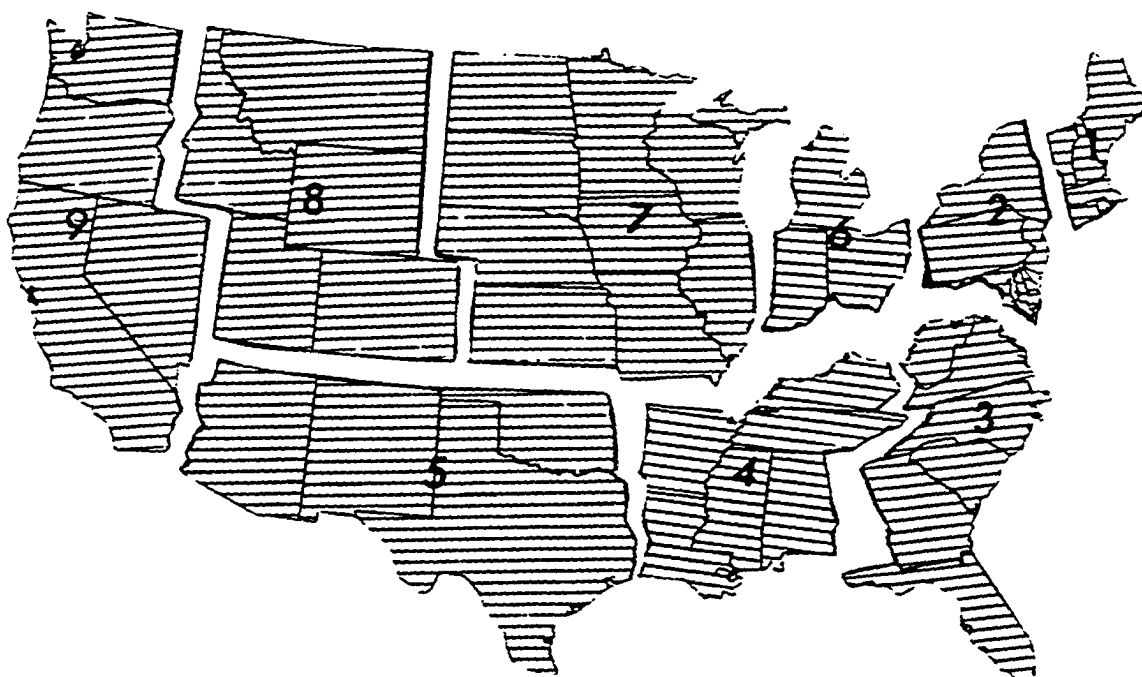
health centers on the map: Nine Regions in the United States<sup>1</sup>  
and Figure 7 for the control of the academic health center by  
regions.)

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<sup>1</sup>U.S. Bureau of Statistics, Map: Nine Regions in the  
United States.



Figure 6

## LOCATION OF AHCs BY REGIONS



Region	Public	Independent	Total
1	1	2	3
2	6	7	13
3	5	6	12 <sup>1</sup>
4	8	1	9
5	7	1	8
6	5	0	5
7	7	5	12
8	1	0	1
9	6	1	7

<sup>1</sup>Region 3 is the location of the Academic Health Center that is both publicly and independently controlled.

Figure 7

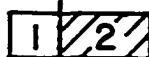
CONTROL OF AHC BY REGIONS<sup>1</sup>

PUBLICLY CONTROLLED AHCs

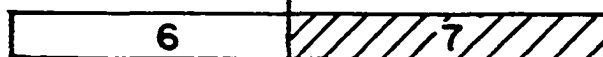
INDEPENDENTLY CONTROLLED AHCs

Regions

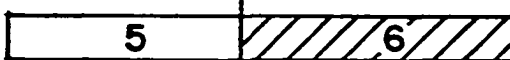
1



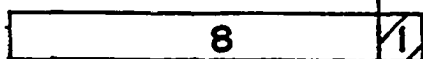
2



3

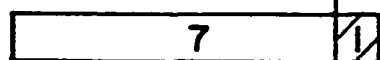


4



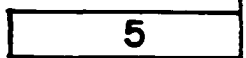
Total AHCs:

5



Region 1 = 3

6



2 = 13

7

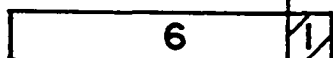
3 = 12<sup>1</sup>

8



4 = 9

9



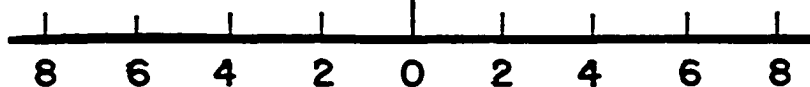
5 = 8

6 = 5

7 = 12

8 = 1

9 = 7



frequency Number

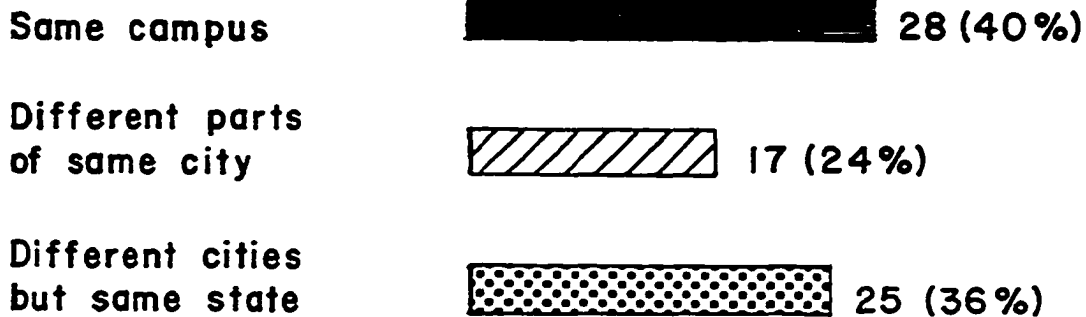
<sup>1</sup>Region 3 includes the academic health center that was reported as both a public and an independent institution. It is not included in the graphing.

### Location of Parent Institution

In relation to the parent institution, 28 (40%) of the seventy academic health centers in this study are located on the same campus, 17 (24%) are established in different parts of the same cities, and 25 (36%) operate in different cities of the same state. (See Figure 8 for location of the academic health centers and the parent institutions.)

Figure 8

#### LOCATION OF AHC IN RELATION TO PARENT U/C



Of the seventy academic health centers, 60 (86%) have the same governing board as the parent institutions.

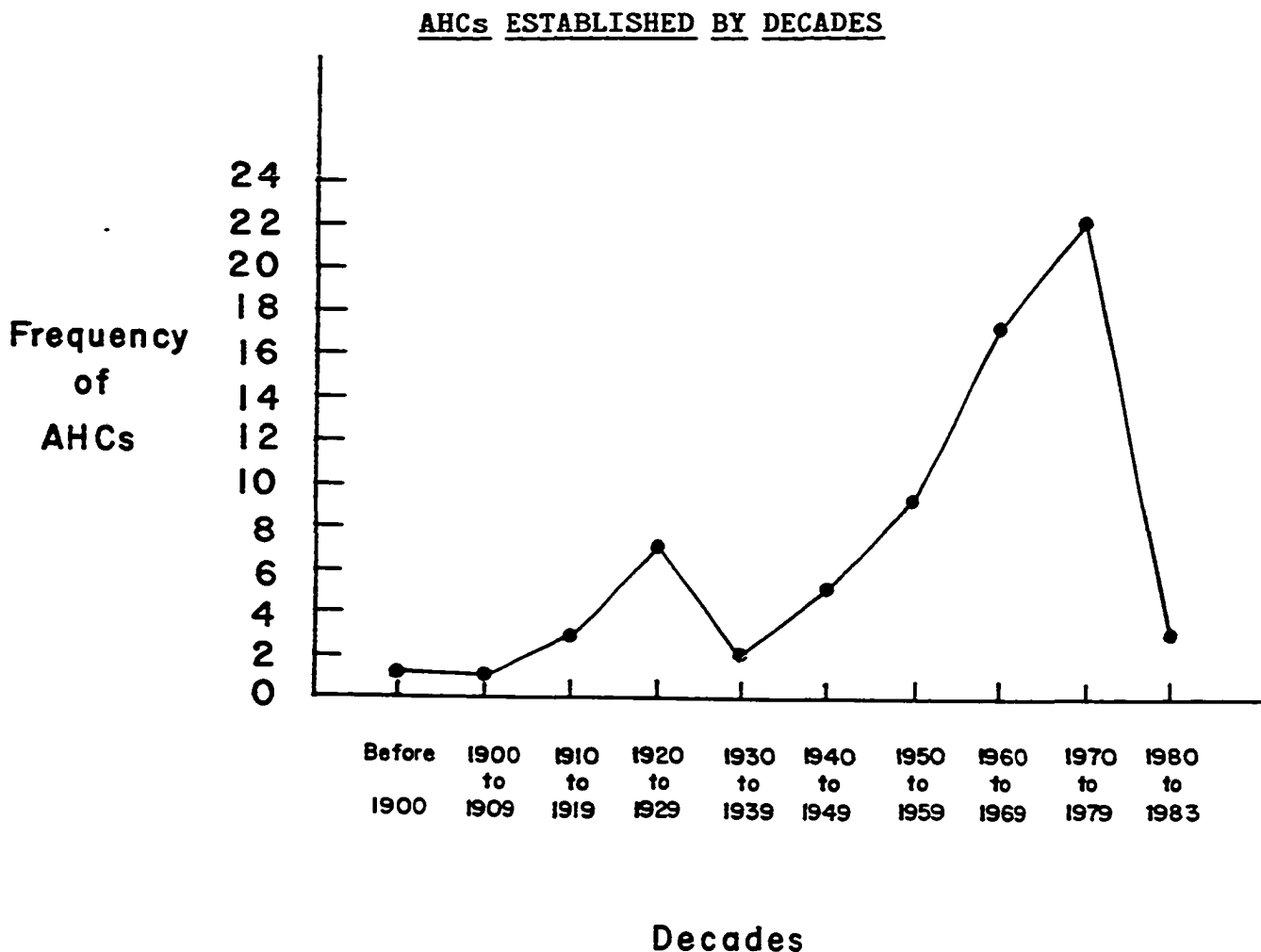
### Dates Established

Most of the academic health centers are young in terms of years of operation. The greatest growth occurred during the

1960s when 22 (31%) of the academic health centers were organized. During the past two decades of the twentieth century, 25 (60%) of the subjects were established.

The first academic health center was organized in 1823, the same year the medical school at the same institution was established. It is located in Region 3, and the status of the parent institution is public. The next oldest academic health center is related to an independent institution in Region 2, and it was founded in 1907. (See Figure 9 for the founding of the seventy academic health centers by decades.)

Figure 9



Difference In Year AHC Was Established

And The Year The Medical School Was Established

The first medical school in this study was organized in 1767 at an independent institution in Region 2. However, it was 162 years later, in 1928, that another health profession program was added, and it, therefore, became an academic health center.

Petersdorf and Wilson<sup>1</sup> identified 126 medical schools in this country in 1982 with forty of the medical schools having been opened since 1960.

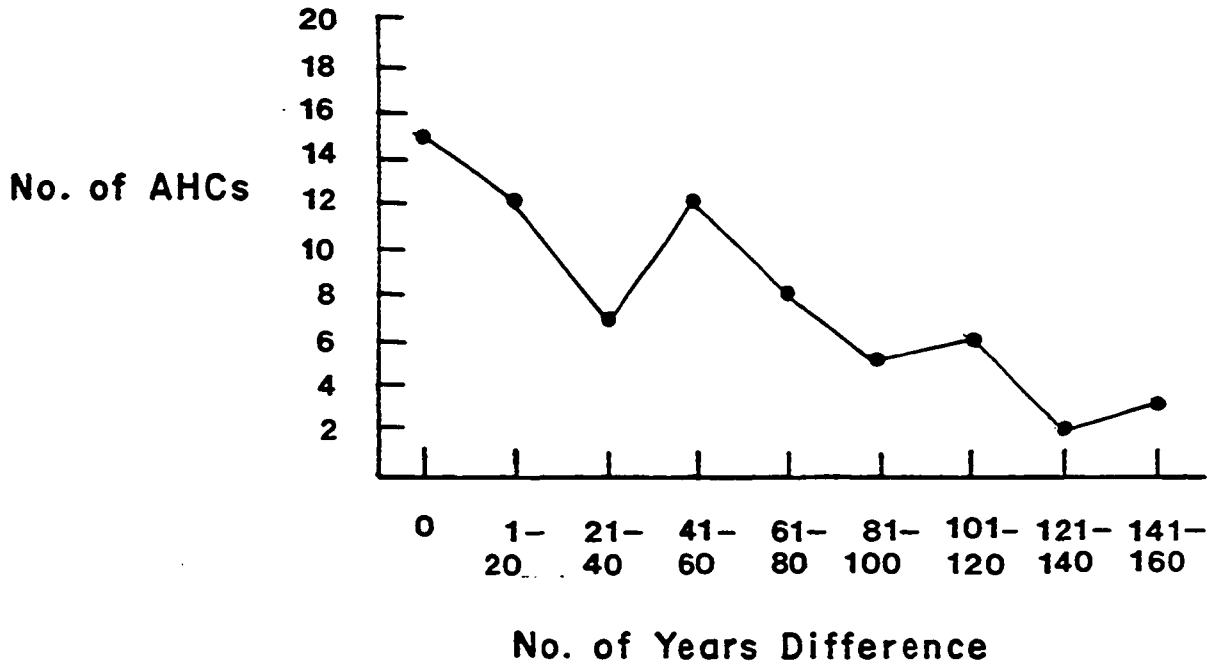
There were 15 academic health centers established the same years their respective medical schools were started. (See Figure 10 on the following page for the difference in the number of years the medical schools and their respective academic health centers were established.)

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<sup>1</sup>Robert G. Petersdorf and Marjorie P. Wilson, "The Four Horsemen of the Apocalypse," Journal of American Medical Association 247 (February 26, 1982): 1153.

Figure 10

DIFFERENCE IN YEAR MEDICAL SCHOOL ESTABLISHED  
AND YEAR AHC WAS ESTABLISHED



The Chief Administrative Officer (CAO)

Over the past 20 years the trend has been to appoint a chief administrative officer for the academic health center, "a position with a line of authority over the health profession education, research and service programs."<sup>1</sup> The 1980 published data from the AAHC Organization and Governance

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<sup>1</sup>Hastings, Crispell and Morris, "The Organization and Governance of Academic Health Centers: Report of a Study," American Journal of Pharmaceutical Education 45 (August 1981), p. 238.

of Academic Health Centers' project suggested that the chief administrative officer was a well established and accepted position by most university and health center administrators. Findings in that survey reported 76 percent of the subjects thought it was unlikely that the office of chief administrator would become unnecessary.<sup>1</sup>

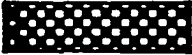




As academic health centers have grown in size, most of them are headed by a single chief administrative officer (CAO). Findings in this study reveal various titles for the CAOs. The title of Vice President is the most frequently used with 22 (32%) reported. The combined title of Vice President and Dean is reported by 4 (6%), and 1 (1%) has the title of Vice President and Provost. The next most frequently reported title is that of President which is used by 15 (21%) of the CAOs. The title of Chancellor is used by 10 (14%), and 1 (1%) has a combined title of Chancellor and Dean. The title of Vice Chancellor accounts for 9 (13%). Of this number there are 6 (9%) with the combined title of Vice Chancellor and Dean, and 2 (3%) have the title of Executive Vice Chancellor. (See Figure 11 for number and percent of CAOs with various titles.)

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<sup>1</sup>AAHC, Organization and Governance Report, vol. 2, p. 102.

Figure 11

TITLE: CAOs

Chancellor		10 (14%)
President		15 (21%)
Vice Chancellor		9 (13%)
Vice President		22 (32%)
Other		14 (20%)

There are 38 (54%) of the chief administrative officers who report directly to the president of the parent institution, and 12 (17%) report directly to the Chancellor of the university. Reporting to either a governing board or a board of directors are 11 (16%), and 6 (9%) report to the vice president of the parent institution. There are 2 (3%) that report to the provost. One (1%) did not answer this part.

Teaching Hospitals

When one speaks of size of an institution, the reference is usually to student enrollment; however the number of teaching hospitals either owned or affiliated/contracted by the academic health center is one of the most conspicuous



indicators of size of the operation of the system. Teaching hospitals are a necessity to the educational process of health profession students in an academic health center. The growth of professional programs and expanded public expectations of the academic health center have caused the role of the teaching hospital(s) to increase.

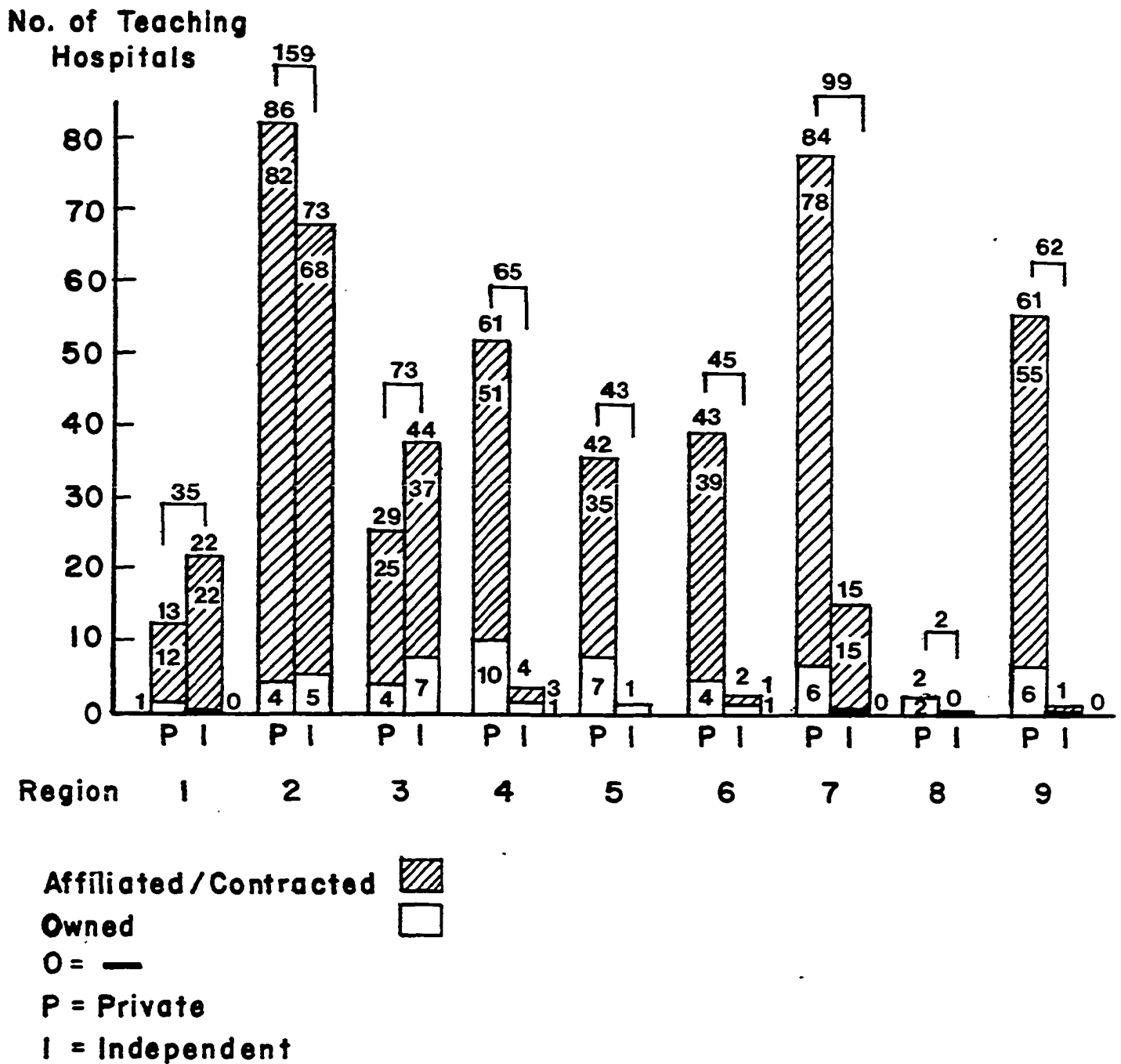
Until recently, the principal teaching hospitals were owned by the university and, usually, considered a part of the medical school for budgetary purposes. With the high cost of maintenance and the complexity of management, more of the academic health centers are contracting or affiliating with these important institutions.

The findings of this study show 43 (61%) of the academic health centers own a teaching hospital, while 27 (39%) affiliate or contract for these teaching facilities. There are 9 (13%) of the academic health centers that do not contract or affiliate with any hospital, while 1 (1%) showed 50 affiliated/contracted facilities. However, this academic health center has two campuses but for the purpose of this study it is treated as one academic health center, since both campuses have the same chief administrative officer. There are 6 (9%) of the academic health centers that contract/affiliate with 10 teaching hospitals, while 7 (10%) report only one such teaching hospital. There are 9 (13%) academic health centers that do not contract/affiliate with any hospital.

Considering all teaching hospitals, either owned or affiliated/contracted, there are 38 (54%) with separate governing boards from the university's governing group. The respondents in this study indicate 21 (30%) have faculty members who serve on the separate governing boards of the affiliated/contracted hospitals. There are 46 (66%) of the academic health centers responding that are not represented on the teaching hospitals' governing boards. There were 3 (4%) who did not respond to this question. There are a total of 44 hospitals owned by public institutions, and 15 are owned by independent institutions. The public academic health centers affiliate/contract for 377 teaching hospitals, and the independent academic health centers affiliate/contract for a total of 147 hospitals. (See Figure 12 for the number of teaching hospitals owned and affiliated/contracted by academic health centers by regional distribution and control of the institution.)

Figure 12

NUMBER OF TEACHING HOSPITALS OWNED  
AND AFFILIATED/CONTRACTED BY REGIONS AND CONTROL



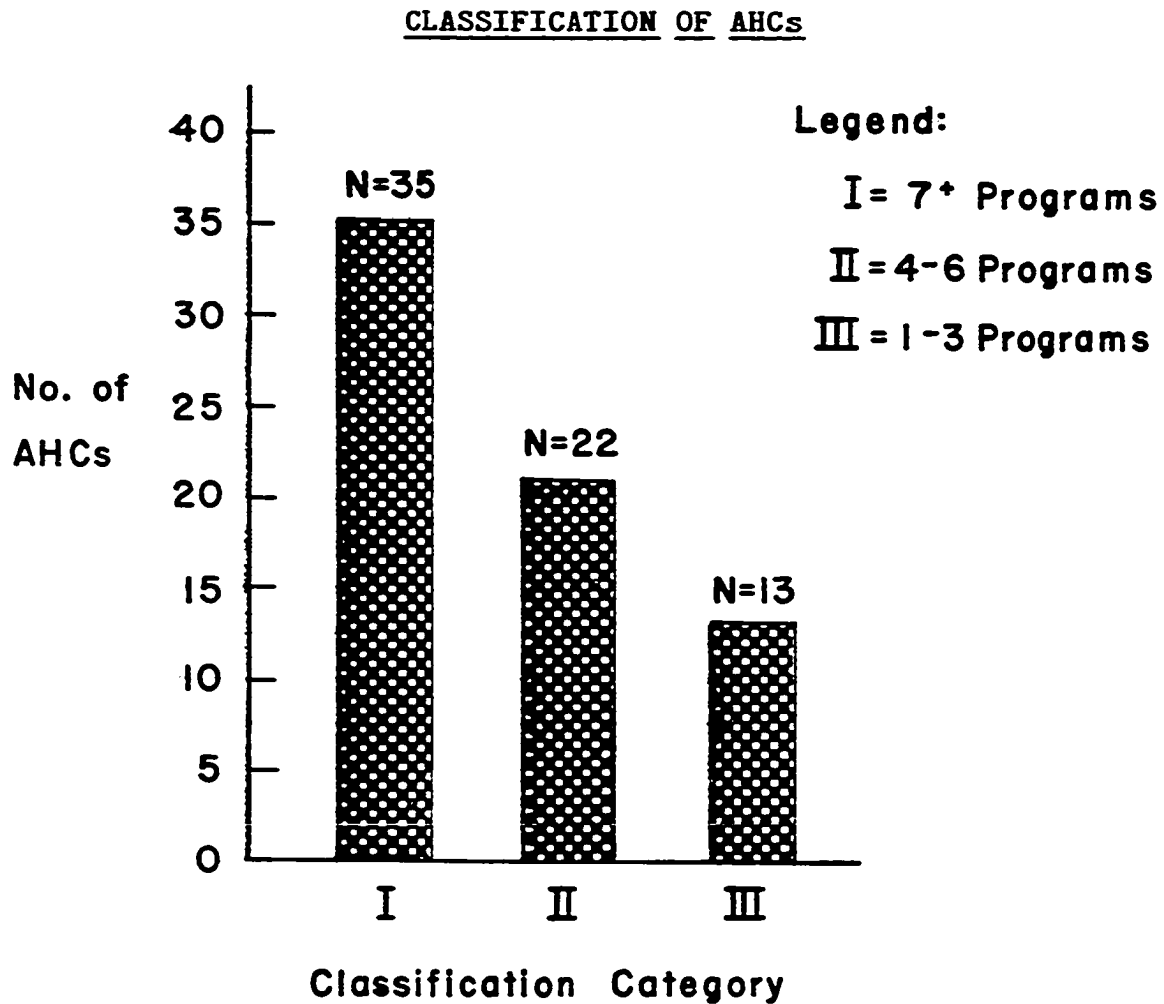
### Classification of AHCs

Classifying the academic health centers according to the number of health profession programs permits a useful means of identifying the kinds of health profession programs included in academic health centers and the sizes of the existing academic health centers.

Three categories are defined. Class I include the academic health centers with seven or more program components. Grouped in Class II are the academic health centers that offer four to six health profession programs, and the academic health centers with one to three programs are placed in Class III. Findings identify 35 (50%) in Class I, 22 (31%) in Class II, and 13 (19%) in Class III.

By using this systematic grouping, it was learned that 7 (10%) have only one program in addition to the medical school, and the largest are 2 (3%), each with sixteen programs in addition to the medical school. (See Figure 13 for the number of academic health centers in each classification.)

Figure 13



Program Characteristics

According to this study the first school of nursing was established in 1877; however, it did not become a part of an academic health center until 1914. The earliest pharmacy program was organized in 1868, but it did not become part of an academic health center until 1911. Dentistry, as a program

within the university, was offered as early as 1878, and it became a part of the academic health center in 1907. (See Table 4 for characteristics of programs other than medicine, as identified by the questionnaire.)

Table 4

PROGRAM CHARACTERISTICS OF EXISTING AHCs

Program	U <sup>1</sup>	X <sup>2</sup>	Z <sup>3</sup>	Percent
Cytotechnology	1951	1951	17	25%
Dental Hygiene	1916	1926	20	29%
Medical Technology	1923	1923	48	69%
Medical Records	1948	1948	11	16%
Nuclear Medicine	1962	1962	15	21%
Occupational Therapy	1941	1941	27	39%
Physical Therapy	1942	1944	42	62%
Physician Assoc/Asst	1962	1962	14	20%
Radiation Therapy	1944	1945	10	14%
Radiography	1944	1945	16	23%
Respiratory Therapy	1958	1958	15	21%
Dentistry	1878	1907	36	51%
Nursing	1877	1914	53	76%
Pharmacy	1868	1911	22	31%
Public Health	1918	1918	18	26%

<sup>1</sup>"U" Means Year First Established at University

<sup>2</sup>"X" Means Year Program Became Part of AHC

<sup>3</sup>"Z" Means No. Currently Offered

The results of the study as shown in the preceding list parallel the findings in the literature that the most recently organized health profession education programs are those under the umbrella of allied health. There are 69 percent of the existing academic health centers that offer medical

terminology, 62 percent offer physical therapy and 39 percent include occupational therapy as an allied health program.

The survey instrument included an area for the respondents to write-in those health profession programs offered that were not included on the specific list. The most frequently mentioned was graduate, with one fourth of the respondents acknowledging this as a program. Several of the programs identified from this listing would very likely be offered within a graduate college; however the programs were not identified according to level of study. Some programs which respondents listed were art therapy, basic medical science, community health, environmental science, biological sciences, genetics, health administration, mortuary science, dietetics, social welfare, ultrasound and veterinary medicine.

### Kinds of Degrees

The respondents were asked to indicate the kinds of degrees granted on the following levels: baccalaureate, graduate and professional. The list of degrees included:

1) Baccalaureate: Bachelor of Science (B.S.); Bachelor of Science in a specific major area, such as nursing, Bachelor of Science in Nursing (B.S.N.) or the Bachelor of Science in Physical Therapy (B.S.PT.)

2) Graduate: The most frequently awarded graduate degrees were the Master of Science degrees, M.S. or M.Sc.; and the Master of Science in a designated major field of study. Examples were nursing with a Master of Science in Nursing,

M.S.N., and public health with a Master of Science in Public Health, M.P.H. Doctoral degrees included the Doctor of Philosophy, Ph.D., and the Doctor of Science, Sc.D. Also, listed was the Doctor of Public Health degree, D.P.H., and the Doctor of Pharmacy degree, Pharm.D.

3) Professional: Professional degrees were provided in the studies of medicine, Doctor of Medicine, M.D.; and dentistry, Doctor of Dental Surgery, D.D.S.

The health profession programs identified at the graduate level of study with either a master's and/or a doctor's degree awarded included: dentistry, medicine, nursing, pharmacy and public health. There were no baccalaureate level programs in dentistry, medicine and public health. One academic health center identified all studies relating to public health under community health.

#### Program Ratings for the AHC

To identify those health profession programs most essential to the completeness of an academic health center, the chief administrative officers of existing academic health centers were asked to rate the health profession programs on a scale of 1 to 5, as they perceived the programs as most essential to least essential as components in an academic health center. A "1" rating represented most essential, and a "5" rating was least essential.



There were eleven of the seventy respondents in this study who chose not to rate these programs; thus the sample size for this data was fifty-nine.

There were 57 (91%) that rated medicine the most essential, and 40 (51%) rated nursing second. Only 3 (5%) rated physician associate/assistant as a most essential component of the academic health center.

(See Table 5 for the response ratings for each health profession program perceived most essential to least essential as a component of the academic health center.)

Table 5

## RESPONSE RATINGS OF HEALTH PROFESSION PROGRAMS

## IN THE ACADEMIC HEALTH CENTER

## frequency Ratings

PROGRAMS	ME <sup>1</sup>				LE <sup>2</sup>	
	1	2	3	4	5	TOTAL
Cytotechnology	6	7	15	12	19	59
Dental Hygiene	7	10	12	5	25	59
Medical Technology	13	15	17	4	10	59
Medical Records	6	15	10	7	21	59
Nuclear Medicine	8	13	13	11	14	59
Occupational Therapy	8	13	15	8	15	59
Physical Therapy	14	17	17	2	9	59
Physician Assoc/Asst	3	5	12	12	27	59
Radiation Therapy	8	9	17	7	18	59
Radiography	11	9	18	5	16	59
Respiratory Therapy	7	14	17	7	14	59
Dentistry	19	13	9	4	14	59
Medicine	57	2	0	0	0	59
Nursing	40	12	5	0	2	59
Pharmacy	15	12	14	6	12	59
Public Health	9	14	11	5	20	59

<sup>1</sup>"ME" represents most essential ratings.

<sup>2</sup>"LE" represents least essential ratings.

### Program Ratings for HCT

Coordinated efforts have organized the health care team for delivery of health care in the United States. To determine the health programs perceived most essential for the health care team, respondents were asked to rate each health profession program on a scale of 1 to 5, with a "1" representing most essential, and a "5" representing least essential. There were 57 who responded to this part of the questionnaire.

(See Table 6 for the response ratings of each health profession as perceived from most essential to least essential as a member of the health care team.)

### Analysis of Variance

The t-test was used for an analysis of variance of the most essential to least essential ratings for the health profession programs of an academic health center and the health profession in the health care team for publicly and independently controlled institutions. There were 58 usable responses for the ratings of the academic health center, and 56 usable responses for the ratings of the health care team.

It was possible that a particular health profession program could receive a least essential rating of 5 for the academic health center and a most essential rating of 1 for the health care team. Respondents were free to make these choices, and they were not asked to explain such choices.

Table 6

**RESPONSE RATINGS OF HEALTH PROFESSION AS MEMBERS  
IN THE HEALTH CARE TEAM**

PROGRAMS	f Ratings					TOTAL
	ME <sup>1</sup>				LE <sup>2</sup>	
	1	2	3	4	5	
Cytotechnology	10	9	17	5	16	57
Dental Hygiene	11	13	9	6	18	57
Medical Technology	16	19	11	3	8	57
Medical Records	13	15	11	3	15	57
Nuclear Medicine	12	15	11	7	12	57
Occupational Therapy	11	11	15	9	11	57
Physical Therapy	19	15	13	1	9	57
Physician Assoc/Asst	8	5	13	9	22	57
Radiation Therapy	12	16	11	3	15	57
Radiography	14	20	8	2	13	57
Respiratory Therapy	12	18	11	2	14	57
Dentistry	25	10	10	1	11	57
Medicine	55	2	0	0	0	57
Nursing	46	9	1	0	1	57
Pharmacy	24	14	8	3	8	57
Public Health	13	13	12	1	18	57

<sup>1</sup>"ME" represents most essential ratings.

<sup>2</sup>"LE" represents least essential ratings.

The following null hypothesis was tested:

Hypothesis: There is no significant relationship in the health profession programs of public institutions and those of independent institutions.

The .05 level of significance was used. (See Table 7 for the response means and the computed t-value.)

The null hypothesis was rejected at the .05 level of significance for all health profession programs except medical technology which indicated that no significant relationship exists between the publicly controlled and independently controlled institutions. All other health profession programs are considered equally important by both the publicly controlled and independently controlled institutions. Since there is no difference in the health profession programs in these two types of universities, like health profession programs should be offered in both the publicly controlled and independently controlled institutions.

Table 7

**RESPONSE MEANS AND T-TEST RESULTS FOR HEALTH PROFESSION PROGRAM RATINGS  
BY PUBLICLY CONTROLLED AND INDEPENDENTLY CONTROLLED INSTITUTIONS**

ACADEMIC HEALTH CENTER						HEALTH CARE TEAM						
		X		N		PROGRAM	N		X			
p	T-Value	P	I	P	I		P	I	P	I	T-Value	p
0.45	0.77	3.45	3.75	42	16	Cytotechnology	41	15	3.05	3.40	0.84	0.41
0.06	0.79	3.50	3.63	42	16	Dental Hygiene	41	15	3.12	3.13	0.02	0.98
0.038 <sup>1</sup>	2.19	2.45	3.38	42	16	Medical Technology	41	15	2.34	2.67	0.80	0.43
0.58	0.57	3.31	3.56	42	16	Medical Records	41	15	2.80	3.00	0.42	0.67
0.39	0.87	3.07	3.43	42	16	Nuclear Medicine	41	15	2.78	3.06	0.67	0.51
0.81	0.24	3.14	3.25	42	16	Occupational Therapy	41	15	2.52	3.07	0.32	0.75
0.13	1.55	2.40	3.06	42	16	Physical Therapy	41	15	2.27	2.73	1.11	0.28
0.36	0.93	4.02	3.69	42	16	Physician Assoc/Asst	41	15	3.63	3.40	0.49	0.63
0.71	0.38	3.36	3.19	42	16	Radiation Therapy	41	15	2.85	2.93	0.17	0.86
0.90	0.12	3.12	3.06	42	16	Radiography	41	15	2.76	2.33	0.96	0.35
0.68	0.41	3.07	3.25	42	16	Respiratory Therapy	41	15	2.80	2.73	0.17	0.87
0.75	0.32	2.71	2.56	42	16	Dentistry	41	15	2.39	2.33	0.12	0.91
0.92	0.09	1.52	1.50	42	16	Nursing	41	15	1.29	1.20	0.45	0.65
0.79	0.27	2.76	2.88	42	16	Pharmacy	41	15	2.27	2.20	0.17	0.87
0.057	1.98	3.48	2.63	42	16	Public Health	41	15	3.12	2.71	0.87	0.39

<sup>1</sup>Statistically significant at the .05 level of confidence.

### Analysis of Rank-Order Correlation Test

For the Spearman Rank-Order Correlation test, the health profession programs for both the academic health center and the health care team were placed in rank-order according to their means as shown in Tables 7.

Downie and Heath<sup>1</sup> state that the most widely used of the rank correlational methods is the Spearman Rho. This test is particularly well suited to situations where the number of cases is less than 30.

When ties appear as in medical records and nuclear medicine in the health care team and occupational therapy and nuclear medicine in the academic health center, the tied ranks were averaged.<sup>2</sup>

The null hypothesis was tested: There is no significant relationship in the rank-order of health professions in the academic health center and the rank-order of health professions in the health care team. A .05 level of significance was chosen.

To solve for the rank-order correlation coefficient the following equation was used:

$$p = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

where N = the number of pairs

p = rho, the rank order correlation coefficient

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<sup>1</sup>Downie and Heath, Basic Statistical Methods, pp. 116-117.

<sup>2</sup>Ibid., p. 117.

(See Table 8 for the computation of the Spearman Rank-Order Correlation Coefficient, Rho.)

**Table 8**  
Computation of Spearman Rank-Order  
Correlation Coefficient, Rho

Program	Rank I <sup>1</sup>	Rank II <sup>2</sup>	difference	D <sup>2</sup>
Cytotechnology	14	15	1	1
Dental Hygiene	16	14	2	4
Medical Technology	5	6	1	1
Medical Records	13	10(10.5)	2.5	6.25
Nuclear Medicine	9(9.5)	10(10.5)	1	1
Occupational Therapy	9(9.5)	12	2.5	6.25
Physical Therapy	3	5	2	4
Physician Assoc/Asst	15	16	1	1
Radiation Therapy	12	9	3	9
Radiography	7	7	0	0
Respiratory Therapy	8	8	0	0
Dentistry	4	4	0	0
Medicine	1	1	0	0
Nursing	2	2	0	0
Pharmacy	6	3	3	9
Public Health	11	13	2	4

$$D^2 = 46.5$$

$$\begin{aligned}
 p &= 1 - \frac{(6)(46.5)}{16(16^2 - 1)} \\
 &= 1 - \frac{279}{16(256-1)} \\
 &= 1 - \frac{279}{4080} = 1 - .068 = .932
 \end{aligned}$$

<sup>1</sup>Rank I = Rank-order of AHC health professions

<sup>2</sup>Rank II = Rank-order of HCT health professions

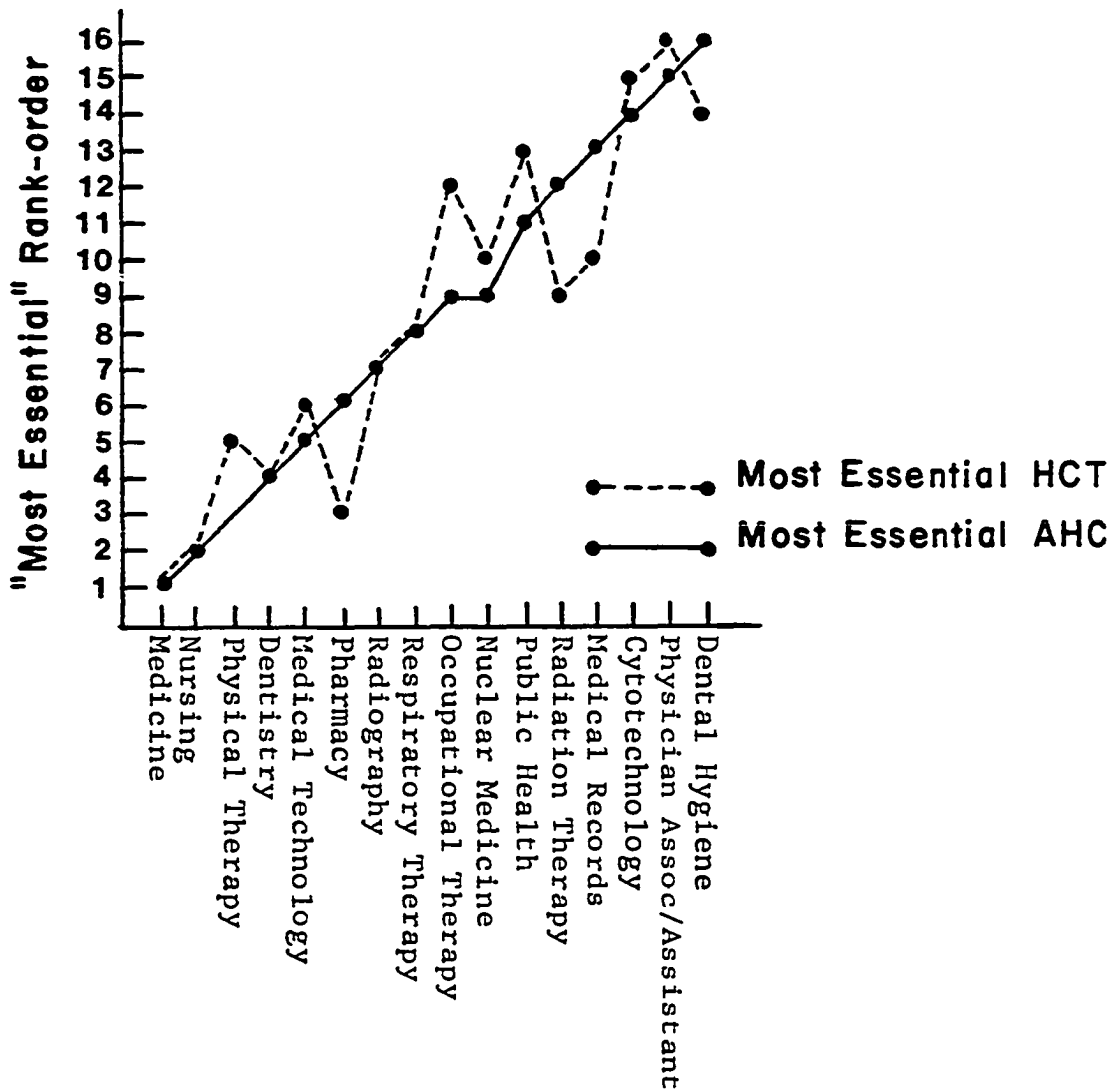


The null hypothesis was rejected at the .05 level of significance. The Spearman rank-order test shows a significant relationship exists in the ranking of health professions for the academic health center, and the ranking of the health professions for the health care team.

(See Figure 14 for a graph of the rank order of health professions most essential to least essential in the academic health center and the health care team.)

Figure 14

HEALTH PROFESSIONS RANKED MOST ESSENTIAL TO LEAST ESSENTIAL IN THE ACADEMIC HEALTH CENTER AND THE HEALTH PROFESSIONS RANKED MOST ESSENTIAL TO LEAST ESSENTIAL IN THE HEALTH CARE TEAM.



### Analysis of Correlation Coefficient Tests

The Pearson R., Spearman Rho and Kendall Tau-b correlation coefficient tests of significance were applied to the ratings of health programs to determine if a significant relationship exists between each of the health professions in the academic health center and the health care team.

The null hypothesis was tested for each health profession that no significant relationship exists between the health professions in the academic health center and the health professions in the health care team.

A .05 level of significance was chosen.

(See Table 9 for the correlation coefficient values.)

The null hypothesis that there was no significant relationship between the health profession programs in the academic health center and the health professions in the health care team was rejected for each test at the .05 level of significance. All health profession programs perceived "most essential" in the academic health center are seen as significantly related to the health professions perceived "most essential" in the health care team.

Table 9

PEARSON R, SPEARMAN RHO, AND KENDALL TAU CORRELATION COEFFICIENTS SHOWING THE RELATIONSHIP BETWEEN THE HEALTH PROFESSIONS IN THE ACADEMIC HEALTH CENTER AND IN THE HEALTH CARE TEAM.

PROGRAMS	R	RHO	TAU
Cytotechnology	0.71159 0.0001 56	0.68973 0.0001 56	0.60331 0.0000 56
Dental Hygiene	0.72410 0.0001 56	0.72862 0.0001 56	0.65958 0.0000 56
Medical Technology	0.68794 0.0001 56	0.72584 0.0001 56	0.64231 0.0000 56
Medical Records	0.65024 0.0001 56	0.65457 0.0001 56	0.57096 0.0000 56
Nuclear Medicine	0.71838 0.0001 56	0.72288 0.0001 56	0.62772 0.0000 56
Occupational Therapy	0.76507 0.0001 56	0.77059 0.0001 56	0.67745 0.0000 56
Physical Therapy	0.72197 0.0001 56	0.73353 0.0001 56	0.65901 0.0000 56
Physician Assoc/Asst	0.62536 0.0001 56	0.58884 0.0001 56	0.53395 0.0000 56
Radiation Therapy	0.65822 0.0001 56	0.64798 0.0001 56	0.55944 0.0000 56
Radiography	0.71005 0.0001 56	0.71282 0.0001 56	0.62389 0.0000 56
Respiratory Therapy	0.77117 0.0001 56	0.76798 0.0001 56	0.68201 0.0000 56
Dentistry	0.79362 0.0001 56	0.78457 0.0001 56	0.70944 0.0000 56
Medicine	0.38156 0.0037 56	0.38156 0.0037 56	0.38156 0.0047 56
Nursing	0.66373 0.0001 56	0.62757 0.0001 56	0.60320 0.0000 56
Pharmacy	0.73004 0.0001 56	0.74834 0.0001 56	0.67038 0.0001 56
Public Health	0.71013 0.0001 56	0.70214 0.0001 56	0.64450 0.0000 56

### Selection of Programs

The paramount value to be derived from these findings is to identify the health profession programs that emerge essential for the completeness of the academic health center. The literature revealed the importance for the academic health center to offer programs that would prepare health professionals for the health care team. From the preceding data analysis the health profession programs in the academic health center are considered significantly equal to the health professions in the health care team.

The same health professions programs appear in rankings one through eight on both the academic health center list and the health care team list; however, these eight health professions do not necessarily have the exact ranking. (See Figure 14 for a graphic illustration of the Ranked Most Essential to Least Essential Health Professions in the Academic Health Center and the Health Professions Ranked Most Essential to Least Essential in the Health Care Team.)

For the academic health center to display some order of completeness in the kinds of health profession education programs offered that prepare students as members of health care teams, eight programs are needed. In alphabetical order these programs are: dentistry, medical technology, medicine, nursing, pharmacy, physical therapy, radiography and respiratory therapy. These are considered minimum programs for the academic health center.

## CHAPTER VI

### DESIGNING A CONCEPTUAL MODEL

#### ACADEMIC HEALTH CENTER

The purpose of this study is to identify the scope of programs in existing academic health centers and, subsequently, to design a model academic health center to include those health profession programs necessary for its completeness. The model is called the Academic Health Center Model.

The main function of the model is to explain and predict the multi-variety of health profession education programs and to serve as a standard for the evaluation of the completeness of the academic health center.<sup>1</sup> The open systems theory, as discussed in an earlier chapter, is useful in the construction of the model.

The Academic Health Center Model is viewed as an open system and a part of a larger system, the university. More specifically, the model is comprised of health profession roles, health profession positions and health profession groups.

The notion of structure is central to nearly every conceptualization of a model. Blau states that the

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<sup>1</sup>N.E. Miller, "Comments on Model," Journal of Personality 20 (September 1951): 82-100.

departmental structure "is the institutional embodiment of the academic division of labor in the form of specialized official subgroupings."<sup>1</sup> The Academic Health Center Model has three divisions. The simplification is preferred over six to eight colleges to increase communication and collaboration among the programs which comprise the subsystems of the divisions. These divisions are called the Undergraduate Division, the Graduate Division and the Professional Division.

The location of the health profession programs is dictated by the levels of degrees awarded upon completion of the specific programs of study. Blau<sup>2</sup> discusses a fundamental reason for the specialized structural components to stay together. The undergraduate education necessitates that different academic disciplines be part of a single institution, and specialized research and graduate training, despite the fact that specialization pulls fields apart, also benefit from remaining together in the system. Independent programs are also interdependent, but this is not to imply they are equal. The parts of the Academic Health Center Model have varying degrees of independence and freedom. The power of the model depends to a large part on the central integration of all health profession programs in all divisions.

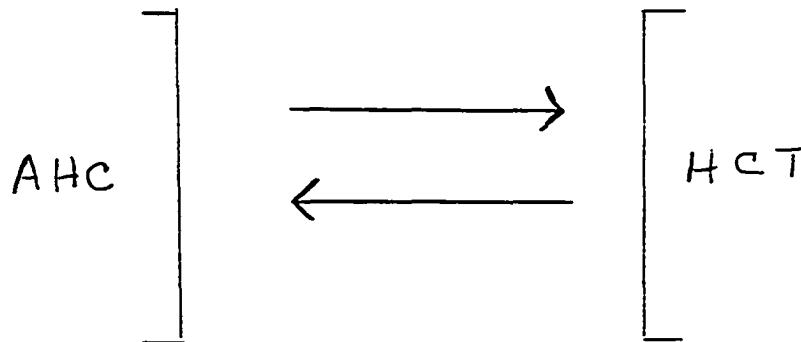
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<sup>1</sup>Blau, The Organization of Academic Work, p. 257.

<sup>2</sup>Ibid., p. 269.

Selection of the health profession programs for the model is influenced by the composition of the health care team. Mawby states that the academic health center has the "responsibility of educating the key members of the health care delivery team."<sup>1</sup> Gorr believes that the health professions educators today need to express a commitment to processors of educating students for the actual roles they will have in their professional lives.<sup>2</sup>

Anlyan<sup>3</sup> calls upon the medical educators to bring health care and medical education into a more harmonious and effective coexistence. Thus, there exists a bidirectional relationship between the academic health center and the health care team.




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<sup>1</sup>Mawby, "Setting New Goals for Health Professions Reform," p., 491.

<sup>2</sup>Gorr, "Introduction: Educating Tomorrow's Health Professionals: Three Perspectives," p. 484.

<sup>3</sup>William G. Anlyan, The Future of Medical Education (Durham: Duke University Press, 1973).



A term frequently used in describing a model is isomorphism. While a model is described as a formal identity between a conceptual system and a real one, isomorphism is a formal identity between two conceptual systems.<sup>1</sup> The findings of this study show a formal identity exists between the health professions in the academic health center system and those members of the health care team system. The programmatic structure of the Academic Health Center Model includes those health profession programs correspondingly ranked most essential from the survey as components of the academic health center as well as members of the health care team. (See Figure 15 for the programatic structure of the Academic Health Center Model.)

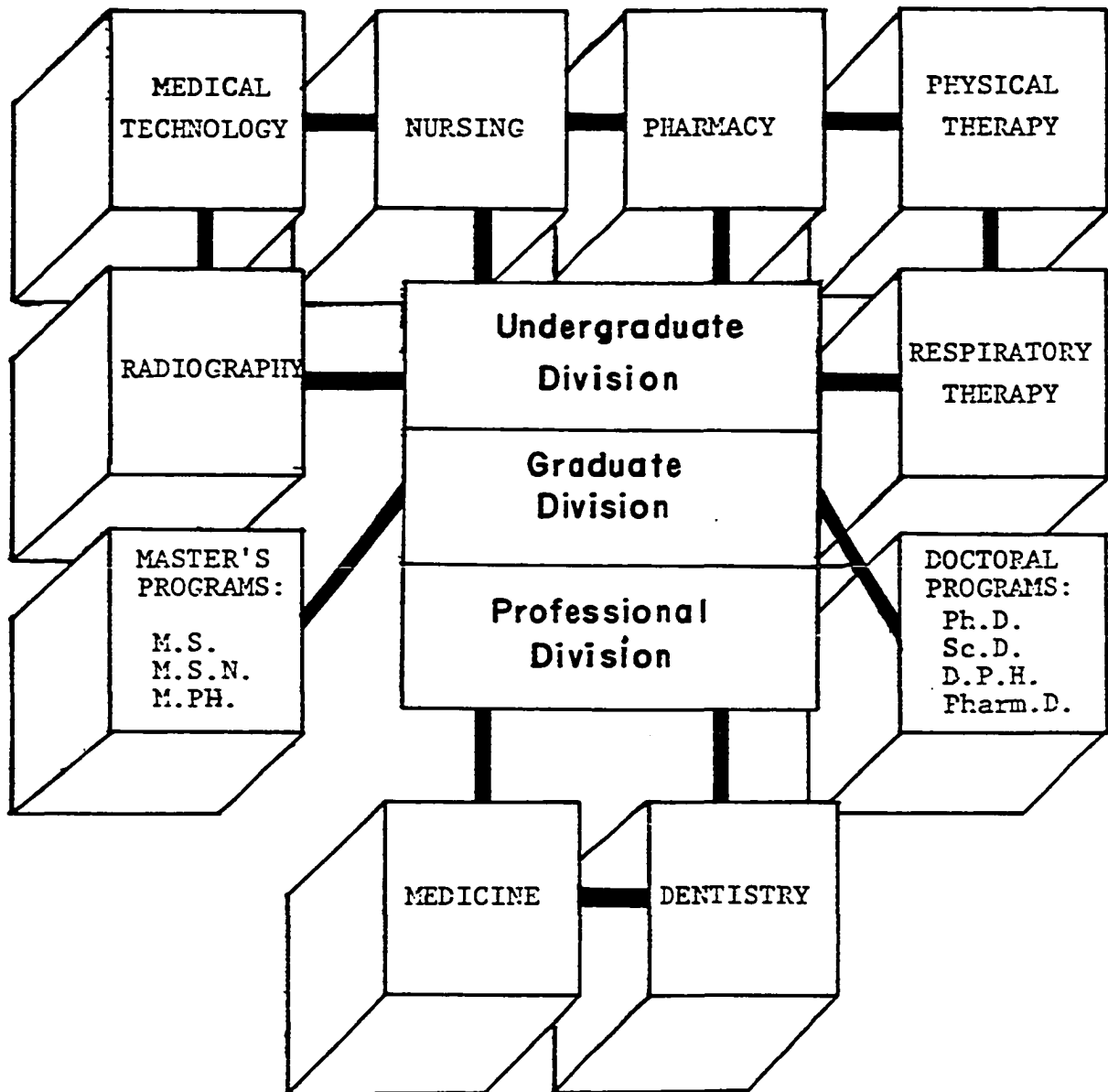
The Academic Health Center Model is headed by the chief administrative officer. Petersdorf and Wilson compare the organizational or executive typology in the academic health center to a holding company. The chief administrative officer controls the holding company and all of the companies owned by it, even though they are managed as independent units. The chief administrative officer is the line officer and the dean of the divisions report to this position. The allocation of resources and strategic managerial decisions are the responsibility of the chief administrative officer, while the

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<sup>1</sup>Margaret E. Hardy, ed., Theoretical Foundations for Nursing (New York: MSS Information Corporation, 1973), p. 49.

Figure 15

## PROGRAMMATIC STRUCTURE OF THE ACADEMIC HEALTH CENTER MODEL



day-to-day operation of each of the subsystems, the divisions and programs, is managed by the deans and the directors.<sup>1</sup>

Richman and Farmer see the function of the "key" leader's position is "to define, articulate, operationalize and insure the effective implementation of goals and priorities that are relevant, realistic, and attainable."<sup>2</sup> Griffiths adds, "It is not the function of the chief executive to make decisions but rather to monitor the decision-making process."<sup>3</sup>

The chief administrative officer is a vice president of the university and is not to serve in a dual capacity as a dean. These two positions are seen as incompatible because of the need to reduce all barriers of status within the system and to maintain a degree of integration among the subsystems--the divisions and programs. The chief administrative officer provides the leadership for interdisciplinary studies among the programs which will foster the team concept. The chief administrative officer serves as the link between the system and the larger system, the university. This position reports directly to the chief executive of the university system.

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<sup>1</sup>Robert G. Petersdorf and Marjorie P. Wilson, "The Four Horsemen of the Apocalypse," Journal of American Medical Association 247 (February 26, 1982): 1158.

<sup>2</sup>Barry M. Richman and Richard N. Farmer, Leadership Goals, and Power in Higher Education (San Francisco: Jossey-Bass Publishers, 1974), p. 9.

<sup>3</sup>Griffiths, "Some Assumptions Underlying the Use of Models in Research," p. 89.

The teaching hospitals are a necessity for the training of all health professionals and with emphasis on research in the academic health center. Ebert<sup>1</sup> suggests that the teaching hospital is not now, and cannot be, an integral part of the university. Due to the complexity of management and the high cost of maintenance, these facilities are affiliated/contracted and, therefore, not a part of the Academic Health Center Model.

The goals of the system depend on the outputs or outcomes that are expected from it.<sup>2</sup> Thus, the external environment of the Academic Health Center Model, the teaching hospitals and the health care team, are very involved. To get an adequate mesh between what the outside world wants and what the system is capable of supplying, the organizational structure of the Academic Health Center Model includes an advisory group to be composed of representatives from within the system and representatives appointed from the system's environment. This Academic Health Advisory Board is composed of no more than nine members, as the literature indicated this number as maximum size for groups to work most effectively. The majority of members of the advisory group are appointed from within the academic health center system and/or the university system. However, no student membership is

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<sup>1</sup>R.H. Ebert, "Medical Education in the United States," Daedalus (Winter 1977): 171-184.

<sup>2</sup>Richman and Farmer, Leadership, Goals, and Power in Higher Education, p. 140.

recommended. Stehbens<sup>1</sup> and Miller<sup>2</sup> agree that students should play no role in university decision making. "They come for an education, not to direct the staff."<sup>3</sup> Membership to the Advisory Board from the environment includes representation from the teaching hospitals, the health delivery system and health-related organizations. The Advisory Board is expected to provide much input into the guidance of the activities of the academic health center. Their appointment is not in name only. This is to be a functioning group.

The Dean of the Undergraduate Division is responsible for those health profession education programs whose length of study terminates with a baccalaureate degree. The Dean of the Graduate Division directs programs offered for graduate level of study and research. All public health programs will be supervised and evaluated in the graduate division. The findings of this study identified public health programs on the graduate level in such areas as biostatistics and epidemiology, environmental health, health administration and community health. These programs terminate with a Master of Public Health degree, M.P.H., and/or a Doctor of Public Health, D.P.H. The Doctor of Pharmacy degree, Pharm.D., program is included in the graduate division, also, as well as

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<sup>1</sup>William E. Stehbens, "Membership of Policy-Determining Committees in the University and Medical School," p. 37.

<sup>2</sup>T. Miller, "Reduce Student Representation," Times Higher Education Supplement 16 (July 1972): 1.

<sup>3</sup>Stehbens, p. 37.

all master's of science degrees, M.S., programs and such research and studies that lead to a Doctor of Philosophy degree, Ph.D., and/or a Doctor of Science degree, Sc.D.

The Dean of the Professional Division is responsible for directing the two professional programs: medicine and dentistry. The main differentiation between the programs in the Professional Division and those in the Graduate Division is that the research-oriented studies belong to the Graduate Division, and the patient-oriented studies belong to the Professional Division.

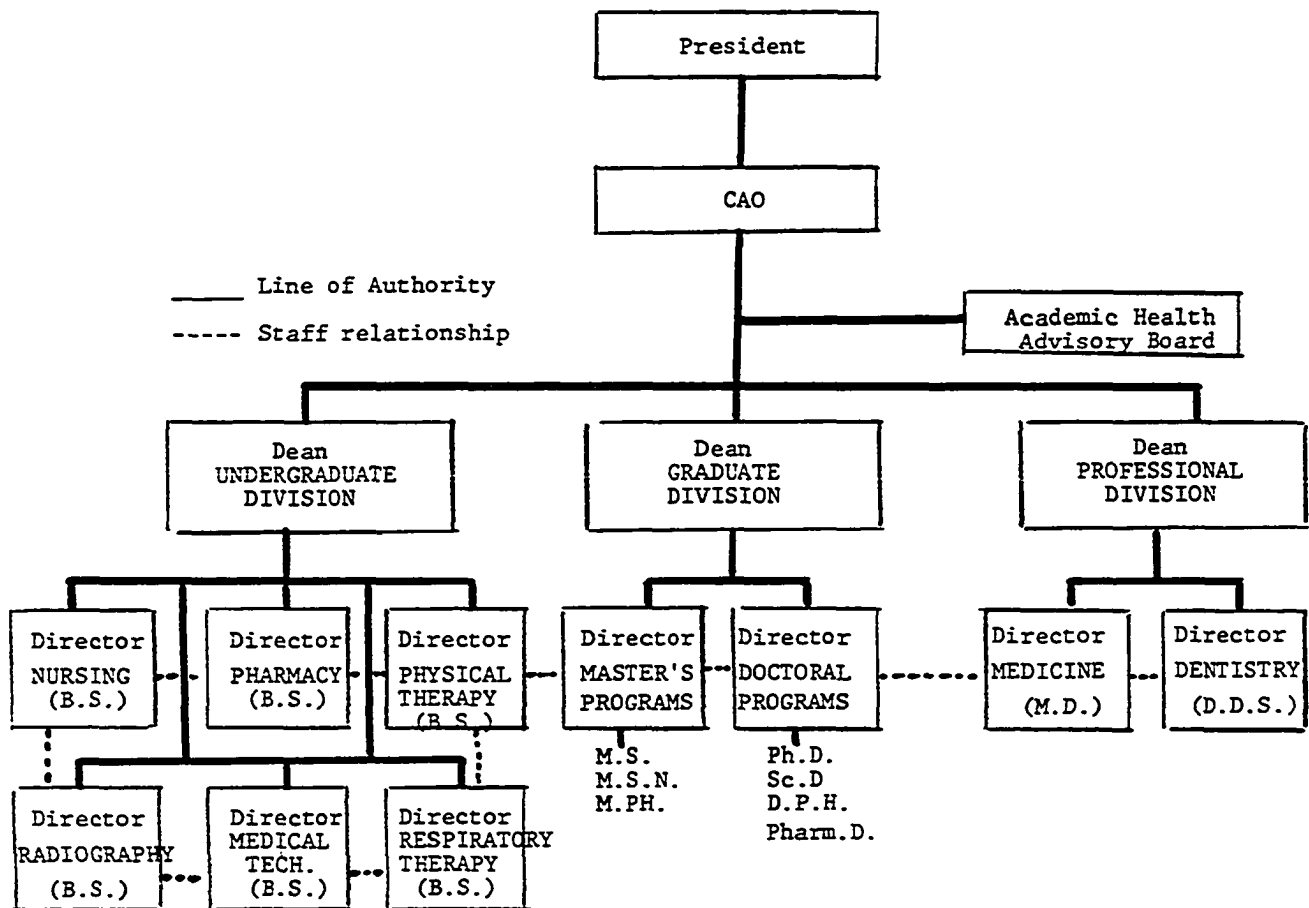
The Deans and the Program Directors are the principal power foci of the Academic Health Center Model. The tasks related to getting the work of the center done is arranged, shared and delegated up, down or laterally according to these positions.

Terms such as allied health and schools or colleges are no longer a part of the Academic Health Center Model. By removal of such apparent status titles of professional education, students may be encouraged to more readily develop a positive attitude toward the integration of the academic health center system and an acceptance of the health care team concept. No longer will a student identify his/her particular specialty area of study by saying that he or she is attending the University of "A" School of Medicine, but instead that student will say that he or she is studying medicine at the University of "A" Academic Health Center.

The Academic Health Center Model serves as a testing ground for the decisions that must be made as to role realignment and reassignment. (See Figure 16 for the Authority Relationships of the Academic Health Center Model.)

Figure 16

AUTHORITY RELATIONSHIPS OF THE  
ACADEMIC HEALTH CENTER MODEL





## CHAPTER VII

### CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

The basic purpose of this study was to identify the scope of health profession programs in existing academic health centers in higher education in America and, subsequently, to develop a conceptual model of a comprehensive academic health center.

The study has generated and tested a method of investigating those academic health centers which are a part of university systems in terms of their geographic location, size and funding sources. Since the literature conclusively supports the health care team concept as a most acceptable approach to practice in the health delivery system today, an analysis was done of the specific kinds of health profession programs deemed most essential to the completeness of the academic health center, in relation to those health professions perceived as most essential members of the health care team.

Information was obtained from three approaches. First, published compilations of descriptive information on medical schools and allied health education programs were utilized. The publications used most extensively were the AAMC Directory

of American Medical Education, 1983-84 and the Allied Health Education Directory, 10th Edition.

The second approach was to survey by use of a questionnaire the chief administrative officers of institutions where an academic health center, as defined from the literature as "a school of medicine, a teaching hospital, and at least one additional program"<sup>1</sup> was located. These responses were of great value, even though the focus was on the characteristics of the academic health center rather than those of the administrative officer's position. The sample was comprised of 70 academic health centers, which was drawn from a population of 108 medical schools which were a part of university systems in the United States in 1983-84. A review of the literature relating to the academic health center and its environment was the third approach to the study.

The study revealed that the academic health center was only established as an entity in institutions of higher education during the past twenty years. Reasons for this growth have been the societal demands for better accessibility to health care by the best trained health professionals, technological developments for specialization, and the organization of the health care team. Legislation and regulations of the health delivery system has tended to

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<sup>1</sup>AAHC Organization and Governance Report, vol. 1., p. 1.

contribute to the viability of academic health centers, once described as "hydra-headed monsters."<sup>1</sup>

The complexity of the academic health center stems from a number of variables--the wide range of health profession programs; the blend of public and private character; the involvement with many ancillary facilities, both owned and managed independently; and the varied nomenclature used to identify it. Difficulty in understanding this institution has been compounded, because it is still evolving as a part of the university. No guidelines have been established either on a national, regional or state level for the organizational structure to provide for completeness of the programs in these institutions. This lack of blueprints has resulted in public and professional misunderstandings as to the purpose for the existence of the academic health center.

Newly established academic health centers should be encouraged to include the name, academic health center, in their official title, such as the University of "A" Academic Health Center. Those existing academic health centers should consider a change of title to provide for some consistency as well as assistance in recognizing these institutions.

Many institutions that provide for the education and training of health professionals are not associated with a university. With similar missions and functions, the academic

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<sup>1</sup>Ibid.

health center should be a part of the higher education system. Location of the academic health center will depend to a large degree on the availability of teaching hospitals; however the health-related education programs should be on the same campus for interdisciplinary studies and early exposure to those health professions which are considered most essential members of the practicing team.

The concept of the health care team has its detractors and its supporters. The team exists to meet the health needs of society. This study has shown that a significant relationship exists between certain health profession programs in the academic health center and similar health professions as members of the health care team. An awareness of the team concept should be an important part of the curriculum of all health professionals with the requirement of courses emphasizing team building and team leadership. To minimize duplication and strengthen the team concept, courses similar in content should be offered for interdisciplinary studies. The interlocking of health professions on the university level will permit orderly transition from individual professional cores to the health team.

Problems of professionalization exist. Loyalty to one's discipline often takes precedence over loyalty to one's university. The health profession programs are currently operating as independent units of study in most academic health centers, and little hope for integration is seen as long as the programs remain isolated from each other.

Institutions must strive for new and better ways of incorporating interdepartmentalization as the Academic Health Center Model provides. However, as Harold Taylor, former president of Sarah Lawrence and an experienced innovator, once cautioned, "You can innovate your head off, and do the same old thing just as badly in a new way."<sup>1</sup>

Organizationally, the academic health center should look at other complex educational subsystems in the university for suggested pattern of structure. An example would be engineering with its multitude of specializations. Placing programs as the conceptual model indicates, under one administrative head and according to the kind of degree program, is in line with this suggestion. The proposed model may allow for the autonomy of the various programs of study; but the status of older programs, especially medicine, may well be modified.

This study reveals the urgency for new insights and changes in the instructional process and the organizational structure of the academic health center in higher education. Despite difficulties involved, universities should utilize all of the ingenuity at their command to provide a teaching, learning and research environment suited for the education and training of the health professional student to serve the

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<sup>1</sup>Richard W. Lyman, "Professionalization--Are the Critics Justified?" p. 94.

health delivery system as a functioning member of the health care team.

### Recommendations

Findings of this study support the following recommendations:

1) Acceptance of a broader definition of an academic health center from that found in the literature as "a school of medicine, a teaching hospital and at least one additional program," to "an educational community of essential health profession disciplines and multiple affiliations with hospitals and located within an institution of higher education."

2) An examination of health profession programs within a two year institution be investigated and a model academic health center designed for these institutions of higher education.

3) A consortium with representation of all health professions be formed to study the quality of health profession programs for necessary consolidation and/or elimination of redundancies, and to determine length of study: one year, two years, four years or more than four years, for each health profession education program.

4) An Academic Health Center Directory to be published annually with general information and program characteristics referenced under one cover for all academic health centers in

the United States, not limited by membership in any specific organization.

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**APPENDIX A**

**ACADEMIC HEALTH CENTER QUESTIONNAIRE**

CENTER FOR STUDIES IN HIGHER EDUCATION  
University of Oklahoma  
College of Education

March 1984

ACADEMIC HEALTH CENTER QUESTIONNAIRE

Please answer the following with reference to your academic health center.

I. GENERAL INFORMATION

1. Full name of the academic health center

\_\_\_\_\_

2. What year was the academic health center organized? \_\_\_\_\_

3. Is the academic health center  
\_\_\_\_\_public \_\_\_\_\_independent (private)

4. Where is the academic health center located in relation to the parent university?

\_\_\_\_\_On the same campus  
\_\_\_\_\_In different parts of the same city  
\_\_\_\_\_In different parts of the same state  
\_\_\_\_\_Independent of any parent university or college

II. ORGANIZATIONAL STRUCTURE

1. Title of the chief administrative officer \_\_\_\_\_

2. To whom does the chief administrative officer report? \_\_\_\_\_

3. Does the academic health center have a governing board separate from the university board?  
\_\_\_\_\_Yes \_\_\_\_\_No

4. What is the relationship between the academic health center and its principal teaching hospital?  
\_\_\_\_\_Owned \_\_\_\_\_Affiliated/Contracted

5. Does the principal teaching hospital have a governing board separate from the university board?  
\_\_\_\_\_Yes \_\_\_\_\_No

6. Do faculty members of the academic health center serve on the governing board of the affiliated/contracted teaching hospital?  
\_\_\_\_\_Yes \_\_\_\_\_No

7. Please report the number of teaching hospitals that are owned or affiliated/contracted.  
\_\_\_\_\_Owned \_\_\_\_\_Affiliated/Contracted

## ACADEMIC HEALTH CENTER QUESTIONNAIRE

page 2.

## III. PROGRAMS. (Only Baccalaureate or Above Degrees)

Instructions:

1. CURRENTLY OFFERED: Check programs currently offered at your institution.
2. YEAR ESTABLISHED: Identify year first class was admitted.
3. YEAR PART OF AHC: Provide date program became an integral part of academic health center.
4. YEAR DISCONTINUED: Provide date program was discontinued, if previously offered.
5. DEGREES GRANTED: List degrees--baccalaureate, professional, graduate, and other--  
which are granted by each program at your institution.

(Please confirm or correct those figures in parenthesis which have been secured from published sources.)

PROGRAM	1. CURRENTLY OFFERED	2. YEAR ESTABLISHED	3. YEAR PART OF AHC	4. YEAR DISCONTINUED	5. DEGREES GRANTED			
					BACC.	PROF.	GRAD.	OTHER
<u>A. Allied Health</u>								
1. Cytotechnology								
2. Dental Hygiene								
3. Medical Technology								
4. Medical Records								
5. Nuclear Medicine								
6. Occupational Therapy								
7. Physical Therapy								
8. Physician Associate or Physician's Assistant								
9. Radiation Therapy								
10. Radiography or X-Ray Technology								
11. Respiratory Therapy (formerly Inhalation)								
B. Dentistry								
C. Medicine								
D. Nursing								
E. Pharmacy								
F. Public Health								
G. Other:								
H. Other:								

## ACADEMIC HEALTH CENTER QUESTIONNAIRE

page 3.

**Instructions:** Please rate all programs whether offered at your institution or not, by circling the appropriate number from LEAST ESSENTIAL to MOST ESSENTIAL.

Column I: Rate each program according to the extent it is an essential component of the academic health center.

Column II: Rate the importance of each health profession as a member of the health care team.

PROGRAM	I. To what extent is this program an essential component of an academic health center?					II. To what extent should this program be considered an important member of a health care team?				
	Least Essential					Most Essential				
<b>A. Allied Health</b>										
1. Cytotechnology	5	4	3	2	1	5	4	3	2	1
2. Dental Hygiene	5	4	3	2	1	5	4	3	2	1
3. Medical Technology	5	4	3	2	1	5	4	3	2	1
4. Medical Records	5	4	3	2	1	5	4	3	2	1
5. Nuclear Medicine	5	4	3	2	1	5	4	3	2	1
6. Occupational Therapy	5	4	3	2	1	5	4	3	2	1
7. Physical Therapy	5	4	3	2	1	5	4	3	2	1
8. Physician Associate or Physician's Assistant	5	4	3	2	1	5	4	3	2	1
9. Radiation Therapy	5	4	3	2	1	5	4	3	2	1
10. Radiography or X-Ray Technology	5	4	3	2	1	5	4	3	2	1
11. Respiratory Therapy (formerly Inhalation)	5	4	3	2	1	5	4	3	2	1
<b>B. Dentistry</b>	5	4	3	2	1	5	4	3	2	1
<b>C. Medicine</b>	5	4	3	2	1	5	4	3	2	1
<b>D. Nursing</b>	5	4	3	2	1	5	4	3	2	1
<b>E. Pharmacy</b>	5	4	3	2	1	5	4	3	2	1
<b>F. Public Health</b>	5	4	3	2	1	5	4	3	2	1

ADDITIONAL COMMENTS:

## **APPENDIX B**

### **INTRODUCTORY LETTER FOR DATA GATHERING**





*The*  
**University of Oklahoma**

CENTER FOR STUDIES  
IN HIGHER EDUCATION  
COLLEGE OF EDUCATION  
630 Parrington Oval, Room 558  
Norman, Oklahoma 73019  
(405) 325-2633

March 5, 1984

Allen A. Copping, D.D.S.  
Chancellor of the Medical Center  
Louisiana State University  
P.O. Box 33932  
Shreveport, Louisiana 71130

Dear Dr. Copping:

As a chief administrative officer of a health center, you are asked to participate in this survey to identify the essential academic programs of a comprehensive academic health center. We are interested only in those academic programs which culminate in a baccalaureate degree or higher.

The academic health center is defined in the literature as "a school of medicine, a teaching hospital, and at least one additional health educational program." The primary aim of this study is to develop a model academic health center that includes those health educational components most essential for its completeness.

Judging from the pilot study, the enclosed questionnaire will require approximately twenty minutes of your time. The confidentiality of the information about your institution is assured, and only grouped data will be reported. Please feel free to include additional information, such as an organizational flow chart, that might clarify issues of importance about the organizational and programatic structure of your academic health center.

Please return the questionnaire in the stamped, self-addressed envelop as provided. A prompt reply is greatly appreciated.

Sincerely,

Earlene H. Smith  
Coordinator  
Health Professions Counseling Center

Herbert R. Hengst  
Professor and Director  
Center for Studies in Higher Education

Enclosures.

**APPENDIX C**

**FOLLOW-UP LETTER**



*The*  
**University of Oklahoma**  
*Health Sciences Center*

HEALTH PROFESSIONS COUNSELING CENTER

April 2, 1984

Dr. Samuel D. Richards  
Assoc. V. P. for the Health Sci. Ctr.  
Texas Tech Univ. Health Sci. Ctr.  
Fourth Street and Indiana Avenue  
Lubbock, Texas 79430

Dear Dr. Richards:

As of this date, we have not received a completed Academic Health Center Questionnaire from you. Your response to this survey is of critical importance, as we study the academic health center and identify those health educational components most essential for its completeness.

If you have misplaced the questionnaire, please complete the enclosed one and return in the stamped, self-addressed envelope as provided. Please be assured that the information about your institution will be anonymous and only grouped data will be reported.

If you have already returned the questionnaire, please disregard this second request and accept our sincere thanks for your willingness to participate in this study.

We are most grateful for your cooperation.

Sincerely,

Earlene H. Smith  
Coordinator  
Health Professions  
Counseling Center

Herbert R. Hengst  
Professor and Director  
Center for Studies in  
Higher Education

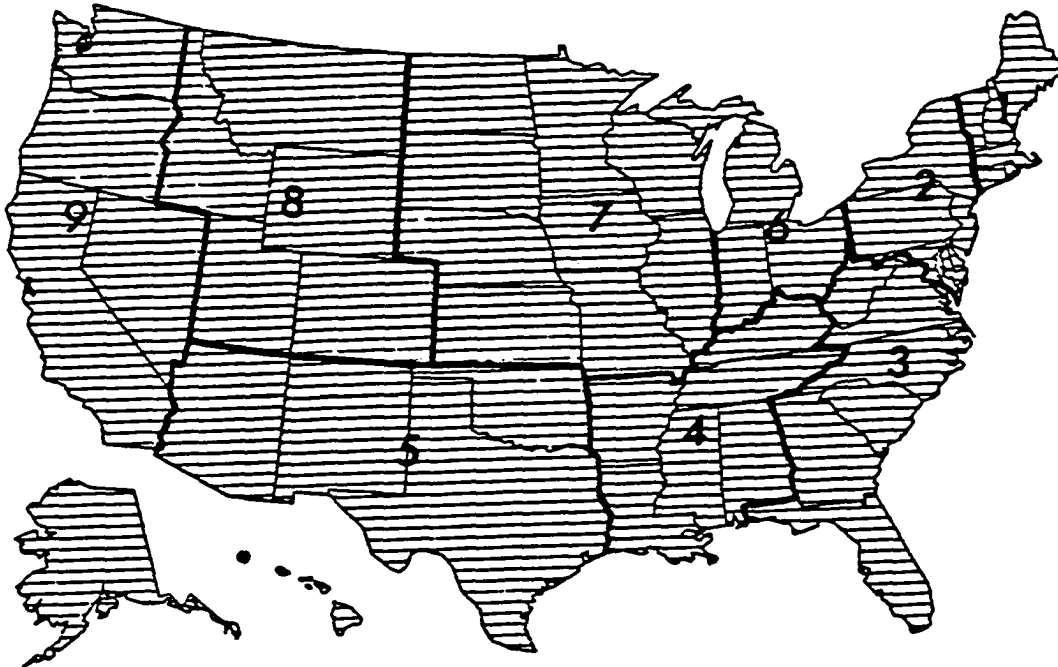
EHS:HRH:nra

Enclosures

**APPENDIX D**

**MAP: NINE REGIONS IN THE UNITED STATES**

MAP: NINE REGIONS IN THE UNITED STATES<sup>1</sup>



- REGION 1: New England
- REGION 2: Middle Atlantic
- REGION 3: South Atlantic
- REGION 4: East-South-Central
- REGION 5: West-South-Central
- REGION 6: East-North-Central
- REGION 7: West-North-Central
- REGION 8: Mountain
- REGION 9: Pacific

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<sup>1</sup>U.S. Department of Commerce. Bureau of Census.