PERSONNEL AND PROGRAMS IN HEALTH DELIVERY TO TEXANS, 1928-1978

by

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History

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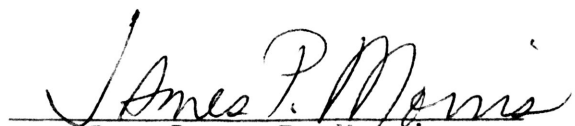

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ABSTRACT

During the past fifty years, health care delivery has been in a state of constant change. As increasing demands have been placed upon the delivery system, personnel and programs have evolved to respond to these needs. This study begins with the Depression era of the 1930's and surveys important changes in the mind set of Americans and Texans toward individual and government responsibility for health care. With gradual changes in funding sources, programs dealing in all realms of assistance multiplied because of increased federal expenditures. As health care is divided and delegated to an enlarging and more technically trained medical team further specialization is inevitable. The delivery system continues to evolve in such a way as to increase the availability of services, while striving to avoid prohibitive costs to the public it serves.

ACKNOWLEDGMENT

I would like to thank my advisor, Dr. James P. Morris, whose patience and guidance proved invaluable to my research. He provided me with much needed constructive criticism and was always a source of encouragement.

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In my academic year research assignment as an Undergraduate Fellow, I have examined the personnel and programs in health delivery to Texans between the years of 1928 and 1978. I have approached my topic from a historical perspective in order to trace the evolution of different programs and categories of personnel during the period of my study. I have found in my readings that through the years there have been similar needs recurrent among the American people, yet the demands for these needs have been changing in intensity. Society's ability to respond to these needs has also been changing with the times.

A major theme throughout this particular era, then, is the growth from a limited aspiration of making some health services available to most of the people, to the challenge of making the best health services accessible to all. The time span I have chosen is appropriate because beginning with the Depression era of the 1930's, Americans began to accept public assistance as a beneficial and sometimes necessary part of American life. Funding sources began changing at this time, mainly from local to federal expenditures. With this initial push of federal funding and programs came the huge pool of agencies and programs dealing in all realms of assistance including health. These have been modified through the years to adjust to the needs of the public.

During the 19th and early 20th centuries, American society shifted from a locally based agricultural economy to an urban based mechanized one characterized by a wide income variation. These changes in working and living conditions created great health problems in both urban and rural communities and have decisively influenced the provision of medical care. But not until the present century did the problem of medical care become part of the public consciousness. The expansion of science and technology produced potential needs for services in an exploding number of health related problem areas. However, recognizing the fact that there are still so many difficult problems to be solved, has caused many consumers and their representatives to seriously question the ability of presently existing health personnel to solve these problems within the current system as it has evolved during the last fifty years.[1]

In May of 1930, Congress created the National Institutes of Health with the optimistic charge of ascertaining the cause, prevention, and cure of disease. This service clarified the changing nature of health problems. It called attention to the increasing toll taken by heart disease, cancer, accidents, and to the subsequent health problems due to the substandard measures taken in the realms of housing and pollution.[2]

The era of expansion began with the Social Security

Act in 1935 as well as with the beginning of household surveys in that same year which were to aid in the early planning of public health programs. By mid-century, drastic changes had taken place. The county had pulled through a depression and a major world war. There were large population shifts, a growth in health insurance, and increased use of medical specialist's services, as well as an alteration in medical practice and modes of treatment. No longer were the urban and community surveys of ten years earlier relevant to the emerging serious health problems of injury, disability, and chronic illness, nor were there sufficient resources to cope with these problems.[3] As a result of this, Congress passed the National Health Survey Act in 1956 to provide for a continuing survey of the amount, distribution, and effects of disability and illness in the United States as well as the services provided for people living under such conditions.[4] With this program in operation, gaps in opportunity for health care began to be reduced.

A revitalized Public Health Service was another part of post-war American medicine. Beginning in this era, the PHS could be seen as a victim of it's own success. Congress and the executive branch developed one categorical health program after another and turned them over to the PHS. The PHS has continued to be successful as long as authority is commensurate with responsibility and as long as neither is

too fragmented.[5]

In 1946, Congress presented the Public Health Service with two important pieces of legislation. The first of these, the Hill-Burton Medical Facilities and Construction Act, was designed to alleviate the shortage of hospital beds, particularly in rural areas. This began the initial move toward a federal and state relationship in planning. Following this was the Mental Health Act, establishing the National Institute of Mental Health. These were to be the first of a long line of historic health legislation to become enacted.[6] Adding to the increasing list of changes during the history of the Public Health Service was the transformation of the Federal Security Agency due to it's diversity and growth into the Department of Health, Education and Welfare in April of 1953.[7]

As a result of this reorganization, the last twenty-five years have been very trying ones for the Public Health Service. Problems such as the increasing bureaucracy of the PHS, reorganization, and the fact that health and politics have become inextricably entwined account for part of the agency's difficulties. There also has been a constant threat of closure of the Public Health Hospitals, as well as discontinuance of the Public Health Service commissioned corps. Each new reorganization forced upon the PHS has taken it's toll on the morale of the service. And recruitment has become more difficult, with the service having to rely

on the doctors draft of the 1960's and 1970's to provide the professional manpower for its many essential activities.[8]

Before the 1930's, medical care was primarily an individual responsibility focusing on the financing of medical care. By the end of that decade, the federal government's role began as responsible party for assuring social security to all citizens, as well as establishing other tentative steps through a flurry of New Deal programs. The question raised repeatedly in the following years was how much this was a federal responsibility and how much state and local governments were to share in this responsibility.[9] Prior to 1935, provisions for medical care for the poor were taken care of, if at all, at a local, decentralized level in the community. However, with the advent of the Social Security Act, federal and state grants were made available for special programs, primarily maternal and child health and services for crippled children. The program continued to operate in this way until the Social Security Act was amended in 1950. Now for the first time, the federal goverment agreed to share the costs of vendor payments for public assistance recipients. This limited program brought help to but a few, and this precipitated agitation for broader and more encompassing programs throughout the decade.

By the mid 1960's, HEW health grants had become so

numerous that agency representatives began asking local officials to undertake comprehensive health planning. The result was the Partnership for Health Program enacted in 1966, with the objective of providing financial support for areawide health planning, including the assessment of needs, gaps, and overlaps, and producing action programs aimed at the needs having highest priority.[10] The formation of the Health Resources Administration at this time served the purpose of improving the planning and distribution of health resources including manpower, facilities, and knowledge of systems for the delivery of health care. At the state level, the extent to which programs of adequate medical care can be provided depends upon such factors as the stage of development of the program, the amount of funds available, as well as the scope and quality of the services of state and local health and welfare agencies.

By 1974 when a major health legislation was enacted under the name of the Comprehensive Health Planning Act, the program was different in scope from the other programs mentioned. It attempted to assure that the health of the public would be a realistic national goal. It defined a process built upon a federal, state, and local partnership, while reserving the basic decision-making power for the local consumer level. However, the health systems agencies set up under this act were to develop only a nominal sensitivity to the state's needs. So instead of greater

flexibility, this law has placed greater restrictions on local agencies' autonomy.

It is easy for the newcomer to be overwhelmed by the documented inadequacies of the present health care system and simply overlook the evidences of progress achieved over the past four decades. This kind of myopia has led to frequent misunderstandings between providers and consumers engaged in the planning partnership.[11] Hopefully more cooperation by all health professionals and consumers will be the hallmark of our future health care system.

As an example of these difficulties, one of the most important and complex problems facing domestic policy-makers during the balance of the 1970's has been that of providing first rate health services to the public without becoming prohibitive in cost. As scientific study reveals the causes of illness and disability, and provides the possibility of our reaching higher standards of health and well-being, it will lead to a call for more and more programs. As yet, there are no quantifiable measures to demonstrate morbidity and mortality rates declining as a result of the millions being poured into health care programs. Regional medical programs were created with the intention that a network of specialized centers and satellites with clear channels of communication and referral would become a basis for monitoring and thereby insuring first rate medical care for all.

After 1920, most people lived in urban areas. But during the last fifty years rural America has received increasing amounts of help from government agencies. The outstanding public health development of the past half century in the United States for people in rural areas has been the county health movement. Prior to that time, little had been done for the rural areas, although cities and towns had developed their own health services. The Public Health Service has been the federal agency especially concerned and specifically authorized to cooperate with state and local health departments in the prevention of the spread of disease between states. The federal government's policy with regard to aid in rural health service, however, has not been consistent. Funds which are appropriated are usually inadequate and so uncertain as to amount that long term planning is virtually nonexistent. Such economic limitations have prevented the employment of adequate personnel as well. County health units were the recipients of increased expenditures until the Depression era. Besides the obvious economic reasons for discontinuance of the county health units, there were also the problems of mediocre personnel, establishment of units before adequately preparing public opinion for changes, lack of leadership from state health departments, as well as the starting of work in counties too weak to function efficiently. In general, it may be said that counties with average

resources which employed reasonably competent personnel have seldom discontinued county health and therefore, continued to make progress over the years.

In addition to the contributions of governmental institutions, the growth of professional organizations during the last fifty years has played an important role in bettering the health care of Americans. With the formation of the American Hospital Association in 1906, came the first step in recognizing hospital administration as a profession. With the growth of the national association, there was the increasing realization that important programs required greater involvement at regional and local levels of organization concerned with hospital care.[12] The state hospital associations have assumed responsibility for functions provided at the local level. Following state political divisions, and dealing closely with the various kinds of local hospital, these responsibilities have grown to include: concern with legislation, promoting intrastate hospital organization, education of members, and public relations.

The Texas State Hospital Association was organized in 1930. Progress in the first ten years included constant discussion and problem solving which led to writing and adopting the constitution and by-laws by which the association was to be governed. During this period the association provided relatively few services to members due to a

limitation in funds as well as the lack of organized staff to perform such services. The TSHA did, however, make possible the first prepayment plan for hospital care. This service was targeted mainly at those citizens of moderate means. The association's interest in the maintenance of health and public welfare was to extend to the legislation permitting the establishment of the Group Hospital Service Inc., which later became known as the Texas Blue Cross Plan. This also was aimed at those who were financially needy.

The association's history saw little change during World War II as everyone's attention was directed to the war effort. But after this period came the increasing recognition of the need for mutual dependence between the hospital and it's public. On the one hand the public looked to the hospital as a citadel of care and understanding. On the other hand, the hospitals relied upon the community for the financial assistance required for construction purposes, for teaching and research programs, and for keeping the hospital technologically up to date. During the past four decades of the association's history, it has grown from a loosely knit organization with it's roots in regional groups into a truly state-wide executive structure. The services it renders to members are diverse and cover practically every facet in the field of hospital administration. The association is exercising a strong and beneficient influence on legislative matters pertaining to

health services and is increasingly taking cooperative actions with other professional groups within the state.[13]

By 1928, health manpower consisted primarily of physicians and nurses of varying educational backgrounds. As medicine has mushroomed in the last fifty years they have been challenged by complex modern health problems. The running of organized health care now requires many different kinds of specialized talents. Innovation and experimentation forced expansion and development of new roles for allied and auxiliary health personnel. Health agencies, health workers and educational institutions alike are beginning to give high priority to increasing the numbers of both the existing and new kinds of allied and auxiliary personnel. At all levels, government as well as educational institutions, health agencies, and professional and occupational groups are taking positive measures toward recruiting health personnel from special groups that have not been fully tapped. These same groups are also making an effort to improve education and performance in each class of health personnel in order to increase productivity and to raise the quality of health services. The government is doing its part through lending necessary financial support to encourage coordinated programs of health services as a means towards effective use of personnel. This federal funding should, in turn, stimulate funding from other sources, including the private sector.

The heading of health personnel includes more than three hundred job titles and occupations which make up the work force in health care delivery. The last fifty years have seen a huge expansion in the number of these personnel, particularly within the last decade. As each of these personnel have come into existence, they have striven to become increasingly professionalized. Society has demanded this of its health care team. There has been a relatively constant evolution of new health professionals between 1928 and 1978 as they were needed to direct an increasingly complex health system. One way this extensive list of personnel may be studied more easily is by breaking them down into separate categories according to responsibility. The most workable such division seems to be the five category approach formulated by Joan M. Birchenall and Eileen Mary Streight. Their system consists of the following parts: Direct Care Careers, the Diagnostic Careers, the Therapeutic/Restorative Careers, the Community Health Careers, and the Health Administration Careers.[14] Within each of these categories is a mixture of the more traditional, deeply-rooted medical personnel as well as the group known as the "new health professionals". The development of such a work force is for the purpose of providing an alternative to present patterns which have failed to some extent in providing universally available, reasonably priced, accesible primary care.[15]

The impact of NHP's on the health status of individuals under their care is only beginning to be documented at this date. The use of allied health workers has had a positive outcome on physician productivity. There is a significant increase in effectiveness up to the level of about one aide per physician, whereafter proportionately diminishing returns are observed. There has also been noted a substantial variation in task delegation between differing types of practitioners. Some of the technical and institutional barriers affecting a physician's employment of these health auxiliaries are: a concern over weakening of the doctor-patient relationship, perceived deterioration in the quality of care, increased liklihood of malpractice suits, on-the-job training costs, space limitations, and legal restrictions on which task the allied health professional is allowed to perform.[16]

The Direct Care Careers will be the first group of health professionals to be discussed. Included in this group are medical, dental, nursing, mental health, and social services personnel. The function of this group is that of helping people to maintain an optimal state of health, recover from illness, and sickness prevention. These people usually have direct personal contact with the patient and his family.

The medical cluster includes the M.D., D.O., and the physician's assistant. As a group they have undergone

rapid and increasing professionalization, specialization, and growth. The doctor of osteopathy has been trained in much the same school of medicine as the M.D., yet the practice of manipulation therapy is included within their curriculum. The physician's assistant is considered a "new health professional". This new professional came into being for the purpose of filling a variety of specific needs at a time when there was a general agreement that the nation faced a shortage of physicians due to maldistribution and increased specialization. These personnel have permitted the physician to extend the range of his own practice and presumably to spend more time on nontechnical and more professional tasks. Duties of the physician's assistant may include such things as taking histories and exams, taking blood, and the treatment of minor injuries.

The next cluster within the Direct Care Careers is that of dentistry. Included in this profession is the dentist, dental hygienist and dental assistant. In the past dental care could only be obtained in the private dental office. With the steady increase in population, dental care began to be recognized as a basic health necessity. Group practice became the means by which dentistry could specialize as well as take care of the growing need for services. Outreaching to all sectors of the public, dental care is now available through public school programs, health maintenance organizations, free clinics, and neighborhood health

centers. The dentist heads this branch of health personnel. Professional standards equal that of the physician. However, since dentistry is a more restricted practice than medicine, dental specialization is not so extensive. As an adjunct to the dentist, the dental hygienist has evolved to the role of a specialist in oral health, disease prevention, and dental health education. The dental assistant has been called the "extra pair of hands" that work at chairside with the dentist. The roles of these dental auxilliaries have been expanded as a result of an amendment to the Dental Practice Acts. This role, as defined by the American Dental Association, includes the carrying out of intra-oral procedures previously done by the dentist, excepting the cutting of oral tissues.

Nursing makes up the final portion of the primary personnel in the Direct Care Careers. Those manning the nursing discipline are the registered nurse, licensed practical nurse, and nursing aide. Duties may range from bathing the patient to health counseling and patient education. These people make up the major part of the work force. However, as is the case in the other categories of primary health personnel, nursing has specialized. One such specialty which has emerged is the nurse practitioner. These people have evolved in order to meet a need for professional primary health care of those living in areas where a physician's care is not readily available. A major concern of

the nurse practitioner is the meeting of daily personal health needs in order to prevent serious illness. The role of the licensed vocational nurse is the assisting of RN's with the care of critically ill patients. This branch of the nursing cluster is only in practice in Texas and California and mainly are to work with patients who do not require complex nursing care. The aides are once removed from the LPN and work in the capacity of caring for the patient's personal health needs including bathing, feeding, and bedmaking. The new roles in nursing are unique to the practice of nursing, especially in providing health rather than medical care. Extended nursing roles have been conceived to be supplementary as well as complementary to physician care, but they are not meant to substitute for it.[17] The nursing profession has experienced the greatest growth increase of all the medical work force in the last fifty years. This growth trend is demonstrated in graph #1 on page 21.

Recent decades have seen the organization of a multitude of new health specialists. For ease in understanding these occupations may be referred to as the secondary health personnel or Allied Health Professionals. In earlier years, the primary medical team was well delineated into easily identifiable groups. There has been a subdividing of this group into fields of special interest. The most prolific subdivision has taken place within the diagnostic

and restorative ends of the health team.

The first of these allied health personnel to be discussed will be those included within the Diagnostic Careers. Their main duty is to provide the technologic backup needed for the accurate diagnosis of illness; consequently, they may have limited patient contact. An important interdependence between the Direct Care and Diagnostic groups has been established. Without the latter, the Direct Care group would lack reliable, detailed information on which to base their findings. The evolution of this group of workers has saved much valuable time for the primary health personnel of the Direct Care category. Major representatives of this group are the radiologic technician, medical technologist, EKG technician, optometrist and audiologist. These have evolved as the demands upon the physician grow greater and his time must necessarily be freed for more direct patient care. Most of the tasks performed by this group of personnel were formerly performed by the physician himself except when a specific job title evolved expressly for the purpose of working with a certain technologic method. Professional workers in the Diagnostic Careers search for a cause and a cure in the course of their work.

The next division of allied health personnel is that of Therapeutic or Restorative Careers. At one time, the Direct Care group encompassed the responsibilities related to restorative treatment. With the rapid expansion of

health care technology, the need arose for personnel properly trained in all aspects of rehabilitation and restoration. The clusters in this group are physical therapy, occupational therapy, respiratory therapy, rehabilitation therapy, dietetics, pharmacy, and reconstruction and replacement. Each of these groups have in turn added an assistant or technician to augment these already existing services. These personnel usually are the implementers of the service, whereas the therapist serves an increasingly supervisory role. Physical, occupational, and corrective therapy, as well as orthotics and prosthetics, came into demand after World War II with the influx of disabled veterans. However, physical and occupational therapy originated around the first century A.D..

The Community Health Careers category is one which has been developing all through the last half century and not one which came into being as a result of an urgent need or a division of duties. Community health has been practiced for centuries. One of its earliest applications was in the area of hygienic health practices. The emphasis of this work is on health maintenance and on the prevention of illness that could spread throughout a community. As the world, country and state populations grew, so health problems have also grown. Technological and industrial innovations have brought with them their own health hazards as well as needed advancements. Clusters within community

health include such personnel as the public health statistician, health officer, health planner, environmental health expert, provider of animal care services, health educator, and home health care specialist. The statistician developed his role in health care delivery during the 1930's when a census of morbidity and mortality was seen as a necessary practice. In this way, records of certain diseases were used for evaluating existing health conditions and forecasting trends in order to plan programs and allocate resources where needed. The health officer and planner evolved as the need became evident that organized health planning on a community basis was the most efficient means of dealing with pressing health problems. The environmental health specialist has begun his work as standard setter and will have an increasingly important and complex role as long as industrialization and its concomitant pollution continues to multiply. Veterinary health personnel had their inception during the Egyptian era and so are not new to the last fifty-year time span. Their role is in the protection of humans from animal borne diseases be they in the foods that we eat or through transmission from living animals. The health educator is the community's provider of health care information. These workers are located in health agencies, hospitals, schools, family planning centers, and clinics.

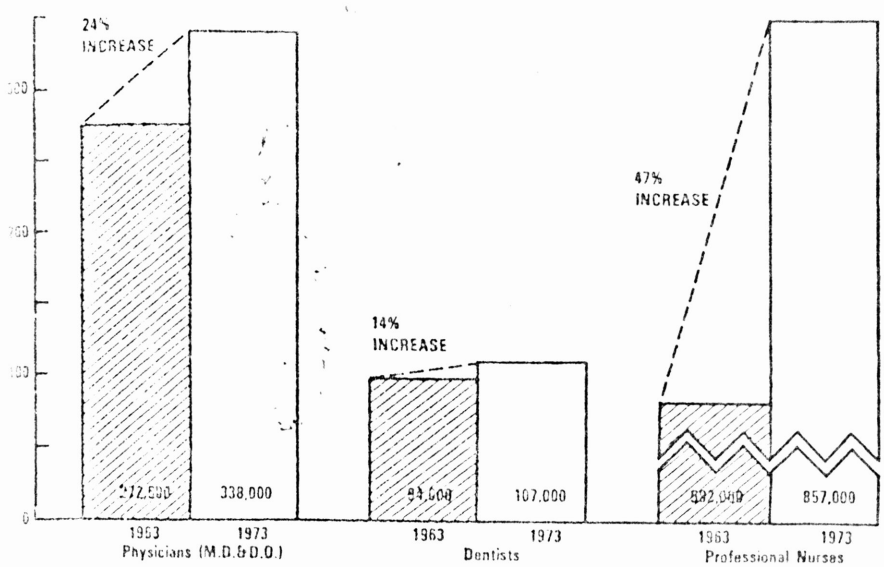
The fifth and final category to be mentioned is that

of the Institutional Careers. These people serve as an underpinning or support system for all of the other groups. Personnel are needed to handle finances, keep records, purchase food, furnishings, and equipment, prepare meals, and keep rooms clean. These tasks are prerequisites of a safe, healthful environment. The two main clusters making up this category are the administrative and the supportive. The administrative personnel try to insure the efficient operation of a health care facility, while the supportive personnel are concerned with the efficient maintenance of such services. These jobs have begun to multiply along with the health delivery system. They have existed for as long as health institutions, but they function on a smaller scale.

There are more than 4.4 million health workers in the United States of whom approximately 1.5 million are health professionals, with nurses, physicians, and pharmacists being the largest groups. It can be seen that the changing nature of personal health since World War II has been reflected in the increasing range of comprehensive personal health services which are required for the provision of such care. This is mirrored in the changes in numbers and proportions of health manpower which have occurred since 1950.[18] The number of health professionals has grown very rapidly over the past two decades with a nearly 50% increase in RN's, a 25% increase in M.D.'s, but only a 14% rise in

the dentist population.[19] The graph below illustrates these increases. (Graph #1)[20].

CHANGES IN NUMBER OF ACTIVE HEALTH PERSONNEL



The greatest federal support in the field of health manpower education has been for the primary health personnel, thus making these professions and their relative growth far larger than any of the other allied health personnel. Only since the enactment of the Allied Health Personnel Training Act of 1966 has the education of allied health workers received pointed attention at the national level. As a result, there is a gradual increase in the allied health personnel population.[21] The table at the top of the following page gives statistics on the supply of allied health manpower as of December of 1970. (Table #1)[22]. The overall supply of active health workers is projected to increase from 1.9 million in 1980, to 2.5

SUPPLY OF TOTAL ALLIED HEALTH MANPOWER, BY OCCUPATION: DECEMBER 31, 1970

Allied health occupation	Number active
Total allied	2,743,000
Medical allied	1,073,000
Medical laboratory personnel	140,000
Radiologic technology personnel	100,000
Medical record personnel	53,000
Dietetic and nutritional personnel	47,000
Physical therapy personnel	24,000
Occupational therapy personnel	16,000
Other personnel	693,000
Dental allied	158,000
Dental hygienists	15,000
Dental assistants	112,000
Dental technicians	31,000
Environmental allied	242,000
Environmental engineers	35,000
Environmental scientists	25,000
Environmental sanitarians	12,000
Environmental technicians	69,000
Environmental aides	101,000
Nursing allied	1,270,000
Licensed practical nurses	400,000
Nursing aides, orderlies, attendants	848,000
Home health aides	22,000

Table 1

million in 1990. The table at the top of the following page gives numbers of active health professionals as of December of 1970. (Table #2)[23]. Although the overall supply of active health professionals is projected to increase by nearly 90% between 1970 and 1990, growth patterns are expected to vary considerably among the individual professions, with nursing having the largest predicted increase of all the professions, as it has in the past.

The federal support of enrollment expansion in

SUPPLY OF ACTIVE HEALTH PROFESSIONALS: DECEMBER 31, 1970

Health profession	Number active	Health profession	Number active
All health professions	1,329,130		
Physicians	323,210		
D.O.'s	12,000		
M.D.'s	311,210		
General practice	56,260		
Medical specialties	66,380		
Dermatology	4,000		
Family practice	1,690		
Internal medicine	41,870		
Pediatrics[1]	18,820		
Surgical specialties	85,390		
General surgery	29,760		
Neurological surgery	2,580		
Obstetrics and gynecology	18,880		
Ophthalmology	9,930		
Orthopedic surgery	9,620		
Otolaryngology	5,410		
Plastic surgery	1,600		
Thoracic surgery	1,810		
Urology	5,800		
		Other specialties	103,190
		Anesthesiology	10,860
		Child psychiatry	2,100
		Neurology	3,070
		Psychiatry	21,150
		Pathology	10,280
		Physical medicine and rehabilitation	1,480
		Radiology	10,520
		Therapeutic radiology	870
		Miscellaneous	42,860
		Dentists	102,220
		Optometrists	18,400
		Pharmacists	129,300
		Podiatrists	7,100
		Veterinarians	25,900
		Registered nurses	723,000

Table 2

health professional schools that began in the 1960's has resulted in sharp increases in the supply of active health practitioners. Perhaps now the even greater increase in manpower supply will bring the nation closer to a balance of requirements and supply than at any other time in our history.

The delivery system has become increasingly complex over the years as more new health professionals have evolved. In 1935, the system already included various specialty institutions such as nursing homes, and rehabilitation centers, as well as the new personnel needed to staff them. The diagram at the top of the following page illustrates the growing structure of the health system then. (Diagram #1)[24].

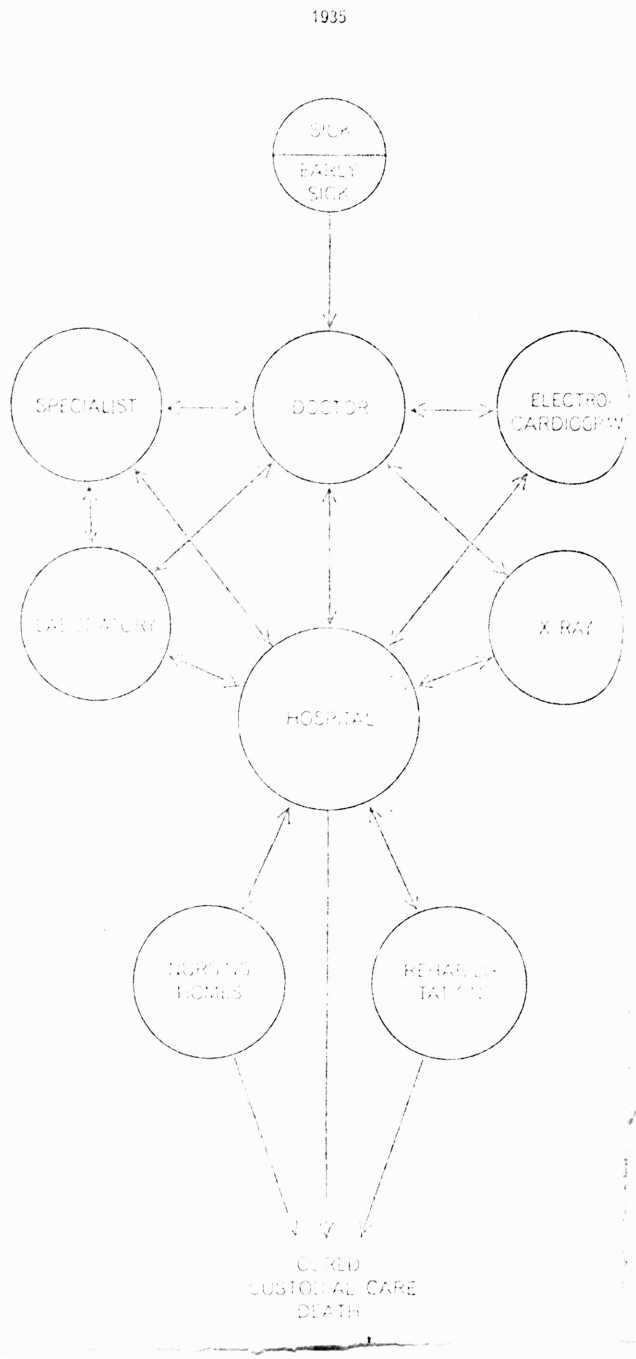
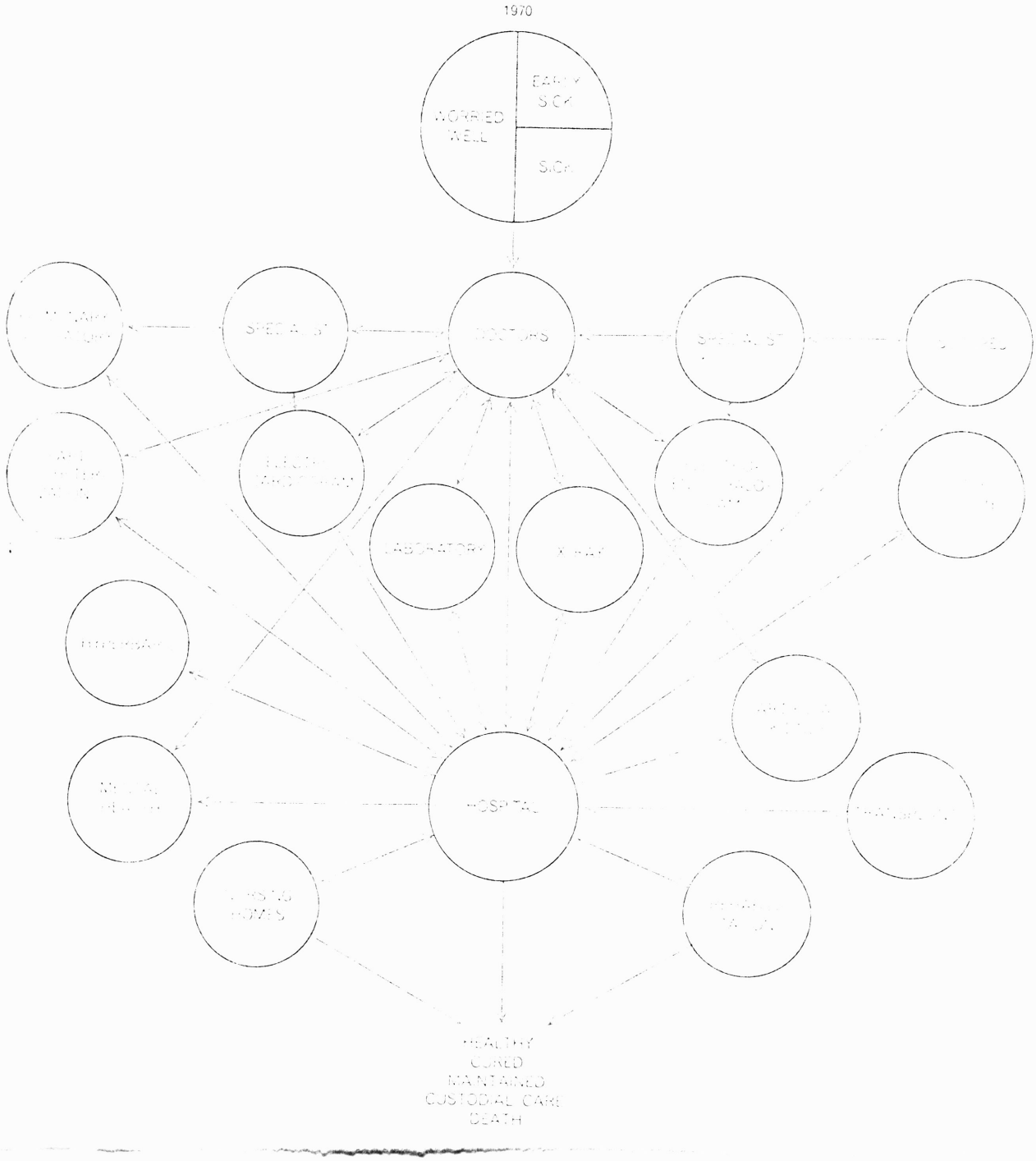


Diagram 1

By 1970, there had been a great development of new types of therapy and treatment manned by a corresponding number of new types of health personnel. The following diagram shows the expansion that had occured by that time.

(Diagram #2)[25].



What are the causal factors which signaled the need for new health professionals? Some of the more evident

reasons for an increased demand for health services and professionals are an expanded population requiring services, an increase in available dollars to buy services, an increased propensity to consume services, a more enlightened consumer to ask for services, and an increased demand for a physician's services at a time of national shortage.[26] During the 1930's there began to dawn a public awareness of the need for more and better health care. Through a combination of this new awareness, the beginning of federal funding and legislative organization, as well as an explosion in technological and biomedical advances, the health delivery system began to come alive and to grow. The rate of growth, however, was such that organizational efforts lagged far behind technological change. There still remains this gap today.

The federal government spends billions each year in research as well as manpower education efforts, yet much less is spent on studies for the improvement of the health delivery system. This includes defining the roles to be played by health personnel and programs to be implemented in the health care complex. Our social machinery seems to have not caught up with our scientific capacity. Yet there is progress being made, although it may seem sporadic in nature.

During the fifty year era studied, programs have appeared, been modified, and disappeared in order to reflect

current demands. Also, during the last fifty years there has been a mushrooming of different health professional schools and occupations due to increasing specialization of the health manpower force. The entire health delivery system has experienced fantastic growth with the evolution of these personnel and programs to meet the new era's changing health problems. Projections of future health manpower and programming needs should not continue to be based solely upon past and present delivery patterns.

In developing personnel and programs for the future it will be necessary to make decisions based on how and by whom care has been delivered in the past, as well as the capacities of the future for planning flexible modes of health care. They reflect society's willingness to translate its concern for human needs into a commitment of financial and other resources. It can hardly be denied that through the continual updating of educational processes and established programs as well as the steady emergence of new technologies, the level of health care is constantly being bettered in the United States and in Texas.

NOTES

1. Joyce C. Lashof and Mark H. Lepper, "Federal-State-Local Partnership in Health," Health in America: 1776-1976 (Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1976), p. 129.

2. Jesse L. Steinfield, "The United States Public Health Service," Health in America, p. 74.

3. Philip S. Lawrence, "The Health Record of the American People," Health in America, p. 19.

4. Ibid., p. 20.

5. Steinfield, Health in America, p. 84.

6. Ibid., p. 76.

7. Ibid., p. 77.

8. Ibid., p. 83.

9. Lashof and Lepper, Health in America, p. 123.

10. Rufus E. Miles, The Department of H, E, and W (New York: L. Praeger Publishers, 1974), p. 208.

11. Lashof, Health in America, p. 128.

12. Grover C. Kistler, "Historical Development of the Texas Hospital Association, 1930-1965." Unpublished thesis, Baylor University, 1967, p. 4.

13. Ibid., pp. 261-262.

14. Joan M. Birchenall and Eileen Mary Streight, Introduction to Health Careers (New York: J. B. Lippincott Co., 1978), pp. 32-33.

15. Ann A. Bliss and Eva D. Cohen, eds., The New Health Professionals (Germantown, Md.: Aspen Systems, 1977), p. xvii.

16. Standard Medical Almanac. 1st ed. (Chicago: Marquis Academic Media, 1977), p. 107.

17. Bliss and Cohen, Health Professionals, p. xvii.

18. Task Force on Health Manpower: Action to Meet Community Needs (Washington: Public Affairs Press, 1967), p. 37.

19. Standard Medical Alamanac, p. 63.

20. Ibid., p. 59.

21. Helen C. Chase, "Some Current Research for the Allied Health Professionals," Physical Therapy (July 1971), p. 772.

22. Standard Medical Almanac, p. 16.

23. Ibid., p. 15.

24. Darrel J. Mase, "The Role of Allied Health Manpower In Health Care Delivery," Hospital Progress (February 1971), p. 54.

25. Ibid., p. 55.

26. Thomas C. Points, "The Development, Concern, and Program of the AMA Committee on Emerging Health Manpower," Medical Care (January-February 1971), p. 4.

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