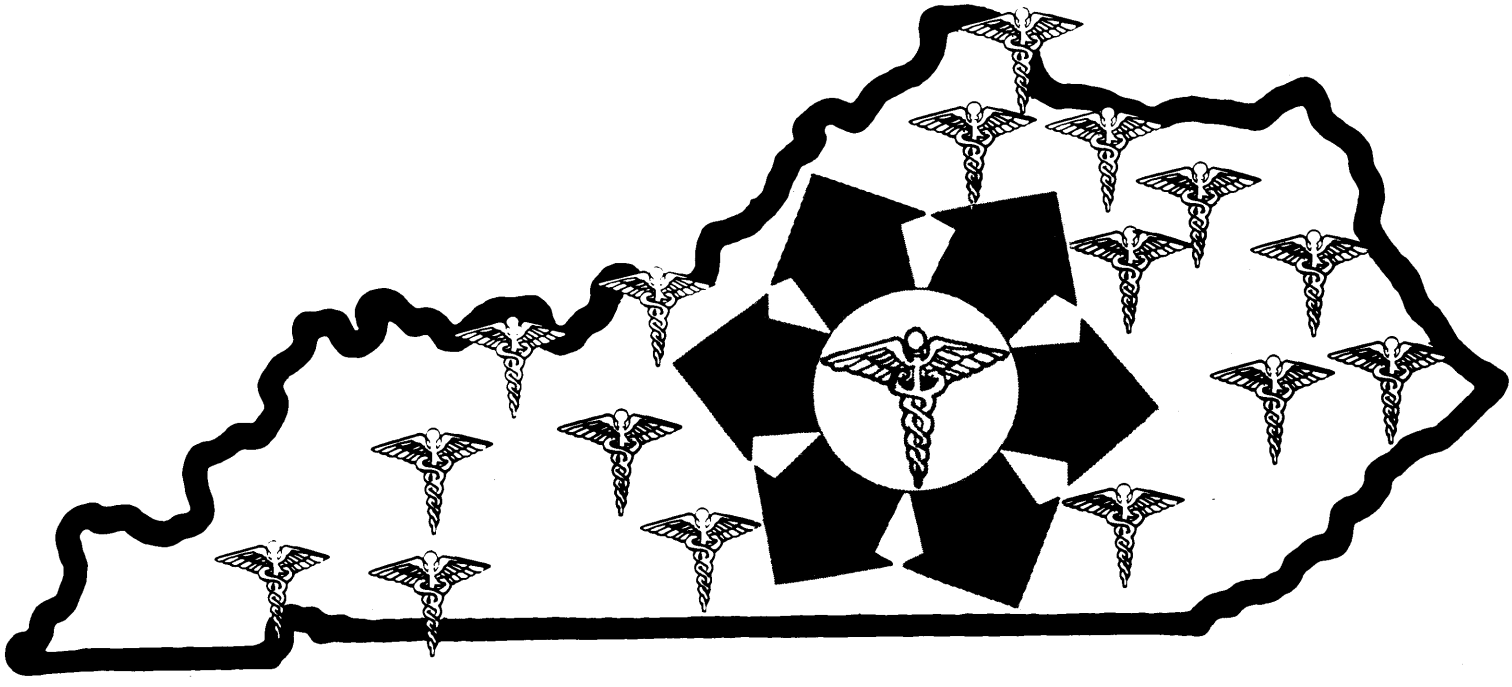
PHYSICIAN MANPOWER IN KENTUCKY

SUPPLY AND DISTRIBUTION



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PHYSICIAN MANPOWER IN KENTUCKY: SUPPLY AND DISTRIBUTION

Prepared by

Peggy Hyland

Research Report No. 133

Legislative Research Commission
Frankfort, Kentucky
July, 1977

This Report has been prepared by the Legislative Research Commission and paid for from state funds.

FOREWORD

The 1976 General Assembly directed through SR 48 that a study of the shortage and maldistribution of physicians in Kentucky and methods of alleviating these problems be undertaken. This study of physician manpower in Kentucky is directed toward that end. The study examines trends in physician supply and distribution in Kentucky over the last 25 years. It looks at past and ongoing programs initiated to address the shortage/distribution problem in the Commonwealth. Alternatives and pathways for improving physician availability in Kentucky are assessed. A list of recommendations has been included.

This report was prepared by Peggy Hyland under the direction of Dr. Jim Peyton. Prentice Harvey collaborated on and contributed substantially to the section on physician manpower. The efforts of John Williams in this area is also recognized. The cooperation of numerous agencies, institutions, organizations and individuals was necessary to compile all of the information for the report. Their assistance is acknowledged and appreciated. Every attempt has been made to credit the appropriate source of information specifically in the report. The manuscript was typed by Mary Lou Holt, edited by Linda Wood, with typesetting and graphics by Ann McElroy and Jayne Wise.

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The Capitol
Frankfort, Ky.
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FINDINGS AND RECOMMENDATIONS

Summary of Findings

The issue of physician supply and distribution is one that has a long history. Looking at the situation in Kentucky from 1950 to the present, these trends appear evident.

The number of physicians in Kentucky is increasing at a faster rate than the overall population. Consequently, some improvements have been made in physician supply. The ranking of Kentucky among the states in number of physicians per population increased from 42nd in 1967 to 38th in 1975. However, the ratio of physicians to population in Kentucky is below the national ratio and does not appear to have gained on the national ratio in the last ten years.

The major pathway by which physician manpower is lost to Kentucky appears to be the exportation of graduates as a result of a lack of residency positions. This imbalance should be brought under control after the 76 primary care residencies authorized by the 1976 General Assembly are phased in (KRS 164.925 - 164.933).

The supply of primary care physicians per given population is increasing in Kentucky, but other medical specialties are increasing at a faster rate. In Kentucky, primary care physicians include the following disciplines: general and family practice, internal medicine, obstetrics and gynecology, pediatrics, and emergency medicine (KRS 164.925). Primary care physicians represent a smaller percentage of the physician work force now than they did in 1970. Presently, primary care physicians represent 53.9% of all practicing physicians; in 1970 they constituted 58.1% of the physician work force.

Although the number of general and family practitioners steadily decreased from 1949 to 1972, data for 1976 indicate a slight upswing in the number of physicians practicing in Kentucky in this particular specialty. This improvement may reflect the establishment of Departments of Family Practice at the University of Kentucky and the University of Louisville in 1970 (KRS 164.910).

The geographic distribution of physicians in Kentucky follows national trends. Physician distribution tends to parallel areas of high population and high per capita income. The disparity between physician population ratios in areas of high population and those of low population has continued to increase at least since 1950. Forty-five counties in Kentucky and portions of seven others are presently designated critical health manpower shortage areas by the U.S. Department of Health, Education and Welfare. Eighty-five counties in Kentucky are listed as medically underserved and areas within 18 other counties are so designated. Fayette and Jefferson counties have the highest physician population ratios in the state, but portions qualify as underserved. There is no indication that the improved supply of physicians has improved distribution; the contrary appears to be true. When primary care physicians are separated and analyzed apart from all other physicians, a similar disparity between areas of high and low population appears; however, the disparity is much less pronounced for primary care physicians than it is for all other physicians.

Studies continue to support the importance of location of prior residence and place of residency training as major influences in a physician's decision regarding practice location.

Rural clerkships and preceptorships also appear to positively influence physician location in rural areas.

Except for the Kentucky Rural Medical Scholarship Program, most programs in Kentucky designed specifically to increase the supply of primary care physicians and improve distribution have been developed since 1970. Consequently, the impact of recently developed programs is difficult to evaluate, although results in some areas are encouraging.

New federal legislation indicates that the bulk of federal money in the next four years will be tied to increases in the percentage of primary care residencies at medical schools. Federal loan and scholarship funds will be tied to service requirements in medically underserved areas. Federal emphasis is shifting away from increasing supply and toward improving distribution.

Recommendations

1. *The most cost-effective approach to increasing physician supply in Kentucky is through improved retention of medical school graduates.* Physician retention can be improved by:

   a. Increasing residency (post-graduate) positions. The creation of 76 new residencies in primary care by the 1976 General Assembly was a positive move. These residencies should receive full and continuous funding by subsequent legislatures (See cost analysis in Appendix L).

   b. Assisting physicians in finding practice locations in the state. The establishment of a physician placement function should be considered either within existing agencies or through the private sector. This placement service should be available to physicians who are seeking practice locations and to communities which are seeking physicians. Opportunities in primary care facilities, in group practice, and in other innovative programs should be included in the service. Along with the placement function should be an active recruitment program reaching out to other states as well.

2. *Data strongly suggest that site of prior residence is an important factor in ultimate practice location.* The Council on Higher Education (formerly Council on *Public* Higher Education) should develop and implement formal admission guidelines that give greater emphasis to biographical data, especially location of prior residence and to the results of evaluative testing of attitudes toward societal needs and problem solving ability. Coupled with this is a need for strong recruitment and counseling programs in community colleges for competent and interested students. A pattern for such approach has been set by the defunct Southeast Kentucky Health Profession Scholarship Program.

3. *Recent studies indicate that a comprehensive system of affiliations between the existing medical schools and community hospitals, clinics and private practitioners throughout the state may be an important positive influence on physician location in rural areas.*

   a. The Area Health Education System (AHES) should be fully supported. Medical schools should actively encourage student participation in the program and develop mechanisms for increasing student participation.

b. The medical schools should be strongly encouraged to increase their outreach programs through affiliations with community facilities. Board approved primary care residency sites should be actively sought in eastern Kentucky. Restrictions by national boards are constraints to such an approach and at the same time are essential considerations. The establishment of a fund to be utilized for making improvements in primary care facilities and health care delivery in underserved areas should be considered. On the other hand, the potential for waivers in the area of board approved residency sites should be fully pursued by the medical schools. Area consortiums to allow for the required mix of clinical experience, rural-based residencies with urban rotations and other innovative approaches should be considered. The benefits to the Commonwealth of this approach are several. Students would be exposed to life in underserved areas and educated to function as physicians in this setting. By the second and certainly the third year, a resident student requires less supervision and would be actually contributing as a health care provider in the area. Every opportunity should be sought to develop accredited sites in underserved areas of the state. This goal should be a major priority of the medical schools and the Council on Higher Education.

4. *Appropriations from the General Assembly should be earmarked specifically for the Departments of Family Practice.* This action would further development of these programs and emphasize the high priority such departments have in the health care goals of the Commonwealth. In addition this action would enhance the position of family practice within the medical community. Funds should also be made available for field faculty and preceptors to encourage further development of training sites remote from the medical school complex.

5. *With the emphasis of state and federal programs on primary care, acute care hospitals in small communities will find it increasingly difficult to attract specialists, while the need for primary care facilities will increase.* The future role and potential uses of the small community hospital needs to be examined in light of these trends.

6. *The emphasis of federal programs on physician extenders and other allied health professions is increasing.* Major contributions have been made by these professionals, such as those in the Frontier Nursing Service, in medically underserved areas of the state. The role of these professions needs to be clarified in Kentucky. Mid-level practitioners should be fully incorporated into the health care delivery system and the health education system for greater productivity. Regulations which allow for reimbursement of services performed by mid-level practitioners should be implemented.

7. *Programs which emphasize health education, preventive medicine, and maintenance of good health should be encouraged and supported.* The Health Education and Community Participation Branch of the Center for Comprehensive Health Systems Development is involved in programs directed toward this end.

8. *The disincentives to physician location in rural areas should be addressed.* Possible solutions include equalizing reimbursement schedules for urban and rural areas. Mechanisms for improving continuing education, consultation, and referral opportunities for rural-based physicians should be explored and implemented.

9. *Standards and goals for the state in physician supply and distribution are necessary for the proper evaluation of future efforts.*

a. The Department for Human Resources should attempt to establish goals which can be measured by a solid data base.

b. A consistent and comprehensive data base in physician supply and distribution is essential for future policy decisions. The Center for Comprehensive Health Systems Development is involved in a federal project which will establish for Kentucky a Comprehensive Health Statistical System. The State Board of Medical Licensure should be mandated to revise its licensure forms to acquire the information presently collected on a voluntary response basis by the Council on Higher Education and should modify its forms as the need for other input is identified and requested by the Center for Comprehensive Health Systems Development.

c. The most representative group in the Commonwealth relative to medical education as it relates to medical service appears to be the Health Science Advisory committee of the Council on Higher Education. The establishment of coordinating and oversight authority for this group or one of similar composition relative to efforts in physician location and distribution should be considered. The Center for Comprehensive Health Systems Development should be included specifically as a member of the group given such a charge.

d. Ongoing programs receiving state appropriations should be periodically evaluated for their effectiveness in influencing physician distribution in order to provide a basis on which to direct future efforts.

CHAPTER ONE

INTRODUCTION

On October 12, 1976, the Congress of the United States passed legislation which included the following policy statement:

> The Congress finds and declares that—the availability of high quality health care for all Americans is a national goal;
>
> the availability of high quality health care is, to a substantial extent, dependent upon—
>
> the availability of qualified health professions personnel; and
>
> the availability of adequate numbers of physicians engaged in the delivery of primary care, including family practice, general internal medicine, and general pediatrics, and in the various specialties, but numbers which do not exceed the need for physicians in such specialties;
>
> there are many areas in the United States which are unable to attract adequate numbers of health professions personnel to meet their health care needs; and
>
> physician specialization has resulted in inadequate numbers of physicians engaged in the delivery of primary care. [PL 94-484, Section 2(a) and 2(b)]

The purpose of this report is to assess the supply and distribution of physicians in Kentucky. The report is divided into three sections. The first section contains the base data concerning number and distribution of active physicians in Kentucky, trends over recent years, and potential manpower resources through Kentucky medical schools. The narrative in section two describes the various state agencies and programs which specifically address the topic of shortage and maldistribution of physicians in Kentucky. It also examines the federal programs that operate in Kentucky related to the issue. Data concerning the apparent effectiveness of these programs are included. The final section contains an analysis of recent federal legislation, the Health Professions Educational Assistance Act of 1976, and its implications for Kentucky. It briefly surveys model programs that have been successful in other parts of the nation.

The issue of physician shortage and maldistribution is a complex one involving numerous components. Because of this, some mention must be made of the limitations and constraints operative in such a study.

It should be noted that a major constraint in analyzing trends in physician manpower is the lack of a consistent data base. Discrepancies in the total number of physicians practicing in any one year may be as large as 300 (see data comparisons in Appendix B). This is due to such variations as whether or not federal physicians are included, whether only active physicians are included, and the general dynamics of physician relocation. Charts and tables in this report are derived from information obtained from the Kentucky State Board of Medical Licensure as of

December 31, 1976, unless otherwise noted. However, because of discrepancies in the data base, conclusions relating to trends in supply and distribution of physicians over the years must be qualified.

Secondly, there are numerous acceptable ways of classifying primary care disciplines. In this study, the definition set forth in KRS 164.925 is used:

> "Primary care" means the practice of medicine as provided by professionals in family/general practice, general pediatrics, general internal medicine, emergency medicine, general obstetrics and gynecology.

However, the definitions for federal programs vary from one to another. In general they do not include the specialty of emergency medicine and may or may not include general surgery where at least 50% of the time is spent in primary care. This discrepancy makes accurate comparisons of physician supply in primary care areas very difficult.

Finally, the relationship between physician availability and quality of health care delivery is a complex one. Transportation and communication capabilities are important. Prevention and personal health care habits are components. Expectations and real needs are variables. In the words of the American Medical Association (AMA, Physician Distribution, 1975, p. 23).

> . . . factors affecting demand for and supply of health care services cause the distribution of physicians and hospital beds to vary among regions, states, counties and metropolitan areas. Appraising the adequacy of the present distribution necessitates the evaluation of health care requirements in each community. No commonly accepted standard exists that can be applied nationally for such an evaluation.

The limiting factors described here have been considered in the final analysis and conclusions of this report. They should also be kept in mind as the reader proceeds from section to section.

CHAPTER TWO

PHYSICIAN MANPOWER IN KENTUCKY

> One of the most pressing concerns facing many Kentuckians is the availability or accessibility of health care services. The problems of availability and accessibility are linked to the number of practitioners, their geographical distribution throughout the state, and their professional specialties (Council on Public Higher Education, 1975. p. 7).

These three areas of physician supply, geographic distribution and specialty mix form the basis for developing a picture of physician manpower for the Commonwealth. Related information is included on age distribution of physicians by geographic area, location of primary care facilities, and the role of foreign medical graduates in physician availability in Kentucky.

Physician Supply

How many is enough? This very simple question has no simple answer. There are approximately 4,072 physicians practicing in Kentucky (Board of Medical Licensure, 1976). Thus, there is a ratio of 834 people for every active physician in the Commonwealth. Kentucky ranks 38th among the 50 states in the number of persons per physician (AMA, Physician Distribution, 1975, p.23). The physician/population ratio is a parameter that is most often used to assess physician supply. The problem is that no ratio has been generally accepted as an optimum or even adequate standard.

The 1976 Carnegie Report states:

> There is no precise way of determining the optimum physician-population ratio, and the adequacy of any given ratio can be adversely affected by forces (for example, the adoption of national health insurance) leading to an increase in demand, or favorably affected by other forces (for example, an increase in the supply of physician's assistants) leading to an increase in the productivity of physicians (Carnegie Commission Report, 1976, p.32).

The best use of ratios as a tool in manpower analysis is for comparison. Changes in ratios over time give some indication of trends in absolute supply of physicians per given population. This information is not translatable in terms of quality or availability of health care without consideration of additional parameters.

The physician/population ratios for the United States and Kentucky for 1967, 1970 and 1976 are as follows:

	U. S.	Kentucky
1967	710:1	1037:1
1970	750:1	998:1
1976	574:1	834:1

Source: LRC Report No. 61, p. 111 and 37; Carnegie Commission Report, 1976, p. 32).

TABLE 1

LISTING OF NEW MEDICAL LICENSES BY PLACE OF GRADUATION 1970-75

	1970		1971		1972		1973		1974		1975	
	No.	% of Total	No.	% of Total	No.	% of Total	No.	% of Total	No.	% of Total	No.	% of Total
DOMESTIC												
U.K.	66	17.8	55	14.4	58	13.3	64	9.9	51	9.8	55	12.2
U. L.	90	24.3	88	23.0	91	20.9	57	8.8	75	14.3	62	13.8
Adj. States	66	17.8	100	26.1	79	18.1	106	16.4	95	18.2	83	18.4
Other States	104	28.1	99	25.9	120	27.5	160	24.7	131	25.1	121	26.9
Canada	5	1.4	2	0.5	1	0.2	8	1.2	5	1.0	3	0.7
Dom. Total*	331	89.5	344	89.8	349	80.1	395	61.0	357	68.3	324	72.0
FOREIGN**	39	10.5	39	10.2	87	20.0	253	39.0	166	31.7	126	28.0
TOTAL	370		383		426		648		523		450	
First Year Residents	99		110		115		136		143		149	
All Others	271		273		311		512		380		301	
Number still actively practicing or in residency as of 5-25-77	84	22.7	108	28.2	65	15.3	217	33.5	242	46.3	296	65.8

Source: Council on Public Higher Education, Health Science Education, 1976.

*This includes students in residency training as well as practicing physicians.

**New medical licenses for foreign medical graduates are misleading figures since they include those who may have been in the state practicing under limited licenses prior to regular licensing.

These figures indicate that Kentucky is making some progress in improving the number of physicians serving its population. The number of physicians practicing in Kentucky is increasing at a faster rate than the overall population. Between 1970 and 1975, the population in Kentucky increased by 5.4%. Between 1970 and 1976 the total number of active physicians increased from 3,224 to 4,072, an increase of 26.3%. However, Kentucky does not seem to be gaining significantly on the national ratio. In 1967 Kentucky had 1.46 as many persons per physician as the nation on the whole. In 1976 this factor was 1.45 times the national ratio. Kentucky ranked 42 of the 50 states in physician population ratio in 1967, and presently ranks 38th (Appendix C). It appears that, although Kentucky is only holding its own against the national ratio, it is doing better than some states in this regard. Kentucky's ratio improved over those of Indiana, Iowa, Montana, Oklahoma and Wyoming between 1970 and 1975.

Table 1 indicates the number of medical licenses issued for the first time in Kentucky for each of the last six years. These new licenses include students who are serving residencies in the state as well as physicians in practice. When the number of residents is removed from the license total for each year, the number remaining represents the physicians licensed to practice in the state for the first time that year. This does not mean, however, that they are involved full time in direct patient care. Some licensed physicians may be full time teachers or administrators; some may be inactive, retired, or in part-time practice. The table also indicates the number of new licensees for each year who are actively practicing or still in residency in Kentucky as of May, 1977.

Physician Production and Retention

Figure 1 outlines the stages in the production of physicians. After completing four years as an undergraduate, the student may apply to medical school. Applicants must take a national exam, the Medical College Admission Test (MCAT), complete admission forms and undergo interviews. Once accepted into medical school, the student studies for four years. Upon completion of these studies, the student serves an internship and/or residency of usually three years in a specialty field. During these post-graduate activities, the resident is licensed and is involved in direct patient care. Finally, after an average seven years of training, the physician is ready to establish a practice of his own.

The flow chart in Figure 1 suggests the potential pathways by which physicians come into or are lost to the state. For discussion, the stages are broken down into admissions, medical school, post-graduate residency training, and establishment of practice.

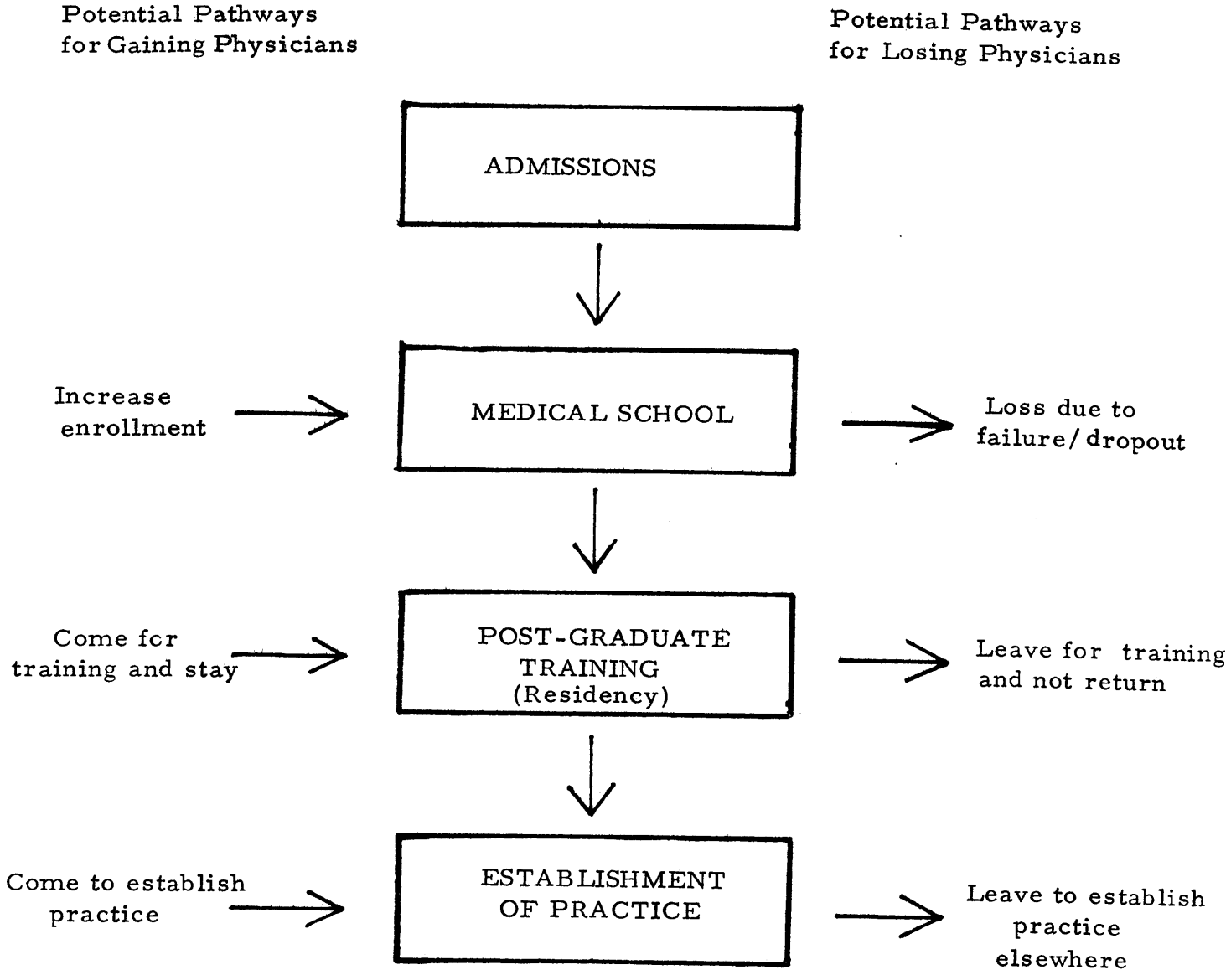
a. Admissions

The number of slots initially available in medical schools is definitely a controlling factor in the final output of physicians. Together the medical schools at the University of Kentucky and the University of Louisville have places for 243 medical students. Approximately 40% of all Kentucky applicants will be accepted to one of the two schools. Kentucky ranks seventh among the states in the percentage of state applicants accepted.

There are plans for increased enrollments in 1979. The University of Louisville hopes to expand to 151 students, an increase of 16 places; the University of Kentucky plans an increase of 12 students to bring enrollment to 120. This would represent an 11% increase overall in enrollment capability.

FIGURE 1

GRAPHIC OUTLINE OF PHYSICIAN MANPOWER PRODUCTION PROCESS



b) Medical School

Dropout and academic failure rate is minimal in Kentucky. The admissions screening process is designed to select those students who are capable of handling the course load. Once a student is admitted, the faculty and administration assume responsibility for seeing that the student follows through the four-year program. If a student drops out, it is very difficult to fill the vacancy since transfer students are not common. If a student is lost, this means one less physician. This does not appear to be a major cause of physician loss in Kentucky.

c) Post Graduate Residency Training

Presently, Kentucky medical schools have the capacity to produce 243 graduates per year. There were approximately 183 first-year, post-graduate positions available for 1977. This means Kentucky is potentially exporting a net of 60 medical students or 24.7% of each graduating class, to post-graduate positions outside of Kentucky. Since it costs approximately $65,000 to educate one medical student for four years, this is a loss of $3,900,000 to the state annually. Studies (Weiskotten, 1960; Martin, 1968; Cullison, 1974; Mason, 1975) indicate that 60-80% of all residents tend to remain and set up practice in the state in which they take their residency training.Thus, this lack of post-graduate positions translates eventually into a manpower loss as well. It is a major pathway for loss of physicians to the state.

The study of the Task Force on Health Science Education of the Council on Public Higher Education states:

> . . . the retention of physicians in Kentucky may well depend more on the number of residency positions available and their geographic distribution than on the number of medical school graduates (CPHE Phase I Report, 1976, p.25).

Recognizing this fact, the 1976 General Assembly authorized the creation of 76 new residency positions in primary care to be phased in beginning in 1976.

d) Establishment of Practice

The percentage of graduates of Kentucky medical schools who ultimately set up practice in Kentucky varies. Table 2 shows approximately the number and percentage of physicians practicing in Kentucky in 1976 who graduated from Kentucky medical schools from 1970-1976.

TABLE 2

APPROXIMATE RETENTION RATES OF KENTUCKY GRADUATES
1970-76

	Total† Graduates	Total Active‡ in Ky., 1976	% Active in Ky., 1976
1970	152	54	35.5
1971	165	52	31.5
1972	171	64	37.4
1973	175	79	45.1
1974*	207	79	38.1
1975*	222	98	44.1
1976*	233	83**	35.6

* These graduates still in residency training
** Probably not complete count
† Source: University of Kentucky, Medical Center, Office of the Vice President; University of Louisville, Health Sciences Center, Office of the Vice President.
‡ Source: Council on Public Higher Education, Health Science Education, 1977.

The retention rate nationally is approximately 40%. Presently, 54.3% of the active physicians in Kentucky are graduates of medical schools of other states, Canada, or foreign schools (see Table 3).

TABLE 3

PLACE OF GRADUATION OF PHYSICIANS
IN PRACTICE IN KENTUCKY, DECEMBER, 1976

	Number	%
Kentucky	1868	46.54
Foreign Medical Schools	443	11.04
*Tennessee	303	7.55
*Ohio	215	5.36
New York	135	3.36
*Missouri	107	2.67
*Illinois	96	2.39
Pennsylvania	92	2.29
*Indiana	65	1.62
*Virginia	63	1.57
Massachusetts	59	1.47
Louisiana	56	1.39
Michigan	54	1.35
Georgia	50	1.25
North Carolina	49	1.22
Maryland	37	.92
District of Columbia	37	.92
Texas	28	.69
California	27	.67
Wisconsin	25	.62
Arkansas	21	.52
Iowa	20	.49
*West Virginia	20	.49
Others (17 states)	143	3.56

*Border states supply 21.6% of physicians presently practicing in Kentucky.

Source: Kentucky State Board of Medical Licensure, December, 1976.

In general it would seem that Kentucky is making some progress in increasing the supply of physicians in the state. The discrepancy between the number of medical school graduates and the number of residency slots is most likely the greatest factor in exportation of trained physicians.

The question of physician shortage may not be one of supply but rather one of type. In the following section, physician supply will be considered by specialty in Kentucky.

Figure 2

A Stratified Health System

TERTIARY MEDICAL CARE AND HEALTH SERVICES: FOR A STATE OR MULTIPLE COUNTY REGION

(Provided in a Medical Center of a University Teaching Center)

Quality specialty care in a personalized fashion:

1. Specialized Medical, diagnostic, and therapeutic services for unusual and complicated cases.
2. Specialized surgical care for unusual and complicated cases (neurosurgery, organ transplants, etc.)
3. Specialized dental care for unusual and complicated oral disease and surgery.
4. Emergency medical care.
5. Part of a comprehensive health care system.

SECONDARY MEDICAL CARE AND HEALTH SERVICES: FOR A REGION

(Provided in a Regional Hospital or Health Center)

Quality secondary and referral care in an available and personalized fashion:

1. Medical and surgical diagnostic services for complicated problems.
2. Surgical care and medical care for complicated problems.
3. Services for major surgical and medical emergency problems.
4. Specialty dental care—orthodontics, endodontics, periodontics.
5. Emergency medical care.
6. Part of a comprehensive health care system.

PRIMARY MEDICAL CARE AND HEALTH SERVICES: FOR AN AREA

(Provided in an Area Health Ambulatory Center)

Quality primary care and health services in an available, personalized, and continuous fashion:

1. Preventive services, case-finding services, and diagnosis and treatment for usual and uncomplicated illness and disease.
2. Minor surgery and medical care for uncomplicated problems.
3. Home care programs—nursing services.
4. Preventive, diagnostic, and restorative dental services.
5. Part of a comprehensive health care system.
6. (In large Area Health Centers, services for surgical and medical problems not requiring specialized personnel and equipment.)

(Provided in a Community Health Center, usually a satellite to an Area Primary Health Center)

Quality primary medical care and health services in an available, personalized, and continuous fashion:

1. Preventive services, case finding services, and diagnosis and treatment for usual and uncomplicated illness and disease.
2. Supervision of home care health services.
3. Part of the comprehensive health care system.

U. S. Dept. of Health, Education and Welfare, Public Health Service, *Rural Health Initiative*, December, 1976.

Specialty Distribution

The adequacy of any given physician/population ratio also cannot properly be interpreted without a consideration of what proportion of physicians are engaged in primary care (Carnegie Commission Report, 1976, p. 34). Figure 2 indicates the role of primary care in relationship to secondary and tertiary care. It should be noted that various levels of care require different population bases as well as different equipment and facilities. Because a much smaller percentage of people require tertiary care, a larger population base is needed to support a tertiary care unit than a primary care unit. Specialists trained in other than primary care will tend to establish practice near the facilities and population base that they require.

Presently, 2,198 primary care physicians are active in Kentucky. KRS 164.925 defines primary care physicians to include the disciplines of general and family practice, internal medicine, pediatrics, obstetrics-gynecology, and emergency medicine. (See county distributions in Appendix D.) This constitutes 53.9% of all physicians practicing in the state. In 1970 there were 1,873 primary care physicians in Kentucky, constituting 58.1% of all physicians practicing in the state at that time. Between 1970 and 1976 the number of active primary care physicians increased by 17.3%. However, during the same period the number of physicians in specialties other than primary care increased by 38.7%.

Numbers of Active Physicians in Kentucky

	Primary Care Physicians	All Other Specialties	Total
1970	1,873	1,351	3,224
1976	2,198	1,874	4,072

It appears that the supply of primary care physicians per given population is increasing. However, the supply is not increasing relative to other specialties. Primary care physicians, in fact, represent a much smaller proportion of the physician work force than they did six years ago. Table 4 compares the distribution of specialties in Kentucky for 1949, 1960, 1972 and 1976. Consistently from 1949 through 1972, the number and percentage of general practitioners/family practitioners decreased dramatically. Data for 1976 indicates a slight upswing in the number of these practitioners. When the primary care areas of general and family practitioner, internal medicine, obstetrics and gynecology, and pediatrics are grouped for the years shown in Table 4, a similar trend emerges. In 1949 these specialties comprised 81% of the total; in 1960 they accounted for 65.5% of the total. The percentage dropped again in 1972 to 49.1% of the total. However, in 1976 there was a slight increase to 51.1% of the total. The improvement in 1976 may reflect the establishment of departments of family practice in the medical schools in 1970.

TABLE 4

KENTUCKY PHYSICIANS BY LEADING SPECIALTIES †

Specialty	1949 No.	1949 %	1960 No.	1960 %	1972 No.	1972 %	1976 (July) No.	1976 (July) %
Anesthesiology	13	0.59	65	2.64	131	4.18	151	3.7
Dermatology	9	0.41	20	0.81	38	1.21	44	1.1
General Practice/ Family Practice	1634	74.68	1175	47.80	818	26.15	1068	26.3
Internal Medicine	88	4.02	233	9.47	347	11.09	502	12.4
Obstetrics-Gynecology	27	1.23	99	4.02	181	5.78	240	5.9
Opthalmology	21	0.95	51	2.07	111	3.54	122	3.0
Otorhinolaryngology	12	0.54	27	1.09	48	1.53	49	1.2
Pathology	10	0.45	24	0.97	72	2.30	124	3.1
Pediatrics	28	1.27	104	4.23	190	6.07	267	6.6
Psychiatry	9	0.41	41	1.66	134	4.28	271	6.7
Public Health ‡	31	1.41	36	1.46	15	.47	42	1.0
Radiology	22	1.00	71	2.88	105	3.35	201	4.9
Surgery	126	5.75	260	10.57	385	12.31	414	10.2
Orthopedic Surgery	12	0.54	53	2.15	96	3.07	141	3.5
All other specialties	146	6.67	199	8.09	456	14.58	424	10.4
TOTAL	2188	100.00	2458	100.00	3127	100.00	4060	100.0

† Includes all physicians for which information on specialty was available. Area of specialization is based on the physician's report of the medical specialty his practice is primarily concerned with.

‡ The decline in public health may to some extent be a result of differences in reporting.

SOURCE: Busch and Harvey, *Where Have All the Doctors Gone*, April, 1976, p. 14. and Kentucky Board of Medical Licensure (July, 1976).

Table 5 shows the specialty distribution for the residency slots filled in 1976-77 at the University of Kentucky and the University of Louisville. Overall, 50.9% of the residencies fall into the primary care categories by KRS definition. Almost 56% of the first year positions are in primary care disciplines.

Of the primary care residencies created by the 1976 General Assembly, 28 were initiated in October of 1976 and distributed as shown in Table 6.

TABLE 5

SPECIALTY DISTRIBUTION IN RESIDENCY POSITIONS IN KENTUCKY MEDICAL SCHOOLS, 1976-77 †

	1st year	2nd year	3rd year	4th year	5th & above	Total
Emergency Medicine*	4	10	8	—	—	22
Internal Medicine*	40	38	31	31	41	181
Family Practice*	25	16	11	—	—	52
Ob/Gyn*	9	9	7	6	1	32
Pediatrics*	19	21	23	—	3	66
Anesthesiology	6	17	4	2	—	29
Dermatology	3	3	3	—	—	9
Diagnostic Radiology	4	5	1	4	1	15
Opthalmology	1	6	4	7	1	19
Oral Surgery	2	2	2	—	—	6
Orthopedics	—	5	4	3	5	17
Otlaryngology	—	—	—	—	—	—
Neurology	—	2	5	2	3	12
Neurosurgery	—	1	—	1	1	3
Pathology	11	6	3	6	2	28
Pediatric Dentistry	2	2	—	—	—	4
Physical and Medical Rehabilitation	1	1	—	—	—	2
Plastics and Reconstruction	—	—	—	—	4	4
Psychiatry	12	15	17	6	3	53
Radiology	2	4	2	2	—	10
Radiation Medicine	1	—	1	1	1	4
Thoracic & Cardiovascular	—	—	—	—	3	3
Surgery	32	21	11	13	10	87
Surgery Subspecialties	—	3	8	7	11	29
Urology	—	—	3	2	2	7
	174	187	148	93	92	694

† These are filled positions; some available positions were not filled.

* Primary care disciplines as defined by KRS 164.925.

Source: University of Kentucky, Medical Center, Office of the Vice President; University of Louisville, Health Sciences Center, Office of the Vice President.

TABLE 6

NEWLY-ASSIGNED STATE PRIMARY CARE POSITIONS
(SB 28)

	UK	UL*
Emergency Medicine	1	4
Family Medicine	5	8
General Internal Medicine	1	4
Obstetrics-Gynecology	1	—
General Pediatrics	6	—
	14	16

* Recruiting 16 (2 funded from other sources)

Source: Council on Public Higher Education, Health Science Education, 1976

A Historical Perspective: Specialization

> The growth of specialization and the gradual decline in the supply of general practitioners have been predominant trends in American medicine in the twentieth century (Carnegie Commission, 1976, p.39).

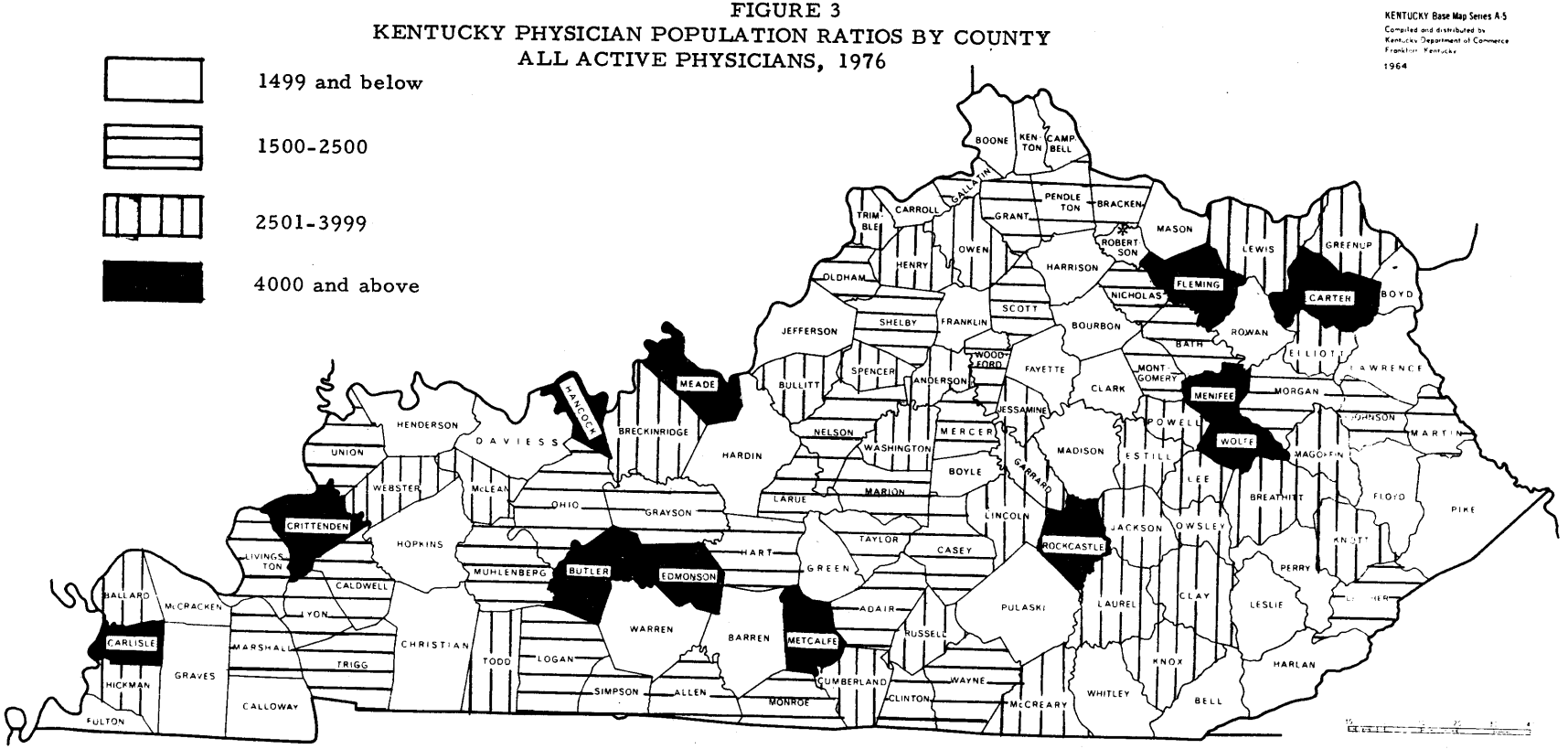
This movement toward specialization was largely the result of the Flexner report issued in 1910. This document advocated that medical education be soundly based on the biomedical sciences which were rapidly developing at the time. Such a focus necessitated tying medical education to the university system. The report also called for greater hospital clinical experience as part of the medical education process. The Flexner recommendations were gradually accepted and placed into the medical training process. Following World War II, federal grants to medical schools largely were to support biomedical research. The eventual outcome of these events resulted in movement away from proprietary education and toward specialization. With this orientation in the medical schools, the general practitioner began to take second place to the use of specialist and research-based faculty. The generally accepted lack of primary care role models in medical schools today is an outgrowth of this trend.

> The isolation of medical education within the university enabled it to pursue the ideal of specialization and of biomedical research, but it also served to divorce those medical centers from effective involvement with the larger medical community and the general society of which they are a part (Sheps & Seipp, 1972, p.46).

Recently new trends have emerged.

> For long, however, the visualization of a service responsibility was restricted, focusing upon the necessity for the medical schools to provide care to patients within the setting of its clinical teaching facility. Today these institutions are increasingly coming to accept a need to extend

FIGURE 3
KENTUCKY PHYSICIAN POPULATION RATIOS BY COUNTY
ALL ACTIVE PHYSICIANS, 1976



*No Physicians listed in Robertson County as of December, 1976. County population is 2300.

Source: State Board of Medical Licensure, December, 1976.

themselves more fully into the community. Onto the familiar three-legged stool of teaching, research, and service as patient care, a fourth leg of community service has been attached. It represents the interest and the willingness of the medical schools to make their experience and special skills more readily available to various communities in the geographic area in which they function (Sheps & Seipp, 1972, p.47).

The changes required are fundamental ones.

> Today, however, new demands being asserted within the medical care system are precipitating social forces calling for medical education to reassess its traditional priorities and to embark on new courses. The schools of medicine are being challenged by the call to participate in tasks with which they are unfamiliar and often relatively unqualified for. These are rightly seen as not merely involving the assumption of an additional responsibility on their part but also as reordering their total endeavor (Shep & Seipp, 1972, p. 48).

Physician Distribution

The map in figure 3 is marked to indicate the general ranges of physician/population ratios by county in Kentucky (Specific ratios for each county are found in Appendix E).

Physician/population ratios set by the U. S. Department of Health, Education and Welfare for administering various federal programs provide a standard at the national level for measuring in general terms the status of manpower needs within a state.

Forty-five counties and portions of seven others in Kentucky are presently designated *critical* health manpower areas by DHEW. This indicates they have primary care physician ratios of 4000:1 or greater (See Appendix F).

In order to develop a system for incorporating parameters other than physician/population ratios that might better depict health status and need, DHEW has designated areas as medically underserved. The index of medical underservice (IMU) utilizes these indicators:

a. ratio of primary care physician to population;
b. infant mortality rate;
c. percentage of the population which is 65 or over; and
d. percentage of the population with family income below the poverty level.

Based on these indices, 85 counties in Kentucky are listed as medically underserved and areas within 18 other counties also are so designated. Only Anderson, Boone, Bourbon, Calloway, Clark, Daviess, Franklin, Gallatin, Grant, Green, Henry, Lawrence, Livingston, McCracken, Oldham, Rowan and Simpson are not so designated and do not have partial areas of the county so designated. Note that Fayette and Jefferson counties both with good physician/population ratios have portions which qualify as medically underserved (See Appendix F).

> It must be kept in mind that a numerical analysis does not provide much information about the spacial relationships of physicians to potential patient groups—it is possible that counties which approach 1500:1 or are lower may still have groups in excess of 1500 who are more than a reasonable distance from a primary care physician. Reasonable distance, of course, has

to be defined within the context of, at least, the population group's economic status, cultural patterns and the transportation system in the area (Pennsylvania Office of Budget, 1972, p.17).

This is especially applicable in a state as diverse in topography and geography as is Kentucky.

Busch and Harvey, (1976, p.8), analyze the changes in the location of physicians in Kentucky from 1949-1972. They conclude:

> It becomes immediately evident that in Kentucky, as in the nation as a whole, there are fewer persons per physician in the more populous counties. This was the case in Kentucky in 1949 and it has become increasingly so in the years since. What was an initial disparity between more and less populous counties has grown as the former have reduced the number of persons per physician, while the latter have experienced growth in this ratio.

TABLE 7

AVERAGE NUMBER OF PERSONS PER PHYSICIAN
BY COUNTY POPULATION GROUP

County Population	1949	1960	1972	1976
100,000 and above	830	804	667	506
50,000 to 99,999	1,953	1,492	1,307	901
25,000 to 49,999	1,784	1,714	1,806	1,592
20,000 to 24,999	2,943	2,366	1,878	2,323
15,000 to 19,999	3,537	2,724	2,958	2,278
10,000 to 14,999	2,106	3,082	3,142	2,901
9,999 and below	2,919	2,968	3,792	3,174
Factor difference between high and low population groups	3.5X	3.7X	5.7X	6.3X

Adapted from Busch and Harvey, *Where Have All the Doctors Gone*, April 1976, p. 9.

Table 7 represents the data as analyzed by Busch and Harvey with the addition of 1976 data. The 1976 data is consistent with the earlier data in that the physician/population ratio improves as the size of the population increases.

In addition, the gap between the number of persons per physician for counties with populations of 100,000 + and for counties with populations of 9,999 and below has increased. In 1949 there were 3.5 times more persons per physican in counties of 9,999 and below as there were in counties of 100,000 + . This factor was 3.7 in 1960, 5.7 in 1972, and 6.3 in 1976. This would indicate that not only is physician distribution inequitable among the counties, but that the disparity is getting worse.

When the same analysis is applied to primary care physicians only, similar trends appear evident (see Table 8). In general, the larger the population, the better the ratio.

TABLE 8

AVERAGE NUMBER OF PERSONS PER PRIMARY CARE PHYSICIAN
BY COUNTY POPULATION GROUP

County Population	1949	1960	1972	1976
100,000 and above	1,159	1,431	1,541	1,041
50,000 to 99,999	2,200	2,131	2,580	1,670
25,000 to 49,999	2,049	2,128	2,631	2,424
20,000 to 24,999	3,109	2,855	2,850	2,918
15,000 to 19,999	3,627	2,926	4,448	2,920
10,000 to 14,999	2,409	2,994	4,124	3,433
9,999 and below	3,155	3,360	4,073	3,348
Factor difference between high and low population groups	2.7X	2.3X	2.6X	3.2X

Adapted from Busch and Harvey, *Where Have All the Doctors Gone*, April 1976, p. 15.

Since 1960 there has been a trend toward increased disparity between the high (100,000 +) and low (9,999 and less) population groups. The number of persons per primary care physician in counties of 9,999 and below was 2.3 times greater in 1960, 2.6 times greater in 1972, and 3.2 times greater in 1976 than the ratios in counties of populations of 100,000 + . One does find, however, that the gap between the number of persons per primary care physicians in counties with the high and low population groups is not as great as with all physicians. This is indicative of the fact that primary care physicians are more inclined to set up practice in rural areas than are specialists.

Table 9 shows the physician/population ratios for the Area Development Districts. Since these districts serve as the regions for planning and development, it is logical to select them as a grouping for physician distribution analysis. In general, the better ratios regionally occur in the districts of highest population. In fact, all other ratios representing the number of persons served by one physician are at least twice that of the ratios for the Falls and Bluegrass Regions. This falls to a factor of one and a half times when dealing with the primary care physician.

TABLE 9

1976 PHYSICIAN DISTRIBUTION FOR TOTAL MD'S AND PRIMARY CARE MD'S[1]
BY AREA DEVELOPMENT DISTRICT

(Listed according to increasing population)

Area Development District	1975 Population	% Total Population	Total MD's	% Total MD's	MD/Pop. Ratio	Total Primary Care MD's	% Primary Care MD's	Primary Care MD/Pop. Ratio
Falls	795,100	23.4	1,430	35.2	1-555	670	31.1	1-1184
Bluegrass	499,500	14.7	986	24.3	1-506	468	21.7	1-1065
Northern	295,600	8.7	284	7.0	1-1041	171	7.9	1-1729
Cumberland Valley	202,800	6.0	162	4.0	1-1334	102	4.7	1-1988
Pennyrile	200,100	5.9	182	4.5	1-1099	98	4.5	1-2042
Barren River	197,700	5.8	146	3.6	1-1354	89	4.1	1-2221
Green River	186,200	5.5	165	4.1	1-1128	104	4.8	1-1790
Lincoln Trail	186,100	5.5	114	2.8	1-1632	71	3.3	1-2621
Purchase	174,000	5.1	151	3.7	1-1152	85	3.9	1-2047
Lake Cumberland	154,600	4.5	95	2.3	1-1627	70	3.3	1-2209
Big Sandy	151,600	4.5	122	3.0	1-1243	75	3.5	1-2021
FIVCO	125,600	3.7	87	2.1	1-1444	54	2.5	1-2326
Kentucky River	117,900	3.5	62	1.5	1-1902	47	2.2	1-2509
Gateway	58,500	1.7	52	1.3	1-1125	32	1.5	1-1828
Buffalo Trace	51,200	1.5	22	.5	1-2327	19	.9	1-2695
STATE TOTAL	3,396,500	100.0	4,060	99.9	1-839	2,155	99.9	1-1576

[1]Primary care physicians include the disciplines of family practice, general practice, internal medicine, pediatrics, obstetrics/gynecology, emergency medicine.

Source: Kentucky State Board of Medical Licensure, July 1976. The totals include both active and retired physicians as well as others who may not be directly involved in patient care.

Table 10 shows physician/population ratios for 1970 and 1976 by Area Development Districts. In 1970 the worst ratio (Buffalo Trace) was four times greater than the best ratio (Bluegrass). In 1976 the worst ratio was 4.5 times greater than the best ratio. Apparently, even at the regional level, the discrepancy in physician distribution is increasing. This trend does not hold true in the primary care ratios. The difference between high and low ratios was 2.8 in 1970 and 2.5 in 1976.

TABLE 10

COMPARISON PHYSICIAN/POPULATION RATIOS FOR 1970 AND 1976
BY AREA DEVELOPMENT DISTRICT

Area Development District	1970 MD/Pop. Ratio	1976 MD/Pop. Ratio	1970 Primary Care MD/Pop. Ratio	1976 Primary Care MD/Pop. Ratio
Falls	1:741	1:555	1:1493	1:1184
Bluegrass	1:576	1:506	1:1111	1:1065
Northern	1:1304	1:1041	1:1795	1:1729
Cumberland Valley	1:1441	1:1334	1:2027	1:1988
Pennyrile	1:1115	1:1099	1:1816	1:2042
Barren River	1:1601	1:1354	1:2266	1:2221
Green River	1:1392	1:1128	1:2041	1:1790
Lincoln Trail	1:1959	1:1632	1:2534	1:2621
Purchase	1:1162	1:1152	1:1800	1:2047
Lake Cumberland	1:2015	1:1627	1:2662	1:2209
Big Sandy	1:1343	1:1243	1:1975	1:2021
FIVCO	1:1453	1:1444	1:2180	1:2326
Kentucky River	1:1905	1:1902	1:2808	1:2509
Gateway	1:1919	1:1125	1:2531	1:1828
Buffalo Trace	1:2290	1:2327	1:3149	1:2695
STATE TOTAL	1:998	1:839	1:1718	1:1576

Source: "The Family Doctor: A New Specialty," LRC Research Report No. 61, 1971. (1970 Figures)

It would appear, then, that distribution of physicians is a problem and that, in general, counties with lower populations also have lower physician population ratios. Past studies indicate that a growing concentration of physicians has been a trend in the state at least since 1950. This certainly reflects the influence of increases in the number of physicians in specialized disciplines which require large population bases and advanced care facilities.

Factors which Influence Physician Distribution

A physician does not decide to locate his medical practice in a given locality based solely on conditions of the moment. Studies show that numerous experiences before and during

the medical education process influence this final decision. We will examine these major factors in sequence and examine the status of present procedures in Kentucky as they apply (See literature analysis, Eisenberg, Appendix G).

a. Admissions

Are there any characteristics which can be measured during the application process which might indicate a predisposition to practice in rural areas? Site of prior residence appears to be a valid criteria for measuring such a tendency.

> Hence, it is clear that the number of primary care physicians who would practice in nonmetropolitan settings, could be enhanced by admitting more individuals with rural backgrounds (Schwartz, 1976, p.3).
>
> Current research findings have given increased support to the hypothesis that medical students from a rural background are more likely to establish practice in a rural area. Accordingly, at least five medical schools now give special attention in their selection process to applicants from rural areas, and other schools are considering such an approach or are seeking assurance that legal requirements do not preclude utilizing the applicant's area of residence as a specific selection factor (AMA, Health Services in Rural Areas, 1975, p. 2).

The five universities cited in relationship to this process are the Universities of Alabama, Illinois, Southern Illinois, Missouri, and Wright State University.

In Kentucky, distribution data reflect the fact that primary care physicians are more likely to practice in rural areas than are other specialists. A student's decision to specialize in a primary care area has been related more to nonobjective criteria than to academic test scores. Thus, there is a movement underway to increase the importance of nonobjective criteria in the admissions selection process to medical school.

> Perhaps the most important conclusion that might be drawn from all of this is that physicians are not a homogeneous group, that they, like patients, differ and that these differences can be assessed at the time of entry into medical school (if we chose to do so). If we ever are to produce physicians who are susceptible to the attractions of intercommunity health service networks, then we might emphasize, in our selection and training processes, those characteristics that will produce a physician who is more concerned with people than disease (yet extremely competent in dealing with disease). While the content of primary care may be relatively "trivial" from a biomedical point of view, that is, the diseases presented may be simple, the individuals who present these problems are fascinating. Thus, practitioners of primary care must find intellectual excitement in dealing with and managing the problems of people, rather than diagnosing and treating diseases. Again, I must emphasize that this is not a plea for a reduction of the scientific competence of physicians, but rather increased attention to an additional dimension (Lewis, 1976, p.34-35).

What is the status in Kentucky of these two factors, site of prior residence and nonobjective criteria, in the admissions process?

Table 11 represents the percentage of students by Area Development District presently enrolled in Kentucky's two medical schools. Both schools have admission policies which allow them to give extra consideration to applicants from medical shortage areas. In addition, the Council on Public Higher Education requires that 90% of the applicants who are accepted be residents of Kentucky.

According to Table 11, the Falls and Bluegrass districts with 38.1% of the population consistently compose over 50% of each medical school class. These two districts provide the largest pool of applicants. As a rule, however, a larger proportion of the rural applicant pool is accepted.

The consideration of nonobjective criteria falls predominantly during the interviewing process and plays a supplementary role to the objective criteria of test scores and previous scholastic achievements. In order to enhance both the ability to pull applicants from rural areas and to increase the importance of nonobjective criteria in the selection process, the Phase I report of the Council on Public Higher Education on Kentucky and Health Science Education remarks:

> It has been suggested that a minimal objective data requirement be established and that only the fact that the applicant has attained the minimal acceptable MCAT scores and GPA's be reported to the admissions committee. The responsibility of the admissions committee then would be to evaluate the applicant based on nonobjective criteria. Such an approach should provide a better admission opportunity for applicants from rural areas who, by virtue of a less demanding secondary school preparation than their urban counterparts, have not scored as well in college but have attained the minimal objective data requirements and have developed other desirable qualities (Part 4: Medicine, p. 17).

b. Medical School

There are two factors relating to the medical school which are often cited as influencing final medical practice location of its graduates. One factor is location of the school; the second involves rural preceptorships or clerkships during the training process. This second factor is closely allied to the general need for role models during the medical college years and the need for students to be trained in a setting comparable to the potential work site.

Analysis of distribution data in Kentucky indicates that the counties containing the two medical schools have the best physician/population ratios in the state. It is also true, however, that they are areas of high population and high per capita income compared to the rest of the state.

A study performed by Busch concerning the changing spatial distribution of physicians in Kentucky, generally concludes that given the specific models he developed and used, the presence of a medical school and the amount of retail sales were the factors which most consistently paralleled physician distribution.

> The overwhelming importance of the presence of a medical school in predicting the spatial distribution of physicians undoubtedly reflects the trend toward specialization and the specialists' need for complex hardware

TABLE 11

DISTRIBUTION OF MEDICAL STUDENTS FROM KENTUCKY IN KENTUCKY MEDICAL SCHOOLS
BY AREA DEVELOPMENT DISTRICT

Area Development District	1975 Population	% Total Population	Class of 1977				Class of 1978				Class of 1979				Class of 1980			
			UK	UL	Tot.	%	UK	UL	Tot.	%	UK	UL	Tot.	%	UK	UL	Tot.	%
Falls	795,100	23.4	17	73	90	44.1	18	52	70	31.4	19	53	72	33.1	19	58	77	34.4
Bluegrass	499,500	14.7	28	8	36	17.6	32	20	52	23.3	27	16	43	19.8	36	8	44	19.6
Northern	295,600	8.7	9	5	14	6.8	11	10	21	9.4	9	13	22	10.1	11	14	25	11.2
Cumberland Valley	202,800	6.0	2	2	4	2.0	5	2	7	3.1	4	3	7	3.2	5	2	7	3.1
Pennyrile	200,100	5.9	4	2	6	2.9	3	6	9	4.0	2	6	8	3.7	4	5	9	4.0
Barren River	197,700	5.8	3	3	6	2.9	4	6	10	4.5	2	4	6	2.8	4	7	11	4.9
Green River	186,200	5.5	4	3	7	3.4	5	7	12	5.4	7	7	14	6.4	6	6	12	5.4
Lincoln Trail	186,100	5.5	3	3	6	2.9	2	4	6	2.7	4	5	9	4.1	2	4	6	2.7
Purchase	174,000	5.1	7	6	13	6.4	5	4	9	4.0	4	5	9	4.1	3	7	10	4.5
Lake Cumberland	154,600	4.5	2	2	4	2.0	1	9	10	4.5	0	3	3	1.4	3	5	8	3.6
Big Sandy	151,600	4.5	6	1	7	3.4	3	0	3	1.3	1	3	4	1.8	2	1	3	1.3
FIVCO	125,600	3.7	2	2	4	2.0	2	2	4	1.8	10	1	11	5.1	0	3	3	1.3
Kentucky River	117,900	3.5	4	1	5	2.4	2	2	4	1.8	2	0	2	.9	4	1	5	2.2
Gateway	58,500	1.7	0	1	1	.5	3	1	4	1.8	2	2	4	1.8	1	2	3	1.3
Buffalo Trace	51,200	1.5	1	0	1	.5	2	0	2	.9	2	1	3	1.4	1	0	1	.4
STATE TOTAL	3,396,500	100.0	92	112	204	99.8	98	125	223	99.9	95	122	217	99.7	101	123	224	99.9

Source: University of Kentucky and University of Louisville Medical Schools, Office of Academic Affairs/Admissions.

in order to practice their specialty. The importance of retail sales as a predictor indicates that physicians tend to locate in communities that are prosperous and growing . . . (Busch, 1976, p. 9).

Consequently, it would be difficult to assess whether location of medical schools is the predominant factor in influencing physician location in Jefferson and Fayette counties.

The Carnegie Commission makes the following statement relative to the role of medical schools in physician location:

> On the whole, the chief reason for new medical schools now is to achieve a more adequate geographic distribution of schools, for there is abundant evidence that the existence of a medical school in a community contributes to increasing the supply of health manpower and can make an important contribution to improving the quality of available medical care (1976, p. 1-2).

However, the Commission goes on to say that:

> The rapid increase in the size of entering medical school classes that has occurred since the late 1960's suggests a need for great caution in supporting the establishment of any more new medical schools, especially in view of the exceedingly large expenditures needed to establish such schools. There is, however, a case for adequate geographic distribution of medical schools, in view of the evidence that a medical school tends to attract health manpower to an area. On the other hand, we are beginning to accumulate evidence that area health education centers are also effective in attracting health manpower to the areas in which they are located (Carnegie Commission, 1976, p. 86).

This brings us to the second factor which may have an important influence on ultimate physician location: the role of rural preceptorships and clerkships.

The AMA states that:

> Recent study findings have also strongly suggested a relationship between rural preceptorship experience and subsequent selection of a rural practice site, as well as a greater tendency for physicians specializing in family practice to seek a rural rather than an urban location (Availability of Health Services in Rural Areas, 1975, p. 2).

Preceptorships or clerkships involve students in clinical experience at a site away from the main medical school area. In 1974 the General Assembly appropriated funds for the establishment of an Area Health Education System (AHES) in Kentucky. A full description of the AHES program is found in a later section of this report. Since its inception 279 medical students and medical residents have logged over 1800 weeks in clerkships. Clerkship rotations through the AHES program are optional at both medical schools.

> The ultimate effect of preceptorships in final location of practice is not clearcut. The creation of experiences wherein medical students are affiliated with practitioners in rural areas for a period of time during medical school is not a new concept. These preceptorships have been operating in some medical schools for several decades. However, there is little information to suggest that these programs *per se* influence decisions regarding

> location of practice. They undoubtedly serve as a positive reinforcement for those students who enter medical school with an orientation toward rural practice, but generally this reinforcement is too little and comes too late to counteract a variety of other socialization experiences that promote other types of careers for the student-physician (Lewis, 1976, p. 29).

Both the University of Kentucky and the University of Louisville began to develop role models with the establishment of departments of family practice, mandated by the legislature in 1970. The University of Kentucky has plans for a major primary care clinic on campus involving several components to be completed in 1980. The University of Louisville has an ambulatory care clinic as a part of its new teaching hospital presently under construction. These developments may enhance the opportunities for primary care models and experiences during the medical school training period. It would seem that every consideration should be made to model the experiences on campus with the real life situation and conditions of primary care delivery in rural areas.

c. Site of Residency Training

In 1960 a study entitled "Trends in Medical Practice: An Analysis of the Distribution of Characteristics of Medical College Graduates, 1915-1950, by Weiskotten concluded that:

> . . . the single most important factor dictating where a physician elects to practice is the location of his residency training. The influence of the residency training site was found to be greater than the location of his prior residence, location of his internship, or location of the medical school attended (Council on Public Higher Education Report, p. 23).

Since the 1960 study, this conclusion has been supported over and over again (Mason, 1975; Cullison, et al. 1974; Stross, et al., 1974; Martin, et al., 1968).

As cited in the discussion of physician supply, Kentucky potentially exports 24.7% of each graduating class because of the fact that there are more students than there are residency slots. Given that site of residency is ranked as the primary factor in ultimate practice location of physicians, it follows that at a minimum the number of residency positions should equal the number of medical school slots. It is even feasible to have more residency positions than graduates, in which case the potential for importing physicians is great. The number of students nationwide seeking family practice medicine residencies beginning July 1, 1976, exceeded the number available by 2.5 to 1 (Schwartz, 1976, p. 4).

Residency programs are accredited by their respective professional organizations. Students who plan to be board certified must serve their residency in an approved program. The Residency Review Commission which accredits family practice residency programs includes representatives of the American Academy of Family Practice, the American Board of Family Practice and the Council on Medical Education of the AMA. Presently, only two facilities outside of Louisville and Lexington are accredited for family practice residencies: St. Elizabeth's Hospital in Covington and Trover Clinic in Madisonville. There are no full-time residency positions approved in eastern Kentucky. Appendix H shows the criteria required for an accredited residency program in family practice. Under the Area Health Education System (AHES) residents may be placed in community sites for several weeks. (A further discussion of AHES is

included in Section II.) These short-term community sites are subject only to the approval of the local regional AHES board and the Council on Public Higher Education.

d. Establishment of Practice

When the time for the physician to establish his practice is imminent, factors which influence the final decision are numerous. They may include the potential for group practice, the type of clinical facilities available, the ability to refer patients to secondary treatment centers, the opportunities for continuing medical education, mechanisms for consultation, and availability and level of third party remuneration. In addition, the general social, cultural and educational opportunities in the community are important considerations.

Several of these factors may be addressed primarily at the local level. The Kentucky Department for Human Resources, Center for Comprehensive Health Systems Development, Community Participation and Health Education Branch, supplies technical assistance to local communities attempting to attract physicians. The Kentucky Rural Medical Scholarship Program will loan physicians $5000 to set up practice in critical shortage areas.

Statewide policies which exist to address these factors are several. Primary care facilities are licensed and will allow for remuneration of personnel via third party payments. In Kentucky, however, the fee system for medical assistance reimbursement tends to be higher in urban areas and lower in rural areas. How important a detriment such inequality represents has not been determined. At the least, however, it is a disincentive in distributing physicians to rural areas. Arkansas recently was able to equalize its rates statewide by petitioning the U. S. Department of Health, Education and Welfare to make the entire state one medical service area. This action results in a lowering of reimbursement fees in urban areas and an increase in fees in rural areas.

There is no data to support the fact that significant increases in enrollment in medical schools will influence physician distribution. In fact, the contrary appears to be true. In a study recently performed by the Institute of Medicine, National Academy of Sciences, an analysis of medical fees across the nation indicated a strong correlation between physician density and level of the fee. The correlation demonstrated that the *higher* the density of physicians (numbers per population), the *higher* the fee (Hanft, p. 13).

> Over the past decade we, as a nation, have invested almost two billion dollars in efforts to increase the numbers of graduate physicians and medical schools in the United States. While there is a lag between the building of such institutions and an increase in the output at the end of the pipeline following undergraduate medical education and residency training, there already are data that suggest that this investment has not produced the desired results. To date, the trends toward specialization and urban practice have continued, and there is no evidence that merely flooding the "market" with new physicians will result in their desired displacement or allocation to underserved areas (Lewis, p. 29).

It appears then that many experiences influence and reinforce a student-physician's predisposition to practice location. Although these factors are numerous, many can be addressed positively at various points along the physician production process.

Age Distribution of Physicians

Judging from other studies, median physician age has been declining over a number of years and the 1976 data indicates this trend has continued in recent years (see Table 12). With a couple of exceptions, this decline has been registered in counties of all population sizes. It should be noted that generally speaking, younger physicians are in the more populous counties, which of course has implications for the future supply of physicians in rural areas.

TABLE 12

AVERAGE MEDIAN AGE OF PHYSICIANS BY COUNTY POPULATION GROUP

County Population	1949	1960	1972	1976
100,000 and above	44.3	43.4	40.6	39.7
50,000 to 99,999	49.8	45.3	47.7	46.2
25,000 to 49,999	50.0	48.1	42.7	43.8
20,000 to 24,999	51.0	46.3	45.9	48.2
15,000 to 19,999	59.3	48.1	48.8	46.5
10,000 to 14,999	53.8	49.7	49.8	47.9
9,999 and below	64.0	48.8	50.0	50.5
State				47.0

Adapted from Busch and Harvey, *Where Have All the Doctors Gone*, April 1976, p. 20.

It should also be pointed out that the bulk of physicians in the 26-32 age group are practicing residents. Since the majority of residency positions are in the two large urban areas, the median age is held down in these counties. Programs which increase residency positions in community facilities should help to distribute this age group more equitably.

The following counties have 50% of their physicians over 65 years of age:

	Total No. Physicians	No. 65 + yrs. of age	Percent over 65
Ballard	3	2	67
Clinton	4	2	50
Cumberland	2	1	50
Edmonson	2	1	50
Estill	4	2	50
Grant	6	4	66⅔
Henry	3	2	66⅔
Hickman	2	1	50
Owsley	2	1	50
Washington	4	2	50

Primary Care Facilities

With the increasing emphasis on the production of primary care physicians, a survey of primary care facilities in Kentucky is included. Table 13 shows the general distribution of licensed primary care health facilities and health services in Kentucky. It is immediately obvious that primary care facilities are found predominantly in eastern Kentucky.

TABLE 13

LICENSED PRIMARY CARE HEALTH FACILITIES
AND HEALTH SERVICES IN KENTUCKY

Mud Creek Health Project, Craynor (Southern Floyd County)

Mountain Trails Health Plan, Middlesboro (Bell County)

Cloverfork Outpatient Medical Project, Evarts (Harlan County)

Lynch Medical Service, Lynch (Harlan County)

Menifee Medical Center, Frenchburg (Menifee County)

Appalachian Regional Hospital Clinic, Ary (Northern Perry County)

East Kentucky Health Services, Hindman (Knott County)

June Buchanan Ambulant (Knott County)

Leatherwood/Blackie Mountain Comprehensive Health Center, Cornettsville (Southern Perry County)

McRoberts Mountain Comprehensive Health Corporation, McRoberts (Letcher County)

Wooton Mountain Comprehensive Health Corporation, Wooton (Leslie County)

Lake Cumberland District Health Department, Somerset (Pulaski County)

Hunter Foundation for Health Care, Lexington (Fayette County)

Hunter Health Maintenance Organization, Lexington (Fayette County)

Lexington-Fayette County Health Department, Lexington (Fayette County)

Lexington Planned Parenthood, Lexington (Fayette County)

Mountain Maternal Health League, Berea (Madison County)

Health Care of Louisville, Louisville (Jefferson County)

Louisville Planned Parenthood, Louisville (Jefferson County)

Park-Duvalle Neighborhood Health Center, Louisville (Jefferson County)

Surgicenter, Louisville (Jefferson County)

Source: Kentucky Department for Human Resources, Directory of Licensed Health Facilities and Health Services, 1976.

According to present state regulations, primary care centers are to do the following:

Section 1. Definition. A primary care center is a public or private community-oriented organization with permanent facilities that provide the entry point into the health care delivery system to primarily ambulant patients of all ages. A primary care center provides a variety of preventive, diagnostic, and therapeutic services administered by appropriately licensed or certified members of the health professions to meet usual health care needs in a manner that ensures the continuity of care. All primary care centers shall be characterized as follows. They shall:

(1) Anticipate health care needs of the population they serve;

(2) Facilitate access to diagnosis and treatment in the center and through referral to other health care providers;

(3) Manage those conditions which have been diagnosed and/or treated by the center or other health care providers;

(4) Provide diagnostic and treatment services for all age patients who do not currently require inpatient care, and who may have a variety of medical conditions;

(5) Serve a defined geographic service area which is sixty (60) minutes or less travel time under normal conditions from the primary care center which is accessible by usual transportation and is visible in the community;

(6) Emphasize services for the prevention of illness and improvement of health status;

(7) Have a governing authority legally responsible for the conduct of the operations of the center;

(8) Have linkages with other levels of care;

(9) Assure continuity of care through a health record system;

(10) Provide for two (2) full-time physicians or one or more full-time physicians and one or more full-time registered nurses as defined in Section 6(2) on the staff of the center;

(11) Provide for twenty-four (24) hour emergency medical services seven (7) days a week (902 KAR 20:059).

Recent regulations promulgated for licensing of primary care facilities qualify their personnel for state reimbursement for their services. Procedures for implementing the reimbursement provisions have not yet been developed. In addition, these facilities provide an interdisciplinary approach to health services, with potential for utilizing a variety of allied health professionals. Presently, reimbursement and, thus, full utilization of mid-level practitioners is limited because of the lack of any formal statutory recognition of these groups.

It is apparent that primary care physicians will not help to fill beds in acute care hospitals. Their service is an outpatient function. With the emphasis from all sectors on increasing the numbers of primary care physicians, the pool of specialists will most likely decline proportionately. Communities with small acute care hospitals are going to have an even more difficult time attracting secondary care physicians. Given that primary care physicians are more

likely than other specialists to settle in rural areas, the probable need for additional primary care centers is obvious.

Foreign Medical Graduates

The role of foreign medical graduates (FMG) in physician supply in the United States has been a controversial one. Foreign medical graduates are those students who graduate from medical schools outside the U.S. and Canada. In 1973 20% of all U.S. physicians were FMGs and 30% of all U.S. house staff positions (residents) were FMGs (Carnegie Commission Report, 1976, p. 25).

In Kentucky in 1976, foreign medical graduates composed approximately 12% of all physicians licensed that year. They filled approximately 17% of Kentucky residency positions. These are well below national levels.

The 1976 Carnegie Report indicates that FMGs do not help alleviate the problem of shortage and maldistribution since they account for only a small percentage of physicians in southern states with small numbers of physicians serving the population.

On the other hand, much of the progress perceived in the increased number of physicians per U. S. population between 1950 and 1970 is attributed to FMGs. Without this immigration of foreign medical graduates to the United States, the ratio of U. S. trained MDs to population would be virtually the same in 1970 as it was in 1950 (Journal of Medical Education, 1972, p. 496). In any case, the situation was summarized in 1974:

> Lately, many American medical schools are increasing their enrollment. Some are adopting measures to step up graduation of medical students. As this trend gathers momentum, foreign medical graduates are hard put to meet the competition for internship and residency positions in American hospitals. The expanded enrollment of FMG's will lessen and the general mood of organized medicine in the country in the foreseeable future will tend to favor reduced attempts at the attraction of medical graduates from foreign countries (Mamot, p. vii).

The 1976 federal Health Professions Education Act states:

> The Congress further finds and declares that there is no longer an insufficient number of physicians and surgeons in the United States such that there is no further need for affording preference to alien physicians and surgeons in admission to the United States under the Immigration and Nationality Act [PL 94-484, Section 2(c)].

In that same act provision is made for Americans in foreign medical schools to transfer to U. S. schools [Section 771(b)(3)(B)].

CHAPTER THREE

PAST AND ONGOING EFFORTS IN KENTUCKY

The supply and distribution of physicians in the Commonwealth is not a new issue. Attempts to encourage better physician distribution have been made several times in the last thirty years by the General Assembly. In this section we will examine the legislative history of the issue, the roles and responses of the various state agencies in addressing the issue, and programs which are attempting to influence physician distribution in Kentucky.

Legislative History

The earliest attempt by the General Assembly to address the issue of supply and distribution of physicians came in 1956. In that year, the General Assembly approved and appropriated funds for the development of a medical science building at the University of Kentucky (HB 1, Extraordinary Session, 1956). The University of Louisville, then a municipal university, was the only medical school in the Commonwealth at the time. Also in 1956, state funds were appropriated to the Rural Kentucky Medical Scholarship Program, which had been initiated by private organizations in 1946 (KRS 211.290). Students who were willing to serve in physician shortage areas after they completed their training were eligible for scholarship funds from this program. Biennial contributions from the General Assembly to the Medical Scholarship Fund have continued to the present time. A state medical scholarship program to be operated through the Department of Health, now the Department for Human Resources, was also established at this time to "alleviate the shortage of physicians engaged in public health work" (KRS 211.300-211.330). This program is presently not functional.

In the 1960s, comprehensive health planning mechanisms were developed pursuant to federal legislation (PL 89-749). In 1968 a Health Planning Commission and Health Planning Council were established in Kentucky through Executive Order 68-474. (During the reorganization of 1974, the functions of these groups were attached to the Bureau of Health Services of the Department for Human Resources via the Comprehensive Health Planning Council.) The Commission was designated as the "single state agency for supervising the administration of health planning functions of the Commonwealth," and the Council was charged with counseling and advising the Commission in "the administration of the state plan for comprehensive health services" (Executive Order 68-474).

All three General Assemblies of the 1970s passed measures to address the problem. In 1970 medical schools in the state were mandated to include the "teaching of the general practice of medicine" in their medical curricula in order to train more physicians to serve the primary care needs of the state (KRS 164.910).

The General Assembly also mandated a study to be done "to determine the needs of Kentucky communities for family physicians and to recommend measures to meet these needs" (SR 16, 1970 General Assembly). The recommendations from this study included the need to sufficiently fund the newly-established University of Louisville and University of Kentucky Departments of Family Practice beginning in the 1972-74 biennium and the need for long-range program planning at the medical schools. The study called for the establishment of a

special scholarship fund for students in family practice, low interest rates and funding for group practices in critical areas of the state, and enabling legislation to allow small towns and rural areas to contract for physician services and raise funds through a tax levy. Utilization of federal program opportunities was encouraged. Recruitment and licensure review to alleviate difficulties that might be encountered by qualified physicians wishing to come to Kentucky to practice was suggested (See Summary, Appendix G).

In 1972 the General Assembly created a Medical Need and Licensure Board "to combine and coordinate the licensure and regulation of health facilities and health services in order to insure the availability and delivery of qualified health care to the citizens of the Commonwealth" (KRS 216.415).

The 1974 General Assembly appropriated funds for the establishment of an Area Health Education System (AHES). The system is administered by the Council on Public Higher Education and is organized to provide rural preceptorships for students in the health professions. Quality educational experiences in the health field are linked with the need for health care professionals in various regions of the state.

In addition, the 1974 General Assembly created a Special Medical Care Availability Study Committee in order to "study the availability of primary care physicians to all Kentuckians" (SR 48, 1976 General Assembly). This study committee was composed of members from the House and Senate, the Council on Public Higher Education, the State Comprehensive Health Planning Council, the Kentucky Medical Association and the University of Kentucky and University of Louisville medical schools. After completing its study, the committee recommended four pieces of legislation to the 1976 General Assembly. This proposed legislation dealt with physician assistants and the establishment of a Health Occupations Credentialing Board. It created new primary care residency positions and included a resolution encouraging coordination between the Council on Public Higher Education and the Department for Human Resources on activities related to the availability of primary health care. The committee also cited the need for a comprehensive plan to address the issue, indicating that no single isolated approach will be sufficient to solve the problem (See Summary Appendix J).

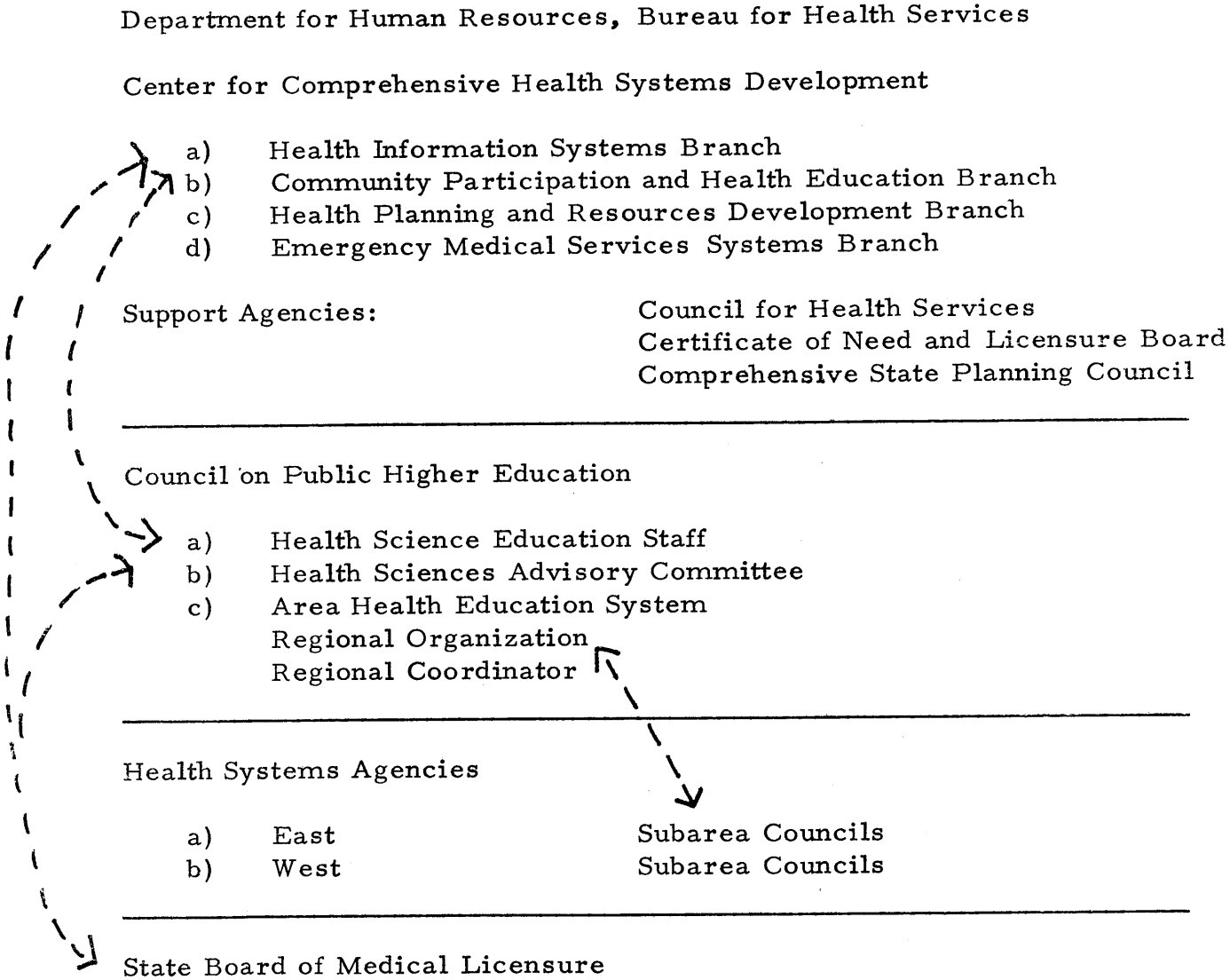
The 1976 General Assembly concurred on the need for increased residency positions and directed that an in-depth study be done on the current manpower situation in Kentucky (SB 28 and SR 48, 1976 General Assembly).

Responsible State Agencies

The two state agencies with responsibility in the area of health care needs and assessment are the Department for Human Resources and the Council on Public Higher Education. The State Board of Medical Licensure is involved in data collection. In addition, federal legislation passed in 1974 required that Health Systems Agencies (HSAs) be organized for health services areas in the nation. Consequently, the East Kentucky Health Systems Agency and West Kentucky Health Systems Agency have been established. The roles of each of these groups relating to the question of physician supply and distribution and community needs is addressed in the following sections (See Figure 4).

FIGURE 4

AGENCIES INVOLVED IN HEALTH MANPOWER ASSESSMENT



Broken lines indicate linkage channels between agencies.

Department for Human Resources (DHR)

Within the Department for Human Resources, the Bureau for Health Services is the organizational unit directly charged to "develop and operate all programs of the department that provide health and mental health services . . ." [KRS 194.030(7)]. Within the Bureau for Health Services there are several specific units directly involved in health manpower areas. Prime responsibility in health planning falls to the Center for Comprehensive Health Systems Development. In addition, three support agencies attached to DHR are involved in assessment and development of health resources. These are the Council for Health Services, the Certificate of Need and Licensure Board and the Comprehensive Health Planning Council.

The Center for Comprehensive Health Systems Development conducts the health planning functions for the state. There are three branches which have roles bearing specifically on the issue of physician supply and distribution. These are the Health Information Systems Branch, the Community Participation and Health Education Branch and the Health Planning and Resources Development Branch.

A. Health Information Systems Branch

In 1970 the U. S. Congress authorized a national health statistics system (PL 91-515). The program has been organized as a cost-sharing endeavor with the states to produce a Cooperative Health Statistics System (CHSS). Each state is responsible for collecting a core set of data according to uniform directives that include health facility and manpower inventories and surveys, vital statistics data, hospital, ambulatory care and long-term care data. The Health Information Statistics Branch is presently developing such a system for Kentucky. It should provide the data base on which to make future decisions relative to health care needs in the Commonwealth.

B. Community Participation and Health Education Branch

This branch provides the mechanism for grassroots involvement in health care planning and resource development. It is also concerned with providing citizens with the education and information they need to look after their own good health. As such, it has a vital focus distinct from other organizational entities. The Community Participation and Health Education Branch is involved in the development of educational material and training programs. It also provides technical assistance to other branches within the Center for Comprehensive Health Systems Development and to communities throughout the state.

As part of its function in community participation, this branch has been conducting forums in communities throughout the state, assisting them in identifying their local health care needs. Through the forum process and local resources inventory, staff from the Community Participation and Health Education Branch aid the community in distinguishing actual needs from perceived health care needs. Staff then provides direction for further community action. In some cases, this may entail a "forum specific" directed toward particular educational needs that have been identified. It may lead to guidance in physician recruitment or technical assistance in applying for National Health Service Corps assistance. In any case, this branch provides communities with information and opportunities to become actively involved in their individual and community health care. Very importantly, it operates on the principle that the individual ultimately is responsible for his own health care. Such an emphasis is a growing under-

current at the national level. It is a perspective that is essential to a comprehensive health care program and has far-reaching implications in the health manpower area relative to demand.

C. Health Planning and Resources Development Branch

This branch provides the staff for the certificate of need process. The certificate of need process requires that all plans to construct, expand or modify a health facility or initiate or modify a health service be authorized by the Certificate of Need and Licensure Board. This process provides a mechanism for orderly and coordinated development of health resources. The Health Planning and Resources Development Branch performs the necessary staff functions for the Certificate of Need and Licensure Board relative to project review. This branch also works with the State Health Planning Council.

D. Support Agencies

In addition to the Center for Comprehensive Health Systems Development, the Department for Human Resources has specific citizen and supportive groups whose roles fall into the area of health needs assessment. These units and their responsibility to the department are as follows.

a. Council for Health Services

This group is primarily a citizens advisory group and is charged with advising "the citizens' commission for human resources, the secretary for human resources, the commissioner for health services and other officials of the commonwealth on policy matters concerning the delivery of health services including the assessment of needs, the development of program alternatives, the determination of priorities, the formulation of policy, the allocation of resources, and the evaluation of programs" [KRS 194.090(2)(a)].

b. Certificate of Need and Licensure Board

The Kentucky Certificate of Need and Licensure Board is authorized to "advise the council for health services, the secretary for human resources, and the commissioner for health services on the administration and operations of the certificate of need and licensure program" [KRS 194.110(2)].

c. Comprehensive Health Planning Council

The Comprehensive Health Planning Council has the responsibility to "advise the Council for Health Services, the Kentucky Certificate of Need and Licensure Board, the secretary for human resources, and the commissioner for health services on the total health service, facility, and resource needs of the commonwealth and the allocation of resources to address those needs" [KRS 194.110(4)]. This unit will eventually be replaced by the State Health Coordinating Council (SHCC), mandated by PL 93-641 (see discussion on Health Systems Agencies).

Council on Public Higher Education

The Council on Public Higher Education is mandated to "engage in analyses and research to determine the overall needs of higher education in the commonwealth" and to "develop and transmit to the governor comprehensive plans for public higher education which meet the needs of the commonwealth" [KRS 164.020(1) and (2)]. This mandate places the

Council in a position to examine health manpower needs and to respond with appropriate programs in institutions of higher education.

The Health Science Education staff of the Council on Public Higher Education is responsible for those areas which deal with health fields. It staffs the Health Sciences Advisory Committee.

In 1972 the Council on Public Higher Education established a Health Sciences Advisory Committee in response to the need for coordinated planning of health education programs with health care needs in the Commonwealth. Presently, the committee is composed of 15 members which include: (1) four members of the Council on Public Higher Education; (2) the vice presidents for the Medical Center at the University of Kentucky and the Health Sciences Center at the University of Louisville; (3) a representative of the regional institutions; (4) a member of the State Comprehensive Health Planning Agency (to be replaced by the CHPs successor agency, the State Health Coordinating Council as soon as it is formally established); (5) a representative of the official state health agency—the commissioner of health; (6) a representative of the public at large; (7) a representative of other health fields; (8) a representative of a private educational institution; (9) representative of the east and west health systems agencies; and (10) the president of the Kentucky Veterinary Medical Association.

The Advisory Committee is involved in planning for development of health programs in higher education and recommending policies and plans to the full Council on Public Higher Education relating to health fields. The Advisory Committee is an extremely representative group and also serves to keep members and the divisions they represent apprised of related activities of other divisions.

The Health Sciences Advisory Committee was charged with the responsibility to monitor the Area Health Education System (AHES). The Advisory Committee recommended guidelines and policies in the development and implementation of the program and presently serves as a project review group. This process gives it continual input into the further guidance and development of the system. (AHES is fully discussed in a following section.)

The interface between meeting needs in health manpower requirements and providing quality health professional education programs is at the crux of the physician supply issue. This makes the Health Sciences Advisory Committee a focal unit in recommending policies to address the question.

State Board of Medical Licensure

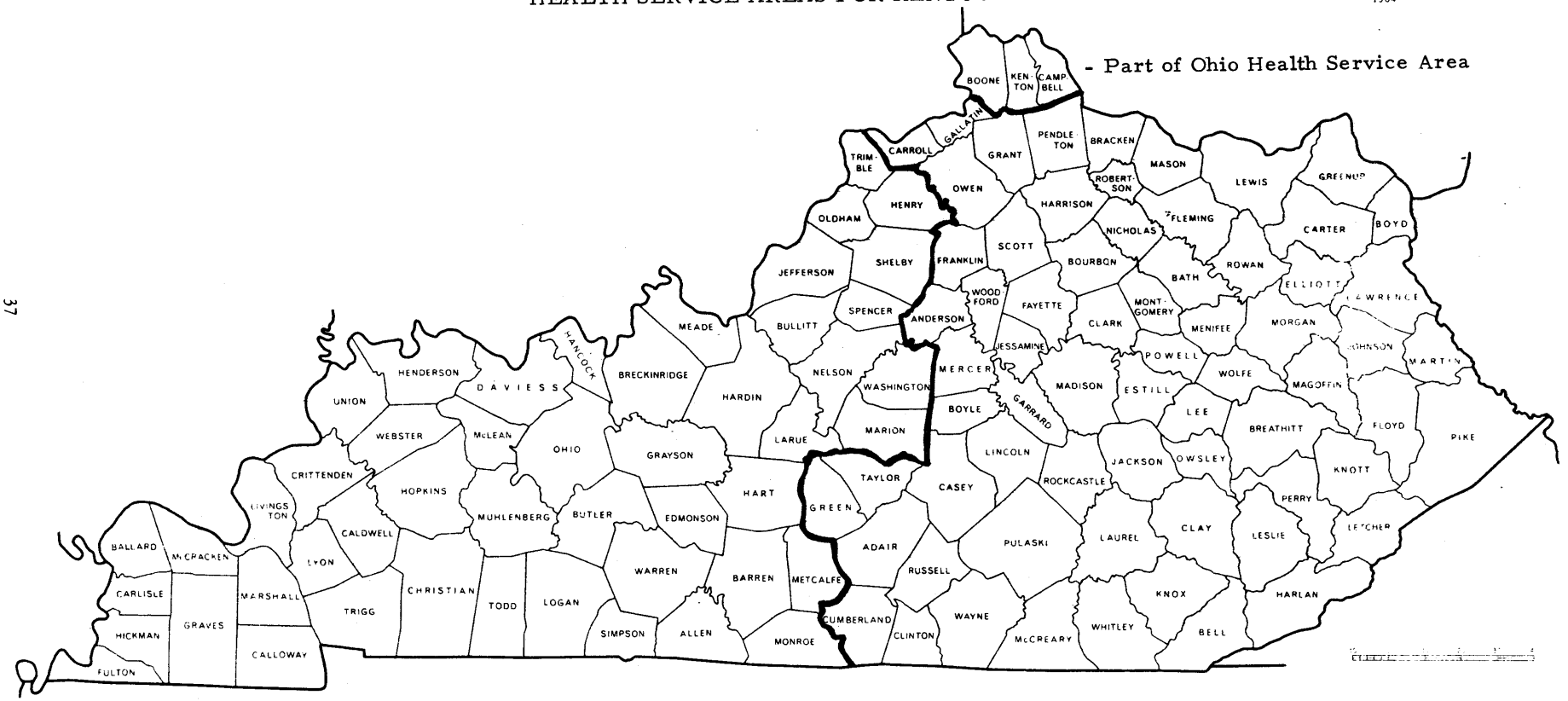
The state Board of Medical Licensure is an independent board created by the General Assembly in 1972 to administer all medical and osteopathic licensure functions.

> The board is authorized to issue reasonable rules and regulations establishing requirements, standards and tests to determine the moral, physical, intellectual, educational, scientific, technical and professional qualifications of applicants for licenses and permits to practice medicine and osteopathy, and to issue, deny, suspend, limit, restrict and revoke licenses, and to place licensees on probation. . . .[KRS 311.565(1)].

The board presently has established agreements with all states to allow for reciprocal licensure of physicians. This means that a duly licensed physician who has successfully passed a

FIGURE 5

HEALTH SERVICE AREAS FOR KENTUCKY



Administered by West Kentucky Health Systems Agency
(HSA - west)

Administered by East Kentucky Health Systems Agency
(HSA - east)

written examination in another state may qualify for licensure in Kentucky. In addition, physician license renewal is conducted by the board annually. The information collected by the board is the source for manpower data. License renewal is mandatory and thus is the most complete data base available. By statute, change of office address must also be reported to the board between renewal periods.

The board is composed of seven members: one osteopathic physician, five medical physicians and one citizen. Deans of the University of Kentucky and University of Louisville medical schools are *ex officio* members.

Health Systems Agencies (HSAs)

The National Health Planning and Resources Development Act of 1974 (PL 93-641) mandated that the nation be divided into Health Service Areas. In essence, this legislation combined the programs previously mandated as Comprehensive Health Planning, Regional Medical Programs, and Hill-Burton funds for hospital construction.

The Health Service Areas in Kentucky are designated as shown in Figure 5. The Northern Kentucky counties of Kenton, Boone, and Campbell form a service area. They are part of the Cincinnati SMSA and as such were separated from the rest of the state and from the other counties which comprise the Northern Kentucky Area Development District.

Each Health Service Area must have a Health Systems Agency (HSA) whose responsibility it is to collect and analyze data for health planning and resources development, prepare a Health Systems Plan (HSP) for the area, and an Annual Implementation Plan (AIP). The HSA works with individuals and public and private groups and coordinates with all other appropriate agencies in developing and implementing the plan.

The HSA is authorized to approve or disapprove, and review and comment on the use of funds in the development of health resources. All federal grants relating to health must correspond to the state plan and must therefore be subject to approval and disapproval of the HSA.

In order to acquire grassroots input, the HSA may establish Subarea Advisory councils. These councils in Kentucky function as committees of the Area Development Districts.

Thus, the Department for Human Resources, the Council on Public Higher Education, the State Board of Medical Licensure, and the Health Systems Agencies will all be intimately interlinked in planning for health care in Kentucky in the future. Coordination among these groups will be essential to a coherent and workable state plan.

Ongoing Programs

There are several programs functioning in the Commonwealth that are directly involved in addressing the problem of physician distribution. Their specific structure, purpose and degree of effectiveness are varied. These programs and their success in attracting and retaining physicians in shortage areas will be examined.

Rural Kentucky Medical Scholarship Fund

The Rural Kentucky Medical Scholarship Fund was established in 1946. It was originated by private individuals in the fields of medicine, agriculture, business and industry who were concerned with the need to place physicians in rural areas. Since 1956 the Kentucky General Assembly has supported the fund with appropriations. In recent years the appropriation has been $50,000 for each year of the biennium.

The program supports a revolving fund to provide financial assistance to medical students willing to practice in rural areas upon completion of their training. The fund is administered by a Board of Trustees which also establishes a list of critical counties. Physicians serving in these critical areas are forgiven one loan for each full year of practice. If the scholarship recipient practices in an approved shortage area that is not designated critical, he may repay the loan at a simple interest rate of 2% per annum. Generally, 30% of the recipients choose practice in critical areas and 70% choose to pay back the loan at least partially by serving in semi-critical areas (LRC Info Bulletin 116, p. 24).

In addition, the fund will lend up to $5,000 to a physician to set up practice in a critical area as part of its *Established Practice Loan* program. If the physician is attempting to set up a team practice, one other physician is eligible for a comparable loan if the physician population ratio is more than 6,000:1.

The table below indicates the number and type of grants and the total expenditures for the Rural Kentucky Medical Scholarship Fund for 1967-76.

Year	First Loans Granted	Renewal Loans Granted	Establish Practice Loans	Total
1967	14	14	2	$ 57,000
1968	11	23		63,500
1969	14	19	2	67,500
1970	9	25		69,000
1971	13	19	1	72,000
1972	11	18	1	78,500
1973	8	16		73,500
1974	10	18	7	133,000
1975	15	21		126,000
1976	20	24	1	157,000

Evaluation

Presently, 205 scholarship recipients are practicing in the Commonwealth; at least 70% are located in counties and cities presently approved as shortage or critical areas. Thirty-one practice in counties designated as critical shortage areas for 1976.

The Rural Medical Scholarship Fund has more scholarship monies than it can give away. Presently, the fund through donations and sound investments has a balance of approx-

imately $900,000 (LRC Informational Bulletin 116, Chap. VII, p. 24). As is indicated in the table, only $157,000 was utilized in 1976. The "unpopularity" of these scholarships lies in their very nature. They require students to commit themselves to a field of practice pertinent to rural areas and to commit themselves to a practice location in a specified, geographic area long before these decisions would otherwise have to be made. The service payback requirements make these scholarships the least desirable of loan programs. This trend is nationwide.

> A review of programs to date suggests that financial incentives alone are notably unsuccessful in attracting health personnel as permanent practitioners in rural and inner-city areas. In fact, experiences of state-sponsored loan forgiveness programs indicate that a large proportion of graduates elect to "buy out" of their service obligation. In recent years, several states have initiated steep financial penalties and the buy-out rate is decreasing (National Health Council, 1976, p. 2).

Area Health Education System (AHES)

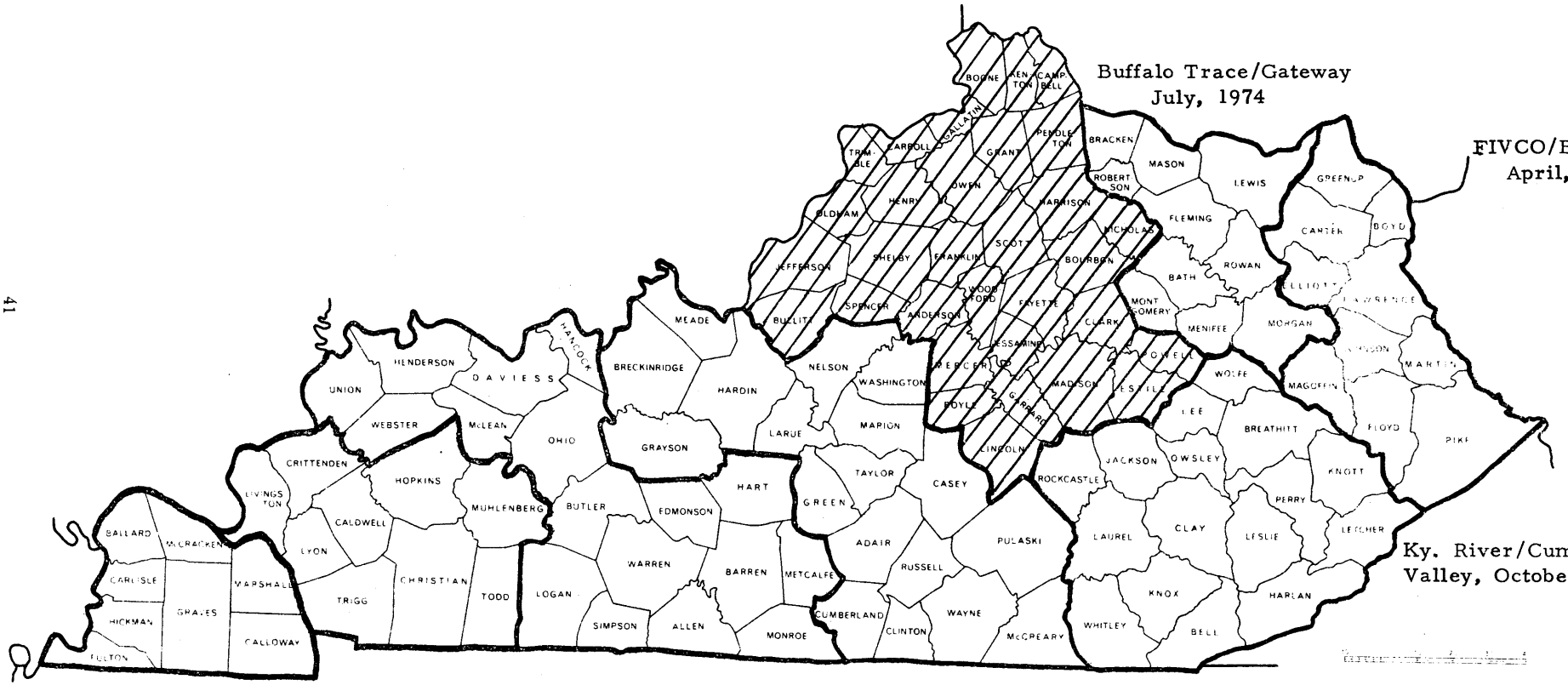
The 1974 General Assembly appropriated funds for the establishment and phased activation of an Area Health Education System in Kentucky. The concept of Area Health Education Centers was initiated by the Carnegie Commission in 1970. It is rooted in the realization that it is desirable and possible to train health professionals away from major academic medical centers.

> The advantages of extending the training program geographically are several:
>
> (a) Physicians who are introduced to a smaller city or a rural area during their training may find it an attractive place for a life's career. Certainly, if they are not introduced to these areas, the chances are not great for their voluntarily seeking out such an environment.
>
> (b) Educating physicians in smaller and more comprehensible units, dealing principally with primary and secondary clinical care, provides an essential facet of their educational experience. This facet is hard to manufacture in large cities and in the complex environment of a university center with a major tertiary care mission.
>
> (c) Medical students and advanced degree students in other health professions have the personality and resources to be mobile. Students in the less advanced educational technical areas are often more easily recruited into educational programs if they are educated near home and in relatively familiar surroundings.
>
> (d) An active, high-quality educational program enriches the quality of life in any community. Opportunities for continuing education are provided. There is improvement in and maintenance of high professional standards, and an active educational program provides a resource for the education of the public at large (Swanson, 1972, p. 322).

The AHES program in Kentucky is concerned with providing educational opportunities for students in all health fields, medicine and allied health areas, which cannot be had on the university campus. AHES works to provide students with a quality educational ex-

FIGURE 6

ACTIVATED AHES REGIONS



perience while exposing them to the need and potential for service which exists in rural areas. The AHES program places students in or near areas of need where sufficient supervision is available.

The Kentucky AHES differs from the Area Health Education Centers (AHECs) funded with federal monies. In most AHECs, the organization revolves around an institution and the one-on-one relationships it establishes for preceptorships throughout the state. In contrast, in the Kentucky AHES the regional structure rather than the institution serves as the basic operating unit for assessing needs and initiating projects. Each region contains a board composed of the academic institutions, health care providers, and other interested parties in that area. Using AHES guidelines, the regional consortium selects a coordinator. Projects, i.e., clerkships and preceptorship opportunities, may be initiated either at the institutional or regional level and are reviewed by the regional boards and the Health Sciences Advisory Committee before coming to the Council on Public Higher Education for funding approval.

AHES monies fund operations at the regional level including salaries of the regional coordinator and secretary and travel for these persons. Funds for projects can be used for student dislocation allowances for housing and meals up to $75 a week plus travel to the site and one trip home every four weeks. Funds also are used for university faculty time and travel for supervising activities and a modest stipend for the preceptor in the community. Funds cannot be spend on capital improvements or indirect costs.

The AHES regions are coterminous with the Area Development Districts. In four cases, two Area Development Districts have combined to form one AHES region. To date, seven AHES regions have been activated, i.e., the region is eligible to have students placed there under the auspices of AHES (See Figure 6). They include all AD districts except those containing major urban centers (Bluegrass, Falls, Northern).

Approximately 169 medical students and residents are participating in AHES rotations in 1976-77 and over 300 total are expected to participate for the 76-78 biennium.

A summary of AHES activities for 1974-77 is shown in Table 14.

Evaluation

How effective is the AHES program in influencing health professionals to settle in Kentucky? Because of the lag time involved in the physician production process, documentation of the effects of the AHES program on placement of health care personnel in areas of need will take another four to six years. However, recent results are highly encouraging.

During the first three years of the program, there were 279 medical rotations to clinical experiences in rural areas. At most only twenty of these students have completed their training. To date, two have returned to practice in the area of their AHES rotations during this period.

An important side effect of the AHES program is that it provides physicians in rural areas the opportunity to maintain professional ties with the medical schools as preceptors. In at least two recent cases in the Lake Cumberland region, physicians have cited this opportunity as playing a significant part in their decision to locate in the rural area (Council on Public Higher Education, 1977).

Appropriations for AHES were $3.3 million in 1974-76 and $4.2 million in 1976-78.

TABLE 14

AHES PROJECT ACTIVITIES, 1974-1977 (Est.)

	Regions	Projected # of Students	Estimated Actual # of Students	Projected # Student Weeks	Estimated Actual # of Student Weeks	Average # Weeks/Student	# Preceptors	# Training Sites
Medicine	6	412	279	2,633	1,809	6.5	163	120
Dentistry	6	113	70	802	420	6.0	75	68
Pharmacy	7	133	128	1,884	1,804	14.0	61	57
Nursing	2	40	36	332	332	9.2	14	9
Clinical Associates	7	82	72	612	544	7.6	32	22
Physical Therapy	6	267	212	421	322	1.5	31	31
Rehabilitation	4	7	5	98	70	14.0	7	6
Radiologic Technology	3	93	72	1,542	1,212	16.8	17	17
Community Health	2	52	52	416	416	8	24	21
Communicative Disorders	2	85	93	521	446	4.8	13	19
Dietetics	4	100	28	1,347	381	13.6	48	63
Interdisciplinary	7	577	513	2,445	2,123	4.1	61	49
Clinical Psychology	2	9	8	47	41	5.1	7	6
Dental Hygiene	3	98	96	196	190	1.9	44	45
Medical Technology	2	20	20	60	60	3.0	9	9
TOTALS		2,088	1,684	13,356	10,170		606	542

Source: Council on Higher Education, July, 1977

TABLE 15

National Health Service Corps Activities in Kentucky

Approved Applications	Approved For
1. Hyden, Kentucky	Physician
2. Portland Community of Louisville	Physician-dentist
3. Buckhorn	Physician-RN
4. Mt. Olivet	Physician-RN
5. Jefferson Co., Louisville	Physician
6. Frenchburg	Physician
7. Hindman	Physician
8. Owenton	Physician
9. Owingsville	Physician
10. Lewisport	Physician
11. Hartford	Physician
12. Marion	Physician
13. Sandy Hook	Physician-dentist
14. Sebree	Physician
15. Providence	Physician
16. Fordsville	Physician
17. Augusta	Physician
18. Falmouth	Physician
19. Russell Springs	Physician
20. Burkesville	Physician
21. Ary	Physician
22. Whitesburg	Physician
23. Columbia	Physician
24. Inez	Physician
25. Prestonsburg	Physician
26. Salyersville	Physician

Current Assignees

Hyden, Kentucky-2 Physicians
Hindman, Kentucky-2 Physicians
Frenchburg, Kentucky-1 Physician
Whitesburg, Kentucky-1 Physician
Ary, Kentucky-1 Physician
Buckhorn, Kentucky-1 R. N.
Arlington, Kentucky-1 Physician (D. O.)
Hartford, Kentucky-2 Physicians (D. O.)

Assigned-Terminated

Prestonsburg, Kentucky-1 Physician

Source: U. S. Department of Health, Education, and Welfare, Region IV, Atlanta, Ga.

National Health Service Corps (NHSC)

The National Health Service Corps is authorized by Congress to provide communities with health personnel. It operates out of the Department of Health, Education and Welfare, Public Health Service.

Under the NHSC program, the community applies for a designation as a shortage area. The area designated may be a county, part of a county, a portion of several counties, census county divisions, or other minor civil divisions. Numerous factors are considered including location of existing resources, physician/population ratios, ratios in contiguous areas and actual size of "user" population.

After the designation is received, the community that wishes to acquire NHSC personnel must form a nonprofit corporation. The corporation applies for assistance and oversees the management of the practice when it is operating and is responsible for hiring support personnel and providing the health care facilities.

The NHSC recruits health care personnel including physicians and dentists, places them in the community, pays them a salary, and assists the community in carrying out its management functions. Eventually, NHSC assists in the transition to a permanent, independent health care practice by the assignee.

Patient fees are divided between the government and the community organization.

Evaluation

Since 1974, the NHSC has provided assistance to Kentucky in the areas outlined in Table 15.

Recent federal legislation has increased funding for the National Health Service Corps. The process to be designated a critical shortage area is a complex one. The Community Participation and Health Education branch of the Center for Comprehensive Health Systems Development assists communities in completing the Corps application process. Designation as a need area does not automatically mean that a physician will locate in that area. Physicians in the Corps select their place of practice from the list of all eligible communities.

Southeast Kentucky Health Profession Scholarship Program and Health Manpower Service

Two programs were established to serve the Southeastern Kentucky Appalachian region.

The Southeastern Kentucky Health Profession Scholarship program was initiated in 1970 to recruit students from southeastern Kentucky into the health professions. Funding was provided primarily by the Appalachian Regional Commission, with 25% of the funds from participating schools and private foundations. Eleven institutions of higher education have been involved. The program differs from the Rural Kentucky Medical Scholarship program because it is not limited to physicians but is open to all health professions. It was organized to allow frequent student contact with the program administrator and included an active placement program. The scholarship program is based on the premise that people from an area are the greatest manpower resource, a fact supported by several studies.

A corollary program to the Scholarship Fund was the Southeastern Kentucky Health Manpower Service. This was basically a placement service for health professionals interested in locating in 16 counties in southeastern Kentucky. The program linked students and health providers via seminars, publications and individual requests.

Evaluation

During the existence of the Health Profession Scholarship Program from 1970-76, 63 students graduated, 8 are continuing in advanced programs and 83.4% of the remaining students are practicing within the Appalachian region. This includes 6 dentists and one physician on a part-time basis.

As of July 1976, the Manpower Placement program has placed 113 health professionals (67 permanent/46 summer) in this region, 8 of these in the field of medicine.

These two programs are no longer in existence because of the five-year limit on federal funds and the inability to secure the needed funds from the state or other sources. The National Health Council regards this program as one of the best of its kind in the nation.

CHAPTER IV

NATIONAL TRENDS AND MODEL PROGRAMS

The questions which arise concerning physician supply and distribution are not unique to Kentucky. The issue is a national one. The Federal Government has become involved in the education of medical professionals through specific pieces of legislation (see Appendix K). These efforts have been directed primarily toward increasing physician supply. In October of 1976, the U. S. Congress passed the most recent piece of legislation in this series. It is aimed specifically at addressing the problem of physician distribution. The channeling of federal monies in the past has been a dominant influence in the development of our present health care system. There is no reason to believe that this will not continue to be so. Consequently, this section discusses the emerging national trends characterized by the policy shifts evident in this newest piece of legislation.

In addition, there are model programs which have been initiated in other states to deal with physician supply and distribution. Examples and evaluations of typical state and privately initiated programs are also included in this section.

Health Professions Educational Assistance Act, 1976 (PL 94-484).

In October, 1976, the Health Professions Educational Assistance Act was enacted by the U. S. Congress. Public Law 94-484 is a continuation of programs begun in the 1960s. However, a shift in emphasis has occurred.

Legislation in the 1960s had as its prime targets the increasing needs for more physicians and for financial assistance to health professions schools. Eligibility for federal assistance was tied to increasing enrollments. In 1971 the Comprehensive Health Manpower Training Act (PL 92-157) established "capitation grants" for health profession schools. These grants consisted of a set amount ($2,500 for medical schools) to be paid to the school for each enrolled student with additional monies for students over and above the mandated enrollment. However, eligibility for the grants was tied to certain programs being carried out which addressed national health needs. For the first time in 1971, special project grant monies were tied to the growing concern for geographic and specialty distribution of health professionals.

The 1976 act extends and revises some of these programs. The revisions are significant in terms of the physician distribution issue. Those changes of prime importance are the following.

1. For the first time eligibility for capitation grants will be tied to requirements for first year residency mix. A given percentage of the filled residency positions in the next four years must be in primary care fields. According to the new legislation, to qualify for fiscal 1978 grants, 35% of all filled residency positions must be in primary care areas. This percentage increases to 40% for fiscal 1979 and 50% for fiscal 1980. Individual schools will be required to meet these allotted percentages in the following year if they are not met by an average of all schools in those years specified. For the capitation program, primary care is defined as general internal medicine, family medicine and general pediatrics.

A second requirement for capitation eligibility concerns American students enrolled in foreign medical schools as of October 12, 1976. United States medical schools must reserve

some places for these American students so that they might complete their training in the U. S. Estimates are that there are 6,000 students in foreign schools who would qualify for admittance to U. S. schools under this requirement.

Schools of osteopathic medicine will be required to provide a plan by which 50% of all of their medical students by the time of graduation will have received at least six weeks of training in ambulatory care settings remote from the main teaching facility. Initially in the House version of the bill, this requirement was to be an alternative to increased enrollments for all medical schools. However, in the final conference version the stipulation applied only to osteopathic schools.

2. Federal scholarship and loan assistance programs have been streamlined to provide the bulk of assistance to National Health Services Corps Scholarships which carry a service requirement, that is, students must agree to work in a shortage area after completion of their training. National Health Service Corps Scholarships are authorized for $40 million in fiscal 1976, $80 million in 1977, and $120 million in 1978. This translates into approximately 4,000 scholarships over the next four years. NHSC scholarships include a $400 a month stipend and cover tuition and other reasonable costs. Unconditional Health Professions Scholarships are being phased out. A limited number of financial need scholarships without service requirements will be available. Student loans will also be based on exceptional financial need.

Up to ten Lister Hill Scholarships will be made available to students in family medicine who agree to serve in shortage areas following their training. These scholarships are for $8,000 a year for four years.

3. The criteria for determining medically underserved areas was broadened to include individual populations and medical facilities not eligible under previous guidelines.

4. Funding for operation of the National Health Service Corps Program was increased. Grants are made available to communities to develop and/or renovate facilities and purchase equipment in order to establish a physician practice site.

5. Special project areas which have been specified in the act include the Area Health Education Centers, the establishment of academic family medicine departments, the training of physicians who plan to teach family medicine and the establishment of medical residency programs in general internal medicine and general pediatrics.

6. Special attention is given to the training of physician assistants and other allied health professions and the development of interdisciplinary training programs.

7. Start up support for new schools will give priority to those with innovative ambulatory care emphasis and opportunities for disadvantaged persons. Additional monies will be available for programs focused on recruiting and counseling the disadvantaged in health profession programs.

8. Construction grants are extended to include ambulatory primary care teaching facilities. In fact, 50% of the appropriation is to go specifically for primary care facility construction.

Without a doubt, the bulk of federal money in the next four years will go toward the primary care disciplines and the location of physicians in medically underserved areas. This should result in some improvements in geographic and specialty distribution across the nation as a whole. It should also be influential in redirecting the efforts of the medical schools toward a

primary care orientation with increasing emphasis on training sites remote from the medical school complex.

Model Programs

Besides efforts at the national level, individual states have attempted to address physician supply and distribution on a statewide basis. State programs have been spearheaded by both legislative actions and by the efforts of nonprofit organizations.

There have been three basic approaches at the state level aimed at influencing the distribution of health care providers in shortage areas. Three model programs which typify these approaches are discussed in the following narrative. The Indiana Plan focuses on the decentralization of medical residency positions by providing numerous positions at community hospital sites. This approach has a sound basis on the general assumption that site of residency is the most important factor in choice of practice location. The Colorado Plan requires residents of Colorado in dental school to pay the full cost of their education or to waive a percentage of the tuition in return for service in needed areas after graduation. The North Carolina plan capitalizes on the use of physician extenders in rural areas with backup arrangements by physicians.

Indiana Plan

In 1967 the state of Indiana created the Indiana Statewide Medical Education System. Its purpose was to improve the retention of Indiana graduates and physicians and attract more physicians from out of state. The plan provides for the Indiana University School of Medicine to establish community clinical teaching and training programs for students and residents throughout the state. By 1974 the medical school was affiliated with 50 community hospitals and graduate residency training was established in seven different communities. Appropriations for the first four years of the program amounted to $5.5 million. This was used to supplement intern and resident stipends, salaries of community hospital directors and costs for visiting professors. Subsequently, HEW funds have supported the program. Also by 1974, 55% of the Indiana medical school graduates were taking their residencies in the state. The number of residency positions between 1967 and 1974 increased from 428 to 714.

Another important factor in the statewide medical education plan is the communications system. A statewide communication network with two-way communications has been set up. It can be utilized extensively for continuing education and consultation.

Policy for the establishment of graduate programs at community hospitals is set by a Medical Education Board composed of the dean of the medical school, the secretary of the state Board of Health, and five members appointed by the Governor representing physicians, hospital administrators and citizens. Each hospital selected as a community site must have a post-graduate education program made available to physicians in private practice in the local area. Thus, the continuing education function is woven into the system.

The Indiana Plan was not originally focused on primary care areas. Its applicability to Kentucky requires some modifications. Indiana has several more medium-sized communities than Kentucky; and medium-sized communities are more likely to possess the facilities, person-

nel and mix of clinical experiences required for board-approved residency positions. Thus, Indiana lends itself much more readily to the decentralization of approved residency positions.

In 1975 the state of Oklahoma established a program to increase internship and residency positions. It created the Physician Manpower Training Commission, comparable in function to the Indiana Medical Education Board. Basically, the Commission reviews physician manpower and distribution data and allocates the state appropriation for residency positions to approved hospitals and clinical training sites. The Commission is mandated to insure a statewide distribution of the residencies and in addition to take all steps necessary to assist hospitals and clinics in obtaining the necessary status so that they may participate in the program. This is an added dimension that expands the responsibility of the state. It is not only to allocate money for residencies but also to actively assist in bringing facilities and services to a point where they qualify for assistance as approved residency sites.

Colorado Plan

In 1973 the Colorado General Assembly authorized the establishment of a school of dentistry at the University of Colorado. A section of the bill gave the regents of the university the authority to reduce the tuition of Colorado residents attending the dental school by as much as 87½ % if the student agreed to practice in a dental shortage area of Colorado. One year of service is required for each year of the reduction. The tuition which is charged is the actual cost of educating the student for that year; in 1975-76 the tuition was $10,634. The first students from the dental school graduated in May, 1977; consequently, there is no data available on the actual placement of these students.

The major problem which has arisen with the tuition waiver program is the result of tax rulings by the Federal Internal Revenue Service. The IRS has ruled that tuition or loan waivers must be considered as taxable income. Consequently, students must pay income tax on the amount of the waiver.

Other areas of concern with the program include the following:

1. Recruitment of out-of-state students is difficult because of the high tuition. Nonresidents of Colorado pay the full tuition.
2. Oversupply of dentists could be a potential problem. The saturation level for dentists in the state needs to be determined. Many small communities probably cannot support a dentist.
3. Some students feel they are being discriminated against since a service requirement is not made for other health professions.
4. Specialty training is not really applicable to rural areas and would be difficult to support.

Presently, alternative approaches to tuition reduction are under investigation to avoid the IRS predicament. Students are requesting financial assistance in setting up their practices and/or possibly a guaranteed annual income ($15,000) by the state or local community. Students would also like to see the concept of "shortage" extended to inner-city areas and underserved groups such as the elderly, poor and prisoners.

The tuition waiver/service requirement was not superimposed on an existing school or

program. It was integrated as part of the authorization for the establishment of the school. Consequently, students, faculty and staff were aware of the mandate from the beginning.

North Carolina

North Carolina has also made efforts in helping rural communities help themselves through its Office of Rural Health Services (ORHS) organized in 1973. The program is funded almost entirely with state funds. The 1975-76 budget for the ORHS was approximately $1.5 million. The ORHS is involved in physician recruitment, loan incentives for health science students, and health center development programs. The Physician Location Assistance Program recruits and assists primary care physicians to establish practices in rural communities in North Carolina. The Rural Health Centers Program focuses on the use of family nurse practitioners and physician assistants to staff health centers. Backup physicians may come from private practitioners in nearby towns. In some other states, faculty, students and residents from the medical school are used to assist in staffing through periodic rotations and visits. The ORHS provides management education and funding support for the center faculty itself. The funding for the facility is provided on a 5 to 1 matching basis, the lesser share coming from the local community. Operating funds are also available on a decreasing scale. All centers are organized to be financially self-supporting within three years. Approximately 17 such centers have been designated in North Carolina. All of the technical and financial assistance made available to local communities is for individualized programs tailored to the needs of the specific locality.

The University of North Carolina at Chapel Hill is also the administrator of a Robert Wood Johnson Foundation Grant for a program called the Rural Practice Project. It is aimed at establishing rural physician practices based on a physician-administrator team.

It is interesting to note that both the use of physician extenders and the physician-administrator team are models that have their prototypes in two Kentucky programs: the Frontier Nursing Service in southeastern Kentucky and the East Kentucky Health Services Center in Hindman.

Frontier Nursing Service

In 1925 Mary Breckinridge established the Frontier Nursing Service in Kentucky. Neighborhood clinics were set up as residential outpost nursing centers, primarily in Clay and Leslie counties. The centers were not more than 30 miles from the small hospital. Local communities provided land and labor for the clinics; the Frontier Nursing Service provided equipment and staff. A referral system for physician backup was integrated from the start and standing orders regarding medical directives were given the nursing staff as early as 1928. In 1939 the nurse-midwife program was established, the first of its kind in the nation. In 1970 the need for expanded nursing functions resulted in the establishment of a Frontier School of Midwifery and Family Nursing for registered nurses. In 1975, a new 40-bed hospital was opened in Hyden, Kentucky. The Frontier Nursing Service focuses on the family and the need for good health habits.

After 50 years of service in the area, the rise of program costs is forcing the Frontier Nursing Service to cut back on some of its programs. Lack of third party reimbursement for nurse practitioners is a major factor.

East Kentucky Health Services Center

The East Kentucky Health Services Center is located in Knott County, Kentucky, near Hindman. The center opened in 1973 with a staff of ten. Presently, the center serves 32,000 patients annually and has an expanded staff of 28 including 4 physicians, a dentist and 3 nurse practitioners. The center is a million-dollar facility, built with funds solicited from private foundations. Care provided at the center is multidisciplinary and incorporates the concept of group practice and utilization of allied health personnel. The physician-administrator team is utilized for proper functioning of the program. Health education of people in the area is included as a service of the center.

The program served as a model for the Robert Wood Foundation in the Rural Practice Project centered in North Carolina. It has served as a model for other parts of the country as well. "The East Kentucky Health Services Center, a private, nonprofit corporation is an example of a successfully implemented model rural health delivery system which attained breakeven operations within two years of opening" (National Health Council, *Incentive Programs*, February, 1976, p. 34).

Private, Nonprofit Organizational Models

Health councils and clearinghouses are common agents within states. They are involved primarily in physician recruitment, physician placement and community education. Usually health councils are composed of representatives of all health care groups including the medical society, nursing associations, hospital associations, insurance groups, medical schools, the state health agency, and the state planning agency. Virginia and Michigan both have health councils established in the 1940s. These councils are funded by private donations.

The Michigan Council consists of approximately 100 statewide organizational health-related members. Over its 33-year history, the Council has placed more than 1,500 physicians in the state.

The Virginia Council on Health and Medical Care works with schools to recruit students into health professions. It serves as a clearinghouse for inquiries about health professions and practice locations and as a Physician Referral Service. The Physician Referral Service in 1976 had 267 requests for family physicians and was able to fill 20; 334 requests were received for other specialists and 39 of these requests were filled. The Council includes in its service special listings for places where two or more family practice physicians could locate at one time, and resident students are cross-listed by their preference of practice location so that potential groups of physicians can contact each other. In addition, the Council sponsors seminars for community leaders on physician recruitment efforts.

A more recent council is the Health Manpower Clearinghouse established in the spring of 1974 by the Washington/Alaska Regional Medical Program for the purpose of devising ways to solve the maldistribution problem. During its initial phases of development, the Clearinghouse recognized the need for a comprehensive approach to physician manpower development. Consequently, the Clearinghouse provides numerous services including technical assistance to underserved areas to help analyze needs, develop possible alternative delivery models, utilize their resources more efficiently, and increase the overall attractiveness of the community.

To date, the Clearinghouse has provided assistance to nearly 100 communities in Washington State, service to approximately 400 physician applicants annually, and assistance in placing 52 physicians, 9 new health practitioners (physician's assistants and nurse practitioners) and 17 National Health Service Corps assignees.

Health Systems Research Institute

The Health Systems Research Institute in Salt Lake City, Utah, is a nonprofit organization that serves primarily rural or remote communities that have small hospitals and clinics and differs from the health council approach. It is involved directly in providing health personnel to communities. The community contracts with HSRI for health personnel, provides the building/clinic and pays HSRI a fee. The fee is based on the salaries of the health personnel needed plus 12-15% for the management costs. In turn, HSRI recruits personnel to staff the clinic and pays their salaries. All fees collected for medical services are returned to the community. Theoretically, the fees collected over a year should equal or exceed the Health Systems Research Institute fee payed by the community. The contract is negotiated yearly. HSRI has been incorporated a little over two years and serves 18 communities in seven states having a combined population of 100,000.

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IN SENATE

REGULAR SESSION 1976

SENATE RESOLUTION NO. 48

TUESDAY, MARCH 2, 1976

Senator Tom Easterly introduced the following resolution which was ordered to be printed.

A RESOLUTION directing a study of the maldistribution and shortage of physicians in the Commonwealth.

WHEREAS, a serious problem exists due to the maldistribution and shortage of physicians in the Commonwealth for delivering of adequate primary and secondary medical care; and

WHEREAS, the physician ratio to the United States population is one to 1,539 while the physician ratio to the Kentucky population is one to 2,137; and

WHEREAS, the retention ratio of medical school graduates in the Commonwealth appears to be a problem with estimates of sixty percent (60%) of the medical school graduates leaving the state; and

WHEREAS, forty-three percent (43%) of the physicians in state institutions are foreign trained and approximately one-third (1/3) of the newly licensed physicians in the Commonwealth each year are foreign trained and their absence creates a physician shortage in their country of origin, and deprives deserving Kentucky college graduates of places within the medical profession in the Commonwealth; and

WHEREAS, many qualified young Kentuckians are unable to attend medical school due to limited openings in the state medical schools; and

WHEREAS, the shortage and maldistribution of physi-

cians aggravates the malpractice problem because of high physician caseloads and long physician hours;

NOW, THEREFORE,

Be it resolved by the Senate of the General Assembly of the Commonwealth of Kentucky:

Section 1. That the Legislative Research Commission staff be directed to undertake a study of the maldistribution and shortage of physicians in the Commonwealth and methods of alleviating such maldistribution and shortage of physicians in the Commonwealth.

Section 2. That the progress and findings of the study be reported to the appropriate interim joint committee during the 1976-77 interim period and that the final report be delivered to the Legislative Research Commission at its November, 1977 regular meeting and to the 1978 General Assembly.

Section 3. Staff services to be utilized in completing this study are estimated to cost $8,000. The staff services shall be provided from the regular commission budget and are subject to the limitations and other research responsibilities of the commission.

NUMBER OF PHYSICIANS

Source	1940	1950	1960	1970	1972	1976
Ohio Valley Regional Medical Program (LRC # 61)	2,769	2,538	2,699	3,202		
AMA (Busch & Harvey)		2,213	2,458		3,250	
Division of Medical Licensure				3,197		4,072

APPENDIX C

NON-FEDERAL PHYSICIANS, CIVILIAN POPULATION, PHYSICIAN-POPULATION RATIOS AND RANK BY STATE

State	Civilian Population (7-1-75)	Physicians Per 100,000 Population		Rank of Physician-Population Ratio by State	
		Total	Patient Care	Total	Patient Care
Total (50 States and D. C.)*	211,445,000	169	135	—	—
Alabama	3,590,000	103	86	48	47
Alaska	326,000	104	85	46	49
Arizona	2,197,000	183	139	12	12
Arkansas	2,106,000	103	85	49	48
California	20,896,000	219	173	5	5
Colorado	2,488,000	187	151	9	9
Connecticut	3,081,000	224	177	4	4
Delaware	574,000	155	127	20	22
D.C.	708,000	464	343	1	1
Florida	8,265,000	183	132	11	17
Georgia	4,877,000	126	106	36	34
Hawaii	806,000	186	148	10	10
Idaho	814,000	103	88	47	46
Illinois	11,107,000	164	132	18	18
Indiana	5,302,000	116	96	39	40
Iowa	2,869,000	113	95	43	42
Kansas	2,240,000	138	113	27	27
Kentucky	3,361,000	122	101	38	37
Louisiana	3,753,000	133	106	32	33
Maine	1,049,000	133	107	31	32
Maryland	4,051,000	218	165	6	6
Massachusetts	5,814,000	235	182	3	3
Michigan	9,143,000	144	119	25	24
Minnesota	3,923,000	173	138	14	15
Mississippi	2,323,000	94	81	50	50
Missouri	4,738,000	148	117	23	25
Montana	742,000	116	101	40	38
Nebraska	1,535,000	134	109	30	30
Nevada	584,000	128	109	35	31
New Hampshire	813,000	162	131	19	19
New Jersey	7,289,000	174	140	13	11
New Mexico	1,131,000	130	101	34	36
New York	18,094,000	256	202	2	2
North Carolina	5,349,000	131	105	33	35
North Dakota	622,000	107	92	45	44
Ohio	10,744,000	146	122	24	22
Oklahoma	2,684,000	114	95	41	41
Oregon	2,286,000	171	138	15	14
Pennsylvania	11,816,000	169	139	16	13
Rhode Island	923,000	195	161	8	7
South Carolina	2,748,000	114	93	42	43
South Dakota	677,000	90	77	51	51
Tennessee	4,166,000	139	113	26	28
Texas	12,083,000	135	111	29	29
Utah	1,202,000	155	130	21	20
Vermont	471,000	207	156	7	8
Virginia	4,816,000	149	120	22	23
Washington	3,491,000	169	137	17	16
West Virginia	1,802,000	124	100	37	39
Wisconsin	4,605,000	136	114	28	26
Wyoming	370,000	109	90	44	45

*Excludes physicians (3,123 Total Non-Federal and 2,492 Patient Care) and population in Possessions (Canal Zone, Pacific Islands, Puerto Rico, and Virgin Islands). Population total does not add due to rounding.

Sources: Estimates of the Population of States: July 1, 1974 and 1975 (Advance Report). Current Population Reports Series P-25, No. 615, November 1975, and *Physician Distribution and Medical Licensure in the U.S., 1975.* American Medical Association, 1976.

1976
PHYSICIAN POPULATION RATIOS BY COUNTY FOR TOTAL MD'S AND FOR PRIMARY CARE MD'S

County	1975 Population	Total No. Physicians	Physician/ Pop. Ratio	Total No. Primary Care Physicians	Primary Care Physician/ Pop. Ratio
Adair	14,400	6	1-2400	4	1-3600
Allen	13,600	6	1-2267	5	1-2720
Anderson	10,800	4	1-2700	4	1-2700
Ballard	8,400	3	1-2800	3	1-2800
Barren	30,700	28	1-1096	16	1-1919
Bath	9,300	4	1-2325	4	1-2325
Bell	32,800	43	1-763	30	1-1093
Boone	37,100	25	1-1484	21	1-1767
Bourbon	18,900	16	1-1181	13	1-1454
Boyd	52,300	69	1-758	37	1-1414
Boyle	22,800	33	1-691	14	1-1629
Bracken	7,400	3	1-2467	3	1-2467
Breathitt	15,700	4	1-3925	3	1-5233
Breckinridge	15,100	6	1-2517	5	1-3020
Bullitt	31,500	8	1-3937	8	1-3937
Butler	10,100	1	1-10,100	1	1-10,100
Caldwell	13,500	9	1-1500	7	1-1929
Calloway	29,100	23	1-1265	14	1-2079
Campbell	85,000	76	1-1118	47	1-1808
Carlisle	5,600	1	1-5600	1	1-5600
Carroll	8,600	7	1-1228	3	1-2867
Carter	21,700	5	1-4340	5	1-4340
Casey	14,100	6	1-2350	5	1-2820
Christian	69,800	75	1-931	37	1-1886
Clark	26,400	18	1-1467	10	1-2640
Clay	20,900	6	1-3483	4	1-5225
Clinton	8,600	4	1-2150	4	1-2150
Crittenden	9,000	2	1-4500	2	1-4500
Cumberland	6,800	2	1-3400	2	1-3400
Daviess	81,200	101	1-804	62	1-1310
Edmonson	9,500	2	1-4750	2	1-4750
Elliott	5,700	2	1-2850	2	1-2850
Estill	13,300	4	1-3325	4	1-3325
Fayette	189,700	742	1-256	327	1-580
Fleming	12,000	3	1-4000	3	1-4000
Floyd	40,100	35	1-1146	22	1-1823
Franklin	37,300	51	1-731	23	1-1622
Fulton	9,500	8	1-1187	8	1-1187

County	1975 Population	Total No. Physicians	Physician/ Pop. Ratio	Total No. Primary Care Physicians	Primary Care Physician/ Pop. Ratio
Gallatin	4,400	2	1-2200	2	1-2200
Garrard	10,000	3	1-3333	3	1-3333
Grant	11,700	6	1-1950	5	1-2340
Graves	32,300	22	1-1468	13	1-2485
Grayson	18,200	9	1-2022	6	1-3033
Green	10,800	8	1-1350	7	1-1543
Greenup	33,800	9	1-3755	6	1-5633
Hancock	7,400	1	1-7400	1	1-7400
Hardin	72,000	70	1-1029	38	1-1895
Harlan	39,800	55	1-724	28	1-1421
Harrison	14,600	10	1-1460	9	1-1622
Hart	14,700	6	1-2450	6	1-2450
Henderson	36,900	43	1-858	26	1-1419
Henry	11,500	3	1-3833	3	1-3833
Hickman	6,500	2	1-3250	2	1-3250
Hopkins	42,900	75	1-572	35	1-1226
Jackson	10,500	3	1-3500	2	1-5250
Jefferson	700,700	1,371	1-511	641	1-1093
Jessamine	21,100	7	1-3157	6	1-3683
Johnson	20,500	13	1-1577	10	1-2050
Kenton	130,500	174	1-750	90	1-1450
Knott	16,800	6	1-2800	6	1-2800
Knox	26,300	8	1-3288	6	1-4383
Larue	11,600	6	1-1933	6	1-1933
Laurel	31,300	12	1-2608	6	1-5217
Lawrence	12,100	9	1-1344	9	1-1344
Lee	7,000	2	1-3500	1	1-7000
Leslie	12,500	10	1-1250	9	1-1389
Letcher	26,600	16	1-1662	10	1-2660
Lewis	12,700	4	1-3175	3	1-4233
Lincoln	17,700	5	1-3540	3	1-5900
Livingston	8,700	5	1-1740	5	1-1740
Logan	22,100	11	1-2009	10	1-2210
Lyon	5,900	3	1-1967	3	1-1967
McCracken	60,300	86	1-701	39	1-1546
McCreary	14,300	5	1-2860	5	1-2860
McLean	10,200	4	1-2550	4	1-2550
Madison	47,400	40	1-1185	23	1-2061
Magoffin	11,400	3	1-3800	1	1-11,400
Marion	16,600	9	1-1844	6	1-2767
Marshall	22,300	13	1-1715	11	1-2027
Martin	10,800	5	1-2160	4	1-2700
Mason	16,800	14	1-1200	11	1-1527

County	1975 Population	Total No. Physicians	Physician/ Pop. Ratio	Total No. Primary Care Physicians	Primary Care Physician/ Pop. Ratio
Meade	17,800	3	1-5933	2	1-8900
Menifee	4,400	1	1-4400	1	1-4400
Mercer	17,600	10	1-1760	9	1-1956
Metcalfe	8,400	2	1-4200	2	1-4200
Monroe	12,100	5	1-2420	5	1-2420
Montgomery	17,200	11	1-1564	7	1-2457
Morgan	10,500	6	1-1750	5	1-2100
Muhlenberg	30,300	13	1-2331	9	1-3367
Nelson	24,400	13	1-1877	9	1-2711
Nicholas	6,800	4	1-1700	3	1-2267
Ohio	20,000	9	1-2222	8	1-2500
Oldham	18,400	12	1-1533	11	1-1673
Owen	7,900	2	1-3950	2	1-3950
Owsley	5,200	2	1-2600	2	1-2600
Pendleton	10,400	5	1-2080	3	1-3467
Perry	28,000	27	1-1037	18	1-1556
Pike	68,800	62	1-1110	37	1-1859
Powell	8,600	3	1-2867	3	1-2867
Pulaski	40,300	40	1-1008	23	1-1752
Robertson	2,300	0	-	0	-
Rockcastle	12,800	3	1-4267	3	1-4267
Rowan	17,100	32	1-534	17	1-1006
Russell	11,500	3	1-3833	3	1-3833
Scott	18,900	8	1-2362	6	1-3150
Shelby	19,700	9	1-2189	8	1-2462
Simpson	14,100	7	1-2014	7	1-2014
Spencer	5,700	2	1-2850	2	1-2850
Taylor	18,200	11	1-1654	9	1-2022
Todd	11,000	4	1-2750	2	1-5500
Trigg	9,000	5	1-1800	5	1-1800
Trimble	5,600	2	1-2800	2	1-2800
Union	16,400	9	1-1822	7	1-2343
Warren	62,400	81	1-770	38	1-1642
Washington	10,400	4	1-2600	3	1-3467
Wayne	15,600	9	1-1733	8	1-1950
Webster	14,100	5	1-2820	5	1-2820
Whitley	28,400	28	1-1014	19	1-1494
Wolfe	6,100	1	1-6100	1	1-6100
Woodford	16,600	10	1-1660	9	1-1844

Source: Kentucky State Board of Medical Licensure, 1976 (December).

COUNTY DISTRIBUTION OF PRIMARY CARE MD's
*(DOMESTIC AND FOREIGN GRADUATES) 1976

(Number of those which are foreign medical graduates are shown in parentheses)

County	Internal Medicine	Pediatrics	Ob-Gyn	General Practice	Family Practice	Emer. Medical	Total
Adair				1	3		4
Allen				2	3		5
Anderson				4			4
Ballard				2	1		3
Barren	1(2)	2	1(1)	5(1)	3		12(4)=16
Bath				2	1		3
Bell	2	2(1)	2(1)	15(1)	6	(1)	27(4)=31
Boone		(1)	2	9	9		20(1)=21
Bourbon	(2)		(1)	4(1)	5		9(4)=13
Boyd	6	4	6	5	8	2(1)	31(1)=32
Boyle	2(1)		2	2	7		13(1)=14
Bracken				1	2		3
Breathitt				3			3
Breckinridge				4	1		5
Bullitt				3	4(1)		7(1)=8
Butler				(1)			(1)=1
Caldwell				5	2		7
Calloway	3	2	3	2	3	(1)	13(1)=14
Campbell	4	5	4(2)	13(2)	10	1(2)	37(6)=43
Carroll				2	1		3
Carter				5			5
Casey				2	3		5
Christian	10	5	3	7(3)	7		32(3)=35
Clark	1			5(1)	3		9(1)=10
Clay		1		3	1		5
Clinton				4			4
Crittenden				2			2
Cumberland				2			2
Daviess	17	6	6(2)	18	7	4	58(2)=60
Edmonson				1	1		2
Elliott	1			1			2
Estill				4			4
Fayette	133(15)	58(5)	38(1)	31(5)	29	11(1)	300(27)=327
Fleming					2	1	3
Floyd	3(2)	2(1)		9(2)	5	(2)	19(7)=26
Franklin	3	3	6	9	2		23
Fulton				8			8
Gallatin				2			2
Garrard				1	2		3
Grant				4	1		5

County	Internal Medicine	Pediatrics	Ob-Gyn	General Practice	Family Practice	Emer. Medical	Total
Graves	2	1	2	5	3		13
Grayson				4	1	1	6
Green				7			7
Greenup				3	3		6
Hancock				1			1
Hardin	5(1)	5	7	7	9	1	34(1)=35
Harlan	1(1)	1(1)	4(1)	11(3)	5	(1)	22(7)=29
Harrison				6	1		7
Hart				6			6
Henderson	2	2(1)	3(1)	5(1)	6		18(3)=21
Henry				1	2		3
Hickman				2			2
Hopkins	9(1)	4	5	2	10		30(1)=31
Jackson				1	1		2
Jefferson	154(40)	82(25)	82(4)	93(21)	104(3)	27(3)	542(96)=638
Jessamine			1	(2)	4		5(2)=7
Johnson	1	1	(1)	3	4		9(1)=10
Kenton	13(5)	9(1)	9(2)	28	17	6(3)	82(11)=93
Knott		2		1	3		6
Knox	1(1)	1(1)	(1)	1		1	4(3) =7
Larue				4	1		5
Laurel				2(1)	3		5(1)=6
Lawrence				7	2		9
Lee				1			1
Leslie		2	2	1(1)	2		7(1)=8
Letcher		(1)		3(4)	3		6(5)=11
Lewis				3			3
Lincoln				2	2		4
Livingston				2	2		4
Logan				5	3		8
Lyon				1	1(1)		2(1)=3
Madison	5	1	2	9(1)	2	1	20(1)=21
Marion	1			2	2		5
Marshall				6	3		9
Martin				2	1		3
Mason	1		1	5	3		10
McCreary				3	1		4
McCracken	12	6	8(1)	3(1)	4	1	34(2)=36
McLean				1	3		4
Meade				1	1		2
Menifee				1			1
Mercer				7	2		9
Metcalfe				2			2
Monroe				4	1		5
Montgomery				5	2		7
Morgan	1(1)			2	1		4(1)=5

County	Internal Medicine	Pediatrics	Ob-Gyn	General Practice	Family Practice	Emer. Medical	Total
Muhlenberg	1			4(1)	(2)		5(3)=8
Nelson	2			2	6		10
Nicholas	1			2	1		4
Ohio				2	3		5
Oldham				5(1)	5		10(1)=11
Owen				2			2
Owsley				2			2
Pendleton				2			2
Perry	1	3	1	8	2		15
Pike	5(6)	3(1)	3(3)	10(1)	4		25(11)=36
Powell				1	2		3
Pulaski	1	5	4	6(2)	6	(3)	22(5)=27
Rockcastle				1	2		3
Rowan	4(1)	2	2	3	4		15(1)=16
Russell				1	2		3
Scott	1			1	4		6
Shelby				1	4	1	6
Simpson				5(1)			5(1)=6
Spencer					2		2
Taylor				4	3		7
Todd				2			2
Trigg				4(1)	1		5(1)=6
Trimble				2			2
Union	(1)			4	3		7(1)=8
Warren	9(1)	6	6	11	5		37(1)=38
Washington				3			3
Wayne				5	2		7
Webster				4	1		5
Whitley	(1)	2	3	2	9	2	18(1)=19
Wolfe					1		1
Woodford	1			3	5		9
TOTAL	420(82)	228(39)	218(22)	575(59)	427(7)	60(18)	1928(227)
GRAND TOTAL	502	267	240	634	434	78	2155
% FMG	16.3	14.6	9.1	9.3	1.6	23	10.5

Source: Kentucky Board of Medical Licensure, 1976 (July).

*Carlisle, Magoffin and Robertson counties are not listed because there are no licensed primary care MD's in these counties as of the time of collection of this data. As of 10/14/76 Carlisle reports 1 general practitioner; Magoffin reports 1 internist; Robertson reports no primary care MD's.

HURA-RHI SERVICE AREA CRITERIA BY STATUS OF COUNTY AND OUTLYING AREAS

(X = Total County, P = Partial County Meets Criteria)

(11/23/76)

County	1974 SMSA Sea - New England	Medically Underserved Area	Critical Health Manpower Shortage		High Migrant Area	High Impact Area	High Infant Mortality Rate
			Medical	Dental			
Adair		X	X				X
Allen		X					X
Anderson							
Ballard		X	X	X			
Barren		X					
Bath		X	X	X			
Bell		X	P				X
Boone	*						
Bourbon	*						
Boyd	*	P					
Boyle		P					
Bracken		X		X			
Breathitt		X	X	X			X
Breckinridge		X		X			
Bullitt	*	P	X	X			
Butler		X	X	X			
Caldwell		X					
Calloway							
Campbell	*	P					
Carlisle		X	X	X			
Carroll		X					
Carter		X	X	X			
Casey		X		X			X
Christian	*	X					
Clark	*						
Clay		X		X			
Clinton		X					X
Crittenden		X	X				
Cumberland		X	X				X
Daviess	*						
Edmonson		X	X	X			

Elliott		X	X	X		
Estill		X	X	X		
Fayette	*	P				
Fleming		X				
Floyd		X	P			X
Franklin						
Fulton		X				
Gallatin			X			
Garrard		X				
Grant				X		
Graves		X				
Grayson		X		X		
Green						
Greenup	*	X	X	X		
Hancock		X	X	X		
Hardin		P		X		
Harlan		X				X
Harrison		P				
Hart		X				
Henderson	*	P				
Henry			X			
Hickman		X				
Hopkins		P				
Jackson		X	X	X		
Jefferson	*	P				
Jessamine	*	P	X	X		
Johnson		X		X		X
Kenton	*	P				
Knott		X	P	X		X
Knox		X				X
Larue		P		X		
Laurel		X	X	X		
Lawrence						
Lee		X	X			
Leslie		X	X	X		X
Letcher		X	X	X		X
Lewis		X	X	X		

County	1974 SMSA Sea-New England	Medically Underserved Area	Critical Health Manpower Shortage		High Migrant Area	High Impact Area	High Infant Mortality Rate
			Medical	Dental			
Lincoln		X	X	X			X
Livingston				X			
Logan		X	P	X			
Lyon		X	X				
Madison		X					
Magoffin		X	X	X			
Marion		X					
Marshall		X					
Martin		X	X	X			X
Mason		P					
McCracken							
McCreary		X	X	X			X
McLean		X					
Meade		X		X			
Menifee		X	X				
Mercer		X					
Metcalfe		X	X				X
Monroe		X					X
Montgomery		X					
Morgan		X	X	X			
Muhlenberg		X					
Nelson		X					
Nicholas		X					
Ohio		X	X	X			
Oldham	*			X			
Owen		X	X				
Owsley		X	X				
Pendleton		X	X	X			
Perry		X	P	X			X
Pike		X	P	X			X

Powell		X	X	X		
Pulaski		X				X
Robertson		X	X			
Rockcastle		X	X			X
Rowan						
Russell		X	X			X
Scott	*	X				
Shelby		X				
Simpson						
Spencer		X		X		
Taylor		P				
Todd		X	X	X		
Trigg		X	X	X		
Trimble		X	X	X		
Union		P				
Warren		P				
Washington		X				
Wayne		X				X
Webster		X	X	X		
Whitley		X	P			X
Wolfe		X	X	X		
Woodford	*	P				

Source: Department of Health, Education and Welfare, Public Health Service, Rockville, Maryland, February 8, 1977.

TABLE 1. Selected Physician Location Hypotheses, Studies Testing Those Hypotheses and Summary Evaluations

Hypothesis	Studies	Summary Evaluation*
Intraurban		
1. In U. S. cities, there are relatively few physicians in ghetto or barrio areas.	8, 13, 18, 37, 38	Supportive
2. In U. S. cities, there has been a net outmigration of physicians from ghetto and barrio areas.	9	Supportive
3. Per cent of the area's population which is nonwhite is a significant determinant of physicians' office locations.	13, 22, 37	Supportive
4. In U. S. cities, there are relatively few physicians in low-income areas.	9, 11, 18, 22, 38	Contradictory
5. In U. S. cities, there has been a net outmigration of physicians from low-income areas.	8, 49	Supportive
6. Income of the area's population is a significant determinant of physicians' office locations.	13, 22, 27	Weakly Supportive
7. Physicians are attracted to areas of a city with a high number of hospital beds per capita.	13, 22	Supportive
8. Physicians are attracted to areas of a city that have a high proportion of commercial zoning.	9, 13, 22	Supportive
Urban/Rural		
9. Physician-population ratios rise with the degree of urbanization.	1, 14, 27, 46	Supportive
10. Physicians tend to locate in areas similar in size to those in which they were reared.	4, 6, 10, 19, 28, 30, 32, 48	Supportive
11. Physicians tend to locate in areas similar in size to those of medical school attended.	5	Supportive
12. Training experiences and preceptorships in rural areas will influence physicians to locate in rural areas.	44, 47, 48	Weakly Supportive
13. Physicians are attracted to areas which they perceive to have a "high quality of life."	4, 7, 28, 33	Weakly Supportive
14. Physicians are attracted to the areas surrounding a medical school as an aid to their professional development.	1	Weakly Supportive
15. Physicians who attend "higher quality" medical schools tend not to locate in rural areas.	5	Supportive
16. Existence of hospital facilities in a rural area tends to draw physicians to that area.	12, 39, 52	Contradictory
17. Group practice opportunities attract physicians to rural areas.	7, 24, 47	Supportive
18. Physicians tend to locate in urban rather than rural areas because of a relatively greater income potential in urban areas.	1, 6, 14, 27, 36, 46, 50	Contradictory

* Evaluations have been assigned using the definitions found in the text.

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"ESSENTIALS" FOR RESIDENCY TRAINING IN FAMILY PRACTICE

As approved by the House of Delegates of the AMA at its Clinical Convention in December 1968.

INTRODUCTION

In November, 1966 the House of Delegates approved the recommendations of the Report of the Ad Hoc Committee on Education for Family Practice and directed the Council on Medical Education "to develop and initiate plans for implementation of the recommendations." One of the tasks was the development of appropriate essentials for graduate training programs in family practice, after suitable consultation with representatives of various specialty groups. The Council on Medical Education has now approved the following "Special Requirements for Residency Training in Family Practice," with the concurrence of the American Academy of General Practice and the AMA Section on General Practice.

"SPECIAL REQUIREMENTS FOR RESIDENCY TRAINING IN FAMILY PRACTICE"

Residencies in family practice should be specifically designed to meet the needs of graduates intending to become family physicians. The family physician is defined as one who: 1) serves as the physician of first contact with the patient and provides a means of entry into the health care system; 2) evaluates the patient's total health needs, provides personal medical care within one or more fields of medicine, and refers the patient when indicated to appropriate sources of care while preserving the continuity of his care; 3) develops a responsibility for the patient's comprehensive and continuous health care and when needed acts as a coordinator of the patient's health services; and 4) accepts responsibility for the patient's total health care, including the use of consultants, within the context of his environment, including the community and the family or comparable social unit. In short, family physicians must be prepared to fill a unique and specific functional role in the delivery of modern comprehensive health services.

DURATION OF TRAINING – The duration of the program should usually be a total of three years following graduation from medical school.

Family practice residency programs should provide for experience and responsibility for each resident in those areas of medicine which will be of importance to him in his future practice.

As stated in the general requirements, it is not essential, or even desirable, that all hospital residencies adopt exactly the same program, nor that they offer a rigidly uniform sequence of experience. It is essential, however, that all programs for graduate training in family practice be able to meet the fundamental requirements for an approved program and the hospitals involved must individually or collaboratively attain comparable quality results in the training.

It is necessary that the family practice resident retain his identity as such throughout his graduate training period. He will need to learn appropriate skills, techniques and procedures of certain other specialties, as well as those of family practice. Such instruction should be under the supervision of qualified specialists in those fields. The resident's program should be planned so that he can discharge his continuing responsibilities to a selected group of patients under the supervision of experienced family physicians.

If the resident plans to practice another specialty in depth in addition to family practice, he should obtain appropriate additional training beyond that provided in the family practice residency.

The spectrum of knowledge and skills involved in the field of family practice will, as in other disciplines, usually exceed in scope those possessed by any individual physician.

CONTENT

The following covers the general content of family practice, and, as such, should be available to the resident although certain portions may be optional, depending upon the knowledge and skill obtained by the resident in medical school, his interests, and the character of his anticipated practice.

Family Medicine

The family practice unit should consist of a clinical service, the content of which is determined by the needs of a representative population of patients rather than the particular skills of the physician. The patient composition of the family practice service should be such that continuity of care is a reasonable probability for most patients and continuity of experience by the resident will result.

This service should include not only patients of all income levels in the acute general hospital but also ambulatory patients, patients at home, and patients in institutions such as nursing homes. This should also include emergency care of patients. Residents assigned to the family practice service may spend a period of time outside the family medicine facility as necessary to meet the needs of his patients. Furthermore, when deemed desirable by the program director the resident may be assigned to other institutions or settings to acquire additional types of experience. This approach should help to focus attention upon the ambulatory patient, the diseases of high prevalence, patients with long-term illness and those with problems of adjustment, anxiety, depression and other emotional stresses. It should also facilitate emphasis upon preventive medicine, health maintenance, rehabilitation counseling and the use of all relevant community resources.

Internal Medicine

Internal medicine by nature of its integrative functions is recognized as a major foundation for programs in family practice. The resident should receive regular instruction and gain experience that will permit him to develop judgment in assessing the condition of the patient, in the use and interpretation of laboratory procedures and in applying the principles of differential diagnosis, as well as proper therapeutic management of the patient. Emphasis should be placed upon the history and cause of disease and should provide the resident an opportunity to become familiar with the major causes of disease and the principles of rational therapy.

Pediatrics

There is much overlap and reinforcement between internal medicine and pediatrics, but the special contributions of pediatrics relate to the problems of the newborn, to congenital malformation, to growth and development through adolescence, to nutrition, mental retardation and the behavioral and emotional problems of children and their management. Modern pediatrics includes a large component of preventive medicine and emphasizes care of the ambulatory patient and the patient at home. Pediatrics should offer opportunity for learning the diagnosis and care of infectious diseases. It should also provide study of the position of the child in the social systems of family, school and community.

Psychiatry

This discipline is one of the necessary bases for a family practice program. The resident should learn how to diagnose and manage most psychosomatic and emotional problems. He should become competent to deal with the common tensions, anxieties and depressions that initiate or complicate a substantial proportion of the problems with which the family physician will be faced. The resident should learn to recognize the neuroses and psychoses and to provide for the after-care which many patients require following discharge from a mental institution.

In the family practice unit, most of the pertinent knowledge and skill can best be acquired through a program in which psychiatry is integrated with medicine, pediatrics, and other disciplines. In addition, experience on a specialized psychiatry service with responsibility for the care of serious illness under supervision may be desirable. This will enable the resident to recognize major psychoses and to deal with the psychiatric emergencies which constitute a major problem for family physicians.

Obstetrics and Gynecology

The resident should be provided the instruction necessary to understand the biological and psychological impact of pregnancy, delivery and and care of the newborn, upon a woman and her family. He should acquire skill in the provision of antepartum and postpartum care and the normal delivery process. He should also have an understanding of the complications of pregnancy and their management. He should become adept at managing the problems of medical and office gynecology. Marriage counseling and sex education are important areas of responsibility for the family physician and the training program should afford an opportunity for the development of skills in these areas.

Surgery

The resident should acquire competence in recognizing surgical emergencies and when appropriate referring them for necessary specialized care, an ability to evaluate conditions that require elective surgical management, an understanding of the kinds of surgical treatment that might be employed and the problems that may result from surgical procedures and their management. He should have sufficient knowledge of these procedures to give proper advice, explanation, and emotional support to his patients. He should be trained in basic surgical principles by recognized surgical specialists and acquire from them the technical proficiency required to manage those limited surgical procedures a first contact (family) physician may be called upon to perform. If he expects to include major surgery as a part of his regular practice, he should obtain additional training.

Community Medicine

Community medicine is one of the unique components of family practice. Through proper instruction, the resident should be provided with an understanding of the principles of epidemiology and environmental health, familiarity with the health resources of a community and community organization for health. He should appreciate the roles and the inter-relationships of persons in the various professional and technical disciplines which provide health services.

Community medicine should provide the resident with an approach to the evaluation of the health problems and needs of a community and to the improvement of resources to meet community needs more adequately. The experience should assist the resident to understand the role of private enterprise, voluntary organizations and government in modern health care. The social and behavioral sciences should be used to provide the resident with an understanding of the research tools and methodologies which will be of use to the family physician in discharging his integrative functions.

Electives

It is desirable that a training program in family practice provide the resident with experience in other specialties such as anesthesiology, radiology, dermatology, ENT, ophthalmology, urology, orthopedics, et cetera. This may be acquired through electives, included directly in the curriculum, or obtained through proper utilization of consultations.

Research

The participation of the resident in an active research program should be encouraged. Generally this should be concurrent with other assignments, provided the responsibilities of the resident are adjusted during such assignments to permit reasonable time for research activity. Investigative work is permissible as an integral part of the three-year program, provided the research topic relates to problems involving the delivery of health care or is otherwise of special relevance to family practice. Assignments to other types of research activities, if they are desired by the resident, should be in addition to, rather than in lieu of, clinical instruction.

CATEGORIES OF PROGRAMS

There is a wide variety of circumstances under which the family physician will function, both geographically and in his association with other physicians. His educational program is to be designed in conformity with the general principles set forth in the following basic program. Flexibility is necessary and the program may be adjusted according to his predicted needs and should be carried out under the guidance and control of his program director.

Though it need not be followed in a rigid or restricted manner, the suggested basic program will normally consist of two parts:

A. The resident's base of practice will be in a model family practice unit, where he will usually spend a portion of each day. Over the three-year period a major portion of his training will be devoted to this aspect of the field.

B. In addition, education and supervised training in the following disciplines should be available during the three-year period: medicine, pediatrics, surgery, obstetrics-gynecology, psychiatry, community medicine, and electives; examples of these programs might be:

PROGRAM I

Medicine	33%
Pediatrics	16%
Surgery	16%
Obstetrics–Gynecology	16%
Psychiatry	8%
Community Medicine & Electives	11%

PROGRAM II

Medicine	50%
Pediatrics	16%
Psychiatry	16%
Community Medicine & Electives	18%

PROGRAM III

Medicine	33%
Pediatrics	16%
Psychiatry	16%
Community Medicine & administrative services, including health service administration, & electives	35%

These are only examples both as to content and percentages. Many other variations are possible and will be given consideration for approval by the Residency Review Committee, provided they comply with the intent and concept of Paragraphs A and B above. It is intended that all the disciplines mentioned in Paragraph B should be covered either in the family practice model or in the various specialty departments listed in that paragraph.

Since a residency program in family practice requires cooperation and assistance from other specialty services, the program director will need to work out in advance the assignments and responsibilities of the various services.

For those residents desirous of additional skills in one or more particular fields, the hospital is encouraged to provide advanced training beyond the third year.

The provisions of the General Requirements (Section 1 to 10) must also be met for approval.

FINDINGS AND RECOMMENDATIONS*
LEGISLATIVE RESEARCH COMMISSION
November, 1971

Findings

Study of the material in this report indicates these findings:

.. There is a serious shortage of physicians in many areas of Kentucky. At least two counties, Menifee and Robertson, with a combined population of 6,213 persons, did not have a practicing physician at the time data was compiled for this report.

.. There are eight Kentucky counties with a population of over 5,000 persons per physician; one of these, Jackson County, has more than 10,000 persons per physician.

.. There is an unequal geographical distribution of practicing physicians in Kentucky. Four metropolitan counties with a population of 1,078,304, representing 33 percent of the total state population, contain 58 percent of Kentucky's physicians (1,822 of 3,224).

.. Kentucky has approximately 998 persons for each practicing physician compared to a national figure of about 750 persons per physician.

.. There is an apparent need to improve the total health care level of all Kentuckians, particularly those in rural areas and persons on a fixed income; additional family physicians in certain areas appear to be the key to this objective.

.. The University community is aware of the shortages and needs of Kentucky in terms of health manpower, including general practitioners or family physicians. House Bill 393, enacted by the 1970 General Assembly, directed each of the medical schools to establish a department of "general practice." The bill did not contain an appropriation, but both medical schools have developed tentative plans for new departments of "family practice," using funds available under existing budgetary limitations. The University of Kentucky College of Medicine appears to have made more progress toward establishment of the new department than has the University of Louisville College of Medicine.

Recommendations

The recommendations developed from this report call for a concerted effort by the General Assembly, the Medical Colleges and some administrative agencies of state government.

It is recommended that:

1. The newly-established Departments of Family Practice in the two medical schools be provided with sufficient funds to allow implementation as directed by the 1970 General Assembly. Basic funding is necessary to cover educational and research programs, underwrite clinical services and provide a strong academic identity for the department.

The current annual budget for the new department at the University of Kentucky College of Medicine is $55,000; that of the University of Louisville is even less. It is suggested that an annual budget of $300,000 for the Department of Family Practice at each medical school is a realistic and attainable figure. In the first two years of operation, a large part of this amount could be expected to provide for space, equipment and other capital outlays; as the program grows, more of the budget would be needed for personnel and underwriting of clinical services for the patient model.

Specific allocation of the necessary funds could best be made through the normal budget-making process. A study of the 1972 Executive Budget, by the legislative Standing Committees on Appropriations and Revenue, could ascertain the proper allocation to the new departments within the two university budgets.

An alternative but less desirable method would be a direct appropriation by the General Assembly, specifically allocating funds to the new Departments of Family Medicine.

2. It is recommended that the General Assembly:

(a) Establish a special scholarship fund, similar to the Rural Medical Scholarship Fund (see Appendix C), with specific provisions for scholarships to medical school students to be trained in the specialty of family practice. Recipients should receive at least $2,500 per annum. The effectiveness of such programs is examined in Appendix D.

(b) Provide funds, at low interest rates, to organize and underwrite group practice of family physicians in critical areas of the state.

(c) Enact enabling legislation to allow small towns and rural areas to contract, on an annual basis, for services of a licensed physician. This provision should authorize the town to appropriate the necessary funds and raise the money through a voted tax levy. Payment to the physician could take the form of a subsidy or by providing medical facilities in which to practice.

3. It is recommended that the two medical schools establish a long-range planning program to include:

(a) The accommodation of additional students and staff as outlined in the development programs in Appendix G.

(b) Plan to strengthen existing departments, provide for new departments as needed, and an administrative program to coordinate and execute these plans.

(c) A study to determine the factors that influence the choice of a physician in selecting a practice locale and the relative importance of these factors.

4. It is recommended that the State Department of Health:

(a) Take full advantage of the Federal Emergency Health Personnel Act by requesting assignment of health personnel to shortage areas in the state. This program began in October, 1971, and the need for assistance must be certified by state and local medical societies.

(b) Review medical licensure requirements to determine if they inhibit the inmigration of qualified physicians. Close attention should be paid to the Kentucky Medical Practice Act which makes it relatively difficult for a graduate of a foreign medical school to obtain a license in Kentucky.

(c) Organize a recruitment program to encourage Kentuckians who are now in medical training or in practice in other states to return to the Commonwealth.

*Wright, Charles L. and George L. Riegling, The Family Doctor; A New Specialty. LRC Research Report No. 61, Frankfort, Kentucky: Legislative Research Commission, 1971.

REPORT OF THE 1974-75 INTERIM SPECIAL MEDICAL CARE AVAILABILITY STUDY COMMITTEE

Findings and Recommendations

A major issue which preempted other measures to increase the availability of care was malpractice insurance. It seemed relatively obvious that any augmentation of providers may be negated by an inability to obtain insurance for malpractice liabilities. Since the Interim Committee on Banking and Insurance had been deliberating the issue, the Special Medical Care Availability Study Committee did not pursue the subject.

The principle finding of the Committee was that no single action can alleviate the problems associated with the availability of primary medical care. That is to say, a single shot in the arm will not make primary care available. Any actions must recognize the myriad of complexities involved in the availability of care and the long-term effects on the total configuration of health care.

Information on the items of health status, manpower and delivery methods was largely unavailable. In the instance of manpower, data was ambiguous since one could not discern between active or retired practitioners, nor practitioners engaged in research or other responsibilities. Clarifications of manpower levels and delivery methods were being attempted by the Council on Public Higher Education when the Committee was finalizing its activities. Another dimension of manpower came forth through opinions of the Office of the Attorney General. The Committee found that physician assistants and nurse practitioners must be excepted from the statutory definition of the practice of medicine. Both classifications were apparently in need of statutory provisions supporting the functions of each.

The information for the category of education and training of providers revealed that Kentucky does not have an amount of postgraduate (residency) positions equal to the number of medical school graduates. It was found that the effect of the shortage of residency positions was that the state is exporting its medical school graduates to other states where positions are available.

The Rural Kentucky Medical Scholarship Program was found to be helpful to medical care availability since medical students receiving funds must practice for a period of time in a rural area after their graduation.

Upon assimilating a number of presentations regarding medical care availability, the Committee considered five legislative proposals. The four proposals were:

76 BR 94 - An Act relating to physician assistants.
76 BR 126 - An Act relating to residency programs in primary care disciplines.
76 BR 239 - An Act relating to health occupations and roles.
76 BR 314 - A Resolution directing the Department for Human Resources and the Council on Public Higher Education to coordinate their activities affecting the availability of primary health care.

APPENDIX K

FUNDING AND SUPPORT SOURCES AVAILABLE FOR RURAL HEALTH INITIATIVE PROJECTS

Section 239 of Title III of the Public Health Service Act - National Health Service Corps (personnel assignments only) - CFDA# 13.258: [1]

The National Health Service Corps is a health system development program directed toward the recruitment, placement and retention of health care personnel in areas which are medically underserved. It has the authority to assign physicians and other health care professionals (as needed and feasible) in those areas which are designated as Critical Health Manpower Shortage Areas.[2] Such areas must meet specific criteria dealing with total population and the types and numbers of health care providers delivering health care services in the particular areas.

Section 330 of Title III of the Public Health Service Act - Community Health Centers - CFDA# 13.224:

The Community Health Centers Program is directed toward providing primary health care services and supplemental health care services necessary for the adequate support of primary health care services to medically underserved populations. It also encourages coordination and integration of other health care resources. Community Health Centers must serve an area designated as a Medically Underserved Area.

Section 319 of Title IV of the Public Health Service Act - Migrant Health Program - CFDA# 13.246:

The Migrant Health Program is directed toward providing primary health care services and supplemental health care services necessary for the adequate support of primary health and environmental services to migrant and seasonal agricultural workers and their families. Coordination and integration of other resources and health care activities are among its program activities. A Migrant Health Center serves its target population in a High Migrant Impact Area or a High Impact Area.

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[1] Catalog of Federal Domestic Assistance (CFDA), which gives a brief overview of these assistance programs at the applicable sections set forth.

[2] Lists of areas specifically designated as Critical Health Manpower Shortage Areas, Medically Underserved Areas, etc., are continually updated and are available from the Regional Offices.

Section 1110 of Title XIX of the Social Security Act - Health Underserved Rural Areas Program - CFDA# 13.766:

The Health Underserved Rural Areas Program is primarily a development and research program interested in new concepts and innovative methods of delivering and financing health care services in rural areas, with the specific goal of improving availability of services to persons eligible for Medicaid. This program will encourage existing self-sufficient health care providers to develop efficient and effective health care systems for medically underserved rural areas. The Health Underserved Rural Areas Program seeks to determine the most effective approaches to and management systems for the delivery of health care services in rural areas.

Section 202 of Appalachian Regional Development Act - Appalachian Health Programs - CFDA# 23.004:

The Appalachian Health Program is directed toward delivery of health care services in those areas designated as being in the Appalachian area of need. The delivery of such health care services must be in agreement with the state plans of the state in which such services are to be delivered and, if applicable, the state in which the users of such services reside. Appalachian Health Program projects may extend across state lines. Participation by the Appalachian Health Programs in the Rural Health Initiative effort will be only in those instances where the applicant's proposal coincides with the Appalachian Health strategy of the state in which the project is or is to be located, or the state in which the project is delivering or intends to deliver primary health care services.

Source: U.S. Department of Health, Education and Welfare, Public Health Service, Rural Health Initiative, December, 1976.

APPENDIX L

TOTAL RESIDENCIES AND FACULTY (SB 28)

	1976	1977	1978	1979	1980	1981
1st year Residents	28	48	76	76	76	76
2nd year Residents	0	28	48	76	76	76
3rd year Residents	0	0	28	48	76	76
Total Positions	28	76	152	200	228	228
Faculty	7	19	38	50	57	57

Program Costs

For the purpose of allocating funds under SB 28, resident stipends were calculated on the basis of $15,000 per resident annually. A F.T.E. faculty was calculated at $40,000 annually. The actual and projected costs for continuation are listed in Table 2.

TABLE 2

Year	Residents	Faculty	Total
1976	$ 420,000	$ 280,000	$ 700,000
1977	1,140,000	760,000	1,900,000
1978	2,280,000	1,520,000	3,800,000
1979	3,000,000	2,000,000	5,000,000
1980	3,420,000	2,280,000	5,700,000
1981	3,420,000	2,280,000	5,700,000

Council on Public Higher Education, 1977.