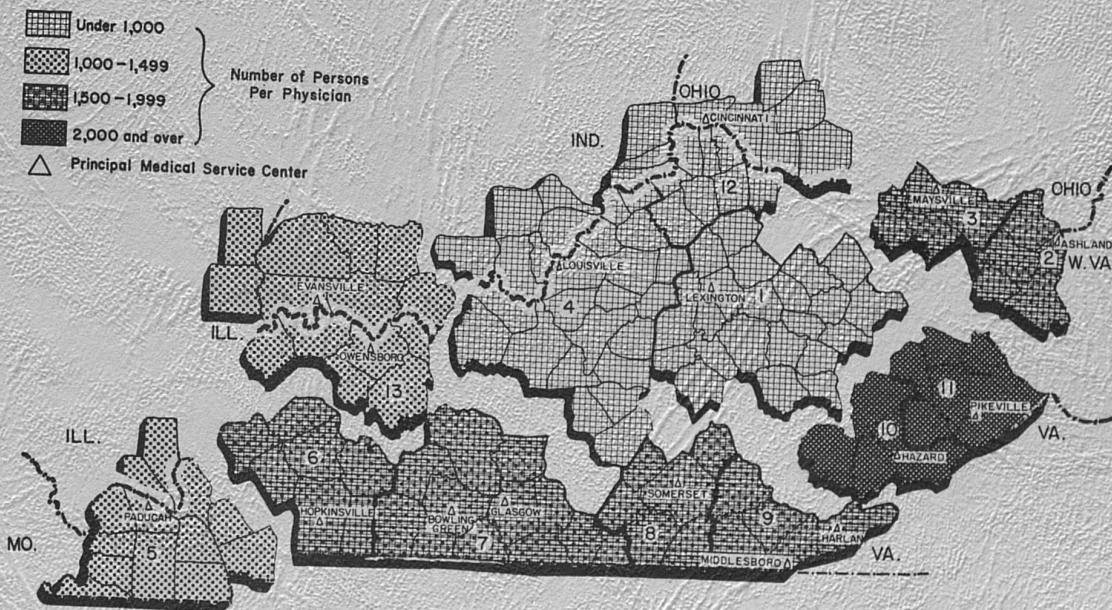


Trends in the Number and Distribution of Medical Doctors in Kentucky

By

JOHN R. CHRISTIANSEN and THOMAS R. FORD



Population-Physician Ratios of Medical service areas in Kentucky, and Principal Medical Centers Serving each Area, 1955

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AGRICULTURAL EXPERIMENT STATION
LEXINGTON

In cooperation with Agricultural Marketing Service
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The number of physicians in Kentucky and their distribution within the state have received attention in several recent studies.¹ These studies, although independently conducted and employing different sources of data, have been in substantial agreement with respect to two findings: (1) Kentucky has fewer doctors relative to the size of its population than most states; (2) the distribution of physicians within the state is such that some localities have an adequate or near adequate number of physicians while others have shortages of varying degrees of seriousness.

This report, which presents data from the most recent (1956) edition of the American Medical Directory, offers a sequel to the earlier studies with regard to changes in the number and distribution of Kentucky physicians. In addition, changes in selected characteristics of medical doctors are analyzed to indicate trends in types of medical service available within the state.

Number and Distribution of Physicians in Kentucky

The number of physicians practicing in Kentucky has declined steadily during the past half century. The 1906 edition of the American Medical Directory listed 3,761 Kentucky physicians. The 1956 edition listed only 2,638, a slight increase over the number registered in the 1950 volume.²

¹Dickinson, Frank G., Distribution of Physicians by Medical Service Areas. Bureau of Medical Economic Research Bulletin 94. Chicago: American Medical Association, 1954. Pennell, Maryland Y., and Altenderfer, Marion E., Health Manpower Source Book; Section 1, Physicians, Public Health Service Publication 263. Washington, D. C.: Government Printing Office, 1952. Research Staff, Kentucky Legislative Research Commission, Medical Education: Does Kentucky Need a State-Supported Medical School? Research Publication No. 37. Frankfort, 1953.

²Most of the data on physicians cited in this report were obtained from the 1912, 1921, 1931, 1938, 1950, and 1956 editions of the American Medical Directory, published periodically by the American Medical Association. As to who are listed in the Directory, the 1956 edition states: "Those who possess a degree of Doctor of Medicine or its equivalent from a bona fide medical school and who are licensed to practice medicine; who possess a degree of doctor of medicine or its equivalent from an approved medical school and those who are engaged in scientific, educational or public health activities and those who have been licensed to practice medicine on the years of practice provision of the law of the state in which they are licensed." (p. 1) Physicians who obtain their degree during the year in which the data are collected are excluded. Each Directory includes, essentially, the physician population of the previous year. For example, the 1956 Directory provides data for 1955. In this paper, the information is reported as of the year the data were collected rather than as of the year the Directory was published.

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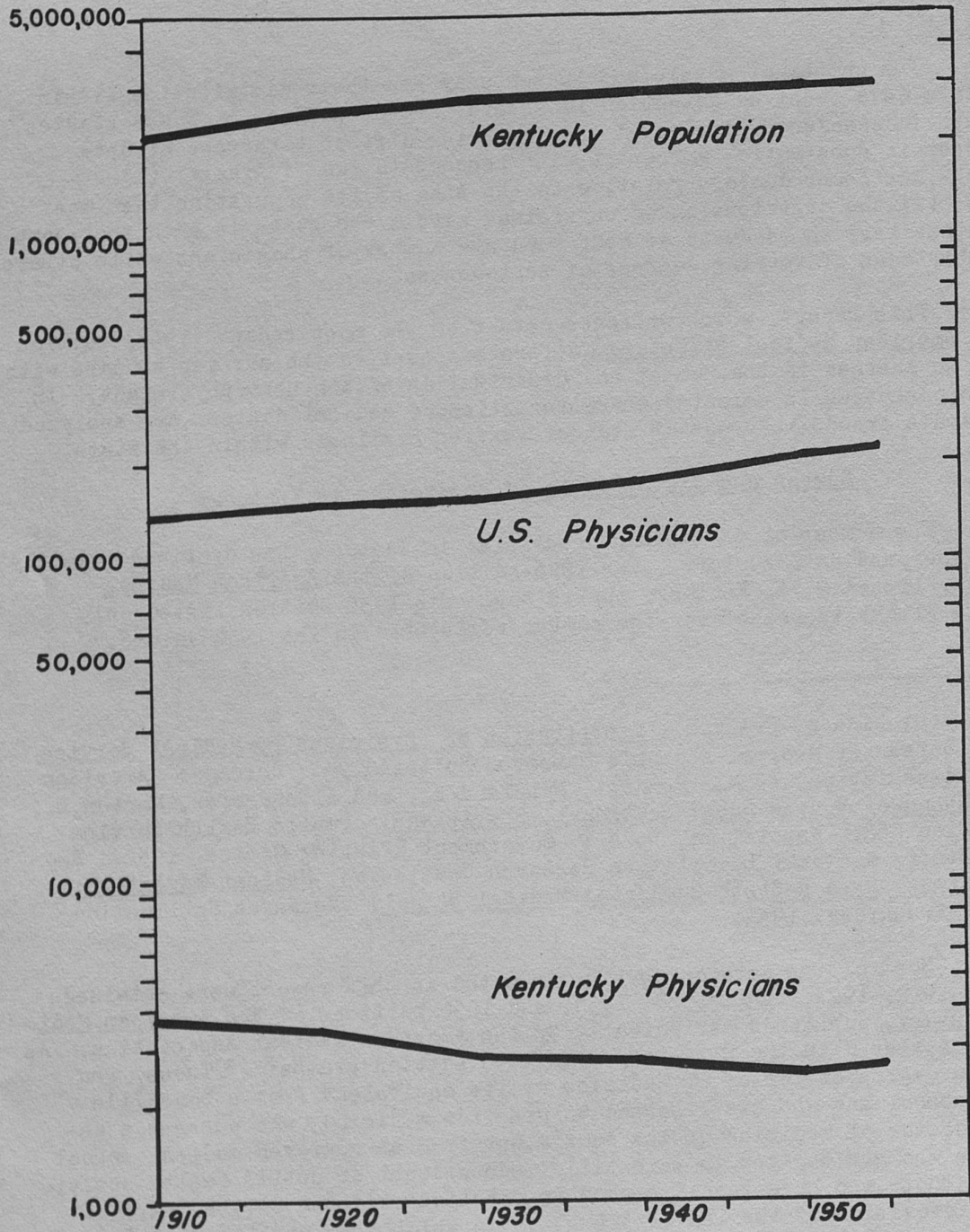


Fig. 1.--Kentucky Population, Number of United States Physicians, and Number of Kentucky Physicians, 1910-1955

From 1905 to 1955, the number of Kentucky physicians decreased 30 percent; in the same period the total number of physicians in the United States increased 80 percent (Figure 1). To view these changes another way, of every 1,000 physicians in the nation in 1905, 31 practiced in Kentucky; in 1955 only 12 of every 1,000 practiced in the state. Since the Kentucky population has increased steadily, although not rapidly, while the number of physicians has declined, the ratio of persons to physicians has risen substantially since the turn of the century.

Although the adverse effects of the continued loss of professional medical services cannot be discounted, it should be recognized that several factors have served to mitigate their seriousness. There can be little doubt that the professional quality of physicians today is, on the average, considerably better than that of their counterparts of 50 years ago, many of whom were the products of the "medical diploma mills" described in the famous Flexner report of 1910. Not only is the physician of today better trained, but also he has at hand elaborate equipment and an imposing array of "miracle drugs" which serve to reduce considerably the time required for the diagnosis and treatment of disease, and hence make it possible for him to serve more patients. The shift in usual place of treatment from the patient's home to a hospital, clinic or doctor's office, while not without drawbacks, has made it possible for the physician to see more patients and to enlist the aid of nurses, technicians, and other medical personnel in providing care and treatment. Improvements in transportation and communication have also permitted the physician to make more efficient use of his time. Consequently, physicians can now care for more patients with greater effectiveness than has hitherto been possible.

On the other hand, it may be argued with considerable supporting evidence that many of the same factors which make it possible for physicians to render more efficient service operate simultaneously to create greater demand for their services. As the educational level of the population rises, as knowledge of health care becomes more widespread and the associated values more generally accepted, and as improved transportation and communication increase the accessibility of medical personnel and facilities, proportionately more persons call upon the services of the physician. Furthermore, those who utilize his services are more likely now than in former years to use them frequently and routinely--for example, for periodic physical examinations--rather than to limit their calls to emergencies. Other factors, such as the rise in per capita purchasing power and the phenomenal development of voluntary health insurance, are also generally credited with raising the demand for medical services. In short, it is questionable whether the gain in efficiency has been sufficient to offset the increased demand for service, particularly when this increased demand has occurred while the number of physicians was declining, as has been the case in Kentucky.

Population-physician ratios.--Even with the most modern equipment and advanced techniques, there is a limit to the amount of service that can be provided by a single physician. The question of how many physicians are required to give adequate service to a population of a given size is not easily answered. If the number of physicians required is computed on the basis of economic demand (the number that a given population will support at an acceptable income level), the figure is likely to be quite different from one computed on the basis of the number of physicians needed to give adequate medical care to the population. Obviously the "economic demand" depends upon the income level of the population and how much of their income the people are able and

willing to expend on medical care. Measuring requirements on the basis of "needed medical care" is probably more difficult than measuring "economic demand" requirements. As rough rules of thumb, some authorities have suggested a maximum ratio of 1,500 persons per physician; others a maximum of 1,000 persons. Actually, the figure depends on many factors and circumstances, and will undoubtedly vary from place to place and time to time. The national ratio of population to physicians in 1955 was approximately 757 to 1, but of course there was no uniform distribution of either population or physicians throughout the country. The wide variation of population-physician ratios among states is shown in Table 1. Kentucky, with 2,638 licensed physicians in 1955 (exclusive of those in government service, but including those retired from active practice) to serve a population of 3 million, ranked 40th among the states, with 1,139 persons per physician. To equal the national ratio, Kentucky would have needed more than 1,300 additional physicians in 1955, or nearly 50 percent more than the actual number.

Distribution of physicians by county.---Physicians are unequally distributed within states as well as among states. Kentucky's shortage of physicians, relative to the national distribution, is much more severe in certain areas of the state than in others. In Kentucky, as in the remainder of the nation, physicians are highly concentrated in urban areas. But most of Kentucky's population, unlike that of the nation as a whole, still is in rural areas (defined as all places of less than 2,500 population), despite a marked shift to the cities in recent years. Approximately 65 percent of the state's population was classified as rural in the 1950 census, yet about half of the state's physicians were located in the 5 most urban counties--Boyd, Campbell, Fayette, Jefferson, and Kenton--which contained about 28 percent of the total state population. Seven of the 120 counties in the state had fewer than 1,000 residents per physician in 1955 (Table 2), but only 2 counties, Fayette and Jefferson, had population-physician ratios lower than the national ratio. At the other extreme, in 21 counties there were 3,000 or more persons per physician, and 4 counties had more than 6,000 persons per physician in 1955. As was to be expected, all of the counties with extremely high population-physician ratios were predominantly rural.³

Distribution of physicians by size of place.---Further documenting the unequal distribution of physicians throughout the state are data on the location of physicians by size of place, shown in Table 3. Until about 1920, when nearly three-fourths of the state's residents lived in rural locales, most Kentucky physicians were located in places with less than 2,500 inhabitants. Since that time there has been a rapidly increasing trend toward the concentration of practice in larger urban centers. By 1955 fewer than 20 percent of the state's physicians were located in places with less than 2,500 population, while approximately a third of the state's medical doctors were in the Louisville metropolitan area.

³It should not be assumed that county population-physician ratios necessarily reveal the availability of medical service to county residents. Distribution of physicians within a county and their availability outside county lines strongly influence the actual utilization of their services. See Olaf F. Larson and Donald G. Hay, "Differential Use of Health Resources by Rural People," New York State Journal of Medicine 52:1 (Jan. 1, 1952) pp. 43-49.

Table 1.--Population, Persons per Physician, and Rank of States by Number of Persons per Physician, 1955

Rank	State	Population* (In Thousands)	Persons per Physician
1.	New York	16,124	518
2.	Massachusetts	5,016	576
3.	Connecticut	2,241	593
4.	California	13,032	628
5.	Colorado	1,549	649
6.	Vermont	378	671
7.	Maryland	2,669	687
8.	Minnesota	3,174	715
9.	New Hampshire	557	741
10.	Illinois	9,361	747
11.	Pennsylvania	11,159	758
12.	Delaware	387	760
13.	Utah	781	761
14.	Florida	3,452	762
15.	Washington	2,570	794
16.	Oregon	1,669	796
17.	New Jersey	5,420	805
18.	Rhode Island	845	816
19.	Ohio	8,966	825
20.	Missouri	4,128	842
21.	Nebraska	1,381	873
22.	Louisiana	2,927	889
23.	Kansas	2,060	914
24.	Michigan	7,236	916
25.	Maine	905	919
26.	Wisconsin	3,694	941
27.	Iowa	2,692	952
28.	Arizona	980	963
29.	Tennessee	3,417	967
30.	Oklahoma	2,168	974
31.	Texas	8,563	978
32.	Indiana	4,330	979
33.	Virginia	3,579	980
34.	Nevada	225	987
35.	Montana	633	1,019
36.	Georgia	3,621	1,068
37.	Idaho	609	1,072
38.	North Carolina	4,285	1,095
39.	Arkansas	1,789	1,100
40.	KENTUCKY	3,005	1,139
41.	Wyoming	306	1,163
42.	West Virginia	2,002	1,180
43.	New Mexico	795	1,258
44.	South Dakota	677	1,268
45.	North Dakota	642	1,300
46.	Alabama	3,033	1,307
47.	South Carolina	2,283	1,311
48.	Mississippi	2,111	1,351

*Provisional data, U. S. Bureau of the Census, Statistical Abstract of the United States: 1956. (Seventy-seventh edition)

Table 2.--Kentucky Population, Number of Active Physicians, and Number of Persons per Active Physician, by Counties, 1955

County	Population	Number of Physicians	Persons per Physician	County	Population	Number of Physicians	Persons per Physician
Total	3,001,330	2,486	1,207				
Adair	14,652	7	2,093	Edmonson	7,689	2	3,845
Allen	13,066	6	2,178	Elliott	6,852	1	6,852
Anderson	7,898	5	1,580	Estill	11,576	5	2,315
Ballard	10,637	7	1,520	Fayette	116,728	226	516
Barren	29,817	18	1,657	Fleming	10,431	8	1,304
Bath	9,485	4	2,371	Floyd	43,680	20	2,184
Bell	38,105	24	1,588	Franklin	26,173	19	1,378
Boone	16,348	7	2,335	Fulton	12,377	12	1,031
Bourbon	17,619	17	1,036	Gallatin	3,736	1	3,736
Boyd	56,474	57	991	Garrard	11,919	7	1,703
Boyle	21,637	26	832	Grant	10,331	5	2,066
Bracken	9,231	7	1,319	Graves	32,981	17	1,940
Breathitt	18,151	2	9,075	Grayson	16,358	8	2,045
Breckinridge	14,459	4	3,615	Green	9,092	4	2,273
Bullitt	13,586	3	4,529	Greenup	28,365	10	2,837
Butler	9,404	3	3,135	Hancock	5,097	2	2,549
Caldwell	13,881	8	1,735	Hardin	59,873	29	2,065
Calloway	16,545	17	973	Harlan	67,991	46	1,478
Campbell	83,952	54	1,554	Harrison	15,303	10	1,530
Carlisle	6,105	4	1,526	Hart	13,086	6	2,181
Carroll	8,641	5	1,728	Henderson	33,967	27	1,258
Carter	24,088	9	2,676	Henry	11,156	10	1,116
Casey	14,660	5	2,932	Hickman	6,921	2	3,461
Christian	63,893	37	1,727	Hopkins	41,627	29	1,435
Clark	20,656	16	1,291	Jackson	11,000	2	5,500
Clay	20,063	4	5,016	Jefferson	559,587	846	661
Clinton	7,990	3	2,663	Jessamine	14,053	7	2,008
Crittenden	8,877	4	2,219	Johnson	18,944	14	1,353
Cumberland	8,193	3	2,731	Kenton	114,243	107	1,068
Daviess	60,916	61	999	Knott	16,935	2	8,468

Table 2 (Continued)

County	Popula- tion	Number of Physi- cians	Persons per Physi- cian	County	Popula- tion	Number of Physi- cians	Persons per Physi- cian
Knox	26,543	6	4,424	Nicholas	6,874	3	2,291
Larue	11,193	4	2,798	Ohio	17,558	5	3,512
Laurel	24,439	13	1,880	Oldham	12,149	6	2,025
Lawrence	15,219	8	1,902	Owen	8,756	4	2,189
Lee	7,749	4	1,937	Owsley	6,321	2	3,161
Leslie	15,846	2	7,923	Pendleton	9,684	4	2,421
Letcher	31,247	14	2,232	Perry	36,523	20	1,826
Lewis	12,909	5	2,582	Pike	69,388	32	2,168
Lincoln	18,958	9	2,106	Powell	6,637	2	3,319
Livingston	7,129	6	1,188	Pulaski	33,711	32	1,053
Logan	23,440	12	1,953	Robertson	2,738	1	2,738
Lyon	7,450	5	1,490	Rockcastle	11,420	7	1,631
McCracken	70,464	66	1,068	Rowan	11,721	4	2,930
McCreary	13,567	3	4,522	Russell	10,749	5	2,150
McLean	11,837	5	2,367	Scott	15,438	12	1,287
Madison	33,804	32	1,056	Shelby	20,765	8	2,596
Magoffin	11,644	4	2,911	Simpson	12,998	9	1,444
Marion	14,836	8	1,854	Spencer	5,537	5	1,107
Marshall	15,605	9	1,734	Taylor	14,313	12	1,193
Martin	10,773	2	5,387	Todd	12,295	5	2,459
Mason	20,008	13	1,539	Trigg	8,047	3	2,682
Meade	11,319	3	3,773	Trimble	5,766	2	2,883
Menifee	3,641	1	3,641	Union	13,215	10	1,322
Mercer	13,881	17	817	Warren	44,312	35	1,266
Metcalfe	6,744	4	1,686	Washington	11,316	3	3,772
Monroe	11,457	5	2,291	Wayne	14,824	8	1,853
Montgomery	12,198	10	1,220	Webster	14,126	9	1,570
Morgan	9,592	6	1,599	Whitley	26,562	17	1,562
Muhlenberg	29,606	11	2,691	Wolfe	5,848	2	2,924
Nelson	19,985	11	1,817	Woodford	11,566	10	1,157

Sources: Population Estimates for Kentucky Counties, June 30, 1955.
Kentucky Agricultural Experiment Station Progress Report 31,
July 1955. American Medical Directory, 1956 edition.

Table 3.—Distribution of Kentucky Population and Physicians by Size of Place 1920-1950

Size of Place	1920		1930		1940		1950	
	Popula- tion	Physi- cians	Popula- tion	Physi- cians	Popula- tion	Physi- cians	Popula- tion	Physi- cians
100,000 & over	234,891	593	307,745	659	319,077	655	369,129	739
25,000 to 100,000	127,972	285	203,347	377	235,500	370	248,640	438
10,000 to 25,000	69,057	148	89,511	179	73,772	172	106,378	175
5,000 to 10,000	100,317	241	112,451	215	123,263	235	141,065	197
2,500 to 5,000	101,306	336	85,972	226	97,715	218	120,527	252
Under 2,500	1,783,087	1,538	1,815,563	1,081	1,996,300	949	1,959,067	595
All Places	2,416,630	3,141	2,614,589	2,737	2,845,627	2,599	2,944,806	2,396

Sources: Population distribution from United States census of population for indicated years. Data on physicians were taken from volumes of the American Medical Directory for the years nearest the census years (1921, 1931, 1938, 1951). In some few cases, physicians whose place of practice was unknown have been omitted from the tabulation. Although census data on the distribution of the population by size of place are not available later than 1950, the distribution of active physicians by reported size of place listed in the 1956 American Medical Directory was as follows:

<u>Size of Place</u>	<u>Number of Physicians</u>
100,000 & over	806
25,000 to 100,000	525
10,000 to 25,000	180
5,000 to 10,000	264
2,500 to 5,000	221
Under 2,500	479

Most seriously affected by this shift of physicians to the larger urban centers have been the most rural areas of the state. In 1920 more than 1,500 doctors were located in rural areas of the state; by 1950 there were fewer than 600. Yet the population living in rural areas increased by nearly 176,000 from 1920 to 1950 (Table 3). The shifts in percentage distribution of population and physicians by size of place from 1920 to 1950 are shown in Figure 2. The percentage of physicians practicing in places of less than 2,500 population declined sharply during the period; the percentage practicing in towns of 2,500 to 10,000 remained relatively stable; places of 10,000 and over had a somewhat larger share of the total population in 1950 and a considerably larger share of the supply of physicians. It must be borne in mind, however, that the total supply diminished by approximately 800 physicians during the 30-year period. Consequently, even the larger towns there were substantial increases in the ratio of population to medical doctors.

Distribution of physicians by medical service areas.--The county, despite its convenience for statistical analyses, has severe limitations as a unit for measuring medical facilities and services. Individuals in need of medical care are not restricted to their county boundaries in seeking it. Nor, realistically, is it to be expected that each of the 120 Kentucky counties, many of which are quite small in area and population, should have a complete complement of medical facilities. These considerations suggest the need for a more meaningful unit, which has been met in part by the delineation of medical service areas. Essentially, the medical service area is a special type of trade area--a territory whose residents usually depend upon the facilities available within the defined area for needed medical care. Such an area may embrace several counties and even cross state lines, depending upon the habits of the residents with respect to securing medical service.

The medical service areas utilized in this study (shown in Figure 3) were adapted from those delineated by the Bureau of Medical Economic Research of the American Medical Association.⁴ As defined by the Bureau of Medical Economic Research, medical service areas are "areas in which populations depend upon physicians located in these circumscribed territories for most of their physician services."⁵ The chief difference between the areas shown in Figure 3 and those delineated by the Bureau of Medical Economic Research is that counties were not divided in this study as they sometimes were in the earlier investigation.

⁴Dickinson, Frank G., Distribution of Physicians by Medical Service Areas. Bureau of Medical Economic Research Bulletin 94. Chicago: American Medical Association, 1954. Dickinson, Frank G. and Bradley, Charles E., Map Supplement to Bulletin 94. Bureau of Medical Economic Research Bulletin 94A. Chicago: American Medical Association, 1953.

⁵Dickinson, op. cit., p. 13.

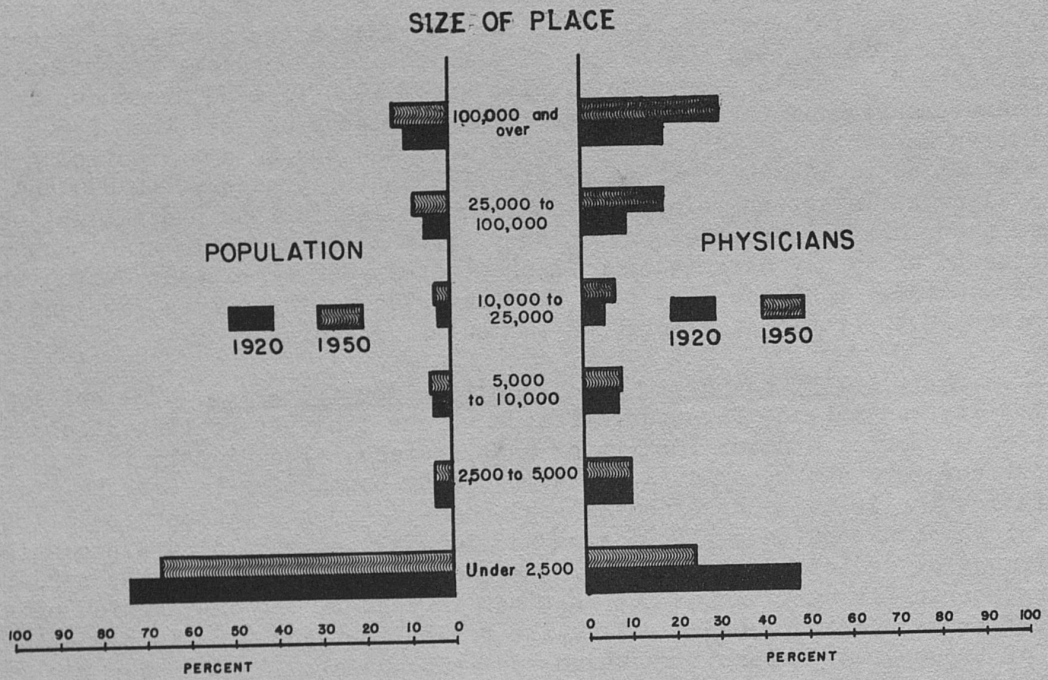


Fig. 2.--Percentage Distribution of Kentucky Population and Active Physicians by Size of Place, 1920 and 1950

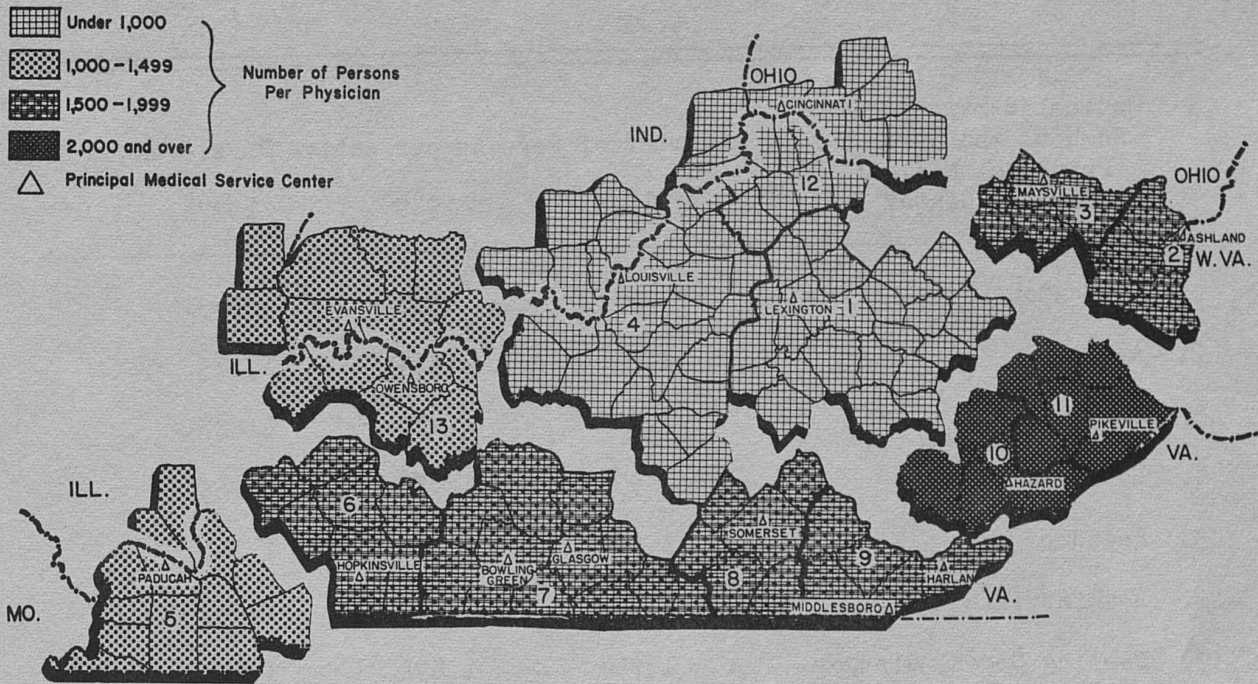


Fig. 3.--Population-Physician Ratios of Medical service areas in Kentucky, and Principal Medical Centers Serving each Area, 1955

Table 4.--Number of Persons per Active Physician,
by Medical Service Area, 1937, 1949, 1955

Medical Service Area Number, and Name of Principal Medical Service Center	Number of Persons per Active Physician		
	1955	1949 ^a	1937 ^b
1. Lexington	945	995	945
2. Ashland	1,541	1,524	1,375
3. Maysville	1,765	1,470	1,227
4. Louisville	937	899	765
5. Paducah	1,366	1,324	1,150
6. Hopkinsville	1,789	1,500	1,099
7. Bowling Green, Glasgow	1,794	1,891	1,435
8. Somerset	1,649	2,161	2,259
9. Middlesboro, Harlan	1,732	1,976	1,658
10. Hazard	2,901	2,297	1,964
11. Pikeville	2,316	2,587	2,361
12. Cincinnati, Ohio	737	694	661
13. Evansville, Indiana Owensboro, Kentucky	1,182	1,109	1,048

^aRatios computed using 1950 population.

^bRatios computed using 1940 population.

Of the 13 medical service areas shown in Figure 3, 3 of which include parts of bordering states, only the Cincinnati area had a better ratio than the 1955 national ratio of 757 persons per active physician (Table 4). This area, of course, serves many more Ohioans than Kentuckians. The Louisville and Lexington areas were the only others with fewer than 1,000 persons per active physician. The Pikeville area, with 2,316 persons per active physician in 1955, and the Hazard area, with 2,901 persons per physician, had the highest ratios, that of the latter area being almost four times the national ratio.

Since 1937, ratios have become less favorable in all but three of the areas, Lexington, Pikeville, and Somerset. However, five areas had better ratios in 1955 than in 1949, indicative of some improvement in the relative supply of physicians' services in the most recent years, either because of additional physicians or, especially in Eastern Kentucky, because of population decreases through migration. Despite these signs of betterment, most areas of the state still have physician shortages of varying degrees of seriousness, measured either against national population-physician ratios or conventional standards of adequacy.

Characteristics of Kentucky Physicians

Data available in the various editions of the American Medical Directory make it possible to analyze certain characteristics of physicians practicing in Kentucky at various periods during the past four decades. On the basis of this, certain inferences can be made about changes in the type of medical services available in various parts of the state.

Age of physicians.---Knowledge of the ages of physicians practicing in a given area is useful for estimating the rates of loss and replacement of doctors in the area, for gauging the service capacity of practicing physicians, and for determining when physicians received their basic medical training. Kentucky physicians have generally been somewhat older, on the average, than those of the nation as a whole.⁶ In 1955, however, the median age of active physicians in Kentucky listed in the American Medical Directory was at the lowest point in about forty years (Table 5). More than half of the active medical doctors listed in the most recent Directory were under 46 years of age. This represented a lowering of the average age by more than 4 years since 1949, and more than 8 years since 1937.

There are some indications, though, that the average age of Kentucky physicians may rise again in the near future. In 1949, more than 10 percent of the state's medical doctors were less than 30 years of age; in 1955, only 5.5 percent were under 30 (Figure 4). The percentage of physicians 65 years of age and over decreased from nearly 27 percent in 1949 to less than 21 percent in 1955, but in 1930 only 15 percent of the state's active physicians were 65 or over, and in 1920, less than 11 percent.

In general, physicians practicing in larger urban centers of Kentucky are younger than those practicing in small towns and rural areas (Table 6). Especially significant is the fact that since 1930 the average age of physicians

⁶Dickinson, Frank G., "The Ages of Physicians in the United States, 1940 and 1948," Journal of the American Medical Association, 130: 1 (Jan. 1, 1949), p. 51.

Table 5.—Median Age and Percentage Distribution of Active Kentucky Physicians by Age, Specified Years, 1911-1955

Age	Year					
	1955	1949	1937	1930	1920	1911
Under 25	0.1	0.4	0.5	0.4	0.3	1.8
25-34	21.8	21.5	18.8	12.4	10.7	26.0
35-44	26.4	22.3	15.5	14.4	31.3	31.8
45-54	20.0	16.3	17.1	30.8	29.9	20.5
55-64	11.2	12.7	28.3	26.9	17.3	11.7
65-74	11.1	18.1	15.5	11.7	7.6	6.6
75 & over	9.5	8.8	4.4	3.4	3.0	1.7
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Median Age (Years)	45.8	50.2	54.1	52.7	47.4	41.8

Source: American Medical Directory

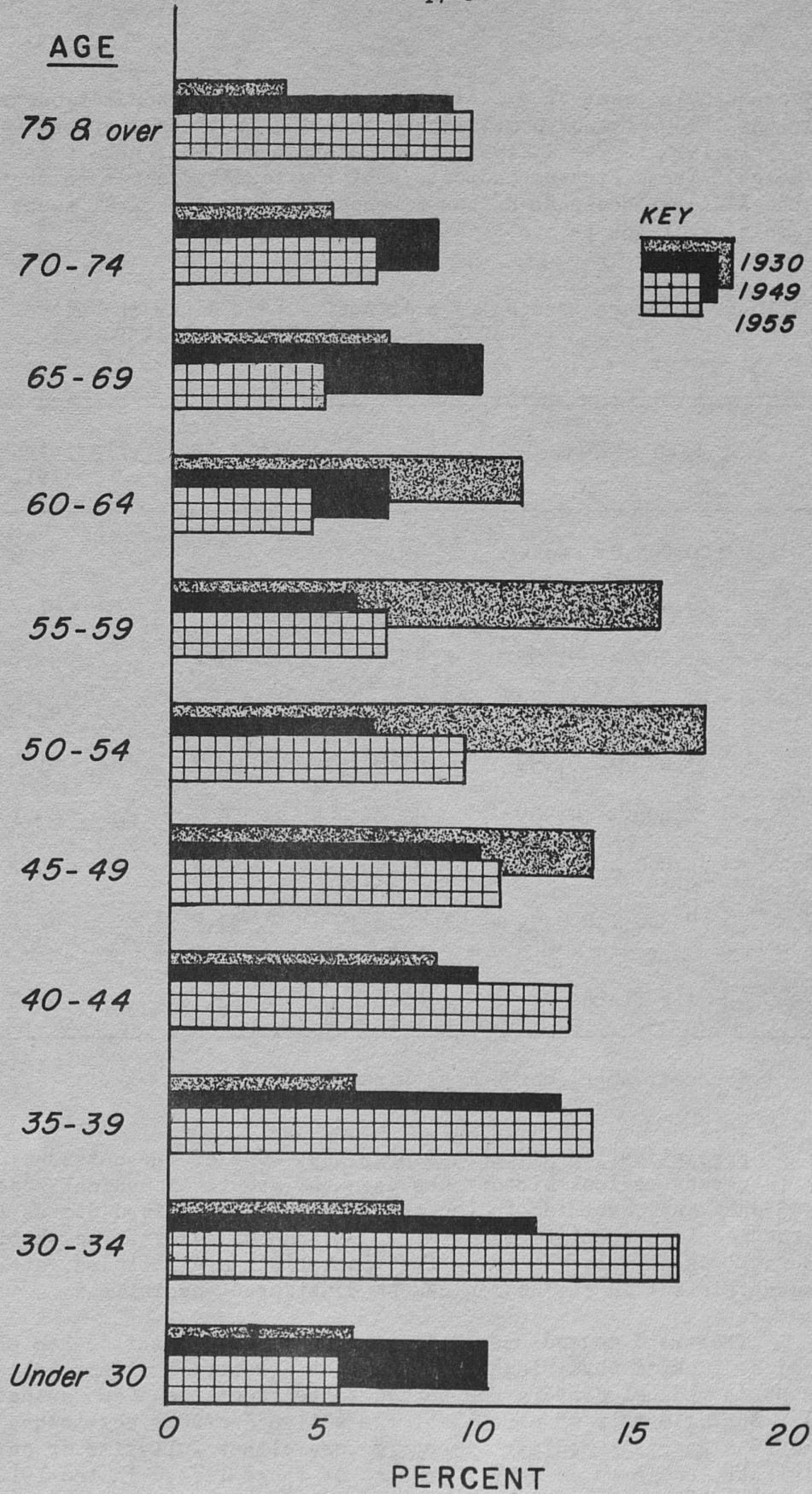


Fig. 4.—Percentage Distribution of Active Kentucky Physicians by Age, 1930, 1949, 1955

has decreased in towns of all sizes except those with populations of less than 1,000. As the number of physicians practicing in these smallest towns decreased from 755 in 1930 to 243 in 1955, their average age increased from 55.7 years to 62.3 years. These figures indicate that the country doctor is rapidly vanishing from the Kentucky scene as he has disappeared from the rural areas of most of the remainder of the nation

Table 6.--Average (Median) Age of Active Physicians in Kentucky by Size of Place, 1911, 1930, and 1955

Size of Place	Average Age of Physicians		
	1955	1930	1911
100,000 or above	42.5	48.3	39.9
50,000 - 99,999	43.0	49.6	41.7
25,000 - 49,999	45.5	49.1	42.6
10,000 - 24,999	45.4	54.1	42.3
5,000 - 9,999	47.8	48.7	41.4
2,500 - 4,999	47.8	50.4	43.1
1,000 - 2,499	46.9	52.8	44.2
Under 1,000	62.3	55.7	41.1
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All Places	45.8	52.7	41.8

Source: American Medical Directory

Specialization of medical practice.---One of the outstanding developments in recent medical history has been the growth of medical specialization. In 1923 only one physician in ten practicing in the United States limited his practice to a special field. In 1955, one of every three physicians was a full specialist. If part-time specialists are included, at least half of the physicians in the nation can be considered specialists.

The trend toward specialization of medical practice has also characterized Kentucky's physicians, although the proportion of specialists among the state's medical doctors has tended to be lower than for the nation as a whole. Approximately 45 percent of the active Kentucky physicians listed in the 1956 American Medical Directory were either full-time or part-time specialists, compared to only 1 percent of those listed in the 1912 Directory (Table 7). Two-thirds of the Kentucky physicians reporting a specialty in 1955

Table 7.--Number and Percentage of Active Kentucky Physicians Listed as Specialists, 1911-1955

Year	Number of Specialists	Percent of all active Ky. Physicians
1911	41	1.2
1920	532	16.6
1930	668	24.2
1937	780	29.9
1949	892	37.4
1955	1,112	44.7

Source: American Medical Directory. Specialists include both full-time and part-time specialists as reported by the physicians themselves to the American Medical Association.

restricted their practice to their specialty. Forty percent of the specialists, full-time and part-time, had been certified by the examining boards of their specialty fields. By comparison, 75 percent of the nation's specialists in 1955 limited their practices to their specialty, and 55 percent were board certified. Kentucky's specialists, therefore, not only make up a relatively smaller proportion of the state's total number of physicians but are also less likely to restrict their practices or to be diplomates in their specialty field.

The distributions of active Kentucky medical doctors by specialty field reported in the 1956 and 1937 editions of the American Medical Directory are given in Table 8. Evidence of the rapid development of medical science is seen in the addition of more than half a dozen new specialty fields during the past two decades. Apart from doctors entering these new specialty fields, the most substantial shifts in the distribution of specialists in Kentucky have been increases in the fields of internal medicine, roentgenology and radiology, and psychiatry; and decreases in the field of public health and the combined fields of ophthalmology, otology, laryngology, and rhinology.⁷

⁷The apparent decline in public health specialists may have resulted from differences in reporting. In 1953, the Kentucky State Department of Health listed 57 public health specialists practicing in the state--about twice as many as reported in the 1956 American Medical Directory.

Table 8.--Distribution of Active Kentucky Medical Specialists by Specialty Field, 1955 and 1937.

Specialty	1955		1937	
	Number	Percent	Number	Percent
Surgery	284	25.5	215	27.6
Internal Medicine	127	11.4	50	6.4
Pediatrics	82	7.4	59	7.6
Ophthalmology, Otolaryngology & Rhinology	62	5.6	86	11.0
Obstetrics & Gynecology	67	6.0	20	2.6
Anesthesiology	56	5.0	22	2.8
Roentgenology & Radiology	47	4.2	29	3.7
Psychiatry	47	4.2	10	1.3
Obstetrics	39	3.5	47	6.0
Urology	33	3.0	35	4.5
Ophthalmology	30	2.7	14	1.8
Orthopedic Surgery	30	2.7	9	1.2
Public Health	29	2.6	58	7.4
Industrial Practice	25	2.2	24	3.1
Otology, Laryngology, Rhinology	25	2.2	11	1.4
Pulmonary Diseases	22	2.0	18	2.3
Dermatology	16	1.4	14	1.8
Pathology or Clinical Pathology	16	1.4	7	0.9
Psychiatry & Neurology	15	1.3	21	2.7
Proctology	13	1.2	17	2.2
Neurological Surgery	10	0.9	*	*
Cardiovascular Diseases	10	0.9	*	*
Gynecology	7	0.6	12	1.5
Allergies	7	0.6	*	*
Plastic Surgery	4	0.4	*	*
Thoracic Surgery	4	0.4	*	*
Bacteriology	2	0.2	-	-
Gastroenterology	1	0.1	*	*
Neurology	1	0.1	2	0.3
Physical Medicine	1	0.1	*	*
All Specialties	1,112	100.0	780	100.0

*Specialty not listed in 1938 American Medical Directory.

Source: American Medical Directory. Specialists include both full-time and part-time specialists by self-declared specialty.

Location of Medical Schools supplying Kentucky physicians.---During the 19th Century, Kentucky was probably the leading producer of physicians south of the Ohio River. Transylvania's medical school, organized in 1799, was the first west of the Appalachians. By the end of the next century, medical schools of varying quality abounded in the state. Louisville had no fewer than 9 medical schools (including 2 schools of homeopathy) in operation in 1900.⁸ Shortly thereafter, the introduction of greatly needed reforms in medical education led to the closing down of sub-standard schools and the merger of the leading schools into the University of Louisville Medical School, leaving only one accredited medical school in the state.

Of the active Kentucky physicians listed in the 1956 American Medical Directory, approximately 56 percent were graduates of Kentucky medical schools. Roughly, 9 out of 10 graduates of Kentucky medical colleges were products of the University of Louisville Medical School.⁹ Tennessee schools supplied 11 percent of Kentucky physicians, followed by Ohio and Illinois, which contributed 7 and 4 percent respectively. Two percent of the state's physicians received their medical degrees from Pennsylvania, and another two percent were graduates of New York schools. Other states whose schools provided basic medical training for more than one percent of Kentucky's active physicians were Missouri, Maryland, Virginia, Massachusetts, Louisiana, and Indiana, in order of number of physicians supplied. Operation of the recently established University of Kentucky Medical School will undoubtedly increase the proportion of physicians trained in the state, but it will be nearly a decade before its graduates enter the ranks of practitioners.

Summary

During the first half of the 20th Century, two major trends were to be observed in the supply of Kentucky physicians. First, there was a general and considerable decrease in the number of physicians practicing in the state while the population of the state was gradually increasing. Second, physicians in increasing proportions were locating in larger urban centers. As a consequence, by 1955 Kentucky had one of the most unfavorable ratios of population to practicing physicians in the nation and was faced with particularly serious physician shortages in the more rural sections of the state.

⁸Work Projects Administration, Medical Historical Research Project, Medicine and its Development in Kentucky. Louisville: The Standard Printing Company, 1940.

⁹Approximately 38 percent of the 2,447 graduates of the University of Louisville Medical School who were in active private practice in 1950 were located in Kentucky. Dickinson, Frank G., Distribution of Medical School Alumni in the United States as of April, 1950. Bureau of Medical Economic Research Bulletin 101. Chicago: American Medical Association, 1956.

Since 1950 there have been some bright spots in a generally dark picture. The number of physicians practicing in the state has increased slightly during the past decade, resulting in a reversal in the long-time trend of rising population-physician ratios. Establishment of a medical school at the University of Kentucky is expected to increase the state supply of physicians even more rapidly within the next decade. There has also been an influx of younger physicians since World War II, evidenced by a marked lowering of the average age of practicing physicians in recent years. These younger and better-trained physicians, using newly developed medicines and medical techniques, are capable of providing more effective treatment for greater numbers of patients than was previously possible, while improved transportation and communication have made their services accessible to larger areas. Counter-balancing this increase in service potential, however, is the rapidly growing demand for medical service from a public becoming more fully aware of existing health needs and the possibilities that modern medicine offers for meeting those needs. The extent to which this growing demand can be met remains to be seen.

Despite whatever improvements may be made in the provision of medical service in Kentucky in the next few years, considerable differentials in the quantity and quality of service available in different areas of the state will probably continue to exist. For the many thousands of Kentuckians still living in isolated rural areas, the immediate prospect for medical service is not bright. In recent years few physicians have been willing to establish practices in such areas. In 1955, less than 10 percent of the state's physicians were located in places with fewer than 1,000 residents, and considerably more than half of this dwindling group of "country doctors" were over 60 years of age. Until more adequate provision is made for the medical care of the state's isolated rural residents, their health, already poor by state and national standards, will continue to pose a serious problem.