

MEDICAL TRAINING FACILITIES
AND
MEDICAL PRACTICE IN PENNSYLVANIA

General Assembly
of the
Commonwealth of Pennsylvania
JOINT STATE GOVERNMENT COMMISSION
Harrisburg, Pennsylvania
1967

The Joint State Government Commission was created by Act of 1937, July 1, P. L. 2460, as last amended 1959, December 8, P. L. 1740, as a continuing agency for the development of facts and recommendations on all phases of government for the use of the General Assembly.

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TASK FORCE ON ADMISSION POLICY OF SCHOOLS OF
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LETTER OF TRANSMITTAL

*To the Members of the General Assembly of the
Commonwealth of Pennsylvania:*

House Resolution No. 93, Printer's No. 519, Session of 1966, directs that "the Joint State Government Commission, through a duly appointed task force, investigate all Pennsylvania schools of medicine, schools of dentistry and schools of nursing for the purpose of examining and determining their existing policy regarding the admission of students and what is being done in each such school to increase the number of students admitted and trained because of the critical shortage of trained and qualified personnel in the fields of medicine, dentistry and nursing . . ."

This report concerns itself with findings and recommendations relating to schools of medicine.

In addition to presenting pertinent data relating to Pennsylvania appropriations to medical schools—which on a population basis are nearly twice as generous as state appropriations in the United States as a whole—the report discusses student characteristics, mental ability, race, and religious affiliation, the relationship between number of medical trainees and medical practitioners, and the geographic distribution of private practitioners in Pennsylvania, and calls attention to recent technological developments related to the teaching and practice of medicine. It will be a surprise to some that many rural areas have higher general practitioner–population ratios than some metropolitan counties.

I am sure it will give comfort to all of us that recent electronic inventions—automated patient screening and computerized diagnostic procedures—promise to extend dramatically the sphere of the individual medical practitioner.

The Commission wishes to express its appreciation to the Pennsylvania Medical Society and to the medical schools in Pennsylvania for their cooperation in supplying pertinent data.

MARIAN E. MARKLEY, *Chairman*

*Joint State Government Commission
Capitol Building
Harrisburg, Pennsylvania
August 1967*

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SUMMARY OF FINDINGS AND RECOMMENDATIONS

1. Since 1955, the Commonwealth has increased its annual appropriations to medical schools from \$5.4 million to \$10.5 million; the annual number of graduates has not increased; and per capita State appropriations to medical schools in Pennsylvania are nearly double the U. S. average.
2. In 1966–1967, the average appropriation was approximately \$24,500 per Pennsylvania-resident graduating student; when nonresident students are included the average appropriation becomes \$16,000 per graduating student.
3. The 1966–1967 appropriation per Pennsylvania-resident graduate ranged from approximately \$18,000 at Jefferson Medical College to \$47,000 at Woman's Medical College.
4. Sixty percent of the students in Pennsylvania medical schools in September, 1966, reported that their fathers were employed in professional, technical, or managerial occupations—three times the percentage that would be expected by chance; 13 percent reported that their fathers were physicians.
5. The future earnings of the students as physicians are likely to be far above average: average earnings of physicians and surgeons are over three times those of men in all other occupations, and over twice the average earnings of men in other professional and technical occupations.
6. Applicants to Pennsylvania medical schools, in some instances, are not notified of their acceptance or rejection until the month in which classes begin.
7. Applicants to medical schools are screened by reference to the Medical College Admission Test; the percentage of students who scored 600 or over ranged from 1 percent at the Philadelphia College of Osteopathy to 50 percent at the University of Pennsylvania School of Medicine; 18 percent or less scored below 500 at every school except the Philadelphia College of Osteopathy, where 66 percent scored below 500.
8. Of the students enrolled in the five schools which furnished information concerning the religious preference of their students, 26 percent indicated a Catholic preference; 32 percent, Jewish; and 32 percent, Protestant; 10 percent showed no religious preferences. Thirteen percent of the medical students were female and 1 percent were Negro.

9. Of the 629 graduates of the six medical schools in Pennsylvania in June, 1965, 300 interned in Pennsylvania hospitals. Foreign medical schools furnished 217 of the remaining 396 interns in Pennsylvania hospitals.
10. The number of physicians practicing in a state is largely determined by the personal income of the state's residents.
11. Every county in Pennsylvania has at least one general practitioner in private practice; the degree of urbanization does not determine the ratio of general practitioners to population.
12. As of April, 1967, there were 76 Pennsylvania communities requesting additional physicians through the Placement Service of the Pennsylvania Medical Society. Of the 76 communities, 25 were without physicians; of these, 18 were within 10 miles of a physician or hospital and the remaining 7 were within 18 miles. At the same time, 35 physicians had registered with the Pennsylvania Medical Society with a view of finding a place to practice in Pennsylvania.
13. Although the Pennsylvania Medical Society will refinance a physician's education debts and forgive up to 50 percent of the loan if he practices in a Pennsylvania rural area specified by the society, no physician had accepted this offer as of April, 1967. Loans (up to \$2,000 per school year) made by the federal government under the Public Health Service Act are forgiven at the rate of 15 percent per year for a medical school graduate who practices in a poor rural area.
14. Availability of medical services does not depend solely on the number of physicians. New approaches are improving both the development and communication of medical knowledge, facilitating diagnosis, and saving the physician's time, thereby increasing both the quality and availability of medical services.

It is recommended that:

1. The Board of Trustees of Woman's Medical College be urged to convert the medical school under its jurisdiction into a coeducational institution.
2. All medical schools be urged to accelerate the admission process.

SECTION I

Pennsylvania Medical School—Enrollment, Commonwealth Appropriations, and Student Characteristics

During the decade 1955–1965, the Commonwealth of Pennsylvania appropriated a total of \$65.8 million to the six medical schools—Hahnemann Medical College, Jefferson Medical College, University of Pennsylvania School of Medicine, University of Pittsburgh School of Medicine, Temple University School of Medicine, and Woman's Medical College. Over this same decade, these six schools enrolled a total of 4,720 Pennsylvania residents as first-year students and graduated 6,290 medical doctors (Pennsylvanians plus out-of-state students). In other words, appropriations to these Pennsylvania medical schools averaged almost \$14,000 per Pennsylvania resident enrolled as a first-year student, or \$10,500 per medical doctor graduated.¹

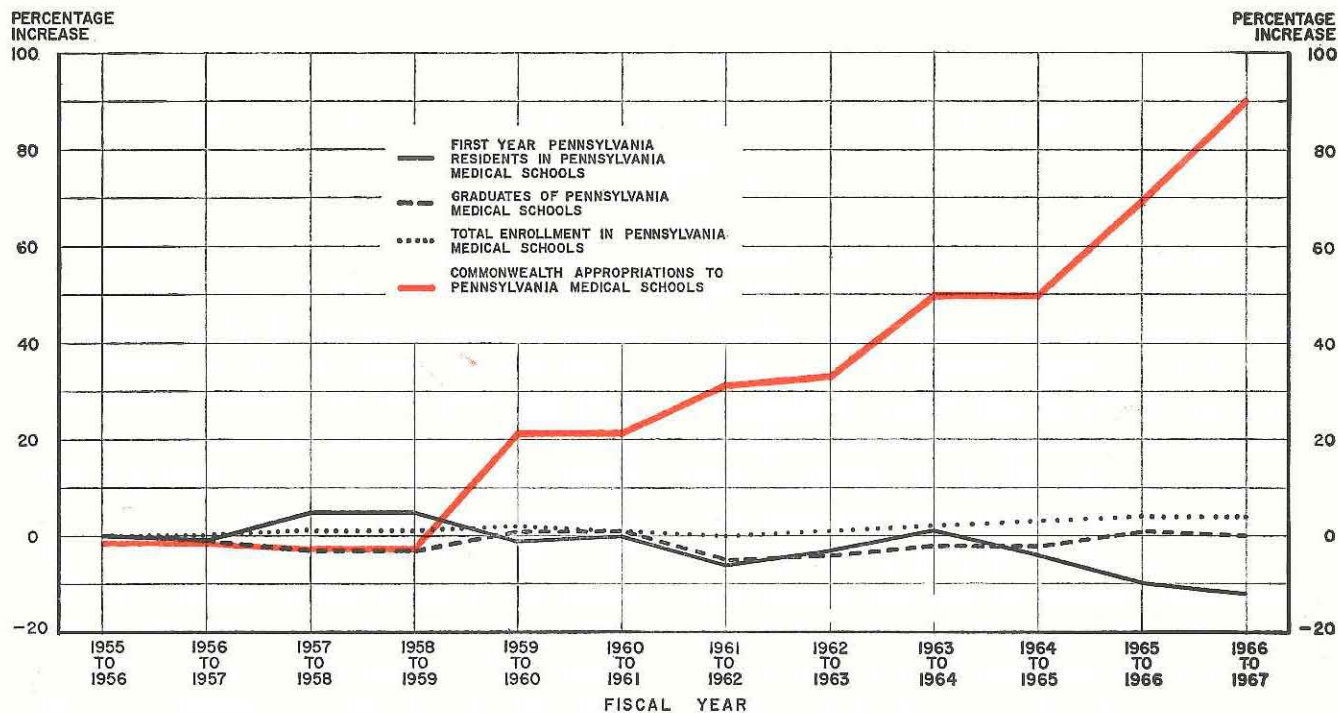
In the fiscal year 1966–1967, Commonwealth appropriations to the six Pennsylvania medical schools amounted to approximately \$10.5 million. The General Assembly is concerned with examining some of the results of this substantial appropriation. For instance, what is the cost to the Commonwealth per student? How does this cost vary from school to school? How did students at the various Pennsylvania medical schools score on the Medical College Admission Tests? Where do these students come from, and what are their family, economic, racial, and religious backgrounds? This report presents statistics and trends relevant to these questions.

¹ Comparable enrollment data for the Philadelphia College of Osteopathy over the time period are not available.

Trends in appropriations to, and enrollment in, the six Pennsylvania medical schools can be observed in Chart I, which shows percentage increases over the period 1955–1967 as related to the fiscal year 1955–1956. The red line on the chart indicates the percentage increases in Commonwealth appropriations to the six medical schools combined, including the tuition supplements to the medical schools of Pittsburgh and Temple, which are at state-related universities. By 1966–1967, total appropriations to the six medical schools had increased 93 percent over those in 1955–1956. In contrast, the dotted black line represents the percentage changes in total enrollment during the period—approximately 4 percent higher in 1966–1967 than in 1955–1956. The solid black line shows the changes in enrollment of first-year students who were Pennsylvania residents—in this case, a 12 percent decrease by 1966–1967.

The data on which Chart I is based are presented in Table 1 below, which also shows the appropriations to medical schools per student enrolled, per graduate, and per Pennsylvania first-year student (columns 6, 7, and 8, respectively). Commonwealth appropriations per medical student enrolled increased from \$2,073 in 1955–1956 to \$3,840 in 1966–1967, or 85 percent. Appropriations per graduate (Pennsylvanian or out-of-state resident) increased from \$8,424 to \$16,340, or 94 percent. Column 8 presents Commonwealth appropriations per Pennsylvania resident entering a

Chart I
 PENNSYLVANIA MEDICAL SCHOOL ENROLLMENT AND COMMONWEALTH APPROPRIATIONS
 FOR FISCAL YEARS 1955-1956 TO 1966-1967:
 PERCENTAGE INCREASES AS COMPARED WITH 1955-1956



SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; records of the individual medical schools.

Pennsylvania medical school. These appropriations rose from \$11,409 to \$24,955 over the period under consideration—an increase of 119 percent.²

In general, about half of the total expenditures by the medical schools is attributable to faculty salaries. The teaching load of individual members of a faculty varies from a full teaching schedule for some to a few hours of clinical instruction in an affiliated hospital for others. For this reason, pupil-teacher ratios, which indicate the teaching time allocated to an individual medical student, have been calculated on the basis of an estimated

“full-time-equivalent” faculty. It is generally assumed that, on the average, the time of four part-time faculty members is equivalent to that of one full-time faculty member. On this basis, the six Pennsylvania medical schools combined (excluding the Philadelphia College of Osteopathy) currently have an estimated 1.1 students per “full-time-equivalent” faculty member, as compared to 1.9 for all medical schools in the United States. However, the ratios of Hahnemann, Jefferson, and Woman’s Medical College closely approximate the national average; the ratio of Temple is near the state average. On the other hand, the University of Pennsylvania and University of Pittsburgh medical schools have pupil-teacher ratios

² The consumer price index during the period increased 20 percent; the index of medical care prices increased 36 percent.

well below 1.0; that is, they have substantially more "full-time-equivalent" faculty members than undergraduate medical students.

Students in the Pennsylvania medical schools in 1966-1967 paid an average annual tuition of \$1,287 (see column 9 of Table 1). This was a decrease of \$148 over the average tuition paid in 1964-1965. This overall decrease was due to a reduction of approximately \$1,000 in tuition for Pennsylvania residents attending the medical schools of the University of Pittsburgh and Temple University. The cost of this reduction (instituted at Temple in 1965 and at Pittsburgh in 1966) was assumed by

the Commonwealth and has been referred to above as the tuition supplement; in 1965-1966, Temple University School of Medicine received \$232,918, and in 1966-1967, the tuition supplement to the two schools together amounted to \$711,583. In spite of the reduction in tuition, the total number of Pennsylvania residents entering Pennsylvania medical schools was considerably less in 1965-1966 and 1966-1967 than in any of the preceding ten years (see column 4 of Table 1). Furthermore, as can be observed in column 9 of Table 1, the average annual tuition had increased steadily during the previous decade.

Table 1
ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION:
PENNSYLVANIA MEDICAL SCHOOLS*
FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations				
	Total	Graduates	1st-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per 1st-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	2,609	642	474	\$5,408,026	\$2,073	\$8,424	\$11,409	\$885
1956-57.....	2,618	633	468	5,408,026	2,066	8,543	11,556	934
1957-58.....	2,630	623	500	5,372,000	2,043	8,623	10,744	951
1958-59.....	2,641	620	496	5,372,000	2,034	8,665	10,831	1,012
1959-60.....	2,651	646	470	6,663,600	2,514	10,315	14,178	1,080
1960-61.....	2,640	646	472	6,663,600	2,524	10,315	14,118	1,177
1961-62.....	2,617	611	445	7,196,682	2,750	11,779	16,172	1,213
1962-63.....	2,642	614	461	7,322,000	2,771	11,925	15,883	1,260
1963-64.....	2,659	626	478	8,194,120	3,082	13,090	17,143	1,403
1964-65.....	2,686	629	456	8,194,120	3,051	13,027	17,970	1,435
1965-66.....	2,711	647	427	9,288,108†	3,426†	14,356†	21,752†	1,380
1966-67.....	2,723	640	419	10,456,033‡	3,840‡	16,340‡	24,955‡	1,287

* Does not include data concerning the Philadelphia College of Osteopathy.

† Includes the tuition supplement to the medical school of state-related Temple University.

‡ Includes the tuition supplement to the medical schools of state-related Temple University and University of Pittsburgh.

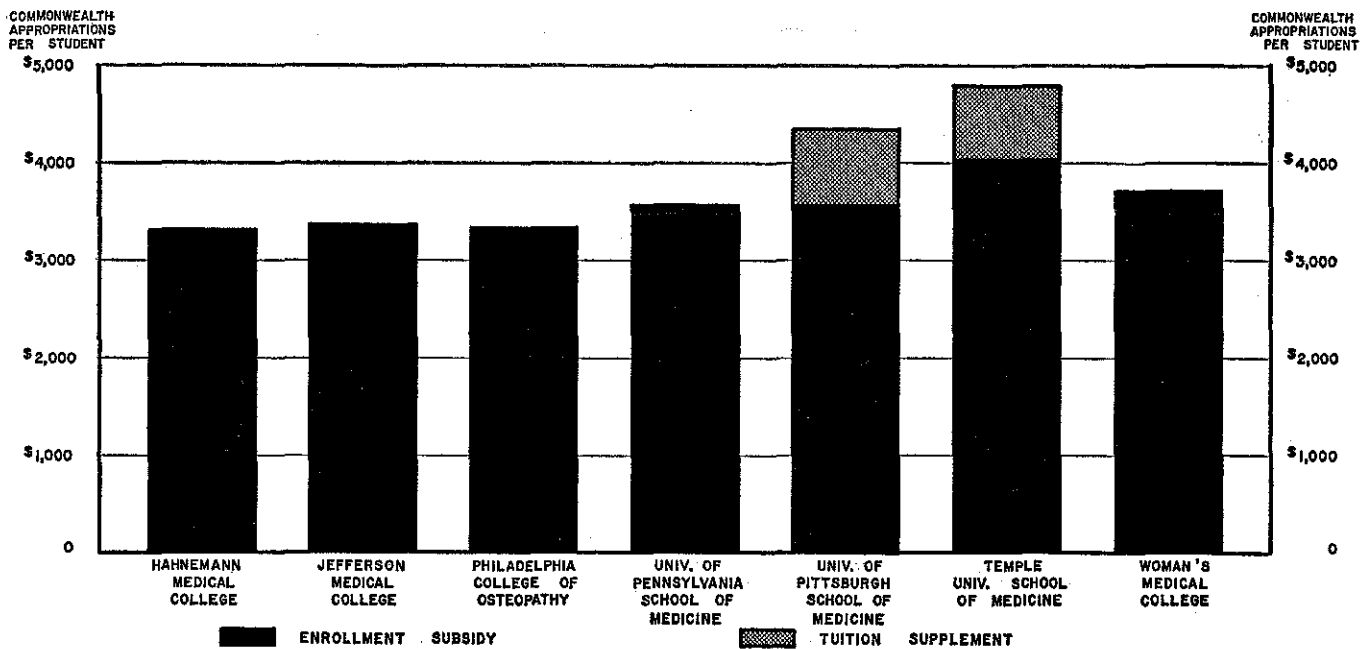
SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and records of the individual medical schools.

The Philadelphia College of Osteopathy, data for which are not included in Table 1, received total appropriations of \$2,181,000 from the Commonwealth during the decade 1955-1956 to 1964-1965. In the last year of this decade, 1964-1965, the Commonwealth appropriation to this school was \$583,000. In 1965-1966 the appropriation was increased to \$852,000, or 46 percent, and in 1966-1967 it was more than double that for 1964-1965, amounting to \$1,203,600. These increases resulted in subsidies comparable to those received by each of the six medical schools included in Table 1. Specifically, the appropriation to the Philadelphia College of Osteopathy in 1966-1967 amounted to \$3,334 per student enrolled, or an estimated appropriation per graduate of close to \$15,000, or \$21,000

per Pennsylvania entering-student. These subsidies are larger than those received by Hahnemann Medical College in 1966-1967 (see Appendix Table 1-A, columns 6, 7, and 8). In order to facilitate further similar comparisons, the data and computations for the six individual medical schools included in Table 1 are presented in Appendix Tables 1-A through 1-F.

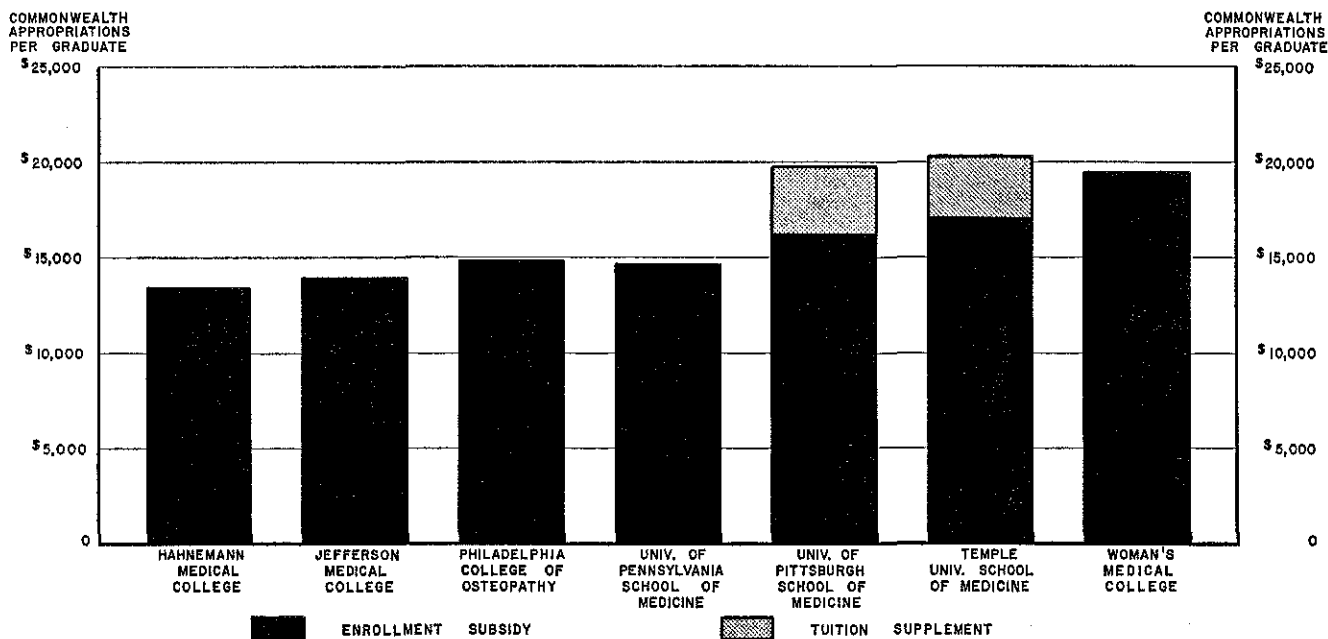
The subsidies to the schools differ considerably. Chart II shows the Commonwealth appropriations for each school per student enrolled in 1966-1967. Hahnemann and Jefferson medical colleges and the Philadelphia College of Osteopathy received slightly less than \$3,400 per student; the University of Pennsylvania School of Medicine received \$3,561; and Woman's Medical College, \$3,717.

Chart II
COMMONWEALTH APPROPRIATIONS PER STUDENT
TO PENNSYLVANIA MEDICAL AND OSTEOPATHIC SCHOOLS
BY SCHOOL
FOR FISCAL YEAR 1966-1967



SOURCES: Commonwealth of Pennsylvania, Office of the Auditor General, records; and records of the individual schools.

Chart III
 COMMONWEALTH APPROPRIATIONS PER GRADUATE
 TO PENNSYLVANIA MEDICAL AND OSTEOPATHIC SCHOOLS
 BY SCHOOL
 FOR FISCAL YEAR 1966-1967



SOURCES: Commonwealth of Pennsylvania, Office of the Auditor General, records; and records of the individual schools.

The University of Pittsburgh and the University of Pennsylvania schools of medicine received approximately the same regular appropriation per student; however, Pittsburgh received an additional tuition supplement of \$1,260 for each Pennsylvania resident. Since the Pennsylvania resident paid \$450 tuition, the total (tuition plus tuition supplement) received by the University of Pittsburgh for each Pennsylvania student was \$1,710, while the out-of-state student paid \$1,500. In the case of Temple University, the tuition supplement did not result in such a large discrepancy; the supplement amounted to \$1,034 for each Pennsylvania resident, so that the total amount (tuition plus supplement) received by Temple for a Pennsylvania resident medical student was \$1,484, com-

pared to the nonresident tuition of \$1,450. However, as regards the regular Commonwealth subsidy, Temple in 1966-1967 received the largest appropriation per student of any of the schools—\$4,000.

The average appropriation to each school per graduate is shown on Chart III; these averages are based on the number of graduates and the Commonwealth appropriation for the fiscal year 1966-1967. The bars in this chart indicate the magnitude of the Commonwealth subsidy for each graduate medical doctor. The appropriation per graduate to Hahnemann and Jefferson medical colleges was lower than that to any of the other schools—actually less than \$14,000. In the same year, Woman's Medical College received \$19,441 per graduate

—an amount close to those of Temple and Pittsburgh, including their tuition supplements. As a matter of fact, in six of the twelve years from 1955 to 1967, Woman's Medical College had the highest appropriation per graduate. The data for each year, by individual schools, are presented in the Table 1 series in the Appendix; for appropriation per graduate, see column 7 of this series.

The Commonwealth appropriation per Pennsylvania resident graduating student can be estimated for 1966-1967 on the basis of the number of Pennsylvania residents who were in the senior class in 1966-1967. The Commonwealth appropriation, as related to Pennsylvania resident graduating student, for the six medical schools, amounted to \$24,500; Hahnemann and Jefferson were less than this average—\$19,000 and \$18,000 respectively—and Woman's, at \$47,000, was almost double the average.

The majority of graduates of Woman's Medical College are out-of-state residents; the relatively small number of Pennsylvania residents in each class can be observed in column 4 of Appendix Table 1-F. The consequently large appropriation related to the number of Pennsylvania residents entering the college may be observed in column 8 of the same table—\$42,122 in 1966-1967.

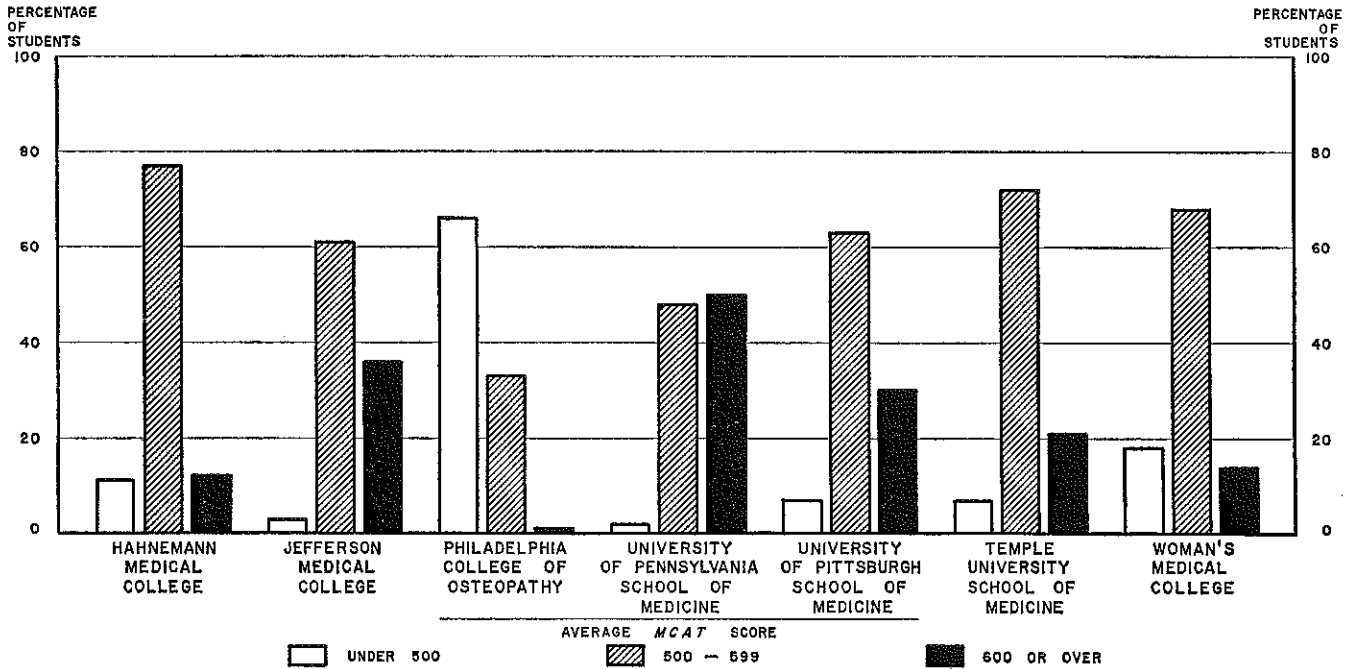
Briefly then, some six hundred medical students are being graduated each year from Pennsylvania medical schools at a current average cost to the Commonwealth of approximately \$16,300 per graduate. Who are these students? Where do they live? What are their family backgrounds? What are their medical aptitudes? The following paragraphs and tables present data relevant to these questions.

The first characteristic to be considered is that of medical aptitude, which is measured in terms of Medical College Admission Test scores. Differences in ratings in medical aptitude are first shown in chart form to facilitate an understanding of the differences in the distributions of the students.

Since the Medical College Admission Test is generally required of all students entering medical school, the scores obtained in these tests (four for each student and known as MCAT scores) furnish a common measure for an evaluation of medical aptitude. For purposes of comparison, the scores of the four parts of the test have been averaged for students attending Pennsylvania medical schools in 1966-1967. Chart IV shows the percentage distribution of the students of each school by three score intervals: less than 500, 500 to 599, and 600 or more. Except for Woman's Medical College and the Philadelphia College of Osteopathy, the schools had a larger percentage of students with scores of 600 or more than of students with scores of less than 500. The University of Pennsylvania had 50 percent—by far the highest among the schools—of students having an average score of 600 or more. At the other extreme, the Philadelphia College of Osteopathy had the largest percentage of students with an average score less than 500. Except for these two extremes, the majority of students in the medical schools had an average MCAT score somewhere between 500 and 599.

A problem faced by many applicants is uncertainty as to which, if any, medical schools will admit them. Although the schools send notices of acceptance or rejection to some applicants a year in advance, some other applicants are not

Chart IV
 PERCENTAGE DISTRIBUTION OF STUDENTS AT PENNSYLVANIA MEDICAL AND OSTEOPATHIC SCHOOLS
 BY AVERAGE MEDICAL COLLEGE ADMISSION TEST SCORES, BY SCHOOL
 SEPTEMBER 1966



SOURCE: Records of the individual schools.

notified until the month that classes begin. Delays are due in part to (1) the fact that applicants typically apply to more than one school, and (2) the decision of one school relating to one applicant may depend on the decisions of other schools and other applicants.

If each medical school would make available to college guidance officers a distribution of the MCAT scores of its student body, this might reduce the frequency with which college students file medical school applications that have little likelihood of eventuating in enrollments.

In order to compare the students enrolled in Pennsylvania medical schools with those enrolled

in medical schools in the United States as a whole, the average MCAT scores of all students, and of all students who are residents of Pennsylvania, are shown for each school, by year of admission, in Table 2. The scores shown for all U. S. medical schools are averages for all students entering in the years shown; for Pennsylvania schools, the scores are averages for students entering in the years shown and still enrolled in 1966-1967.³ For students entering in 1965, the average score for the

³Since the first-year dropout rate in Pennsylvania medical schools is less than 6 percent, the average score of students still enrolled in 1966-1967 would not be more than 6 points higher than the average score of all those admitted in 1965-1966, even if all the dropouts had very low scores.

Table 2
 AVERAGE MCAT SCORES* OF MEDICAL AND OSTEOPATHIC STUDENTS
 BY YEAR OF ADMISSION, BY SCHOOL, BY RESIDENCE STATUS
 1963-1966

Medical School	Year of Admission				
	1963-66	1966	1965	1964	1963
(1)	(2)	(3)	(4)	(5)	(6)
All U.S. Medical Schools.....	NA	NA	560	549	545
All Pa. Medical Schools†					
All students.....	571	579	579	570	556
Pa.-resident students.....	568	576	577	567	554
<i>Hahnemann Medical College</i>					
All students.....	547	554	559	543	531
Pa.-resident students.....	543	549	554	539	529
<i>Jefferson Medical College</i>					
All students.....	583	593	596	582	561
Pa.-resident students.....	579	593	592	582	557
<i>University of Pennsylvania</i>					
All students.....	598	604	598	595	595
Pa.-resident students.....	599	602	606	592	596
<i>University of Pittsburgh</i>					
All students.....	571	577	580	567	560
Pa.-resident students.....	566	573	577	562	552
<i>Temple University</i>					
All students.....	561	568	566	562	549
Pa.-resident students.....	560	566	565	563	550
<i>Woman's Medical College</i>					
All students.....	543	565	549	546	501
Pa.-resident students.....	537	571	544	541	507
<i>Phila. College of Osteopathy</i>					
All students.....	483	497	478	484	472
Pa.-resident students.....	483	490	480	486	474

* The MCAT scores used in computing this table are averages of scores in the four parts of the Medical College Admission Test. The scores shown for all United States medical schools are averages for all students entering in the year shown; for Pennsylvania schools, the scores are averages for students entering in the year shown and still enrolled in 1966-67.

† Philadelphia College of Osteopathy is omitted from the state average, since schools of osteopathy are not included in the national average.

SOURCES: Based on data from *The Journal of the American Medical Association*, Vol. 198, No. 8 (November 21, 1966), p. 194; and data furnished by the individual medical schools.

United States as a whole was 560, as compared to the average of 579 for the six Pennsylvania medical schools. Similar differences can be observed in 1963 and 1964. (The scores of students enrolled in the Philadelphia College of Osteopathy are excluded from the state average, since the national average does not include schools of osteopathy.)

Of the six medical schools included in the average, Woman's Medical College and Hahnemann Medical College are the only two whose averages were below those of the United States. Comparable data are shown in Appendix Table 2 for the science part of the Medical College Admission Test scores. It may be seen from both Table 2 and Appendix

Table 2 that the scores of Pennsylvania residents are very closely related to the scores of students as a whole in Pennsylvania medical schools.

Table 3 presents distributions of the students enrolled in Pennsylvania medical schools in the school year 1966-1967, by state of residence, MCAT score, sex, race, religious preference, and

father's occupation. The last bank of the data, which shows the percentage distribution of students by father's occupation, suggests that the majority of medical students come from families whose income is well above average. Of the students in the seven schools whose Commonwealth appropriations are discussed above, 60 percent had

Table 3
PERCENTAGE DISTRIBUTIONS OF STUDENTS AT PENNSYLVANIA MEDICAL AND OSTEOPATHIC SCHOOLS
BY SELECTED CHARACTERISTICS, BY SCHOOL
SEPTEMBER, 1966

	<i>All Schools</i>	<i>Hahnemann</i>	<i>Jefferson</i>	<i>Osteopathy</i>	<i>University of Pennsylvania</i>	<i>University of Pittsburgh</i>	<i>Temple University</i>	<i>Woman's</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Total Enrollment</i>	3,084	427	664	361	501	378	549	204
<i>Residence</i>	100%	100%	100%	100%	100%	100%	100%	100%
Pennsylvania.....	62	72	66	67	50	61	74	30
New Jersey.....	12	12	16	15	12	6	10	9
New York.....	10	9	7	7	9	16	5	32
Highest remaining state.....	3	3	2	3	2	5	1	6
All other states.....	13	4	9	8	27	12	10	23
<i>MCAT Score*</i>	100%	100%	100%	100%	100%	100%	100%	100%
600 or over.....	26	12	36	1	50	30	21	14
500-599.....	61	77	61	33	48	63	72	68
Under 500.....	13	11	3	66	2	7	7	18
<i>Sex</i>	100%	100%	100%	100%	100%	100%	100%	100%
Male.....	87	93	93	96	95	92	90	—
Female.....	13	7	7	4	5	8	10	100
<i>Race</i>	100%	100%	100%	100%	100%	100%	100%	100%
White.....	98	98	100	98	99	98	99	92
Negro.....	1	1	†	2	1	1	1	2
Other.....	1	1	†	—	†	1	†	6
<i>Religious Preference</i>	100%‡	100%	100%	100%	100%	NA	100%	NA
Catholic.....	26‡	33	28	32	15	NA	22	NA
Jewish.....	32‡	38	31	33	33	NA	28	NA
Protestant.....	32‡	25	28	35	36	NA	38	NA
Other, none, or unknown.....	10‡	4	13	—	16	NA	12	NA
<i>Father's Occupation</i>	100%	100%	100%	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	13	9	16	8	18	12	14	9
Other professional, technical or managerial.....	47	50	53	34	49	46	44	47
Sales or other white collar.....	17	17	15	19	16	19	17	18
Craftsman, farmer or other blue collar.....	11	13	10	11	7	14	11	14
Other or unknown.....	12	11	6	28	10	9	14	12

* Average score for the four parts of the Medical College Admission Test.

† Less than .5 percent.

‡ Based on the five schools that furnished data on religious preference.

SOURCE: Records of the individual schools.

fathers in professional, technical, or managerial occupations (including 13 percent whose fathers were physicians); according to the 1960 census, only 20 percent of the Pennsylvania males aged 45 to 60 in the experienced labor force were similarly employed. The 1960 census also shows that, for men in this age bracket, average annual earnings in the professional, technical, or managerial occupations were some \$4,500 higher than in all occupations combined.

In addition, the future earnings of the medical students themselves are likely to be over three times the average earnings of all other men of the same age, and more than twice the average earnings of all other men in professional or technical occupations.

Although the schools do not ask questions regarding race or religious affiliation prior to admission, five (Hahnemann, Jefferson, Osteopathy, Pennsylvania, and Temple) do obtain statements concerning religious preference at time of registration. The fifth bank in Table 3 presents the percentage distribution of the students by their statements of religious preference. Column 2 shows that, of the student body of 1966–1967 in these five schools combined, 26 percent indicated Catholic preference; 32 percent, Jewish; 32 percent, Protestant; and 10 percent, no religious preference. Among these individual schools (columns 3, 4, 5, 6, and 8), the percentages range from 15 percent to 33 percent for Catholic preference, 28 percent to 38 percent for Jewish, and 25 percent to 38 percent for Protestant.

Only approximate distributions of the total Pennsylvania population by religious affiliation can be obtained, since the methods of reporting church membership differ widely even within a single denomination, and many persons who are not members of any religious organization may still indicate a religious preference. However, all

available data point to a wide divergence between the distributions of medical students and the population as a whole. For example, the Pennsylvania Department of Internal Affairs reported that of the total Pennsylvania population of 11,459,000, there were 3,577,000 members of Catholic churches (31 percent) and 2,563,000 members of Protestant churches (22 percent).⁴ In addition, the department reported that 12,906 Jewish families were associated with Reformed synagogues and 23,768 Jewish families were associated with Conservative synagogues. By converting the numbers of families into a count of individuals, it would appear that approximately 132,000 (or 1 percent) were of the Jewish faith; this number does not include Jews associated with Orthodox synagogues. According to the *American Jewish Yearbook* of 1965, there were 443,745 Jews in Pennsylvania in 1964—which was 4 percent of the state's population.

Of the total United States population of some 188 million, the membership in religious bodies was as follows in 1964: 24 percent Catholics, 36 percent Protestants, and 3 percent Jews.

Although the Jewish representation in Pennsylvania medical schools far exceeds the Jewish representation in either the Pennsylvania or United States population, this does not necessarily mean that medical school admission policies give preference to Jews. The larger representation of Jews among medical students suggests a greater interest in the medical profession on the part of Jewish students. The experience of residents of New York State is consistent with this hypothesis. Of students entering medical schools in the United States, 15.5 percent come from New York, which has 9.3 percent of the total population and 40 percent of the Jewish population in the United States.

The first bank of data in Table 3, column 2, shows that New Jersey and New York are the two

⁴ *Pennsylvania Statistical Abstract, 1966*, pp. 22–24.

states, other than Pennsylvania, with the highest representation in Pennsylvania medical schools. Woman's Medical College has the largest percentage from New York, 32 percent, compared with 30 percent from Pennsylvania. The University of Pittsburgh has the next largest representation from New York, 16 percent. Neither of these schools has a record of the religious preference of its students. Jefferson Medical College has the largest percentage from New Jersey. Again, income appears to be a factor; the states, other than Pennsylvania, from which most of the students come are the states with high per capita income. For example, the per capita income of both New York and New Jersey was \$3,242 in 1965, as compared to Pennsylvania's \$2,727.

Among the people most underrepresented in

Pennsylvania medical schools are the Negroes. As is shown in the fourth bank of Table 3, column 2, only 1 percent of the students in Pennsylvania medical schools are Negro, some of whom are non-American Negroes. In comparison, 7.5 percent of all Pennsylvania residents and 10.5 percent of all United States residents are Negro. It has been suggested that the MCAT scores tend to understate the potential of Negro students, and if the race of applicants were known at the time of application, the admissions committees could make allowance for this understatement.

As shown in the third bank of the table, women are also underrepresented in Pennsylvania medical schools: 13 percent of the medical students are women, as compared with 51 percent of the Pennsylvania population as a whole.

SECTION II

Medical Internships in Pennsylvania Hospitals

Historically, medical education has consisted of a combination, in varying proportions, of theoretical classroom training and practical bedside experience. The early hospitals were charitable institutions where the young doctor, having heard lectures and passed examinations, obtained actual experience under the guidance of a master. As early as the beginning of the seventeenth century, such practical clinical experience was recognized as an essential factor of medical training.

Today, medical school programs include clinical training obtained through the assistance and cooperation of affiliated hospitals. During his last two years of medical school training, the student receives concentrated clinical training in these hospitals, but it is still deemed necessary that the new graduate obtain further practical experience by serving an internship under an organized hospital training program approved by the American Medical Association.

There is keen competition among hospitals to attract interns who, while they are gaining practical experience, can help in the care and treatment of patients. In fact, they furnish living quarters near the hospital and offer salaries for the privilege of "training" the young doctors; this is particularly true of the unaffiliated community hospitals. In the United States as a whole in 1965, interns were offered a salary of over \$4,000 in 54 percent of the hospitals not affiliated with medical schools, as compared with 28 percent of the hospitals with medical school affiliations.

Medical school graduates are currently placed in hospitals as interns by the National Intern Matching Program of the American Medical As-

sociation. The approved available internships are listed, the medical school senior names his first three hospital choices, and each approved hospital sends a list of its student choices. In the 1965-1966 matching program, 727 hospitals throughout the nation, including 72 Pennsylvania hospitals, offered internship programs.

Table 4, below, shows that—size of hospital aside—individual hospitals were more successful in filling authorized internships in Pennsylvania than in the United States as a whole. However, it may be noted in the table that only 22 percent of the Pennsylvania hospitals had all of their authorized internships filled in 1965-1966 while 31 percent had less than half of the hoped-for number of interns. Detailed data concerning the internships in each Pennsylvania hospital having an

Table 4
PERCENTAGE DISTRIBUTIONS OF HOSPITALS
BY PERCENT OF INTERNSHIPS FILLED:
UNITED STATES AND PENNSYLVANIA
1965-1966

<i>Percent of Authorized Internships Filled</i>	<i>United States Hospitals</i>	<i>Pennsylvania Hospitals</i>
(1)	(2)	(3)
100%.....	15%	22%
50-99.....	28	47
25-49.....	14	22
1-24.....	15	6
0.....	28	3

SOURCES: *Journal of the American Medical Association*, November 15, 1965; Commonwealth of Pennsylvania, Department of State, State Board of Medical Education and Licensure; and *Directory of Approved Internships and Residencies* (Chicago: American Medical Association, 1964).

authorized intern program are presented in Appendix Table 4.

Unless a hospital is assured a comparatively constant supply of interns from one year to the next, it is difficult to establish and maintain any worthwhile educational program for interns. The few who intern in the hospitals having a large part of their authorized internships unfilled may receive little or no instruction from skilled staff members, who at the same time are probably carrying a heavier than anticipated work load.

The table below shows, for 1965-1966, the authorized internships in the United States, the distribution of authorized internships in Pennsylvania, and the numbers and percentages filled. Further details regarding interns and internships in Pennsylvania are shown in Appendix Table 5.

As Table 5 shows, for all hospitals combined, the United States as a whole was slightly more successful than Pennsylvania in filling authorized internships for 1965-1966. The differences among regions within Pennsylvania are more striking.

The last column of the table reflects the attractiveness of both metropolitan areas and school-affiliated hospitals, with 88 percent of the authorized internships in Philadelphia hospitals filled. The total number of authorized internships, 971 (column 2), is 54 percent higher than the number of students graduated from Pennsylvania medical schools in 1965. The total number of internships filled, 696 (column 3), is, on the other hand, closer to the number of graduates, 629. However, only 300 of the interns in Pennsylvania hospitals actually graduated from Pennsylvania medical schools; 179 were graduated from other medical schools in the United States; 6 from Canadian schools; and 211, or 30 percent, were graduated from medical schools outside of the United States and Canada. In the United States as a whole, 24 percent of the interns were graduates of medical schools outside of the United States and Canada. In the previous year, this percentage was the same for Pennsylvania as for the United States.

Table 5
 AUTHORIZED INTERNSHIPS AND NUMBER FILLED:
 UNITED STATES, AND PENNSYLVANIA BY REGIONS
 1965-1966

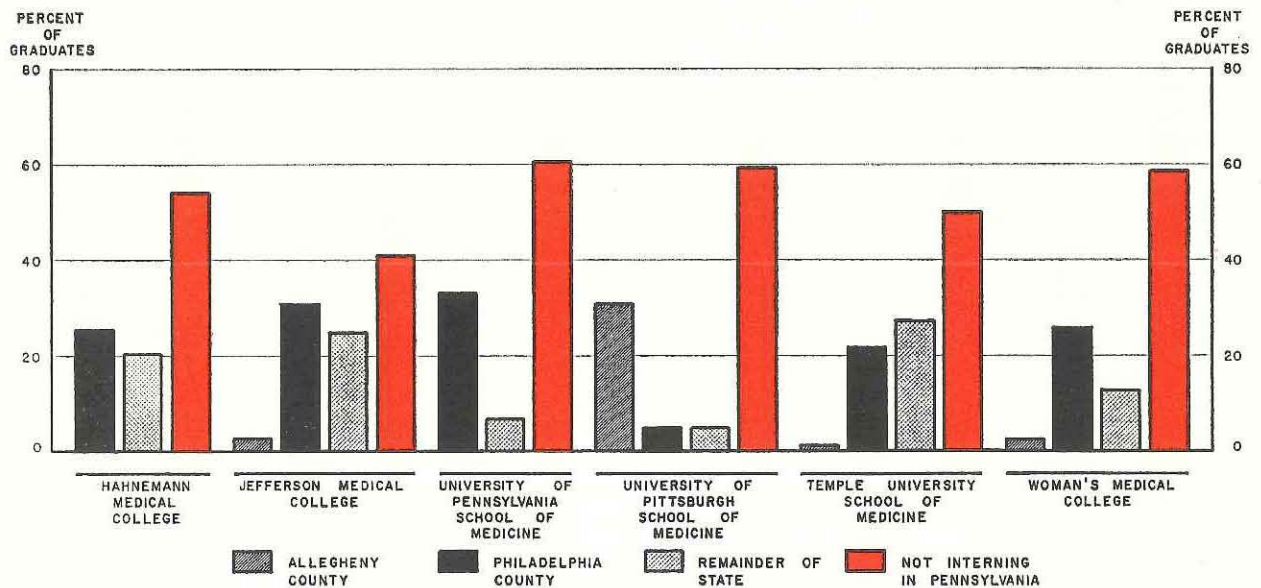
<i>Region</i>	<i>Authorized Internships</i>	<i>Internships Filled</i>	<i>Percent of Authorized Internships Filled</i>
(1)	(2)	(3)	(4)
United States.....	12,954	9,670	75%
Pennsylvania—Total.....	971	696	72
Allegheny County.....	195	130	67
Philadelphia.....	418	366	88
Remainder of state.....	358	200	56

SOURCES: *Journal of the American Medical Association*, November 15, 1965; Commonwealth of Pennsylvania, Department of State, State Board of Medical Education and Licensure; and *Directory of Approved Internships and Residencies* (Chicago: American Medical Association, 1964).

Chart V shows the percentage distribution of graduates of Pennsylvania medical schools by the geographic region of internship. The red bars on the chart indicate the percent of the 1965 graduates who did not intern in Pennsylvania hospitals in 1965; only in the case of Jefferson was this less than 50 percent. A large percentage of the graduates from the University of Pittsburgh interned

in Allegheny County, while Philadelphia proved the most attractive area to graduates of the five medical schools in that city. Temple University School of Medicine was the only school in Philadelphia which had a larger percentage of its graduates interning in Pennsylvania counties other than Philadelphia or Allegheny.

Chart V
 PERCENTAGE DISTRIBUTION OF PENNSYLVANIA MEDICAL SCHOOL GRADUATES
 BY LOCATION OF INTERNSHIP
 BY SCHOOL OF GRADUATION
 1965-1966



SOURCES: Commonwealth of Pennsylvania, Department of State, State Board of Medical Education and Licensure; *Directory of Approved Internships and Residencies* (Chicago: American Medical Association, 1964); *The Journal of the American Medical Association*, November 15, 1965.

SECTION III

Production and Supply of Physicians—Pennsylvania and Comparable States

During the past decade, Pennsylvania, with approximately 6 percent of the United States population, has contributed about 11 percent of the money appropriated by all states combined for medical schools. It has been claimed that State appropriations to privately controlled medical schools increase both the opportunities of Pennsylvanians to obtain a medical education and the number of physicians available to the members of the Pennsylvania community. The effectiveness of appropriations in achieving these goals can be measured objectively in terms of the number of residents who enter medical school, the number of graduates of medical schools within the state, and the increase in the number of physicians practicing in the state. These factors are presented in Chart VI for Pennsylvania and nine comparable states¹ for the decade 1955 to 1965. The corresponding numbers may be found in Appendix Table 6.

In order to facilitate comparisons, the factors for each state are shown in Chart VI as percentages of the corresponding totals for the United States. Observation of the chart affords a comparison of the different relative magnitudes of these factors as aligned with the population. If the number of entering students, graduates, or increase in physicians, as a percentage of the state's population, is the same as the corresponding percentage for the United States as a whole, the relevant symbol on the chart for that state will fall on the diagonal line showing the population percentage; that is, this line indicates the expected

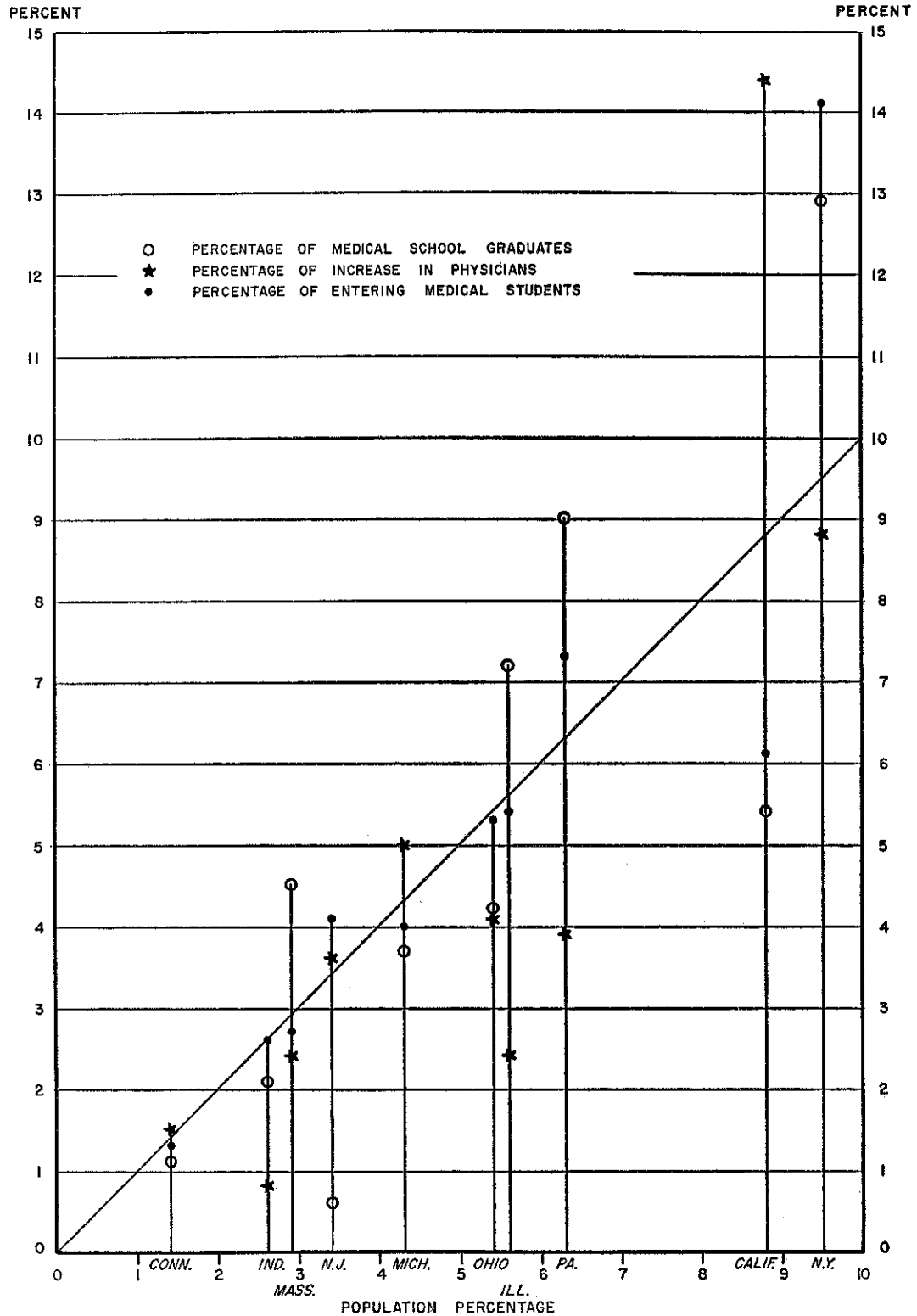
values for each state according to its population. Specifically, Pennsylvania had half again as many graduates (indicated by o) as would be expected on the basis of its population, but had little more than half the increase in physicians (indicated by ★). California, on the other hand, had fewer medical graduates but a greater increase in physicians than expectable on the basis of its population. New Jersey had slightly more than the expected increase in physicians, in spite of the fact that it produced very few medical graduates.

Observation of the chart suggests that states which provide more medical school capacity than would be expected on the basis of their population are generally net importers of medical students and net exporters of medical doctors. Again, those states which provide less medical school capacity than would be expected on the basis of their population generally seem to be net exporters of medical students and net importers of graduates who practice within the state.

The number of state residents entering medical schools most closely follows population. Except for California and New York, a comparatively stable portion of the population of the states under observation entered medical school in the decade 1955 to 1965. The students in 1965 followed the same pattern: except for New York, with 7 per 10,000 population entering medical schools, and California, with but 3 per 10,000 population, the states under review had ratios close to the United States average of 4.5 per 10,000 population. As is to be expected from observation of Chart VI, Pennsylvania's ratio (5.4) was slightly higher than

¹ The states were chosen on the basis of income and population characteristics.

Chart VI
 PERCENTAGES OF U. S. TOTALS OF ENTERING MEDICAL STUDENTS,
 MEDICAL SCHOOL GRADUATES, AND INCREASE IN NUMBER OF PHYSICIANS
 IN RELATION TO PERCENTAGE OF U. S. POPULATION
 FOR SELECTED STATES FOR THE DECADE 1955-1965



SOURCES: U. S. Bureau of the Census, *Statistical Abstract of the United States* (Washington, D. C., 1956 to 1966, inclusive); *The Journal of the American Medical Association*, education numbers for pertinent years.

that for the United States. Whether these 1965 first-year medical students entered public or private schools, in or outside their state of residence, is shown in Table 6, which also presents the average tuition for each category.

The ten states included in the discussion account for 50 percent of the United States population. The 4,626 first-year medical students who were residents of these states accounted for 54 percent of all the first-year medical students in the United States in 1965-1966. They paid an average of \$1,286 tuition. As was observed in Table 1, the average tuition paid by students attending Pennsylvania medical schools in 1965-1966 was \$1,380;

at that time, Temple was the only Pennsylvania medical school with reduced tuition for Pennsylvania residents. With the reduction of tuition for Pennsylvania residents at the University of Pittsburgh in 1966, the average tuition of students in Pennsylvania medical schools dropped to \$1,287, approximately the same as the 1965 ten-state average.

Of the 4,626 students in Table 6, 42 percent attended public medical schools, for which they paid an average tuition of \$795; those attending public schools within their own state paid, on the average, \$700; while those attending public schools outside their state of residence paid \$1,236.

Table 6
STUDENTS FROM SELECTED STATES ENTERING MEDICAL SCHOOLS IN THE UNITED STATES:
NUMBERS AND AVERAGE TUITION
BY OWNERSHIP OF SCHOOL, BY RESIDENCE STATUS
SEPTEMBER, 1965

State of Residence	All Medical Schools		Private Medical Schools				Public Medical Schools			
	Number	Tuition	In State		Out-of-State		In State		Out-of-State	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
California.....	573	\$1,114	116	\$1,682	163	\$1,663	254	\$491	40	\$1,181
Connecticut.....	116	1,584	5	1,600	89	1,699	.....	.....	22	1,114
Illinois.....	483	1,182	144	1,786	108	1,682	197	450	34	1,274
Indiana.....	234	819	.....	.....	35	1,681	195	655	4	1,293
Massachusetts.....	207	1,640	78	1,761	89	1,669	.....	.....	40	1,341
Michigan.....	343	886	.....	.....	38	1,680	299	779	6	1,187
New Jersey.....	374	1,476	.....	.....	274	1,680	59	750	41	1,155
New York.....	1,315	1,449	429	1,843	423	1,637	371	824	92	1,268
Ohio.....	386	1,211	39	1,560	110	1,697	212	882	25	1,319
Pennsylvania.....	595	1,340	427	1,250	128	1,692	.....	.....	40	1,175
Totals and Averages for 10 states.....	4,626*	\$1,286	1,238	\$1,601	1,457	\$1,669	1,587	\$700	344	\$1,236

* These 4,626 students represent 54 percent of all students who entered United States medical schools in 1965-66, and the 10 states account for 50 percent of the United States population.

SOURCE: Calculations based on data from *The Journal of the American Medical Association*, Vol. 198, No. 8 (November 21, 1966), pp. 180-181, 258-61.

The average tuition paid by resident students at private medical schools in each of the other nine states (from \$1,560 in Ohio to \$1,843 in New York) was higher than at every Pennsylvania medical school except one: the tuition at the University of Pennsylvania Medical School was \$1,850. At the other Pennsylvania medical schools, tuition ranged from \$490 to \$1,500 for Pennsylvania residents and from \$1,350 to \$1,500 for non-residents.

Do the state appropriations increase the number of physicians practicing in the Commonwealth? The random ordering in Chart VI of the graduate students (○) and of the increase in physicians (★) provides no support for the contention that there is a relationship between these factors. And Chart VII, which shows, for all states having one or more four-year medical schools, the increase in physicians and the number of medical school graduates in the decade 1955–1965, further indicates a lack of any consistent relationship. For example, Massachusetts, Ohio, and California all graduated about the same number of medical students during the decade, but the increase in number of physicians ranged from 1,821 in Massachusetts (No. 13 on the chart) to 11,105 in California (No. 2). Again, Michigan (No. 14), with fewer graduates than Massachusetts, experienced more than twice Massachusetts' increase in number of physicians. Furthermore, New Jersey (No. 18), Ohio (No. 21), and Texas (No. 24) had

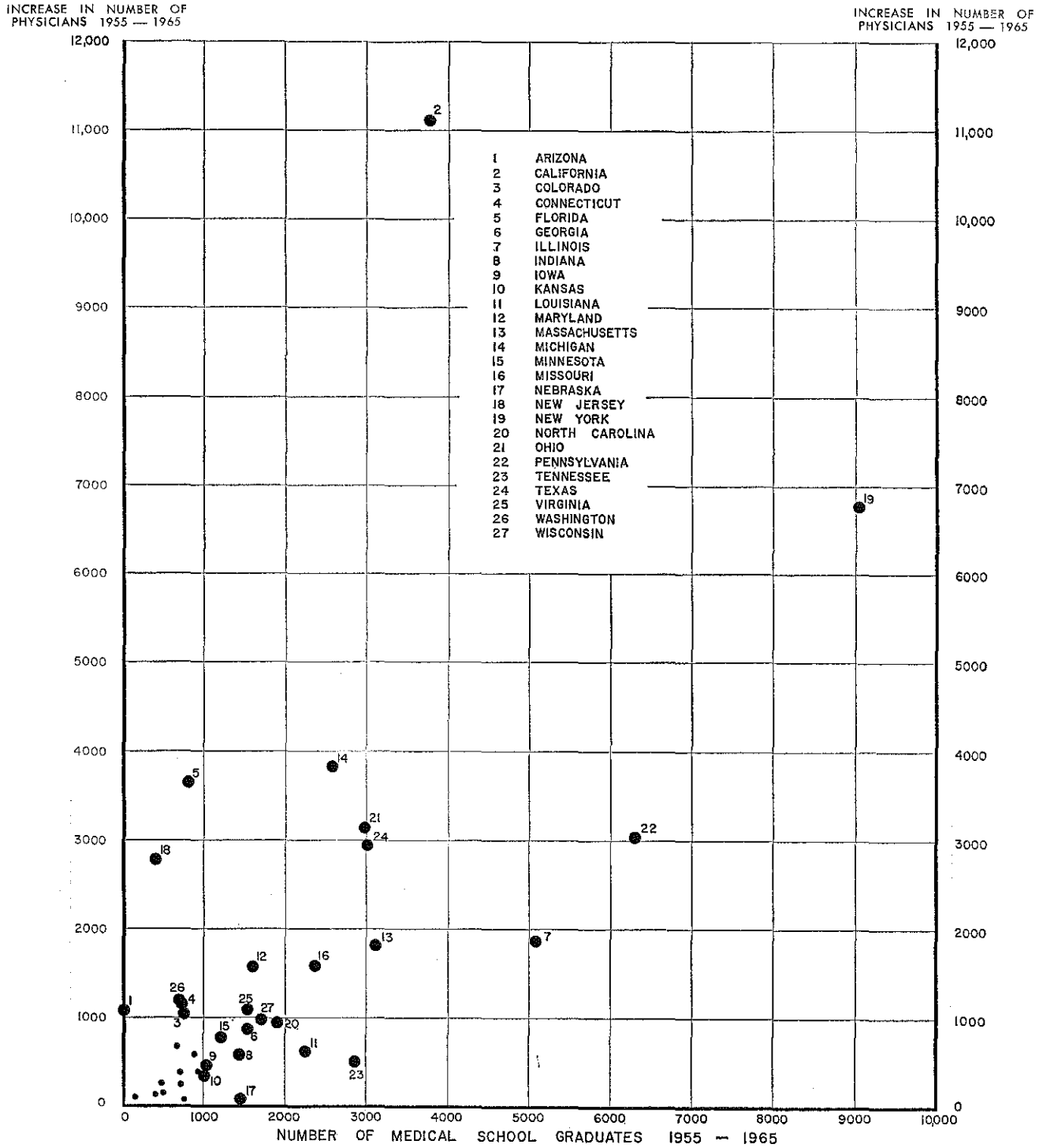
about the same increase in physicians as Pennsylvania (No. 22), yet each of the three states produced less than half as many medical graduates as did Pennsylvania.

It appears that the medical school training capacity in a state does not determine either the number of residents who seek medical training or the number of trained physicians who decide to practice in the state. This does not mean that the existence of medical schools in the state is of no value to the residents of the state. For example, a school and its affiliated hospitals in which medical research is in progress and modern clinical facilities are available attracts leading medical scholars. Such scholars are available for consultation and treatment of the residents of the community. As transportation becomes less and less of a problem, this means that practically all residents of Pennsylvania are within a few hours' travel time of specialists who are involved in up-to-the-minute research at seats of medical learning.

In 1912, Abraham Flexner made a study of the distribution of physicians in Europe. His finding that "any conclusion as to the 'proper number of physicians' must therefore take account of the possibilities of their earning a living"² is still applicable today.

² Abraham Flexner, *Medical Education in Europe*. A Report to The Carnegie Foundation for the Advancement of Teaching, Bulletin Number Six (1912), p. 16.

Chart VII
 INCREASE IN NUMBER OF PHYSICIANS COMPARED TO NUMBER OF MEDICAL SCHOOL GRADUATES
 FOR ALL STATES WITH MEDICAL SCHOOLS, FOR THE DECADE 1955-1965*



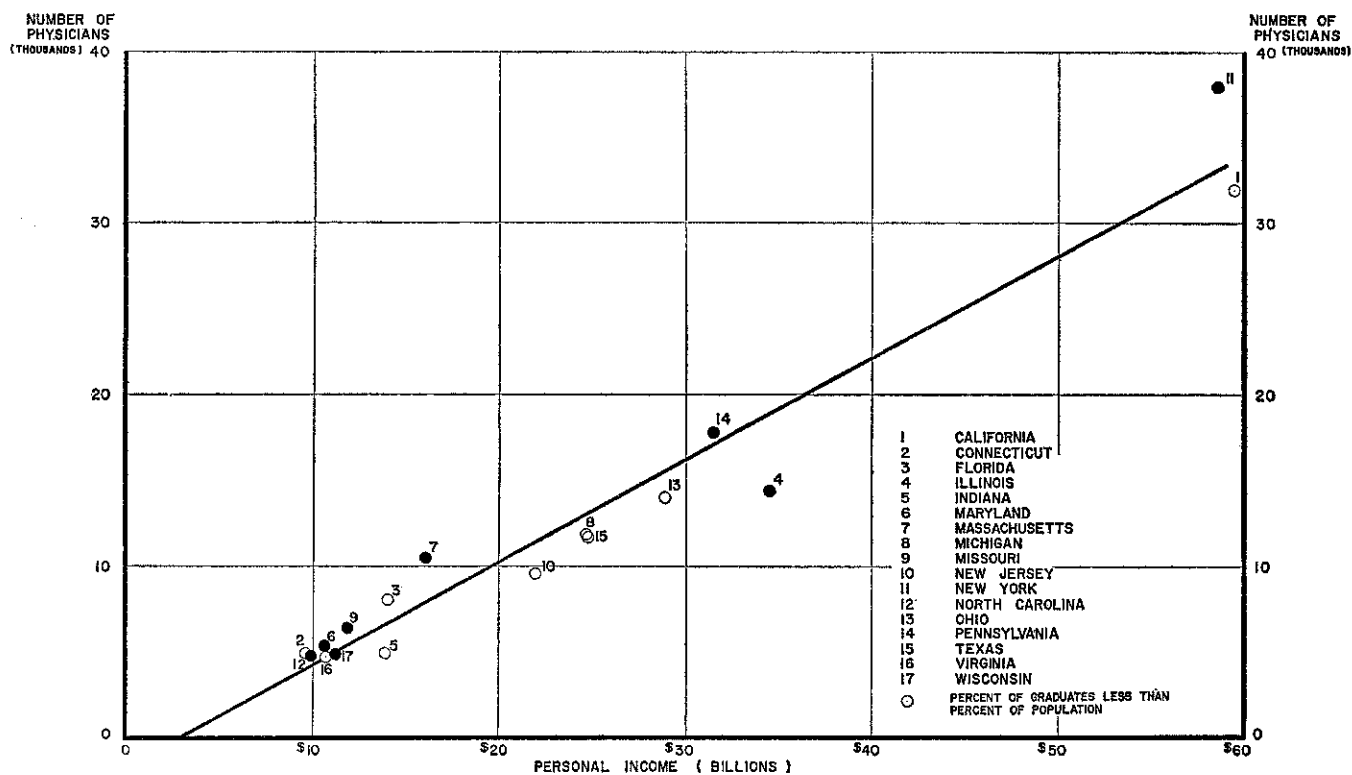
* Of all states having no medical schools, Arizona alone had an increase of over 1000 physicians. If all other states with no medical schools were shown on the chart, their dots would be directly below that for Arizona.

SOURCES: U. S. Bureau of the Census, *Statistical Abstract of the United States* (Washington, D. C., 1956 to 1966, inclusive); *The Journal of the American Medical Association*, education numbers for pertinent years.

The location of physicians is closely related to the number of people in an area and their ability to pay for medical services. Chart VIII shows the number of physicians in a given state for 1965, in relation to the total personal income of the residents of the state for the same year. The states shown are those compared with Pennsylvania in Chart VI, and, in addition, all other states with total personal income in the same range. As may be seen from the chart, the number of physicians

in a state is highly correlated with total personal income. In fact, variations in personal income account for 95 percent of the variation in number of physicians among these states. Chart VIII shows that the number of physicians practicing in a state can, in general, be closely estimated if the total personal income of the state's residents is known, regardless of the number of physicians trained in the state.

Chart VIII
 NUMBER OF PHYSICIANS DECEMBER 31, 1964
 AS RELATED TO TOTAL PERSONAL INCOME CALENDAR YEAR 1965
 FOR PENNSYLVANIA AND COMPARABLE STATES



SOURCE: U. S. Bureau of the Census, *Statistical Abstract of the United States: 1966* (87th edition). Washington, D. C. 1966.

SECTION IV

Availability of Medical Services in Pennsylvania

Pennsylvania currently has more medical school graduates as related to its share of population than any of the comparable states except Massachusetts.¹ It was demonstrated in the previous section that an expansion of Pennsylvania's medical schools could not reasonably be expected to have any measurable effect upon its share of physicians. Furthermore, the increased number of medical school graduates in the United States has not perceptibly altered the urban-rural distribution of medical services, and, as a result, public and private organizations throughout the country have established various programs in an attempt to influence the location of medical services. In order to facilitate judgment regarding the adoption or expansion of any of these programs by Pennsylvania, both the supply of, and requests for, medical services in the Commonwealth should be considered.

As of January, 1966, Pennsylvania had a total of 16,602 physicians, of whom 10,973 were in private practice. Of those in private practice, 4,255 were general practitioners. The distribution of Pennsylvania physicians in private practice is represented on Chart IX, which shows the number of physicians per 100,000 population for each county. An entire bar on the chart indicates this ratio for *all* physicians in private practice;² this includes specialists and general practitioners. The shaded part

represents the physicians in private *general* practice. The counties have been ordered by population density (number of persons per square mile) to facilitate analysis.

Several facts become apparent on examination of the chart:

1. Every county in Pennsylvania has at least one physician in private general practice.
2. The degree of urbanization, as measured by population density, has a slight effect upon the supply of *all* physicians in private practice but no effect upon the supply of physicians in private *general* practice.

The difference between the supply of all private practitioners and those in general practice is due largely to the specialists in the urban areas and can be observed by comparisons with the state medians. With regard to all physicians in private practice, three of the twelve most densely populated counties have less than the state median, while two of the twelve most rural counties have more than the state median. In the case of general practitioners, seven out of twelve counties at each end of the population density scale have as many or more than the state median.

The search for physicians is not instigated simply in the instances of low supply as related to population. Further examination of Chart IX shows little relationship between the requests to the Physician Placement Service of the Pennsylvania Medical Society for additional physicians and the supply of physicians per 100,000 population. The number immediately to the left of

¹ See Appendix Table 6 for percentages.

² The calculations exclude physicians not in private practice, since the availability of their services varies from one situation to another.

each bar indicates the number of communities in the county which, as of April, 1967, had registered requests with the society. Montgomery, Lackawanna, and Schuylkill counties all have a supply of physicians well above the state median, yet each has a community requesting an additional physician. Franklin County, slightly above the median, has 7 communities requesting physicians. In all, 32 of the 76 communities requesting physicians are in counties with a supply of general practitioners at least as great as the state median. On the other hand, Sullivan County, with the smallest supply of general practitioners in the state, is not registered as needing a physician. Perry is another such county—well below the state median and not requesting any additional physicians.

Further analysis of the 76 communities in 45 counties registered as requesting additional physicians shows that 51 currently have at least one physician practicing in the community and only 7 of the remaining 25 are more than ten miles from medical services. The following table lists, for each of these 7 communities, the distance to the nearest hospital or medical service center, the population of the community, and the population of the trading area.

<i>County</i>	<i>Community</i>	<i>Population</i>	<i>Trade Area Population</i>	<i>Distance to Nearest Medical Facility</i>
(1)	(2)	(3)	(4)	(5)
Armstrong	Sagamore-Beyer	2,000	5,000	18 miles
Bradford	LeRaysville	350	NA	15 miles
Clearfield	Mahaffey	600	3,800	14 miles
Juniata...	East Waterford	300	1,000	18 miles
McKean...	Mt. Jewett	1,400	3,000	13 miles
Potter...	Austin	900	NA	16 miles
Potter...	Ulysses	600	NA	15 miles

The populations of these places may be compared with the Pennsylvania average of 2,700 persons per general physician in private practice.

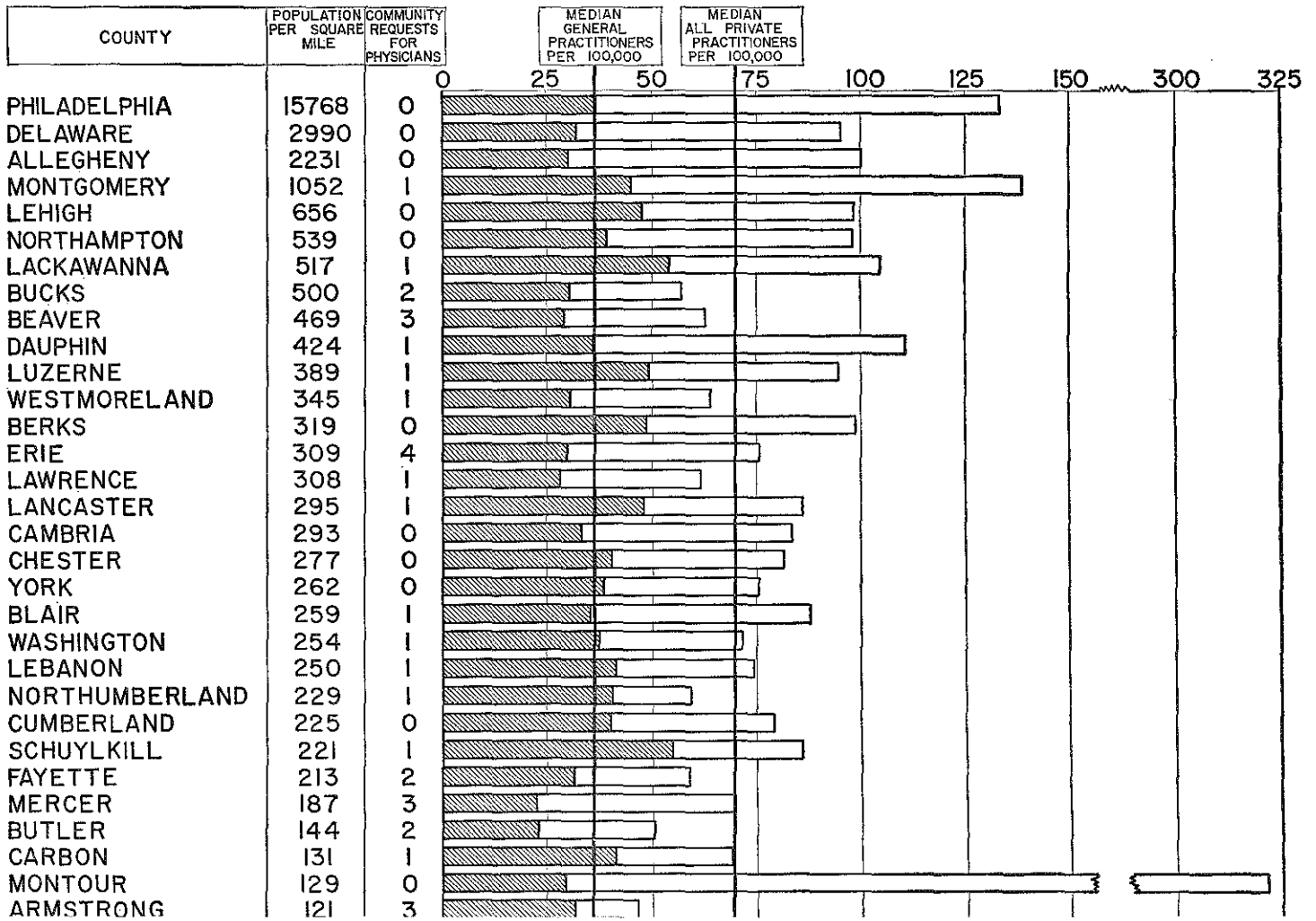
On the other hand, as regards available physicians, the medical society has a list of about 35 physicians who are looking for a place to practice in Pennsylvania. Physicians registered with the society are provided with pertinent facts on each community looking for a physician, including, in addition to its population, a recent medical survey and statistics regarding schools, churches, industry, and recreational facilities.

Usually one of the first health services obtained by a community is an ambulance, and in most cases it is acquired through local community effort alone. When residents decide they need an additional physician, the community may be guided in its efforts by the county and state medical societies. Another source of supply of physicians is the hospital with an internship program. However, only 23 counties in Pennsylvania have hospitals with internship programs.³ If a community is looking for physicians who will be needed in the future rather than immediately, it may encourage bright young residents to study medicine and come back to the area to practice, or it may establish a preceptorship for medical students in cooperation with a medical school.

A nationwide plan which is dependent upon the efforts of the residents of a community is The Community Medical Assistance Plan, developed by the Sears Roebuck Foundation in cooperation with the American Medical Association and the state medical societies. Communities looking for additional medical services learn of the plan through their medical societies and through reports in newspapers, farm publications, and medical journals. In Pennsylvania, material concerning the plan is distributed annually at the Farm Show in Harrisburg. When a community initiates the search for a physician and appeals for assistance,

³ See Appendix Table 4 for the hospitals which have internship programs, by county.

Chart IX
 PHYSICIANS IN PRIVATE PRACTICE IN PENNSYLVANIA, BY COUNTY, 1966



the foundation makes an economic survey to determine the amount the community can be expected to spend for the services of a physician practicing in the area. This is based on a sample estimate of the age distribution of the population, the types of diseases treated in the past year, and the number of office visits made to physicians in other communities. The availability of hospital services, employment patterns, and the types of industry are also considered. If the results of the survey indicate both the need for, and the ability to finance, a physician, plans are drawn up for the construction of a new medical clinic or the renovation of an existing structure which can be used as an outpatient clinic. The money for this work is raised by the community. The American Medical Association and the state medical societies search for a physician who will be willing to practice in the area—with the possibility of rent-free offices and equipment for the first year and increasing rent as his ability to pay increases. Some communities also obtain such medical assistants as nurses, technicians, or medical secretaries. When the community is large enough, a two-doctor clinic may be constructed.

As of April 4, 1967, four communities in Pennsylvania had physicians who had been obtained through the foundation's services: Blandon in Berks County, Conneautville and Linesville in Crawford County, and Jonestown in Lebanon County. At that time, five other communities in Pennsylvania were in the process of establishing such clinics: Boswell in Somerset County, Conway in Beaver County, Greencastle in Franklin County, Nuremberg in Schuylkill County, and Renovo in Clinton County.

These projects are all dependent upon initial local community action. However, many programs originating at the state level, in other states as well as in Pennsylvania, also rely heavily upon the local community for initiative and support. For example, although Oklahoma's university-

centered "Project Responsibility" provides for a state-wide inventory of health-science personnel, the "pilot project" currently being established is to be carried out in a community which has subscribed some \$250,000 to provide a health center. While there are 8,500 persons living within a 20-mile radius of this project, the community itself has but 450 residents. This particular community health center is to be staffed by three permanent physicians: an internist, a pediatrician, and a general practitioner. They will be able to consult with each other and will also have active teaching appointments at the University of Oklahoma Medical School.

In order that the newly established physicians will be able to meet expenses, the Oklahoma plan proposes a trust fund to guarantee a minimum annual income. However, as is the policy of the Sears Roebuck Foundation, a center will not be established unless a survey of the area has first indicated the community's ability to support it.

Another program originated on the state level is the Kansas Rural Health Plan, which encourages small communities to build clinics in order to attract physicians. It, too, is university centered. One of the major efforts of the program is a series of intensive, circuit-type courses for physicians of the state. Each year, six teaching units visit eight towns and present six-hour programs, including lectures, demonstrations, and round table discussions. Again, the success of the entire program depends upon the efforts of the local community.

In many states, scholarship and loan funds are available to medical students willing to practice in those areas of the state which have demonstrated their need for additional medical services. Various organizations, such as local chapters of labor unions, county bureaus of the American Farm Bureau Federation, and state medical societies, have established funds for financial assistance to such students. However, beginning students who have expressed an interest in rural practice may,

in their third or fourth year in medical school, become interested and involved in areas of study which lead to specialization and an urban practice.

The Pennsylvania Medical Society has established a trust fund through which it will refinance a physician's education debts and, over a period of time, forgive up to 50 percent of the loan if he practices in a Pennsylvania rural area specified by the society. The Federal Government also has a loan-forgiveness provision: for each year that the medical school graduate practices in a poor rural area, the Federal Government will forgive 15 percent of his Federal loan for education (as much as \$2,000 per academic year) up to 100 percent.⁴

The demand for general practitioners is only a reflection of the more general demand for the ready availability of medical services. How will the current socioeconomic trends and the technical advances of the electronic age affect the problems and current projects related to the availability of medical services? While the shifting age distribution and the expansion of public and private health insurance plans tend to increase the demand for medical services, the use of more rapid transportation facilities such as expressways and, more recently, helicopters can be expected to alleviate the pressure for more uniform geographic distribution of physicians. Moreover, as the medical sciences accept and utilize the new techniques of the electronic age, the entire concept of medical services and their availability are likely to undergo marked revision.

An indication of the marked changes occurring in the medical sciences may be obtained from a few examples.

While closed television circuits are already increasing the number of students who can hear lectures and see close-up demonstrations, as well as enabling a close monitoring of many hospital

patients, the possibilities envisioned by use of electronic robots would appear limitless. One such robot is Sim One, which breathes and blinks its eyes. It is instrumented in its head and chest in such a manner that, for example, a student can practice slipping a tube down the throat into the windpipe without damaging delicate tissues—a technique which usually takes three to four months to master but which, with the robot, can be learned in a few days.

Several computer systems have been devised to handle patient accounting, medication reporting, and laboratory test reporting. Four hospitals in the Minneapolis area are now using such a system. It is operated by Blue Cross-Blue Shield, which expects to be handling nine hospitals by 1968. In Peoria, Illinois, a hospital information system is expected to be fully operational and serve eleven hospitals and 2,200 beds by 1968.

Leading computer manufacturers, in cooperation with physicians, have been developing partially automated screening and diagnostic techniques. For example, computers at Hartford Hospital in Connecticut can diagnose in 15 seconds electrocardiograph impulses sent over telephone lines from wherever the patient is located.

At Duke University's Clinical Chemistry Laboratories, an electronic console is used to split a thimbleful of blood into smaller specimens and simultaneously perform a dozen tests. The result is that blood analyses, done at the rate of 50 an hour in 1955, can now be done at the rate of 500 an hour. Tentative diagnoses are often evaluated by one or two blood tests, but the additional tests sometimes point to previously unsuspected disorders. Some hospitals in Pennsylvania have recently installed similar blood analyzers.

One leading computer company has developed a program to help diagnose most adult diseases. The doctor gives the patient's age, weight, sex, temperature, blood pressure, and observed symptoms of the illness to the computer, which then responds

⁴U. S., Congress, Allied Health Professions Personnel Training Act, Public Law 89-751, 89th Cong., 2d Sess. (1966), p. 1438.

with a list of all diseases which might account for this set of symptoms. It then requests further information from the doctor and narrows the list of possible diseases. When the patient's illness is fairly well defined, the computer can also tell the doctor the commonly accepted treatment. The program is called the Clinical Decision Support System. The ever-increasing amount of medical knowledge can be stored in the machine and the doctor does not have to rely on his own memory. As in the case of a consultation, the doctor may reject the advice.

A multiphasic screening program has been developed at the Kaiser hospitals in California, so that a patient can receive some 30 screening tests, including an electrocardiograph, blood tests, X-

rays, and eye examinations, all within two-and-one-half hours. The results of most of these tests are reported before the patient leaves the clinic, and if any additional tests are indicated, these, too, can be given at that time. Dr. Morris Collen, director of the Kaiser program, feels that the door is just being opened and that in ten years every large medical center will have a major automated multiphasic screening facility.

These examples illustrate the fact that the availability of medical services may be increased in many ways. The development of computer programs and other diagnostic aids enable a physician to serve more patients in a given length of time, and improved transportation facilities broaden the area which a physician can effectively serve.

Appendix Table 1-A
 HAHNEMANN MEDICAL COLLEGE:
 ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION
 FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations				
	Total	Graduates	Ist-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per Ist-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	399	95	73	\$786,000	\$1,970	\$8,274	\$10,767	\$847
1956-57.....	398	97	68	786,000	1,975	8,103	11,559	922
1957-58.....	394	96	85	798,000	2,025	8,313	9,388	922
1958-59.....	393	93	79	798,000	2,031	8,581	10,101	922
1959-60.....	386	90	75	969,956	2,513	10,777	12,933	982
1960-61.....	384	93	83	969,957	2,526	10,430	11,686	1,087
1961-62.....	380	81	66	1,047,552	2,757	12,933	15,872	1,087
1962-63.....	391	86	66	1,064,000	2,721	12,372	16,121	1,302
1963-64.....	393	92	75	1,188,000	3,023	12,913	15,840	1,427
1964-65.....	406	94	75	1,188,000	2,926	12,638	15,840	1,427
1965-66.....	417	91	81	1,343,100	3,221	14,759	16,581	1,427
1966-67.....	427	106*	77	1,418,800	3,323	13,385	18,426	1,562

* Number of graduates is estimated as the number in the senior class.

SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and Hahnemann Medical College.

Appendix Table 1-B
 JEFFERSON MEDICAL COLLEGE:
 ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION
 FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations				
	Total	Graduates	Ist-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per Ist-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	677	171	123	\$1,348,000	\$1,991	\$7,883	\$10,959	\$883
1956-57.....	682	165	135	1,348,000	1,977	8,170	9,985	883
1957-58.....	682	158	127	1,360,000	1,994	8,608	10,709	883
1958-59.....	677	166	124	1,360,000	2,009	8,193	10,968	983
1959-60.....	659	163	119	1,674,036	2,540	10,270	14,068	994
1960-61.....	645	167	117	1,674,037	2,595	10,024	14,308	1,062
1961-62.....	633	146	119	1,807,958	2,856	12,383	15,193	1,162
1962-63.....	643	148	126	1,772,400	2,756	11,976	14,067	1,162
1963-64.....	649	154	139	1,929,000	2,972	12,526	13,878	1,367
1964-65.....	653	157	118	1,929,000	2,954	12,287	16,347	1,367
1965-66.....	652	154	106	2,164,800	3,320	14,057	20,423	1,367
1966-67.....	664	160*	100	2,229,900	3,358	13,937	22,299	1,390

* Number of graduates is estimated as the number in the senior class.

SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and Jefferson Medical College.

Appendix Table 1-C
UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE:
ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION
FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations				
	Total	Graduates	Ist-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per Ist-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	500	124	77	\$1,060,287	\$2,121	\$8,551	\$13,770	\$970
1956-57.....	503	126	76	1,060,288	2,108	8,415	13,951	1,000
1957-58.....	509	126	81	1,006,000	1,976	7,984	12,420	1,000
1958-59.....	506	125	88	1,006,000	1,988	8,048	11,432	1,100
1959-60.....	521	131	79	1,323,165	2,540	10,100	16,749	1,200
1960-61.....	518	130	69	1,323,166	2,554	10,178	19,176	1,400
1961-62.....	508	134	68	1,429,018	2,813	10,664	21,015	1,420
1962-63.....	503	130	75	1,416,800	2,817	10,898	18,891	1,520
1963-64.....	503	120	78	1,593,000	3,167	13,275	20,423	1,520
1964-65.....	510	124	73	1,593,000	3,124	12,847	21,822	1,650
1965-66.....	512	132	58	1,733,000	3,385	13,129	29,879	1,850
1966-67.....	501	122*	59	1,784,100	3,561	14,624	30,239	1,850

* Number of graduates is estimated as the number in the senior class.

SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and University of Pennsylvania School of Medicine.

Appendix Table 1-D
UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE:
ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION
FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations†				
	Total	Graduates	Ist-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per Ist-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	363	87	94	\$785,720	\$2,165	\$9,031	\$8,359	\$815
1956-57.....	362	91	79	785,720	2,170	8,634	9,946	1,048
1957-58.....	365	80	87	800,000	2,192	10,000	9,195	1,048
1958-59.....	378	80	83	800,000	2,116	10,000	9,639	1,096
1959-60.....	379	97	76	943,992	2,491	9,732	12,421	1,346
1960-61.....	373	91	78	943,993	2,531	10,374	12,102	1,350
1961-62.....	369	78	81	1,019,511	2,763	13,071	12,587	1,400
1962-63.....	379	86	67	1,033,200	2,726	12,014	15,421	1,400
1963-64.....	373	86	60	1,188,180	3,185	13,816	19,803	1,500
1964-65.....	370	84	72	1,188,180	3,211	14,145	16,502	1,500
1965-66.....	374	90	64	1,291,620	3,454	14,351	20,182	1,500
1966-67.....	378	83*	61	1,639,783	4,338	19,756	26,882	1,500§ 450||

* Number of graduates is estimated as the number in the senior class.

† For 1966-67, includes the tuition supplement.

§ Applies to non-Pennsylvania residents.

|| Applies to Pennsylvania residents.

SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and University of Pittsburgh School of Medicine.

Appendix Table 1-E
 TEMPLE UNIVERSITY SCHOOL OF MEDICINE:
 ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION
 FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations‡				
	Total	Graduates	Ist-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per Ist-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	488	125	92	\$1,066,018	\$2,184	\$8,528	\$11,587	\$850
1956-57.....	491	114	98	1,066,019	2,171	9,351	10,878	850
1957-58.....	495	118	109	1,035,000	2,091	8,771	9,495	900
1958-59.....	507	115	108	1,035,000	2,041	9,000	9,583	950
1959-60.....	521	125	108	1,300,705	2,497	10,406	12,044	950
1960-61.....	519	125	107	1,300,706	2,506	10,406	12,156	1,000
1961-62.....	521	126	100	1,404,761	2,696	11,149	14,048	1,000
1962-63.....	520	124	108	1,458,800	2,805	11,765	13,507	1,000
1963-64.....	524	131	106	1,674,940	3,196	12,786	15,801	1,268
1964-65.....	530	124	103	1,674,940	3,160	13,508	16,262	1,308
1965-66.....	545	132	104	2,019,688	3,706	15,301	19,420	1,490§ 490||
1966-67.....	549	130*	104	2,625,250	4,782	20,194	25,243	1,450§ 450||

* Number of graduates is estimated as the number in the senior class.

‡ For 1965-66 and 1966-67, includes the tuition supplement.

§ Applies to non-Pennsylvania residents.

|| Applies to Pennsylvania residents.

SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and Temple University School of Medicine.

Appendix Table 1-F
 WOMAN'S MEDICAL COLLEGE:
 ENROLLMENT, COMMONWEALTH APPROPRIATIONS, AND AVERAGE TUITION
 FOR FISCAL YEARS 1955-1956 TO 1966-1967

Fiscal Year	Enrollment			Commonwealth Appropriations				
	Total	Graduates	Ist-yr. Pa.-res. Students	Total	Per Student	Per Graduate	Per Ist-yr. Pa.-res. Student	Average Annual Tuition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955-56.....	182	40	15	\$362,000	\$1,989	\$9,050	\$24,133	\$975
1956-57.....	182	40	12	362,000	1,989	9,050	30,167	975
1957-58.....	185	45	11	373,000	2,016	8,289	33,909	1,075
1958-59.....	180	41	14	373,000	2,072	9,098	26,643	1,075
1959-60.....	185	40	13	451,743	2,442	11,294	34,749	1,080
1960-61.....	201	40	18	451,744	2,247	11,294	25,097	1,280
1961-62.....	206	46	11	487,882	2,368	10,606	44,353	1,295
1962-63.....	206	40	19	576,800	2,800	14,420	30,358	1,250
1963-64.....	217	43	20	621,000	2,862	14,442	31,050	1,350
1964-65.....	217	46	15	621,000	2,862	13,500	41,400	1,350
1965-66.....	211	48	14	735,900	3,488	15,331	52,564	1,350
1966-67.....	204	39*	18	758,200	3,717	19,441	42,122	1,350

* Number of graduates is estimated as the number in the senior class.

SOURCES: *The Journal of the American Medical Association*, education numbers for pertinent years; Commonwealth of Pennsylvania, Office of the Auditor General, records; and Woman's Medical College.

Appendix Table 2
 AVERAGE MCAT SCIENCE SCORES* OF MEDICAL AND OSTEOPATHIC STUDENTS
 BY YEAR OF ADMISSION, BY SCHOOL, BY RESIDENCE STATUS
 1963-1966

Medical School	Year of Admission				
	1963-66	1966	1965	1964	1963
(1)	(2)	(3)	(4)	(5)	(6)
<i>All U.S. Medical Schools</i>	NA	NA	560	549	545
<i>All Pa. Medical Schools†</i>					
All students.....	569	570	577	576	555
Pa.-resident students.....	568	566	577	575	555
<i>Hahnemann Medical College</i>					
All students.....	552	546	570	560	534
Pa.-resident students.....	547	535	568	553	533
<i>Jefferson Medical College</i>					
All students.....	580	587	591	584	560
Pa.-resident students.....	576	584	588	584	555
<i>University of Pennsylvania</i>					
All students.....	590	581	591	595	590
Pa.-resident students.....	593	583	603	590	594
<i>University of Pittsburgh</i>					
All students.....	575	575	590	583	549
Pa.-resident students.....	570	564	588	579	544
<i>Temple University</i>					
All students.....	566	566	566	574	562
Pa.-resident students.....	566	564	563	575	564
<i>Woman's Medical College</i>					
All students.....	516	545	523	511	468
Pa.-resident students.....	512	551	513	512	483
<i>Phila. College of Osteopathy</i>					
All students.....	474	482	479	479	453
Pa.-resident students.....	470	470	476	483	450

* The scores shown for all United States medical schools are averages for all students entering in the year shown; for Pennsylvania schools, the scores are averages for students entering in the year shown and still enrolled in 1966-67.

† Philadelphia College of Osteopathy is omitted from the state average, since schools of osteopathy are not included in the national average.

SOURCES: Based on data from *The Journal of the American Medical Association*, Vol. 198, No. 8 (November 21, 1966), p. 194; and data furnished by the individual medical schools.

Appendix Table 3-A
HAHNEMANN MEDICAL COLLEGE:
PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>Year of Admission</i>				
	<i>All Years</i>	<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	427	110	108	103	106
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	72	70	70	74	69
New Jersey.....	12	14	6	10	14
New York.....	9	10	10	9	7
Highest remaining state.....	3	2	4	3	5
All other states.....	4	4	10	4	5
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	12	13	17	10	8
500-599.....	77	81	79	78	70
Under 500.....	11	6	4	12	22
<i>Race</i>	100%	100%	100%	100%	100%
White.....	98	96	100	99	96
Negro.....	1	2	.....	.....	1
Other.....	1	2	.....	1	3
<i>Religious Preference</i>	100%	100%	100%	100%	100%
Catholic.....	33	30	29	31	41
Jewish.....	38	35	42	40	37
Protestant.....	25	30	27	24	17
Other, none or unknown.....	4	5	2	5	5
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	9	13	7	9	6
Other professional, technical or managerial.....	50	53	47	44	55
Sales or other white collar.....	17	13	19	18	19
Craftsman, farmer or other blue collar.....	13	12	10	18	12
Other or unknown.....	11	9	17	11	8

* Average score for the four parts of the Medical College Admission Test.

SOURCE: Data furnished by Hahnemann Medical College.

Appendix Table 3-B
 JEFFERSON MEDICAL COLLEGE:
 PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
 BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>Year of Admission</i>				
	<i>All Years</i>	<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	664†	174	171	154	156
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	66	58	60	68	78
New Jersey.....	16	21	19	14	8
New York.....	7	8	7	7	4
Highest remaining state.....	2	3	2	3	3
All other states.....	9	10	12	8	7
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	36	45	46	32	22
500-599.....	61	53	53	67	72
Under 500.....	3	2	1	1	6
<i>Race</i>	100%	100%	100%	100%	100%
White.....	100	99	99	99	100
Negro.....	‡	.....	.....	1	.....
Other.....	‡	1	1	.....	.....
<i>Religious Preference</i>	100%	100%	100%	100%	100%
Catholic.....	28	31	26	29	28
Jewish.....	31	32	27	34	34
Protestant.....	28	27	29	28	26
Other, none or unknown.....	13	10	18	9	12
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	16	16	19	12	17
Other professional, technical or managerial.....	53	54	55	53	48
Sales or other white collar.....	15	18	12	14	17
Craftsman, farmer or other blue collar.....	10	7	7	16	12
Other or unknown.....	6	5	7	5	6

* Average score for the four parts of the Medical College Admission Test.

† Includes 9 admitted prior to 1963.

‡ Less than .5 percent.

SOURCE: Data furnished by Jefferson Medical College.

Appendix Table 3-C
 PHILADELPHIA COLLEGE OF OSTEOPATHY:
 PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
 BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>Year of Admission</i>				
	<i>All Years</i>	<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	361†	94	91	93	81
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	67	61	66	74	69
New Jersey.....	15	17	15	12	16
New York.....	7	12	8	6	2
Highest remaining state.....	3	3	2	1	6
All other states.....	8	7	9	7	7
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	1	3	1	.....	1
500-599.....	33	40	33	33	25
Under 500.....	66	57	66	67	74
<i>Race</i>	100%	100%	100%	100%	100%
White.....	98	98	100	97	99
Negro.....	2	2	.....	3	1
Other.....	.....	.....	.....	.....	.....
<i>Religious Preference</i>	100%	100%	100%	100%	100%
Catholic.....	32	43	34	23	28
Jewish.....	33	29	31	35	37
Protestant.....	35	28	35	42	35
Other, none or unknown.....	.....	.....	.....	.....	.....
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	8	7	8	12	6
Other professional, technical or managerial.....	34	41	43	33	21
Sales or other white collar.....	19	18	11	20	25
Craftsman, farmer or other blue collar.....	11	13	11	8	11
Other or unknown.....	28	21	27	27	37

* Average score for the four parts of the Medical College Admission Test.

† Includes 2 admitted prior to 1963.

SOURCE: Data furnished by Philadelphia College of Osteopathy.

Appendix Table 3-D
 UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE:
 PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
 BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>Year of Admission</i>				
	<i>All Years</i>	<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	501†	133	126	119	116
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	50	44	44	54	55
New Jersey.....	12	14	11	13	9
New York.....	9	11	10	7	9
Highest remaining state.....	2	2	5	4	3
All other states.....	27	29	30	22	24
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	50	55	49	49	49
500-599.....	48	45	47	49	49
Under 500.....	2	.....	4	2	2
<i>Race</i>	100%	100%	100%	100%	100%
White.....	99	100	98	99	99
Negro.....	1	.....	2	1	.....
Other.....	‡	.....	.....	.....	1
<i>Religious Preference</i>	100%	100%	100%	100%	100%
Catholic.....	15	16	14	12	16
Jewish.....	33	28	27	41	38
Protestant.....	36	40	40	30	36
Other, none or unknown.....	16	16	19	17	10
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	18	20	21	14	16
Other professional, technical or managerial.....	49	49	48	50	50
Sales or other white collar.....	16	15	16	17	15
Craftsman, farmer or other blue collar.....	7	5	4	7	11
Other or unknown.....	10	11	11	12	8

* Average score for the four parts of the Medical College Admission Test.

† Includes 7 admitted prior to 1963.

‡ Less than .5 percent.

SOURCE: Data furnished by University of Pennsylvania School of Medicine.

Appendix Table 3-E
 UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE:
 PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
 BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>Year of Admission</i>				
	<i>All Years</i>	<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	378†	108	93	89	82
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	61	56	59	72	63
New Jersey.....	6	7	3	6	9
New York.....	16	18	14	15	18
Highest remaining state.....	5	6	4	4	5
All other states.....	12	13	20	3	5
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	30	35	35	24	27
500-599.....	63	60	62	69	62
Under 500.....	7	5	3	7	11
<i>Race</i>	100%	100%	100%	100%	100%
White.....	98	96	97	98	100
Negro.....	1	2	1	.....	.....
Other.....	1	2	2	2	.....
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	12	14	12	10	13
Other professional, technical or managerial.....	46	47	51	45	42
Sales or other white collar.....	19	16	16	19	23
Craftsman, farmer or other blue collar.....	14	13	13	18	11
Other or unknown.....	9	10	8	8	11

* Average score for the four parts of the Medical College Admission Test.

† Includes 6 admitted prior to 1963.

SOURCE: Data furnished by University of Pittsburgh School of Medicine.

Appendix Table 3-F
 TEMPLE UNIVERSITY SCHOOL OF MEDICINE:
 PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
 BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>Year of Admission</i>				
	<i>All Years</i>	<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	549†	145	138	135	127
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	74	72	71	76	77
New Jersey.....	10	11	11	9	9
New York.....	5	6	5	3	5
Highest remaining state.....	1	1	3	2	2
All other states.....	10	10	10	10	7
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	21	30	24	18	14
500-599.....	72	65	71	78	71
Under 500.....	7	5	5	4	15
<i>Race</i>	100%	100%	100%	100%	100%
White.....	99	99	99	99	99
Negro.....	1	1	1	.....	1
Other.....	‡	.....	.....	1	.....
<i>Religious Preference</i>	100%	100%	100%	100%	100%
Catholic.....	22	19	23	23	24
Jewish.....	28	36	28	25	22
Protestant.....	38	38	35	35	44
Other, none or unknown.....	12	7	14	17	10
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	14	10	12	21	12
Other professional, technical or managerial.....	44	45	47	43	40
Sales or other white collar.....	17	20	18	14	16
Craftsman, farmer or other blue collar.....	11	13	10	11	10
Other or unknown.....	14	12	13	11	22

* Average score for the four parts of the Medical College Admission Test.

† Includes 4 admitted prior to 1963.

‡ Less than .5 percent.

SOURCE: Data furnished by Temple University School of Medicine.

Appendix Table 3-G
WOMAN'S MEDICAL COLLEGE:
PERCENTAGE DISTRIBUTIONS OF 1966-1967 STUDENTS
BY SELECTED CHARACTERISTICS, BY YEAR OF ADMISSION

	<i>All Years</i>	<i>Year of Admission</i>			
		<i>1966</i>	<i>1965</i>	<i>1964</i>	<i>1963</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Total Enrollment</i>	204†	66	56	38	37
<i>Residence</i>	100%	100%	100%	100%	100%
Pennsylvania.....	30	29	23	26	46
New Jersey.....	9	9	9	11	5
New York.....	32	35	32	40	19
Highest remaining state.....	6	5	7	5	14
All other states.....	23	22	29	18	16
<i>MCAT Score*</i>	100%	100%	100%	100%	100%
600 or over.....	14	21	16	11	5
500-599.....	68	77	70	78	46
Under 500.....	18	2	14	11	49
<i>Race</i>	100%	100%	100%	100%	100%
White.....	92	87	93	94	94
Negro.....	2	2	2	3	3
Other.....	6	11	5	3	3
<i>Father's Occupation</i>	100%	100%	100%	100%	100%
Physician (M.D. or O.D.).....	9	11	14	8	3
Other professional, technical.....					
or managerial.....	47	39	45	55	51
Sales or other white collar.....	18	20	21	16	16
Craftsman, farmer or other					
blue collar.....	14	15	16	11	14
Other or unknown.....	12	15	4	10	16

* Average score for the four parts of the Medical College Admission Test.

† Includes 7 admitted prior to 1963.

SOURCE: Data furnished by Woman's Medical College.

Appendix Table 4
 INTERNS BY LOCATION OF MEDICAL SCHOOL OF GRADUATION,
 INTERNSHIPS, AND PERCENT OF INTERNSHIPS FILLED:
 PENNSYLVANIA HOSPITALS, BY COUNTY
 1966-1967

County and Hospital	Location of School			Total Interns	Authorized Internships	Percent of Internships Filled
	Pennsylvania	Other States	Foreign			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Allegheny County</i>						
Columbia.....	..	..	5	5	6	83
McKeesport.....	..	..	8	8	12	67
Sewickley Valley.....	..	..	3	3	6	50
<i>Pittsburgh</i>						
Allegheny General.....	2	3	..	5	16	31
Children's Hospital of Pittsburgh....	..	3	..	3	8	38
Mercy Hospital of Pittsburgh.....	6	2	7	15	18	83
Montefiore Hospital.....	6	..	..	6	19	32
Pittsburgh Hospital.....	..	..	5	5	6	83
Presbyterian-University Hospital....	10	19	..	29	27	107
St. Francis General.....	1	1	18	20	22	91
St. Joseph's.....	..	..	4	4	6	67
St. Margaret Memorial.....	6	..	..	6	6	100
Shadyside.....	..	..	3	3	10	30
Southside.....	1	2	5	8	9	89
Western Pennsylvania.....	..	..	10	10	24	42
<i>Philadelphia</i>						
Albert Einstein Medical Center.....	15	6	24	45	46	98
Chestnut Hill.....	6	..	..	6	7	86
Children's.....	3	4	1	8	6	133
Episcopal.....	1	..	5	6	16	38
Frankford.....	..	..	6	6	9	67
Germantown.....	7	..	1	8	12	67
Graduate Hospital of University of Pennsylvania.....	1	..	8	9	12	75
Hahnemann.....	15	..	..	15	21	71
Hospital of University of Pennsylvania.....	17	22	1	40	40	100
Hospital of Woman's Medical College.....	6	..	..	6	6	100
Jefferson Medical College.....	12	14	2	28	24	117
Memorial.....	..	..	3	3	6	50
Mercy-Douglass.....	..	..	6	6	8	75
Methodist.....	8	..	..	8	8	100
Misericordia.....	10	1	3	14	17	82
Nazareth.....	5	..	3	8	18	44
Northeastern.....	1	..	4	5	6	83
Pennsylvania.....	12	4	2	18	18	100
Philadelphia General.....	24	63	3	90	90	100
Presbyterian-University of Pennsylvania Medical Center.....	4	3	4	11	14	79
St. Joseph's.....	..	..	4	4	6	67
St. Luke's and Children's.....	..	..	7	7	8	88
St. Mary's Franciscan.....	..	..	3	3	8	38
Temple University.....	9	3	..	12	12	100

Appendix Table 4—Continued

County and Hospital	Location of School			Total Interns	Authorized Internships	Percent of Internships Filled
	Pennsyl- vania	Other States	Foreign			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Berks</i>						
Reading.....	9	..	..	9	14	64
St. Joseph's.....	..	..	1	1	6	16
<i>Blair</i>						
Altoona.....	3	2	4	9	12	75
<i>Bradford</i>						
Robert Packer.....	..	4	3	7	12	58
<i>Bucks</i>						
Lower Bucks County.....	2	..	..	2	8	25
<i>Cambria</i>						
Conemaugh Valley Memorial.....	5	2	..	7	12	58
Mercy of Johnstown.....	..	..	..	0	6	0
<i>Chester</i>						
Chester County.....	..	..	2	2	6	33
<i>Dauphin</i>						
Harrisburg.....	8	2	..	10	24	42
Harrisburg Polyclinic.....	8	..	..	8	22	36
<i>Delaware</i>						
Crozer-Chester Medical Center.....	..	..	2	2	8	25
Delaware County Memorial.....	..	..	7	7	7	100
Fitzgerald-Mercy.....	8	..	3	11	12	92
<i>Erie</i>						
Hamot.....	2	3	3	8	12	67
St. Vincent.....	..	..	3	3	10	30
<i>Fayette</i>						
Uniontown.....	..	1	6	7	7	100
<i>Lancaster</i>						
Lancaster General.....	1	1	1	3	12	25
<i>Lehigh</i>						
Allentown.....	1	1	..	2	16	13
Sacred Heart.....	3	..	1	4	10	40
<i>Luzerne</i>						
Mercy of Wilkes-Barre.....	..	..	4	4	6	67
Wilkes-Barre General.....	..	..	2	2	10	20
<i>Lycoming</i>						
Williamsport.....	..	..	..	0	8	0
<i>Mongomery</i>						
Abington Memorial.....	8	..	..	8	15	53
Bryn Mawr.....	11	1	..	12	12	100
Lankenau.....	9	3	..	12	12	100
Montgomery.....	..	1	..	1	6	17
<i>Montour</i>						
Geisinger Medical Clinic.....	7	4	1	12	15	80

Appendix Table 4—Continued

County and Hospital	Location of School			Total Interns	Authorized Internships	Percent of Internships Filled
	Pennsylvania	Other States	Foreign			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Northampton</i>						
Easton.....	..	..	5	5	10	50
St. Luke's.....	11	..	1	12	12	100
<i>Schuylkill</i>						
Pottsville and Warne Clinic.....	..	..	5	5	6	83
<i>Washington</i>						
Washington.....	4	..	..	4	8	50
<i>Westmoreland</i>						
Westmoreland.....	..	..	5	5	6	83
<i>York</i>						
York.....	12	4	..	16	16	100

SOURCES: Commonwealth of Pennsylvania, Department of State, State Board of Medical Education and Licensure; and *Directory of Approved Internships and Residencies* (Chicago: American Medical Association, 1964).

Appendix Table 5
 PENNSYLVANIA INTERNS BY LOCATION OF MEDICAL SCHOOL OF GRADUATION
 AND PERCENT OF AUTHORIZED INTERNSHIPS FILLED
 BY LOCATION OF INTERNSHIP
 1965-1966

	<i>Location of Internship</i>			<i>Total</i>	
	<i>Allegheny</i>	<i>Philadelphia</i>	<i>Remainder of State</i>	<i>Number</i>	<i>Percent of Graduates</i>
(1)	(2)	(3)	(4)	(5)	(6)
Location of medical school of graduation					
Pennsylvania					
Hahnemann.....	...	24	19	43	46%
Jefferson.....	4	49	40	93	59
University of Pennsylvania.....	...	41	8	49	40
University of Pittsburgh.....	26	4	4	34	41
Temple University.....	1	26	35	62	50
Woman's.....	1	12	6	19	41
Other states.....	30	120	29	179	*
Foreign.....	68	90	59	217	*
Total interns.....	130	366	200	696	*
Authorized internships.....	195	418	358	971	*
Percent of authorized internships filled.....	67%	88%	56%	72%	*

* Not applicable.

SOURCES: Commonwealth of Pennsylvania, Department of State, State Board of Medical Education and Licensure, 1966 records; *Directory of Approved Internships and Residencies* (Chicago: American Medical Association, 1964); *The Journal of the American Medical Association*, November 15, 1965.

Appendix Table 6
 PERCENTAGES OF U. S. TOTALS OF POPULATION, ENTERING MEDICAL STUDENTS,
 MEDICAL SCHOOL GRADUATES, AND INCREASE IN NUMBER OF PHYSICIANS,
 FOR SELECTED STATES, FOR THE DECADE 1955-1965

<i>State</i>	<i>Percentages of United States Total of:</i>			
	<i>Popu- lation</i>	<i>Entering Medical Students</i>	<i>Medical School Graduates</i>	<i>Increase in Number of Physicians*</i>
(1)	(2)	(3)	(4)	(5)
California.....	8.8%	6.1%	5.4%	14.4%
Connecticut.....	1.4	1.3	1.1	1.5
Illinois.....	5.6	5.4	7.2	2.4
Indiana.....	2.6	2.6	2.1	.8
Massachusetts.....	2.9	2.7	4.5	2.4
Michigan.....	4.3	4.0	3.7	5.0
New Jersey.....	3.4	4.1	0.6	3.6
New York.....	9.5	14.1	12.9	8.8
Ohio.....	5.4	5.3	4.2	4.1
PENNSYLVANIA.....	6.3	7.3	9.0	3.9

* For the nine-year period, 1955-1964.

SOURCES: U. S. Bureau of the Census, *Statistical Abstract of the United States* (Washington, D. C., 1955 to 1966, inclusive); *The Journal of the American Medical Association*, education numbers for pertinent years.

