

Location of Dentists in Relation to Dental School Attended

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DENTISTS in the United States tend to establish their practice within the area where they received their training. Data from the 1953 American Dental Directory (1) have been used to analyze the relationship between each dentist's location in 1952 and the location of the dental school in which he received his training. The directory listing usually identifies the city or town where the dentist is located, the year he was graduated, and the name of the dental school under the title which applied at the time he was in attendance.

In mid-1952 there were 84,214 dentists located in the 48 States and the District of Columbia, excluding the 7,423 dentists in the Federal services. As would be expected, most of the dentists were trained in schools located within the continental United States. A total of 78,025 dentists were graduates of active or formerly active schools located in 25 States and the District of Columbia; 490 were graduated from foreign dental schools, and 5,699 were listed in the directory without specifying the dental school from which they received their degree.

Each geographic division of the country draws the majority of its dentists from graduates of schools located within its borders, with the exception of the Mountain States (table 1).

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The most striking examples of this pattern are represented by the East and West North Central groups of States where nearly 9 out of 10 of the dentists attended school in the geographic division in which they were located in 1952 (fig. 1). In four other divisions—Middle Atlantic, South Atlantic, East South Central, and West South Central—where the proportion of dentists trained within the area was not quite so high, the rest of the dentists were drawn from schools located in one or another of the adjoining geographic divisions.

A wider spread, however, is found in two other divisions. In New England, for example, where 56 percent of the dentists were trained locally, 18 percent had attended a dental school in one of the South Atlantic States, and 16 percent came from a school in the Middle Atlantic area. While 76 percent of the dentists in the Pacific area were trained there, the others were mainly drawn from schools in the North Central States.

The pattern for the Mountain States is exceptional because they have lacked dental training facilities for the past 20 years or more. Only 18 percent of the dentists in this area were trained locally; another 18 percent came from States in the Pacific division. Approximately 32 and 25 percent, respectively, were drawn from schools in the West and East North Central States.

Dentists Trained Within State

Missouri and Pennsylvania each had more than 90 percent of their dentists trained within

their borders. In 13 other States and the District of Columbia, three-fourths or more of the non-Federal dentists received their training in the State where they were located in 1952. In 6 additional States, local schools supplied between one-half and three-fourths of all the dentists, while in 4 other States the proportion varied from 1 to 46 percent. None of the dentists practicing in the remaining 23 States were graduates of dental schools within the State. More detailed information on where the dentists practicing in each State received their training and the reverse of the picture—the location in 1952 of the dentists trained in each of the 26 States with dental schools—is given in the Health Manpower Source Book series (2).

In New England, Massachusetts is the only State with a dental school. More than half of the dentists in Maine and New Hampshire as well as three-fourths of those in Massachusetts were trained in the latter State. Vermont, Rhode Island, and Connecticut were less dependent upon the Massachusetts schools; they also drew sizable proportions of their dentist manpower from the training facilities in Maryland and Pennsylvania.

The Middle Atlantic division has 6 active dental schools, 3 each in New York and Pennsylvania. A former dental school in New Jersey has been closed for 30 years. Two-thirds

or more of the dentists in New York and Pennsylvania were supplied from the schools within their respective boundaries. Almost the same proportion of the New Jersey dentists received their training in these same two States.

All 5 East North Central States have active dental schools. For Ohio, active dental schools at Ohio State and Western Reserve Universities and schools which are now extinct have trained more than three-fourths of the dentists located in that State. In like manner, Indiana University is the principal source of the Indiana dentists. Loyola, Northwestern, and the University of Illinois trained 81 percent of the Illinois dentists; Detroit and Michigan Universities were the source of 77 percent of the Michigan dentists; and Marquette University supplied 74 percent of the Wisconsin dentists.

Active dental schools in 4 of the 7 West North Central States supplied from 78 to 91 percent of the dentists in their respective States—Minnesota, Iowa, Missouri, and Nebraska. North Dakota drew its dentists largely from schools in Minnesota and Illinois in the East North Central division; South Dakota's dentists came mainly from schools in Nebraska and Illinois. Missouri schools trained 83 percent of the dentists in Kansas.

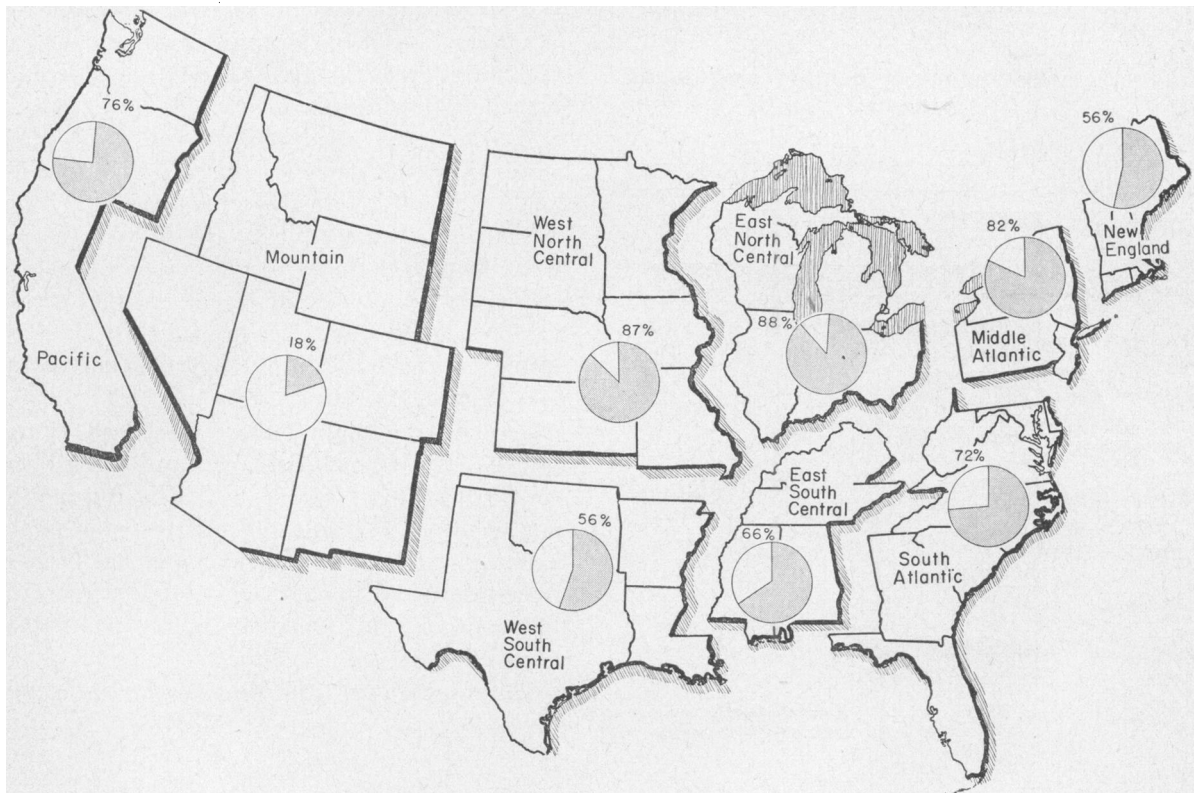
In the South Atlantic division, Maryland, Virginia, Georgia, and the District of Columbia have dental schools that graduated a class in 1952. These schools supplied from 62 to 86 percent of the dentists in their respective States, as well as the majority of the dentists in North and South Carolina. (The University of North Carolina graduated its first class in 1954, and hence is not included in this study.) Delaware drew nearly two-thirds of its dentists from schools in Pennsylvania. West Virginia had almost equal numbers from dental schools in Maryland, Ohio, and Pennsylvania. Florida had one-third of its dentists from Georgia, with sizable numbers of graduates from schools in Illinois, Pennsylvania, and Tennessee.

In the East South Central area, both Kentucky and Tennessee had 78 percent of their dentists graduated from schools in their own States. Alabama, with a school that graduated its first class in 1952, drew about two-thirds of its dentists from dental schools in Georgia and Tennessee. Mississippi depends upon

Table 1. Non-Federal dentists located in 1952 in the same geographic division in which they attended dental school

Geographic division	Non-Federal dentists in area		
	Total number	Trained in dental school in same area	
		Number	Percent
United States.....	78, 025	59, 757	77
New England.....	5, 485	3, 073	56
Middle Atlantic.....	20, 922	17, 174	82
East North Central.....	17, 296	15, 251	88
West North Central.....	8, 442	7, 352	87
South Atlantic.....	6, 686	4, 840	72
East South Central.....	3, 127	2, 052	66
West South Central.....	4, 481	2, 494	56
Mountain.....	2, 279	408	18
Pacific.....	9, 307	7, 113	76

Figure 1. Dentists in the nine geographic divisions who were graduated from a dental school in that same division.



schools in these same two States to supply its dentist manpower.

The West South Central States have active dental schools in Louisiana and Texas that supplied 73 and 67 percent of their dentists, respectively. Oklahoma is largely dependent on graduates from dental schools in Missouri; Arkansas mainly depends on schools in Missouri and Tennessee.

The Mountain States have no currently active school, although nearly half of the dentists in Colorado were trained at the Denver schools closed many years ago. The Illinois schools led in supplying the largest number of dental school graduates to Montana and Utah. Missouri graduates ranked first in Wyoming and New Mexico; California graduates, in Arizona and Nevada.

All Pacific States now have active dental schools, since the University of Washington graduated its first class in 1950. The three California schools trained three-fourths of the local dentists. The University of Oregon, in

addition to supplying its own State, furnished more than half of the dentists in neighboring Washington.

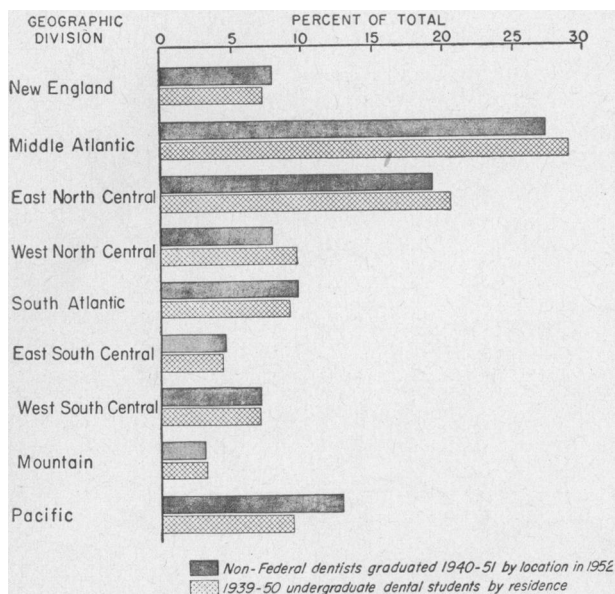
Residence of Dental Students

It has been shown that 1 out of 4 dentists listed in the 1953 directory received his professional training at a dental school located outside of the geographic area in which he later established his practice. Doubtless many of these dentists left their home State to attend dental school with the intention of returning home to set up practice. While data are not available for direct comparisons that would reveal the extent of this return, some deductions can be drawn from the distribution of undergraduate dental students published annually in the *Dental Students' Register* (3).

The proportion of undergraduate dental students in each geographic area is closely related to the proportion of graduates who subsequently established dental practice within the

same geographic area. In figure 2 the distribution by location in 1952 of the non-Federal dentists who were graduated in recent years

Figure 2. Distribution of dentists and dental students.



(1940-51) is contrasted with the distribution by residence of students attending dental school in the 12 academic years 1939-40 to 1950-51.

Among the nine geographic divisions, the Pacific States show the greatest relative difference in the length of the two bars. Nearly 1 dentist in 8 who established practice in the United States in recent years was located in 1 of these 3 States in 1952. On the other hand, only 1 in 10 students trained during the 12-year period was drawn from that area. In other words this area acquired a share of recent graduates that was more than one-third in excess of that expected on the basis of its contribution to the pool of students.

In terms of actual numbers, the Pacific States gained about 700 dentists over and above their share of students (table 2). The influx was chiefly into California. Since 1940 the population growth in the Pacific States has been so great that even this gain in dentists was insufficient to maintain the 1940 dentist-population ratio.

The migration to the west coast was largely among former residents of the Middle Atlantic

Table 2. Distribution in 1952 of dentists graduated during 1940-51 from United States dental schools and distribution of undergraduate dental students, 1939-50, according to residence at time of entering dental school

Geographic division	Non-Federal dentists graduated 1940-51 by location in 1952		1939-50 dental students according to residence		Prorated share of students	Gain or loss between number of new dentists and share of students	
	Number	Percent	Number	Percent	Number	Number	Percent
United States	¹ 19, 774	100. 0	² 24, 494	100. 0	³ 19, 774		
New England	1, 556	7. 9	1, 794	7. 3	1, 448	+108	+7. 5
Middle Atlantic	5, 397	27. 3	7, 069	28. 9	5, 707	-310	-5. 4
East North Central	3, 820	19. 3	5, 042	20. 6	4, 070	-250	-6. 1
West North Central	1, 562	7. 9	2, 377	9. 7	1, 919	-357	-18. 6
South Atlantic	1, 933	9. 8	2, 261	9. 2	1, 826	+107	+5. 9
East South Central	911	4. 6	1, 103	4. 5	890	+21	+2. 4
West South Central	1, 411	7. 1	1, 739	7. 1	1, 404	+7	+5. 0
Mountain	629	3. 2	811	3. 3	655	-26	-4. 0
Pacific	2, 555	12. 9	2, 298	9. 4	1, 855	+700	+37. 7

¹ Excludes 6,558 graduates in the classes of 1940-51, of whom 4,787 were in the Federal service in 1952 and the remainder were located outside the United States or were dead.

² Total of the undergraduate students in United States dental schools in the fall of 1939, 1943, and 1947, excluding 788 students with residence outside the continental United States (3). This figure corresponds to the 1940-51 graduates after allowance is made for those who were not graduated. However, it may not include all students under accelerated programs—those not listed in the three issues of the Dental Students' Register.

³ Non-Federal dentists represent 80.73 percent of the students. This rate has been applied to the number in the preceding column on the assumption that Federal dentists are drawn in the same proportion from each geographic division.

and North Central States. Each of these areas retained somewhat fewer recent graduates than might have been anticipated on the basis of the number of dental students trained during 1940-51 in these areas. Among the 15 States in these three geographic divisions only Michigan showed an excess of new dental practitioners over its share of students. In Minnesota, Iowa, North Dakota, South Dakota, and Nebraska about 1 in 4 students apparently failed to return to his home State to establish practice. New York, Pennsylvania, Illinois, and Minnesota each lost more than 100.

New England and the South Atlantic area showed a slight gain between the number of dentists who located there and their share of the students trained. About half of the States in these two divisions had gains; about half, losses. The largest gain, both percentagewise and in numbers, was in Florida, as would be expected from its tremendous population increase since 1940.

The South Central and Mountain States showed equal percentages of new dentists and of students. Thus, in these sections of the country, the degree to which new dentists have established practice closely paralleled the area's share in the pool of dental students maintained while these new dentists were being trained.

States With Dental Schools

The presence or absence of a dental school in a State does not greatly influence the relationship between the number of recent graduates choosing the State for practice and the State's share of dental students at the time these dentists were being trained. During the period from 1940 to 1952, 21 States and the District of Columbia had active dental schools. As a group these States accounted for 71.9 percent of the

1952 civilian population and 76.6 percent of all the non-Federal dentists. Located in these States in 1952 were 77.3 percent of the non-Federal dentists graduated in 1940-51. They had the same proportion (77.1 percent) of the students in dental schools during the period from 1939-40 to 1950-51. Within this group, however, California gained new dental graduates at the expense of the Middle Atlantic and North Central States.

On the other hand, the 23 States without dental schools supplied 15.9 percent of the students and in return received 15.1 percent of the recent graduates. (Excluded from this comparison are New Jersey and Colorado, whose only dental schools have been closed, and Alabama and Washington, whose training facilities were established for the first time during the period.)

This close correspondence between students trained and new dentists establishing practice, regardless of whether resources for professional training are primarily centered in within-State or in out-of-State dental schools, suggests that the majority of the dentists locating in an area are the same individuals who made up the undergraduates from that area.

REFERENCES

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- (3) American Dental Association Council on Dental Education: Dental students' register, 1947. Chicago, The Association [1948], 10 pp. See also annual editions for 1943 and 1939.

