THE OUTLOOK FOR WOMEN IN OCCUPATIONS IN THE
Medical AND OTHER HEALTH Services

Women Dentists

Bulletin 203, Number 9
THE OUTLOOK FOR WOMEN IN OCCUPATIONS IN THE MEDICAL AND OTHER HEALTH SERVICES

This pamphlet is one of a series prepared by the Women's Bureau to present the post-war outlook for women in particular occupational fields. Many of the 13 million women who were working before the war, as well as some of the 5 million who have joined them since, must continue to support themselves and their many dependents. Like their younger sisters in schools and colleges, they are confused by the sometimes glowing and sometimes dark predictions regarding their future opportunity for employment. They want the facts.

Many monographs are available that describe an occupation at a particular time in its pre-war or wartime setting. But no detailed studies have been published that show the considerable changes that have taken place during the war and the effect of these changes on the post-war supply of and demand for women in particular occupational fields. This pamphlet presents such a dynamic study as distinct from a static description. It discusses the pre-war situation, the wartime changes, and the post-war outlook for women in one of the occupations in the field of medical and other health services, in which women in 1940 composed almost two-thirds of the workers.

Because of the pressing demand for this type of information, some of the occupational discussions in this field are being issued separately as they are completed. An over-all pamphlet will coordinate the series and discuss the general trends affecting the many women employed in these services so important to the Nation whether at peace or at war.
LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN’S BUREAU,


MADAM: I have the honor of transmitting a summary of the outlook for women as dentists in the years to come. This report presents the pre-war situation of women dentists, reviews the wartime changes in their status, and discusses their future outlook as it can be projected from the experiences of the past and the present.

The study is one of a series prepared by Marguerite Wykoff Zapoleon with the assistance of Elsie Katcher of the Bureau’s Research Division.

I wish to express my appreciation to the many persons who have contributed to this bulletin by what they have written or said. To those listed on the opposite page, who read all or part of the manuscript or contributed to its content, special acknowledgment is made.

Respectfully submitted.

FRIEDA S. MILLER, Director.

HON. FRANCES PERKINS,
Secretary of Labor.
Representatives of Organizations and Agencies Whose Special Assistance Is Gratefully Acknowledged

Dr. J. L. T. Appleton, Dean, Dental School, University of Pennsylvania.

Mr. Joseph E. Bagdonas, Secretary, Committee on Economics, American Dental Association.

Dr. Katherine Bain, Director, Division of Research in Child Development, Children’s Bureau, U. S. Department of Labor.

Dr. Harry Bear, Secretary-Treasurer, American Society of Oral Surgeons.

Dr. Mamie Blum, School of Dentistry, Temple University, Philadelphia, Pa.

Dr. O. W. Brandhorst, Secretary, American College of Dentists.

Dr. William O. Claytor, President, 1942–1944, National Dental Association.


Dr. Laura Belle Deane, President, Association of American Women Dentists.

Dental Division, Office of the Surgeon General, War Department.

Dr. Russell A. Dixon, Dean, College of Dentistry, Howard University, Washington, D. C.

Dr. Bernard G. DeVries, Secretary, American Board of Orthodontics.

Dr. R. Mott Erwin, Jr., Secretary, American Society of Dentistry for Children.

Dr. I. Lester Furnas, Secretary-Treasurer, Academy of Denture Prosthetics.

Dr. Elsie Gerlach, Superintendent, Children’s Clinic, College of Dentistry, University of Illinois.

Dr. Carlotta A. Hawley, Orthodontist, Washington, D. C.

Dr. Harlan H. Horner, Secretary, Council on Dental Education, American Dental Association.

Dr. Irma L. Jackson, Chairman, War Service Committee, Association of American Women Dentists.
Dr. Ruth Jackson, Sr. Medical Officer, U. S. Civil Service Commission.

Mr. Raymond E. Johnson, Secretary, American Academy of Periodontology.

Dr. John W. Knutson, Dental Surgeon, Division of States Relations, U. S. Public Health Service.

Commander M. M. Maxwell, Dental Corps, U. S. Navy, Bureau of Medicine and Surgery, Navy Department.

Dr. Sterling V. Mead, Chairman, Committee on Legislation, American Dental Association.

Dr. Hazel Merrick, Chief Public Health Dentist, Division of Public Health Dentistry, County of Los Angeles Health Department, Los Angeles, Calif.

Dr. Leah Minkin, Washington, D. C.

Dr. Lon W. Morrey, Director, Bureau of Public Relations, American Dental Association.

Dr. J. Ben Robinson, Chairman, Committee on Dental Education, Procurement and Assignment Service for Physicians, Dentists and Veterinarians, War Manpower Commission.

Dr. Muriel K. G. Robinson, Secretary-Treasurer, Association of American Women Dentists.
CONTENTS

Letter of Transmittal .......................................................... IV
Acknowledgments ............................................................... v
Definition of Dentist .......................................................... x
Pre-war Situation of Dentists ............................................... 1
    Pre-war Number and Distribution of Dentists .................. 1
    Annual Addition to the Supply of Dentists .................... 3
Wartime Changes .............................................................. 3
    Changes in Number and Distribution of Dentists ............ 3
    Women Dentists in Wartime ......................................... 6
    Women’s Opportunities for Dental Training .................... 6
Earnings, Hours, and Advancement ......................................... 7
Professional Organizations of Women Dentists ......................... 8
Opportunities for Women with Special Employment Problems .......... 8
    Older Women .......................................................... 8
    Married Women ........................................................ 9
    Negro Women .......................................................... 9
    Physically Handicapped Women ..................................... 9
Post-war Outlook .............................................................. 10
    Need for Dental Care ............................................... 10
    The Increasing Demand for Dental Care ....................... 11
    The Outlook for Women Dentists ................................ 15
Appendix A.
    I. Usual Minimum Requirements for Entrance to a Dental School 17
    II. Usual Minimum Requirements for a D.D.S. or a D.M.D. Degree from a Dental School 17
    III. Usual Requirements for a State License to Practice Dentistry 17
    IV. Minimum Requirements for Civil Service Position as Associate Dentist in the Veterans’ Administration, U. S. Public Health Service, and the Indian Field Service 18
    V. Qualifications for Women Dentists in the U. S. Naval Reserve 18
Appendix B.—Sources To Which Reference Is Made in the Text and Other Selected References 18
A dental officer treats a patient at a U.S. Naval Hospital.
Dentist as Defined in the Dictionary of Occupational Titles (36)\textsuperscript{1}

Dentist; dental surgeon; doctor of dentistry (medical ser.) 0-13.10. A classification title for persons of recognized education, experience, or legal qualifications who are engaged in the practice of dentistry, or any phases of dentistry, such as extraction, filling, cleaning, or replacing teeth; performing corrective work, such as straightening teeth; treating diseased tissue of the gums; performing surgical operations on jaw or mouth; making and fitting false teeth. These persons sometimes specialize in one particular phase of dentistry, or in the caring for teeth of children, or in X-ray analysis. Classified under this title are the following occupations: Exodontist; Oral Surgeon; Orthodontist; Pedodontist; Periodontist; Prostodontist; Public-Health Dentist; Radiodontist.

\textsuperscript{1}References in parentheses throughout this report are to Appendix B—"Sources to Which Reference Is Made in the Text," p. 18.
OUTLOOK FOR WOMEN AS DENTISTS

In the health services, the dentists comprise one of the largest single occupations. Only nurses and physicians are more numerous. But they are considerably so. For every 2 dentists working in 1940 there were 5 physicians and more than 10 professional or student nurses. These proportions may change with different emphases but they indicate the relative sizes of these professional groups at present.

Although there seems to be no obvious reason for their scarcity, women dentists are relatively few, numbering only 1,000 in 1940. (35) Apparently the long period of training involved in becoming a dentist is not alone responsible since there were more than 7 times as many women physicians, for whom the training period has been even longer. Women physicians total 4.6 percent of all physicians; women dentists account for only 1.5 percent of all dentists, a decrease from 1.8 percent in 1930. (34)

Pre-war Situation of Dentists

Pre-war Number and Distribution of Dentists.

The number of dentists remained relatively unchanged during this same period although the ratio of dentists to population decreased slightly. In 1940, 70,000 dentists were reported by the U. S. Bureau of the Census as "employed" with several hundred seeking work. Although estimates of the American Dental Association based on State registration figures placed the number of dentists in 1941 at 74,000, some are included in this number who are partly retired from practice or serving in other capacities but who maintain their licenses to practice. According to a report of the Department of Commerce, the number of active dentists has been approximately 70,000 for some years. (13) The same report points out that dentists constitute the third largest group of independent professional practitioners, being exceeded only by physicians and lawyers.

Like physicians, most dentists practice in cities, towns, or smaller urban centers, where slightly more than 80 percent of them were located in 1940. The remaining number were in rural areas, 2 percent being in farm and almost 18 percent in rural non-farm areas.

Certain regions in the United States had more dentists than others. Roughly one-third of the dentists in 1940 were in the North Central States, another third in the Northeastern States, while the remainder were in the South and West.

Except for the South where there was only 1 dentist to more than 3,000 persons, the regions did not differ much in the proportion of dentists to population, the ratio being roughly 1 to 1,500 persons.

Strangely enough, the regional picture for dental care available to the population differs from that for medical care. The South in both cases
Percent distribution of dentists by region, and regional ratio of dentists to population, 1940

<table>
<thead>
<tr>
<th>Region</th>
<th>Percent of all employed dentists</th>
<th>Number of people per dentist</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>100.0</td>
<td>1,878</td>
</tr>
<tr>
<td>North Central States</td>
<td>35.3</td>
<td>1,623</td>
</tr>
<tr>
<td>Northeastern States</td>
<td>34.0</td>
<td>1,511</td>
</tr>
<tr>
<td>South</td>
<td>17.3</td>
<td>3,421</td>
</tr>
<tr>
<td>West</td>
<td>13.4</td>
<td>1,478</td>
</tr>
</tbody>
</table>


has the fewest professional personnel in relation to its population. But in the ratio of dentists it is less than half as well off as any one of the other regions, while its ratio of physicians to population, 1 to 1,075, compares more favorably with the 1 to 806 ratio of the North Central States. To an even greater extent than physicians, dentists seem to be affected in location by the economic level of the population and its consciousness of the need for preventive care and treatment.

Women in this occupation were most numerous in the Northeastern States, where 482 of them composed 2 percent of the total number of dentists. They were fewest in number and least in proportion to all dentists in the South.

Most dentists, like physicians, engaged in private practice. But others were on a salary basis in dental clinics, schools, colleges, institutions, or industrial plants. Public health and industrial dentists have been increasing in number, and special courses are offered in preparation for these fields. A relatively small percentage are engaged in research or teaching. Some specialize in certain types of practice, such as:

- The prosthodontist, who makes and fits artificial teeth.
- The orthodontist, who straightens teeth.
- The exodontist, who extracts teeth.
- The oral surgeon, who performs surgery on the jaws or mouth.
- The periodontist, who treats diseases of the gums.
- The pedodontist, who cares for children's teeth.

Some dentists also engage primarily in X-ray dental work. Of some 8,000 dentists covered in a Nation-wide survey in 1937, 2.5 percent of those active were engaged in wholly specialized practice and an additional 5.9 percent carried on a general practice and specialized part time. (33) In 1941, those wholly specialized were reported to be 4.2 percent of practicing dentists; those partially specialized, 10.3 per cent. (38)

Among the wholly specialized group, almost half were engaged in ortho-
WOMEN DENTISTS

dontia, and more than a fourth in oral surgery and exodontia. Among the partially specialized group, less than one-fifth were orthodontists, while oral surgery and exodontia occupied more than a third, and prosthodontia one-fourth.

A number of women dentists have specialized in the care of children's teeth, in orthodontics, in public health work, and a few in teaching. (23) (29) Women direct some of the children's clinics in dental schools.

Annual Addition to the Supply of Dentists.

In June 1941, dental schools in the United States graduated 1,550, the lowest number since 1896. (3) Since between 20 and 24 per thousand active dentists die or retire each year, (28) about 1,500 of the 70,000 reported by the 1940 Census must have been eliminated from practice the following year. During the year which preceded the war, therefore, dentistry was apparently at a stationary point where the number entering the profession barely balanced the number leaving it. Although new licenses to practice dentistry issued in 1940 numbered 2,171, many of these were duplicates of licenses taken out in other States. (See Appendix A, III, for usual license requirements.) For 1941, the Council on Dental Education predicted a shortage of at least 750 new practitioners, needed to maintain the existing ratio of dentists to population, as population increases.

Wartime Changes

Changes in Number and Distribution of Dentists.

In the defense period before the war, dentists who were reserve officers in the Army were called into active service to take care of the dental inspection and treatment of an Army increased in size by compulsory military service. On October 31, 1941, the President ordered the establishment of a Procurement and Assignment Service for Physicians, Dentists, and Veterinarians as part of the Office of Defense, Health and Welfare Services to "stimulate the voluntary enrollment of these professions." (30) Later this became a part of the War Manpower Commission. The American Dental Association cooperated with this Service through its Dental Preparedness Committee; similar committees of the State and local dental societies worked with local draft boards to see that dentists were supplied to the armed services while the supply was conserved in civilian areas where shortages of dental service were greatest.

The size of the task is indicated by the fact that the armed forces require an average of approximately 2 dentists per 1,000 men, almost 4 times as high as the peacetime rate for civilians.

All the dental schools, like the medical schools, accelerated their program to enable those in training for dentistry to be available earlier and
to increase the annual capacity for training. Slightly more than half of the 2,700 new students who entered dental schools in 1942 were earmarked for the Army (982) and the Navy (475). By December 1943 almost 90 percent of the 8,888 students were Army or Navy personnel. (31) The undergraduate enrollment had increased 22 percent since 1940-41 and was higher than at any time in the previous 17 years. (17) In the year ending June 30, 1943, 1,926 were graduated, 24 percent more than in the year ending June 30, 1941. The number of undergraduate women students, however, decreased from 88 in 1940-41 to 71 in October 1944; freshmen students (both men and women), too, were fewer by 206 than they were in 1942.

By the end of October 1943 more than 14,000 dentists had become military officers, leaving 1 for 2,100 civilians. (2) Civilians were requested to take all preventive measures possible to conserve the dentist’s time. (26) Civilian dentists, meanwhile, were overworked in their attempt to serve not only their former patients but those of colleagues who had gone into military service and the increasing number of persons whose wartime income made it possible for them to obtain dentures and dental service that they had postponed for lack of funds. Where it was necessary to choose, many dentists restricted their services to adults and to students in the last two years of high school. This reduced the attention given to younger children, particularly to those who still had their first teeth. The elimination of children from the practice of many dentists has widened the opportunity for women dentists in this field where preventive practice is so important.

By the end of 1944, 20,000 dentists had become military officers and there remained only 1 for each 3,500 civilians as compared with 1 to 1,878 before the war. In rural areas the situation was serious. In the State of Mississippi, the ratio of dentists to population was only 1 to 5,800. (29) To aid in reducing local shortages, on December 23, 1943, Congress had appropriated funds to the Public Health Service to provide financial assistance to civilian dentists and physicians who would agree to relocate in areas where the shortage had become critical and where the community requested the addition. (12) But this program lapsed June 30, 1944, with the expiration of the legislative provision.

The military need for dentists had begun to ease up at the end of 1943. During that year the Army Dental Corps alone reported 10½ million admissions for treatment resulting in 31 million sittings, 24 million fillings, and 856,000 artificial dentures. (6) In January 1944, the Navy, with 4,000 dental officers, needed an additional number; but the Surgeon General of the Army announced that the Army procurement of dentists from civilian life had ceased. (10)

Meanwhile, after announcing in the spring that it would reduce its dental training program 50 percent, the Army on August 1, 1944, actually
curtailed it drastically by ordering the transfer at the end of the semester of all dental student personnel under ASTP to the Medical Corps as enlisted men, except those who wished to continue in training and become civilians deferred from service. The majority of such students chose the latter option. Those in the senior year were permitted to finish their course as service men and be commissioned. (4) (5) Those taking pre-dental courses were not deferred from military service and fears were
expressed that the result would be a serious undersupply of dentists following the war. Undergraduate students enrolled in dental schools in October 1944 numbered 8,590, as compared with 9,014 in the year preceding.

Women Dentists in Wartime.

How were women dentists affected during this period of increasing demand? Although a letter in 1943 brought a ready response from many who were willing to serve wherever they were needed in military service, women were not admitted as dental officers to the Army Dental Corps. They were confined to civilian service until 1944, when the Navy announced that women might apply for commissions as dentists in the WAVES. (11) In January 1945 there were 2 commissioned women dentists in the Naval Dental Corps, U. S. Naval Reserve. (See Appendix A, V, for requirements for women dentists in the U. S. Naval Reserve.)

A bill (H. R. 2892) introduced in the 78th Congress in June 1943 to provide for appointment of women dentists to the Dental Corps of the Army and Navy died in committee but a similar bill, S. 731, was introduced in the 79th Congress January 23, 1945. In May 1945, the bill was in committee, awaiting a report from the War Department.

Meanwhile, women dentists were helping to serve the civilian patients of male colleagues who had gone into the Army. The many women who had specialized in work with children were especially needed, as overburdened dentists began to refuse to take care of children unless the call was urgent.

In Federal Civil Service, however, there was no unusual demand and, as before the war, practically no requests for women dentists were received from Federal agencies such as the Veterans' Administration and the U. S. Public Health Service. (See Appendix A, IV, for requirements for beginning Civil Service position.)

Women’s Opportunities for Dental Training.

Training for dentistry has been available to women for many years. Of the 39 dental schools in the United States all but four admitted women students before the war. About 8 have reported no women enrolled since 1940. (See Appendix A, I and II, for requirements for entrance to and graduation from a dental school.)

Less than 100 women dentists graduate from dental school each year and enrollments of women dental students have actually decreased since the war.

One deterrent may be the cost of training which, added to the cost of establishing an office (minimum $1,000–$2,500), may prove prohibitive.

The cost of the 4-year dental course including living expenses averages $1,000 a year, according to the American Dental Association. There is a wide range in tuition ($108 to $500 per year) at the various schools as well
as in the amount spent by students on such personal expenses as quarters and meals. The cost of the 2-year pre-dental college work varies even more with the college.

Many of the scholarship and loan funds available in limited number at dental schools are open to women. In addition, the Association of American Women Dentists is building up the Gillette Hayden Fellowship Fund to be used for research fellowships. Loans from this fund have been available meanwhile to promising women students in their junior and senior years of dental college, but there have been no applicants for such loans for several years. Dental students, like those in other courses, often pay for their living expenses by working part time during the school year, and accumulate funds for tuition and other school expenses by working full time during the summer.

Most dental graduates go directly into practice, but some, especially those preparing for specialized practice, enter internships comparable to those in medicine. A year's internship is required for the practice of dentistry in only one State (Delaware). Opportunity for dental internships is limited, even for men, but is increasing.

In 1940, 131 hospitals reported 236 dental internships, for which the income ranged from partial maintenance and no salary to $2,000. A few residencies were also available at 33 of these hospitals. In 1943, 164 hospitals and related institutions reported a total of 331 dental internships.

**Earnings, Hours, and Advancement**

The income of the majority of dentists who are engaged in private practice varies markedly with the level of economic activity, according to surveys conducted under the joint sponsorship of the Bureau of Foreign and Domestic Commerce and the American Dental Association. In 1929, for example, a peak year, the average net income of dentists from professional services was $4,275; in 1933, at the depth of the depression, it was $2,251. In 1937 it had climbed back to $2,914 and in 1941 it reached $3,773.

As among physicians, so among dentists, individual incomes vary considerably. Although one-half of the dentists in 1941 earned more than $3,281, among three-fourths of them income ranged from $1,000 to $6,000 a year, and three observations of significance to those entering the profession were noted: Specializing dentists, although few in number, showed average incomes higher than those of general practitioners; there was a definite tendency toward more salaried work by the newer entrants into the profession; where the population was under 250,000 average incomes of dentists varied directly with the size of the community. In cities of 250,000 or more population income did not seem to be related to population.
Average hours also had tended to increase with the war. In 1943, the average office week for dentists was 50 hours as compared with 47 only a year earlier. (21)

Advancement for women dentists engaged in private practice, like that for men, is measured in terms of increases in net income. No separate statistics are available, but the maximum income seems to be most commonly reached by dentists who have been in practice 15–19 years. Among the younger practitioners income is affected considerably by the amount of education the dentist has had. (38) In public health work, advancement lies in promotion to supervisory positions. In these, men have been generally preferred, although there are exceptions. During the war, however, women have had greater access to the vacancies that have occurred because of the military needs.

Professional Organizations of Women Dentists

A woman dentist may join her local (county or district) society and thus become automatically a member of the State Dental Society and of the American Dental Association, which in 1944 had 60,000 members. Women may hold office along with the men in these organizations. Of the 5 organizations to which specialists in the dental field belong, 3 report 1 or more women members: The American Board of Orthodontics, the American Academy of Periodontology, and the American Society of Dentistry for Children.

In 1923, women in the profession organized the Association of American Women Dentists which meets at the same time and place as the American Dental Association. There are also a few local associations of women in this profession, such as the Chicago Club of Women Dentists, and the Women’s Dental Society of New York which started with 20 women in 1938 and now includes almost 100 of the 400 women dentists licensed in New York State. (18)

Opportunities for Women With Special Employment Problems

Older Women.

Although older persons seldom enter training for dentistry because of the long period of preparation and the preference of schools for younger applicants, many grow old in practice and have no difficulty in continuing their service. In fact, 7.2 percent of all male dentists employed in 1940 were 65 years of age or over. (35) Separate statistics on age of women dentists are not available, but much the same situation appears to exist with regard to them as to men in the profession, of whom three-fourths were between 25 and 54 years of age, the median age being 43.6.
Married Women.

Information on the marital status of women dentists is not given separately in the Census, but indications are that marriage presents no handicap in employment. More than half (56 percent) of all employed women dentists, pharmacists, osteopaths, and veterinarians taken together were married, widowed or divorced, while less than half (47 percent) of those seeking work in these same categories were married. School or institutional work is especially suitable for a married woman dentist since the hours can usually be adjusted to suit her home schedule and this type of work involves no outlay for office equipment. On the other hand, a number of women are associated with husbands or other male relatives in practice and also can arrange their schedules to fit their needs.

Negro Women.

Although there was a steady growth in the number of Negro dentists from 1890 when 120 were recorded in the Census, to 1930 when 1,773 were reported, (15) it is safe to say that in 1940 there were less than 2,000. Negro dentists, pharmacists, osteopaths, and veterinarians altogether numbered only 2,533. (35) Of the latter, 140 or 6 percent were women. About 800 Negro dentists, including a number of women, are members of the National Dental Association, which has stressed the need for more Negro dentists and a better distribution of them. It reports that women seem to get along as well as the men and should be urged to train for this important work. In the last Census for which separate statistics are available, 1930, there was one white dentist for 1,700 white persons in the United States, and one Negro dentist for each 6,707 Negroes. In the entire South there was only 1 Negro dentist for each 12,312 Negroes. (15)

Most of the Negro dentists receive their training at Howard University (Washington, D. C.) or at Meharry Medical College (Nashville, Tenn.) although a number of the other dental schools, especially the State universities and larger institutions, have admitted Negro students.

Physically Handicapped Women.

The practicing dentist stands a good part of the time and needs good vision and dexterity in the performance of the work. Any physical defects interfering with such performance would be difficult to surmount. However, physical handicaps not interfering with the routine work and not likely to appear objectionable to patients should prove no hindrance in this field. Since women must overcome a certain amount of prejudice at the start, a physical handicap is likely to add to this difficulty. However, even a hand injury may not prevent a woman dentist, already trained, from engaging in educational or administrative work.
Post-war Outlook

Although women have always been few in dentistry and the recent trend in their number has been downward, the outlook for those now in the field and for those who wish to enter it is distinctly promising.

Barely holding its own before the war in the face of an increasing need for dental service, the profession is able to absorb easily the additional dentists trained under the accelerated plan. And it could use more. It looks with alarm, therefore, on the curtailment of supply resulting from the drafting of pre-dental male students.

The outlook is promising for the dental students here shown receiving instruction in the interpretation of X-ray examinations.

Need for Dental Care.

Various estimates have been made of the dental needs of the population, the usual one placing the desirable minimum ratio of dentists to population at 1 dentist to 500 persons. (38) That the dentists available before the war were too few to meet the actual need for dental care is shown not only by the 1940 ratio of 1 dentist to 1,878 people but even
more strikingly in a detailed study in 1938 of 485 patients of a nonprofit pay dental clinic in New York City. The initial care for each patient was found to average 6.9 hours of chair time with dentists and the annual maintenance care thereafter required 1.7 hours. (All laboratory, X-ray, and dental hygiene services were performed by auxiliary workers.) (8) The estimated dental care available in the United States (granted each active dentist worked 40 hours a week, 50 weeks a year, and devoted 94 percent of his time to chair work) was approximately 1 hour per person over 2 years of age, not enough to take care of the annual maintenance care needed, let alone the more time-taking initial care.

The war threw a spotlight on this already evident need for dental care. More than 8 percent of all rejections in the early period of Selective Service were for dental defects. In October 1942 it was decided that if an inductee had no malignant disease, extensive inflammation of the jaw bones, or severe malocclusion, he would be accepted regardless of the number of serviceable teeth he possessed. This resulted in fewer rejections and increased the amount of treatment after induction. In 1944, for example, Army dentists were treating 94,000 patients a day, each of whom required a minimum of 1½ fillings. (29) With regard to civilian workers, too, the U. S. Public Health Service reports that several factories have indicated that more time is lost on account of the lack of dental care than for any other reason. (29)

Among children, the neglect of teeth is apparently as prevalent as among adults. At the age of 15, 96 percent of all children are reported to have dental caries. (19) The effect of such neglect shows among these individuals when they become adults.

The Increasing Demand for Dental Care.

Although the need for more dental care for all parts of the population is obvious, translating this need into effective demand for the services of additional dentists involves another set of problems. The public is reported to follow a luxury-item spending pattern in its purchase of dental service. (16) In 1929 and 1941, it spent $500,000,000 for dental care; in the depression year of 1933, it spent only $294,000,000. In 1936, fewer than half of families with incomes below $1,000 were found to make outlays for services of dentists. (32) Expenditures for routine dental examinations are "by no means universal" even among higher-income families.

Analyzing the pre-war lag between the need for dental care and the effective demand for it, the report on the 1938 study in New York concluded:

There is no reason to believe that the supply of dentists is greatly out of line with effective demand for care . . . Until demand rises, undue increase in the number of dentists would result in spreading the same service and the same or lesser income among more workers . . .

These considerations do not alter the fact that many more dentists and
Hygienists are required to meet existing needs. They indicate that training of these workers must go hand in hand with public education on the values of oral health, also with removal of fear of dental operations, and provision for those in low-income groups of ways and means to pay for dental care without undue sacrifice of other essentials. For a satisfactory outcome, development of demand and supply must be closely coordinated, the guidance of which requires cooperative efforts of individual dentists, professional training schools and associations, departments of health, public schools, and State and Federal legislators.

Even if no new progress were made in the post-war period in translating needs into effective demand, there are certain factors which indicate that additional dentists will be required, assuming a general economic level the same as that for 1940–1941:

1. The strain upon dentists both in military service and in civilian practice has been greatly increased by the war and tends to raise the death rate among dentists, especially the older group. (22 percent of employed dentists in 1940 were 55 years of age or over.)
2. The need for dental services in the war areas has resulted in the assignment of some dentists to foreign service.
3. Military personnel, many of whom have had initial dental care for the first time, are more likely to seek periodic care after their return to civilian life to maintain their teeth in good condition.
4. Hospitalized veterans have increased with war casualties and will be given dental care in veterans' facilities.
5. A larger peacetime Army and Navy will require more dentists to service military personnel.
6. The postponement of dental care by those unable to obtain it easily during wartime will result in a greater demand in post-war years.
7. Normal population increases add to the total demand.
8. Improved techniques, especially in straightening teeth and in preventing facial distortions in children through early dental care, and the education of the public about them, have increased the demand especially for orthodontists.

There are also signs of progress toward education that will increase the per capita demand for the purchase of needed dental care on the one hand and toward supplying such care to income groups who cannot afford it, on the other. The relationship of dental to general health is being emphasized in health education programs. Many schools arrange for instruction on the care of teeth in the early elementary grades and for periodic reminders of the need for dental care thereafter. Routine physical examinations of school children, where given, include a check on condition of the mouth, and children with tooth cavities or other conditions requiring dental attention are urged to have them treated. The Commonwealth of Pennsylvania, for example, in May 1945 passed a bill requiring the periodic examination of school children and teachers by physicians and dentists. In Philadelphia alone, this will require the services of 46 dentists full time. The advertising campaigns of those who make and distribute toothpaste have stressed regular trips to the dentist.
Dental clinics within hospitals are contributing to the "advancement of sound dental education, better patient care for both in- and out-patients of the hospital, and a closer relationship between the medical and dental professions . . . ." (20) Although much still needs to be done, the public is being educated to the point where those who can afford regular dental care are more likely to expend the time and effort to obtain it.

Progress is also being made toward a solution of the problem most individuals face in financing dental care. Regular care itself reduces the amount that must be paid in any one year to meet such needs. This fact suggests that as more of those who now receive occasional attention only, estimated at 75 percent of the population, (24) seek regular care, they will find the costs more evenly distributed over time.

Although the insurance method has not been considered feasible at present because of the high cost of initial dental care, the 1938 study, while recognizing that "insurance cannot be a solution of the initial costs problem," concluded that "payment by the insurance method for dental maintenance care could be included in family budgets and individual risks of extra high cost years would be eliminated." (8) The Wagner-Murray Bill (S. 1050), introduced into Congress May 24, 1945, includes some dental care in its provisions for prepaid personal health service on a Nation-wide basis. There is a growing interest in a public dental care program particularly for children. As more effective services are rendered to children, reducing the later costs of initial care among adults, dental-care plans of the insurance or prepaid type may appear more feasible.

In 1943, almost 2 million, or about half the persons covered by more than 200 prepaid medical care organizations, were entitled to some type of dental service on a prepayment or reduced fee basis. But about 1 million, or half of those eligible, could receive only 1 or 2 types of dental service, not including both extractions and fillings. (22)

So far, in union health plans as well as in company health programs, dental service is seldom included, and, when rendered, is usually on a separate cost or fee basis. Only about 1 company in 10 that employs 500 people and operates an approved medical service is reported to maintain any dental-service whatsoever. (37) Proposals have been made for expanding dental services to workers to cover dental examinations and diagnoses, emergency treatment, care of dental ailments due to occupational diseases, and dental health education.

Strides have been made in dental service to children in city schools. Most of the larger cities provide some such care, usually routine examinations. But there is still room for progress. Only 50 of the 93 cities with a population of 100,000 to 150,000 have school dental programs. (16)

The period following the war should see a continuation of pre-war trends to provide more dental care through public health programs. The Social Security Act, passed in 1935, for example, stimulated dental services
in State and local health departments. By the end of 1937, 33 States had organized dental health units and employed 40 dentists in administrative work and 94 in field work, over half of them full time. (9) In 1942, 6 percent or $600,000 of the funds expended for maternal and child-health services by State health departments under the Federal-State grants-in-aid program went for dental personnel, $166,000 of it for practicing dentists. Another $20,000 was spent on postgraduate education of dentists in public health or children's dentistry. (7) Since large city health departments are usually financed locally, the States expend their funds primarily in rural areas. Dental trailers are being used in some States to bring not only educational but corrective programs to sparsely populated areas. Almost 400 dentists were engaged in dental health work in cities over 100,000 in population in 1937. (9) But such programs are largely educational. The need for service is enormous. Clinics in New York City, for example, were said as late as 1936 to serve but 5 percent of the 75 percent who cannot afford regular dental care at private practice rates. (27)

Although millions of children have been examined each year in school programs and in clinics, the Children's Bureau reports that scarcely a beginning has been made in the corrective work required to make such examinations valuable.

In rural communities the need is also great. In 1942, there were no dentists in 216 counties in 30 States according to the Committee on Dental Economics of the American Dental Association. Experimental dental plans have been introduced by the Farm Security Administration in 334 counties in cooperation with local dental societies. Under these programs, almost 40,000 farm families receiving F.S.A. loans contribute an annual payment for dental service to a fund which is used to finance care rendered by local dentists to members of the families. (16)

The fact that "there are too few dentists and auxiliary dental personnel available to meet existing and probable post-war needs," has been recognized by the profession, represented by 100 dentists attending an Institute on Dental Health Economics in 1944. In order to increase the number, this group recommended:

(1) A program of vocational guidance to interest high-school students in dentistry as a life career.

(2) Subsidization of dental education for schools and students.

(3) Increased use by dentists of auxiliary personnel and an extra dental operating unit. (25)

The American Dental Association has for many years carried on research in dental schools and in the United States Bureau of Standards, and is now supporting Senate Bill 190 to establish a National Institute of Dental Research. Another bill, H.R. 2234, to extend dental care and education of the public, also has been introduced into Congress recently.
The Outlook for Women Dentists.

Although no organized attempt has been made to recruit women for dentistry, some of the schools during the war period have definitely appealed to young women to enter this field. The outlook for them, like that of men, is good in the face of an increasing demand for service and a waning supply of trained personnel. In the past, women have succeeded in all types of dental work not only as general practitioners but also in school programs, in public health work in State and local health departments, and as specialists, especially in work with children (pedodontics) and in treating diseases of the gums (periodontics).

Dental students study anatomy to acquire knowledge indispensable for dental surgery.

Oral surgery is the one specialty in which women dentists seldom engage exclusively, although the average woman in general practice does extracting and minor oral surgery as well. The American Society of Oral Surgeons reports that no applications for membership have ever been received from women, although those with 5 years' experience in practicing oral surgery and exodontia exclusively are eligible. The Academy of Denture Prosthetics likewise has no women members. On the other hand, of...
205 members of the American Academy of Periodontology, 13 (6 percent) are women and of the 420 active members of the American Society of Dentistry for Children, at least 39 (9 percent) are women. Membership in this association is not limited however to those who engage in work with children exclusively.

There is and may continue to be prejudice on the part of a few who will not avail themselves of the service of a woman dentist or a woman physician solely because she is a woman. Habit may condition others to prefer male dentists. In 1939, over 40 percent of the women dentists cooperating in a study conducted by the Women's Institute of Professional Relations noted the existence of prejudice against women as an outstanding difficulty in the practice of their profession. (39) However, women dentists seem to agree that they are apt to be too busy rather than not busy enough. There is no evidence that they fared badly even in depression years.

For the young woman with a pleasing personality who combines intelligence with mechanical ability and dexterity, who likes science, and who can relate cause and effect, dentistry offers a promising career. Added to these basic qualifications, she should have enough business sense to manage an office or enough teaching ability to like the educational aspects of public health work.

More scholarships are needed to help finance the pre-dental and early years of dental school for girls who are interested and qualified to prepare to become dentists. Less restricting on one's personal life than the ordinary practice of medicine because of the more regular hour arrangements, the practice of dentistry can readily be combined with average homemaking responsibilities. In the future it can and probably will absorb considerably more than the 1,000 women who before the war were engaged in this significant service.
APPENDIX A

I. Usual Minimum Requirements for Entrance to a Dental School

**Pre-war**
Successful completion of 2 years of study in a liberal arts college, including a year's work in English, biology, physics, and inorganic chemistry, and a half year's work in organic chemistry.

One school required 3 years of liberal arts work.

**Note:** Of the 1,926 dental graduates in the academic year ending June 30, 1943, 51 percent had completed the minimum 2-year college preparation; of the remaining 49 percent who had more than the minimum, 29 percent held bachelor's, or other degrees.

**Wartime Changes**
No change.

II. Usual Minimum Requirements for a D.D.S. or a D.M.D. Degree from a Dental School1

**Pre-war**
Completion of a 4-year curriculum covering the following subjects:
- Anatomy—macroscopic and microscopic; oral anatomy; embryology; physiology; biochemistry; bacteriology; pharmacology and materia medica; pathology; medicine; diagnosis; roentgenology; orthodontics; dentistry for children; operative dentistry; periodontology; pulp canal therapy; prosthodontia; oral surgery; anesthesia—general and local; dental materials; public health; hygiene; history of dentistry; practice management; ethics; jurisprudence.

**Wartime Changes**
Beginning with the academic year 1942–43, the Council on Dental Education of the American Dental Association set curriculum standards of 3,800–4,400 clock hours, covering the same subjects. This was a permanent, not a temporary change caused by wartime conditions.

All schools are on an accelerated basis, so that the 4-academic-year course may be completed within 3 calendar years.

III. Usual Requirements for a State License To Practice Dentistry

**Pre-war**
Usually include:
- Graduation from a dental school approved by the State Board of dental examiners or other authorized State agency.
- Good moral character.

**Wartime Changes**
No change in usual requirements attributable to wartime conditions.

---

1 The accrediting of dental schools by the Council on Dental Education of the American Dental Association has been completed recently and the first list of schools "approved" and " provisionally approved" is published in the June 1, 1943, issue of The Journal of the American Dental Association.
Passing State Board Examination or its equivalent covering theoretical and practical subject fields similar to those included in the standard dental curriculum.

17 States required that applicant be a citizen or have filed declaration of intention. One State (Delaware) required a 1-year internship.

IV. Minimum Requirements for Civil Service Position as Associate Dentist in the Veterans’ Administration, U. S. Public Health Service, and the Indian Field Service

Pre-war
For this position at a basic salary of $3,200 the applicant must possess the following qualifications:

Must have graduated from a dental school of recognized standing not more than 7 years prior to the close of the receipt of applications.

Must have had at least 1 year’s dental internship or 1 year’s full-time active practice as dentist.

Age: Maximum, 34.

Sound physical health, passing a physical examination.

Citizen of the United States.

Wartime Changes
The basic salary remains the same, but the wartime lengthening of hours brings the actual salary to $3,828.

There is no longer a requirement as to recency of date of graduation.

No change up to May 1945 when the Civil Service Commission was considering changes in requirements.

V. Qualifications for Women Dentists in the U. S. Naval Reserve

Pre-war
Women not eligible prior to May 1944.

Wartime Changes
Graduation from accredited dental school.

State license to practice dentistry.

Membership in a recommended dental society.

May not be married to a Naval officer or have children under 18 years of age.

APPENDIX B

Sources to Which Reference Is Made in the Text


(7) Bain, Katherine. The Program of the Children’s Bureau. Speech Delivered before the Institute on Dental Economics, School of Public Health, University of Michigan, Ann Arbor, Michigan, June 8, 1944.


(11) Commissions for Women Dentists in the WAVES. Journal of American Dental Association 31: 852, June 1, 1944.


(17) The Effect of the War upon Dental Schools. Education for Victory 2: 22, June 20, 1944.


(20) Harmon, Edwin L. Dental Internships in General Hospitals. Dental Health 4: 8, November 1944.

(22) Klem, Margaret C. Voluntary Medical Insurance Plans. Their Extent and Limitations. Medical Care 4: 263–270, November 1944.


(31) 7.775 out of 8.888 in Dental Schools are in Armed Services. Journal of American Dental Association 31: 164, Jan. 15, 1944.


Other Selected References


American Dental Association, Council on Dental Education. Requirements for the Approval of a Dental School. Chicago, Ill., The Council, 1941. 15 pp.


