The Legal Scope of Dental Hygienists in the United States and Other Countries

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THE position of the United States today as a highly developed, technologically advanced country among the nations of the world tends to define its role as exclusively that of aiding and teaching the less developed countries. In the course of making our knowledge and resources available to such countries, we often fail to recognize that we might also learn from them.

Dental health is one field in which other countries have powerful lessons to teach. Faced with acute shortages of dentists and rampant dental disease in their populations, New Zealand and, more recently, several developing countries have pioneered in the use of dental manpower. Their experiences may help to show how the United States can overcome the gap between its enormous dental needs and its limited supply of dental manpower.

The Dental Nurse in Malaysia

The Dental Training School of Dental Nurses and Technicians in Malaysia has been preparing dental nurses since 1950 to provide dental care to children. Located in the State of Penang, which was called the Pearl of the Orient by the British merchants who sailed the seas a century ago, the school is part of a large medical center. Two modern buildings house spacious facilities: a large lecture hall, smaller classrooms, clinic rooms with the latest in dental equipment, a library, pharmacy, and laboratory, and all the resources for teaching theory, practice, maintenance of equipment, and even the making of hand puppets for educating children in dental health.

Visitors to the school may be escorted by its director, Dr. Chellie Sundram, a world renowned authority on dental auxiliaries, to a gallery from which they can look down on about 50 dental nurse students in attractive uniforms, each working on a child in a dental chair. Both the patients and the students are of the country's three main ethnic groups: Malay, Chinese, and Indian. On the walls are large, dramatic paintings, especially appealing to children, done by Dr. Sundram himself—huge toadstools, butterflies, and flowers in bold colors and striking designs. The scene is picturesque. The only sound is the hum of work, no screaming or crying, because the children and the student nurses are in harmony.

Why was a school for dental nurses established in Malaysia? West Malaysia, with 7 million people, has only 226 qualified dentists. More than half of these dentists are in the government service either as officers in the public health program or as specialists (surgeons) in the govern-

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mental general hospitals. The other half are in private practice, almost exclusively in the cities. In addition, there are about 500 poorly qualified dental practitioners, without any training except apprenticeships, who were placed on the dental register in 1953. Since that time, no such practitioners have been added to the register.

With one dentist to 48,000 people, compared with about one to 2,000 in the United States (*1*), there obviously are not enough dentists to care for the population. And even if there were enough, the low income and low educational level of the majority of Malaysians mean that they seek dental care only in extreme circumstances—to relieve pain. Moreover, more than half of the Malaysian population is under the age of 18; and in this group, for whom early dental care can reduce the rate of extractions and prevent pain and malocclusion, a high incidence of caries and periodontal disease existed. Totally neglected mouths were common in Malaysia before 1950 (*2*).

In February 1946, Dr. Roy E. Anderson, former director of medical services in Malaya (now part of Malaysia), was vacationing in New Zealand. Quite by chance, the story goes, he noticed attractive, smartly dressed girls streaming out of a building in Upper Willis Street in Wellington. He inquired about them and was invited to visit the Willis Street Dental Clinic, where these young dental nurses worked (*3*). On his return to Malaysia, Anderson spoke enthusiastically of this wonderful new system of school dental nurses, pointing out that it was "uncommon to find in the 6–12 age group septic roots, apical abscesses, complicated caries in permanent teeth and generally neglected mouths" (*2*).

New Zealand's pioneering school dental service was established in 1921 following World War I. The poor dental condition of army recruits focused attention on the "very low standard of dental fitness of youth" and prompted development of a school dental service for children (*4*). Since New Zealand's supply of dental manpower was totally inadequate to meet the need, the National Government, with the endorsement of the New Zealand Dental Association, undertook to train school dental nurses to fill and extract teeth and educate children under the age of 13 in dental health (*4*).

Each child receives a complete course of treatment twice each year, including prophylaxes, fillings, extractions, and topical fluoride applications in unfluoridated areas. In 1969 a total of 1,334 trained dental nurses provided care for approximately 568,119 children. Formerly, each dental nurse cared for about 475 children; today, in fluoridated areas, which cover 65 percent of the population served by reticulated water supplies (72 percent of the total population), each dental nurse can maintain the dental health of 700 children (*5*). The effectiveness of the school dental service is reflected by the small number of permanent teeth extracted because they cannot be saved (*6*).

Based on the New Zealand experience, the Malayan school for dental nurses was established in 1950, before independence from Great Britain in 1957 and before Malaysia was formed in 1963. Instruction was provided partly by a dental nurse from New Zealand, who was visiting in Penang and answered an advertisement for teachers for the new school. The system of dental nurses was adapted to the Malaysian scene, with nurses placed mainly in large dental clinics rather than in each school, as in New Zealand. Every effort was made both in Malaysia and New Zealand to avoid the notion that the dental nurse was a less-trained dentist and to develop this new health worker as a specialist in prevention and control of caries in children (*2, 4*).

What are the functions of dental nurses in Malaysia? The dental nurse is authorized to provide preventive and curative dental services to children under age 12 routinely and to children between 12 and 14 years old in an emergency (*2*). Seven functions are specified:

Placing amalgam fillings in primary teeth
Placing amalgam fillings in permanent teeth
Extracting carious, deciduous teeth, using local anesthesia
Scaling, polishing, and topical application of fluorides
Recognizing and recording malocclusions for treatment by the dentist
Training the child-patient to accept dental treatment at frequent and regular intervals
Providing dental health education.

For fillings in the anterior teeth, extractions

of permanent teeth, and orthodontic and restorative services, the child is referred to the dental officer. In New Zealand silicate fillings in anterior teeth are done by the school dental nurse, extractions of permanent teeth are now referred to a dentist—school dental nurses are no longer trained for this function—and orthodontic services are provided by dentists. Moreover, the free dental service is continued for adolescents through reimbursement of dentists for dental care provided twice a year to teenagers aged 13 to 16 (*4, 6*).

What are the working conditions of dental nurses in Malaysia? They do not work as assistants to dentists in private practice nor in solo practice. They work mainly in public health clinics and in schools as part of the organized public health services of the country. In this way the dental nurses are always supervised by a dental officer and a supervising dental nurse. The dental nurses work as part of a dental team, which consists of one dental officer, one supervising dental nurse called a dental sister, five dental nurses, two dental assistants—persons with 2 years of inservice training following 9 years of basic schooling—and one dental technician.

Each dental nurse is responsible for a treatment group of 500 to 600 children, whom she must keep dentally fit by routine inspection, instruction in oral hygiene, and arrest of existing caries. In practice each dental nurse sees about 15 to 20 patients a day. If she is confronted with a difficult problem, the dental officer, the dental sister, and her auxiliary, the dental assistant, are available to help her. Every child with a so-called completed mouth is checked by the dental officer so that pathology and anomalies are not missed. An important part of the dental nurse's work is educating each child in dental health while he is receiving dental care.

What is the educational preparation of the dental nurse in Malaysia? Sundram stated that the dental training school of Malaysia, in 18 years of service, had trained 322 dental nurses and 57 dental technicians. Of this total of nurses, 263 were Malaysians and the other 59 were from Singapore, Hong Kong, Brunei and Sarawak, Burma, and Nigeria.

Applicants for admission to the school are young women between the ages of 17 and 31. They must have passed their senior Cambridge examinations, which follow 11 years of basic schooling (*7*). The prerequisites for dental nursing thus resemble the prerequisites for admission to nursing or teaching programs in Malaysia.

The curriculum consists of 2 years of academic training and 16 months of field training. The 2-year academic program is divided into 4 months of preclinical study and 20 months of clinical work. The preclinical study consists of basic lectures in anatomy and physiology, instruction in preliminary operative dentistry and in placing of amalgam cement, and development of manual dexterity (*2, 7*). During the 20-month clinical phase the student begins working on patients and is expected to place 1,200 silver amalgam fillings in permanent teeth and 900 amalgam fillings in deciduous teeth. Instruction is given in the use of local anesthetics, in the extraction of deciduous teeth, and in the psychological handling of children and parents. All the work is supervised, scrutinized, and assessed at every stage.

The fieldwork phase includes posting the dental nurse to work with a dental officer in a clinic, where she organizes and cares for a treatment group. Since she is on the same premises as the dental officer she is under his direct supervision, and her work is under constant surveillance.

When the dental nurse completes field training and becomes a staff dental nurse, she is one of five on the staff that will be supervised by a single dental officer. The dental officers have stated that the dental nurses are fully equal to the tasks they must perform, that they can manage routine cases singlehandedly, and that they know when to refer the more difficult cases.

In New Zealand, the dental nurses work even more independently than in Malaysia. Surveillance of their work is provided through a continual review of records and spot checks of the patients of each school dental nurse. The supervising dentists in New Zealand state that a routine check of each mouth completed has proved unnecessary because of the thorough initial training of dental nurses and refresher training every 5 years. Constant checking, it is contended, would diminish the pride of the den-

tal nurses in their work, which contributes so markedly to the high quality of their performance. In both countries the rapport of the dental nurses with the children is splendid, and they are meeting a need for early preventive care that can be met in no other way.

Dental Nurses in Other Countries

Use of dental nurses for the care of children is not unique to New Zealand and Malaysia. Ceylon and Indonesia have schools for dental nurses. The health programs of Singapore, Hong Kong, and Ghana use the dental nurses trained in New Zealand and Malaysia. Thailand has both dental hygienists in the U.S. fashion and school dental nurses like New Zealand's.

All these programs have yielded excellent results. The New Zealand experience provides the richest data because the program has been in operation for the longest period—nearly 50 years. It is generally recognized that New Zealand dental nurses have provided competent dental services for children: preparation and filling of cavities, prophylaxes, simple extractions, use of local anesthetics, treatment of minor gum conditions, application of topical fluoride, and recognition and referral of orthodontic problems. Regular care for each child on a twice-yearly basis has made toothaches and "broken-down" teeth a thing of the past.

One authoritative study made 25 years after the program was initiated concluded as to quality of care: "The important question is whether the programme saved teeth . . .; on this basis, the quality of School Dental Service in New Zealand is high" (*8*). More recent evaluations have confirmed the findings of a high proportion of filled permanent teeth and a very low rate of extractions (*9, 10*). Several comparative studies have shown that New Zealand children have a higher level of dental fitness, despite a high incidence of dental caries, than children in the United States, Australia, or England, and a comparable level of dental fitness to that of Norwegian children (*9, 10*). According to these studies, New Zealand children have a lower rate of decayed (unrestored) and missing teeth than children in the three countries mentioned. In New Zealand, 93 percent of the school children receive regular dental care, and among this group 72 percent of all carious teeth have been treated. In the United States, about 50 percent of children have never seen a dentist, and only 23 percent of decayed teeth are filled (*9*).

Moreover, use of dental nurses has contributed to heightened public sensitivity to and appreciation of dental health. About 68 percent of the population in the fourth largest city, Dunedin, visit a dentist at least annually (*11*). Children who are accustomed to seeing a dental nurse every 6 months tend, as adults, to see a dentist regularly. More than 71 percent of persons aged 15 to 21 were found to continue the regular dental care that they had been accustomed to receiving as children (*12*). New Zealand dentists (one per 2,700 population) are extremely busy.

England is currently training ancillary dental workers to fill teeth and extract deciduous teeth with somewhat less independence than characterizes the dental nurse in New Zealand (*13*). In Great Britain the dental auxiliary works under the direction of a registered National Health Service dentist, who examines each patient and determines the course of treatment.

The Canadian Royal Commission on Health Services has recommended a program of dental care for children aged 5 to 14 and has suggested the training of dental auxiliaries to staff such a service. If this program is initiated, the Provincial dentistry acts would probably require amendment even though the definitions of functions of dental hygienists in some Canadian statutes are not so restrictive as those included in the U.S. statutes. The Ontario Dentistry Act (*14*) states:

> The practice of dental hygiene means the performance under the direct supervision and control of a member of the College of any work, service, advice or assistance usually undertaken, performed, or given by a dental hygienist and includes: (*a*) cleaning and polishing teeth; (*b*) giving of instructions and demonstrations in oral hygiene and mouth care; (*c*) administering first aid; (*d*) making radiograms; (*e*) topical application of medicaments; and (*f*) performance in the oral cavity of any work, service or assistance that is ancillary to the primary performance of a dental procedure by a member of the College and that does not involve the exercise by the dental hygienist of the professional skill or judgment required of a member of the College.

Thus, the technologically advanced countries are looking to expanded functions of dental auxiliary workers to solve the acute shortage of dental manpower.

Functions of U.S. Dental Hygienists

With this background of what is being done in the developing countries and in some technologically advanced countries, it is appropriate to examine the scope of functions of dental hygienists in the United States. In general the licensure statutes for dental hygienists authorize only removal of calcareous deposits, accretions, and stains; application of topical agents; and in some States taking X-rays or assisting the dentist in operative or surgical procedures (*15*). The statutes of half the States do not permit the hygienist to go below the margin of the gum in performing a prophylaxis, but this restriction is almost universally disregarded. A faculty member of the University of California School of Dentistry, Los Angeles, commented, in fact, that very few dentists would tolerate a hygienist who did not go below the margin of the gum because it is that "last bit of calculus at the bottom of the pocket that is most important." The irrationality of this restriction was exposed in one telling sentence by the New York State Commission on Medical Education (*16*): "Why should a dental hygienist who can successfully scale and polish teeth below the margin of the gingivae in Michigan be forbidden to do so in New York?"

Contrast with these restricted functions the thorough education of dental hygienists. Here requirements for licensure and requirements of schools of dental hygiene must be distinguished. For licensure, most States require graduation from high school and completion of a 2-year curriculum of dental hygiene. Some 4-year schools of dental hygiene, however, include 2 years of liberal arts and 2 years of dental hygiene. About half the schools of dental hygiene are located in 4-year colleges (*1*).

Dental hygienists may indeed be overtrained for the functions they now perform. The solution is not to reduce their preparation but rather to expand their role. The reasons are so well known that they are summarized only briefly:

1. There is an acute shortage of dentists in the United States and a declining ratio of dentists to population.

2. This absolute shortage is accentuated by the uneven distribution of dentists. The ratio of dentists to population varies in different sections of the country, with highest ratios in the northeastern States and lowest ratios in the South (*1*, *17*). Some States with a satisfactory total ratio have counties with very few dentists.

3. The shortage of dental manpower is even more grave than the statistics would indicate when one considers the accumulated unmet needs in the population. In 1960 it was estimated that the 180 million people in the United States had at least 700 million unfilled cavities, or an average of 4.5 per person (*18*). This figure refers only to dental caries and not to the need for periodontal, orthodontic, or other care.

4. Many people do not or cannot afford to see a dentist. In 1963 and 1964 only 42 percent of the civilian, noninstitutional population made one or more dental visits in the previous year, and 16.6 percent of the population had never seen a dentist (*19*). In poverty areas of large U.S. cities, a majority of the children suffer from almost total dental neglect, according to the testimony of George James, former commissioner of the New York City Department of Health, before the board of estimate and city council committee on finance at a joint public hearing on fluoridation, November 18, 1963.

5. Even vastly expanded dental schools would not be able to produce enough dentists to meet a dental problem of this magnitude. If ever the demand for dental care should moderately approach the level of need, the shortage of dental personnel, now acute, would become critical (*15*).

6. Fluoridation of public water supplies, which significantly decreases dental decay, if generally instituted will not reduce the overall need for dentists and dental hygienists because of the backlog of dental work, the need for dental services for older age groups, and unmet needs generally (*20*).

Signs of Change

The barrier to expanded functions of dental hygienists has not been the inability of American dental hygienists, compared with Malaysian or New Zealand dental nurses, to perform a

wider scope of functions. Dental hygienists in the United States have much more theoretical grounding than the Malaysian dental nurses can acquire in 4 months of preclinical training. The clinical training of dental hygienists is thorough and could readily be adapted to prepare them for additional functions. The barrier has been in the licensure laws, which generally restrict dental hygienists to prophylaxes. Until recently, the dental profession has raised professional objections to most proposed changes in the licensure laws governing dental hygienists.

There are signs of change, however. In 1967 Iowa amended its dental practice act to authorize dental hygienists to perform functions in accordance with their training and under the supervision of a licensed dentist, such functions to include but not to be limited to those specified in the act (*21*). The language of the Iowa statute follows:

> A licensed dental hygienist may perform those services which are educational, therapeutic, and preventive in nature which attain or maintain optimal oral health as determined by the board of dentistry and may include but are not necessarily limited to complete oral prophylaxis, application of preventive agents to oral structures, exposure and processing of radiographs, administration of medicaments prescribed by a licensed dentist, obtaining and preparing nonsurgical, clinical and oral diagnostic tests for interpretation by the dentist, preparation of preliminary written records of oral conditions for interpretation by the dentist. Such services shall be performed under supervision of a licensed dentist and in a dental office, a public or private school, public health agencies, hospitals, and the armed forces, but nothing herein shall be construed to authorize a dental hygienist to practice dentistry.

Minnesota has also authorized a broadened scope of functions for dental hygienists (*22*).

Five other States have authorized the expansion of functions of dental hygienists by amending the rules and regulations under their dental practice acts or by advisory opinion of the State Attorney General as to what constitutes the practice of dentistry. These States are Alabama (*23*), Missouri (*24*), North Carolina (*25*), Pennsylvania (*26*), and South Dakota (*27*). The amendments were formulated in two ways: by specifying the functions that dental hygienists may perform or by authorizing generally functions within the scope of employment performed under the direct supervision of a dentist and excluding certain specified functions deemed to constitute the practice of dentistry.

North Carolina specifically authorizes the following six functions for dental hygienists: removal of periodontal packs, removal of surgical packs, removal of sutures, removal of excess cement from appliances and restorations, and application of topical anesthetics within the oral cavity on or for any person or persons whom the dental hygienist is treating.

An advisory opinion of the Missouri attorney general, dated December 14, 1967, interpreted certain functions as not constituting the practice of dentistry: applying a desensitizing agent; placing a matrix, rubber dam, or cotton roll; placing and holding separating strips; spraying the mouth with antiseptics; and taking impressions of teeth. The opinion cautioned that three functions border on the practice of dentistry: taking X-rays, removing wires, and removing excess cement. Many dentists agree that barring dental hygienists from performing these last-mentioned functions is at variance with sound and appropriate use of dental manpower.

In Alabama and Pennsylvania, amended rules authorize the dental hygienist to act within the scope of her employment under the supervision of the dentist but specifically prohibit her from the performance of functions requiring professional skill and judgment; for example, diagnosis and planning of treatment, surgery on hard or soft tissues, intra-oral procedures leading to fabrication of an appliance, and (in Alabama) any other irreversible procedures requiring the professional judgment and skill of a dentist. In South Dakota, a rule adopted by the State board of dental examiners authorizes a dental hygienist to hold and remove impression material, to remove sutures and dressings, to place rubber dams, and to apply topical fluorides and anesthetics.

These few States have opened the door slightly for expanded functions of dental hygienists, particularly for reversible procedures. Contrasted with this hesitant approach are experimental findings as to the capability of dental auxiliaries. Demonstrations in the United States and Canada have shown that specially trained dental auxiliaries can perform with safety and competence certain operations

traditionally performed by dentists. These studies were conducted by the U.S. Navy Dental Corps at Great Lakes, Ill., the Royal Canadian Dental Corps, and the Indian Health Service of the Public Health Service (*28*). A demonstration in Alabama showed that high school graduates with 2 years of training can successfully (*a*) place and remove rubber dams, (*b*) place and remove temporary restorations, (*c*) place and remove matrix bands, (*d*) condense and carve amalgam restorations in previously prepared teeth, (*e*) place silicate and acrylic restorations in previously prepared teeth, and (*f*) apply the final finish and polish to the restorations listed (*28*). These functions are selected because of the consensus that they were reversible and can be corrected or redone without undue harm to the patient's health.

Experts must decide which functions dental hygienists would be authorized to perform under an expanded licensure law, but potential functions that might be considered by dental practitioners, educators, and professional organizations include preparation of cavities, insertion of fillings, polishing of fillings, extraction of deciduous teeth, gingival curettage and periodontal care, assistance in minor gingivectomies, making impressions for studying occlusions, placing rubber dams, and administering local anesthetics—all to be done under the supervision of a dentist. The experience in Malaysia and New Zealand, where dental nurses fill carious teeth for children and extract deciduous teeth, is relevant and should be considered.

Objections to expanding the functions of dental hygienists are generally based on the two contentions that the standard of dental care would be lowered and that the shortage of dental hygienists is so great that all are needed for the prophylaxes they now perform. Standards would not be lowered if dental hygienists were trained for additional functions and were properly supervised. There is a grave shortage of dental hygienists, but the large volume of prophylaxes needed could well be done by auxiliaries with less training than that of dental hygienists. The irrationality of these objections is reflected by the statement of one prominent representative of the dental profession who urged that the functions of dental assistants be expanded rather than those of the dental hygienist because the asssitant is accustomed to working chairside with the dentist. Why should the functions of a person with no theoretical foundation and perhaps with only inservice training be expanded when highly educated but underused professionals are available?

Conclusion

The shortage of health manpower is wide and deep; it is not peculiar to dental services. The shortage of physicians is requiring the use of traditional personnel in expanded functions and new kinds of auxiliary workers for segments of health service within their competence. The physician's assistant is being developed in medicine. In other fields also, such as public health social work, health education, and nutrition, to name a few, efforts are being made to allocate to auxiliaries the functions that they can perform. U.S. citizens need and are demanding a greater volume of medical and dental services than our current health system can deliver. One change that would help to meet this demand is a wider scope of functions for dental hygienists. In addition to benefiting the public, this change would make the practice of both dentistry and dental hygiene more challenging and more rewarding.

REFERENCES

(*1*) Manpower Resources Staff: Manpower supply and educational statistics for selected health occupations. Health manpower source book. PHS Publication No. 263, sec. 20. U.S. Government Printing Office, Washington, D.C., 1969, pp. 80–81.

(*2*) Sundram, C. J.: The training and use of dental auxiliaries, Malaya. World Health Organization, Geneva, June 30–July 5, 1958, p. 4.

(*3*) Sundram, C. J.: It began in a hotel in Wellington, New Zealand. New Zealand School Dent Serv Gazette 20: 4–5, January 1960.

(*4*) Public dental health in New Zealand. Pamphlet No. 144. New Zealand Department of Health, Wellington, 1967.

(*5*) Denby, C. C., and Hollis, M. J.: The effect of fluoridation on a dental public health programme. New Zealand Dent J 62: 32–36 (1966).

(*6*) Report of director, division of dental health, for the year ending March 31, 1969. New Zealand School Dent Serv Gazette 29: 57, October 1969.

(*7*) Sundram, C. J.: The education of dental nurses in Malaya, Malaysia. Dent Delineator 18: 4–8, summer 1967.

(*8*) Fulton, J. T.: Experiment in dental care: Results

of New Zealand's use of school dental nurses. Monograph Series No. 4. World Health Organization, Geneva, 1951.

(9) Walsh, J.: International patterns of oral health care—the example of New Zealand. Special supplement on oral health, facts, figures, and philosophy; selected papers from the centennial observances of the Harvard School of Dental Medicine. Harvard Dent Alumni Bull, November 1968, pp. 10–18.

(10) Beck, D. J.: Evaluation of dental care for children in New Zealand and the United States. New Zealand Dent J 63: 201–211, July 1967.

(11) Bamford, C. R., et al.: A survey of dental health knowledge and attitudes in Dunedin. New Zealand Dent J 65: 118–124, April 1969.

(12) Beck, D. J.: Dental health status of the New Zealand population in late adolescence and young adulthood. Special Report No. 29. National Health Statistics Centre, New Zealand Department of Health, Wellington, 1968, p. 77.

(13) Leatherman, G.: International patterns of oral health care—the example of the United Kingdom. Special supplement on oral health, facts, figures, and philosophy; selected papers from the centennial observances of the Harvard School of Dental Medicine. Harvard Dent Alumni Bull, November 1968, pp. 24–30.

(14) Ontario regulation 332/65, dental hygienists. Ontario Gazette, Nov. 15, 1965, p. 2900.

(15) Forgotson, E. H., Roemer, R., and Newman, R. W.: Licensure of dentists and dental personnel. *In* Report of the National Advisory Commission on Health Manpower. U.S. Government Printing Office, Washington, D.C., November, 1967, vol. 2, pp. 493–543.

(16) New York State Commission on Medical Education: Education for the health professions. New York State Department of Education, Albany, 1963, p. 88.

(17) Johnson, D. W.: Dental manpower resources in the United States. Amer J Public Health 59: 689–693, April 1969.

(18) Young, W. O.: Dental health. *In* Survey of dentistry: Final report of the Commission on the Survey of Dentistry in the United States. American Council on Education, Washington, D.C., 1961, p. 3.

(19) U.S. National Health Survey: Dental visits, time interval since last visit, United States, July 1963–June 1964. PHS Publication No. 1000, ser. 10, No. 29. U.S. Government Printing Office, Washington, D.C. 1966.

(20) Task Force on Health Manpower of the National Commission on Community Health Services: Health manpower, action to meet community needs. Public Affairs Press, Washington, D.C., 1967, p. 62.

(21) Iowa Code Annotated, sec. 15315 (1969 supp.).

(22) Minnesota Stat., sec. 150A.10 (1970 supp.).

(23) Board of Dental Examiners of Alabama: Rule No. 252, effective Aug. 26, 1968.

(24) Missouri Dental Board: Rule 1, filed Nov. 7, 1967.

(25) North Carolina Board of Dental Examiners: Rules and regulations, effective Aug. 16, 1965.

(26) Pennsylvania State Dental Council and Examining Board: Regulation VI, effective Sept. 18, 1967.

(27) South Dakota State Board of Dental Examiners: Rule 10, 1968.

(28) Hammons, P. E., and Jamison, H. C.: New duties for dental auxiliaries: The Alabama experience. Amer J Public Health 58: 882–886, May 1968.

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