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Attitudes of Virginia Dental Hygienists Towards Issues Relevant to the Independent Practice of Dental Hygiene

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ATTITUDES OF VIRGINIA DENTAL HYGIENISTS TOWARDS ISSUES RELEVANT TO THE INDEPENDENT PRACTICE OF DENTAL HYGIENE

by

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ABSTRACT

ATTITUDES OF VIRGINIA DENTAL HYGIENISTS
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Adequate studies have not been conducted to assess the attitudes of dental hygienists toward independent practice of dental hygiene. The purpose of this study was to investigate these attitudes. The method of investigation was a survey questionnaire designed by the principle investigator. The instrument was tested for reliability with a small group of dental hygiene educators through test-retest. The instrument was found to be moderately reliable. The sample population of Virginia dental hygienists was chosen through systematic randomization. The sample received an attitude survey by mail. The research results indicated weak support for the independent practice of dental hygiene. The support for general supervision of hygienists in Virginia and the

desire to be allowed to practice in nontraditional settings was stronger. There was reported a very strong opposition to preceptorship in dental hygiene. The majority of Virginia dental hygienists (64.1%) agreed that they were educationally prepared to practice dental hygiene independent of a dentist's supervision. Surveys revealed that 58.8% of Virginia dental hygienists agreed that the practice of independent dental hygiene would increase access for the public to dental hygiene services. Only 29.9% believed that the cost of dental hygiene services would be lowered through the independent practice of dental hygiene.

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Chapter 1

Introduction

Attitudes toward the independent practice of dental hygiene are varied. To gain a better understanding it becomes important to determine the attitude of hygienists toward several key issues which are receiving growing attention (Forrest, Rigolizzo, Stackhouse, 1981). Some hygienists view independent practice as a practice setting that should not be an option. These hygienists feel in general, that hygienists are not educationally prepared to meet this challenge (Rothweiler, 1990). Other hygienists speak out just as strongly in defense of independent practice, saying that hygienists are educationally prepared to deliver quality health care to the public (Fitch, 1980). Hygienists also want to provide services in settings in which the public currently does not receive dental hygiene care, such as schools, nursing homes, migrant camps and rural areas. With independent practice, institutions and many other settings can provide services by hygienists that are not being provided today (Nader,1982). While educational standards and practice

settings for dental hygiene were being debated the idea of preceptorship was introduced by members of the dental community.

Preceptorship is the most recent issue brought to this debate and some suggest that there is a dental hygiene shortage that can be corrected by preceptorship (Studstill, 1990). Preceptorship of dental hygienists would consist of on-the-job training provided by the employing dentist (Cotton, 1990). The applicant does not receive prior formal education in dental hygiene. The preceptor would only have to request the training by preceptorship and be accepted by the employer. Many dental hygienists feel that this would dramatically lower the educational standards for dental hygiene as they exist currently, and thereby, lower the quality of hygiene services provided to the public (Cotton, 1990). Currently, hygienists are licensed following the successful completion of an accredited dental hygiene program and a national and regional or state examination (Gurenlian, 1991). Regional or state exams are composed of both didactic and clinical evaluation of skills pertaining to dental hygiene. To be issued a license, the candidate must satisfactorily complete both sections. In this way, a standard is established for the practice of

hygiene in any particular region. Preceptorship would not require regional examinations. Thereby, the establishment of standard hygiene care would be eliminated even though some proponents feel that preceptorship would be a solution to what is beginning to appear as a human resource shortage in dental hygiene.

The educational preparation of dental hygienists is relevant to the debate concerning the practice of dental hygiene. It is important because educational preparation determines the quality of services provided to the public (Cotton, 1990). Educational standards are established via accreditation through the American Dental Association, Commission on Dental Accreditation. This association creates nationally implemented standards for dental hygiene education. Formal education develops one's ability to make responsible, professional judgements pertaining to care. Without adequate education, responsible professional decisions cannot be made when needed (Cotton, 1990). For example, a patient comes into a dental office to receive dental hygiene services. The hygienist in this office has been trained through a preceptorship program to deliver hygiene services. Hygienists trained through preceptorship are taught only to remove hard and soft debris from tooth structure

(Gurenlian, 1991). The preceptee has been trained how to provide this service, but has learned nothing about other aspects related to the service such as why, where or when it should be rendered (Cotton, 1990). This is the difference between a non-professional who needs close supervision and an educated professional who is capable of judgement based on knowledge and has earned the position of responsible decision maker through education (Hein, 1990). The preceptee knows how to remove the debris, but does not know why hygienists remove debris or what the effect this procedure has on the tissues in the mouth or even how this relates to the patient's health. The preceptee does not know where procedures should be performed. Some circumstances require alteration of typical dental hygiene care plans, such as treating a patient in a wheelchair instead of dental chair, or in settings other than a dental office. A preceptee has no formal education that creates a knowledge base from which to make these decisions.

It may be reasonable to think the hygienist will provide services at the time that the patient arrives for the appointment. The preceptee would do this if s/he has been trained only to remove hard and soft debris from the tooth structure. The preceptee might not understand how a

fluridated cleaning agent used to polish the patient's teeth could reduce the success rate of dental sealants should they be placed following such treatment. The retention rate of sealants is lowered significantly in this event causing the procedure to be costly, as well as time consuming to the patient and the office.

In situations that require judgement on the part of the hygienist it is apparent that a broadly educated professional is preferable (Cotton, 1990). For those patients that are medically compromised, the lack of knowledge in how to treat them could be life threatening. For example, patients with certain types of heart murmurs require premedication with antibiotics to prevent endocarditis, an infection of the heart valves. If this infection goes untreated it is almost always fatal (Berkow, Fletcher, 1987,p. 535). Situations such as these are easily avoided with education. Hygienists educated in accredited dental hygiene programs are taught the significance of health problems and their relationship to dental hygiene care prior to any clinical contact with patients (Finch, 1980). Dental hygiene students also are evaluated on professional judgement with each patient.

Regulations regarding the practice of dental hygiene in the Commonwealth of Virginia require that

hygienists be directly supervised by a dentist. This requires that the dentist be present to evaluate the hygienist's services. Recently, a regulation concerning this form of direct supervision was interpreted as reviewing "dental hygienist's patients for completeness of plaque/deposit removal and damage to the soft tissue" (USCG Medical Manual, 1992 p. 1-33).

Close supervision of dental hygienists by dentists is required by the Virginia Board of Dentistry even though at some dental schools, dentists are taught by dental hygienists to provide preventive services. In such instances, during the educational process, dental students are evaluated by the dental hygienist. Upon completion of the educational process, the process is reversed and the dentist evaluates the dental hygienist. Such close supervision of one certified professional by another professional occurs in no other professional relationship except for dental hygiene. "The mean hours of periodontal instruction that the dental students receive are 285.5. In contrast, dental hygiene students receive 618 hours in pre-clinical and clinical instruction, in addition to 100 hours of didactic instruction in periodontics" (VDHA Newsletter, 1992). In addition to the curricular hours, licensure and credentialing are in place to protect the

public from unqualified or unsafe practitioners. Given accreditation standards for dental hygiene education, and national and state examinations, it seems overly restrictive for dental hygiene practice to be directly supervised by dentists.

Another issue related to independent practice is providing dental hygiene services in alternative settings (Durrant, 1991). Currently, 44 states allow dental hygienists to provide dental hygiene services in alternative settings, such as, hospitals, nursing homes and prisons (VDHA Newsletter, 1992). Regulations allowing dental hygiene practice in non-traditional settings allow increased access to dental care for patients in these settings (Fitch, 1980). In the Commonwealth of Virginia, this practice is illegal (VDHA Newsletter, Dec. 1992). Independent dental hygiene practice is considered to be one mechanism to increase the public's access to quality preventive dental care" (Forrest, Stockhouse & Rigolizzo, 1981).

A manpower shortage in dental hygiene has been claimed by some members within the dental community (Miller, 1990). The suggested solution to this is the establishment of a preceptorship program for dental hygienists (Parton, 1992). Such action would generate a

quick and inexpensive source of practitioners. "In October 1992 the American Dental Association (ADA) passed several resolutions that may impact the future of dental hygiene. Policy was adopted to implement long-range strategies to develop "flexible" training programs for dental hygienists and dental assistants. This means preceptorship or on-the-job-training could replace accredited dental hygiene education" (VDHA Newsletter, Dec. 1992).

The question about independent dental hygiene practice aroused an interest in the attitudes surrounding this topic. This study intended to determine Virginia dental hygienists' attitudes relevant to independent practice of dental hygiene. This was be accomplished by randomly selecting 400 licensed hygienists in the Commonwealth of Virginia to complete an attitude questionnaire pertaining to independent practice.

Statement of the Problem

Adequate studies have not been conducted to assess the attitudes of dental hygienists relevant to the issues related to the independent practice of dental hygiene. This study attempted to determine these attitudes.

Significance of the Problem

If research results reveal that a majority of hygienists are in support of independent practice, then this may be used in creating change in the manner in which hygiene is practiced in Virginia. If it is established as to what hygienists want as a group, then documentation is established for implementing changes in the practice of dental hygiene. There has been little empirical research conducted in the area. The study being proposed will provide information that previously has not been available. Hopefully, the processes will lend new light to a controversial issue. The Virginia dental hygienists and the public can benefit from the knowledge obtained through this study. With the results, hygienists may determine a direction of possible change in the hygiene system, change that could extend oral health services to the public in practice settings where it has not before been available. For this change to occur dental hygienists need a foundation based on beliefs of how hygiene optimally should be practiced. The results of this study would provide insight into the issue of independent practice in Virginia.

Definitions

Dental Hygienist: A graduate of an accredited dental hygiene program and skilled health professional who has passed a licensing exam enabling him/her to provide oral health services of a preventive nature to the public (USCG Medical Manual, 1992).

Preventive oral hygiene measures: Services provided to a patient that aid in preventing oral disease (Woodall, Dafoe, Young, Weed-Fonner & Yankell, 1980).

Non-traditional Setting: Settings that are not allowed as practice sites for unsupervised hygienists in the state of Virginia, such as nursing homes (Singer, Cohen & Labelle, 1986).

Preceptorship: On-the-job-training of dental hygiene skills provided to an employee by the employing dentist (Cotton, 1990).

Dental hygiene services: Procedures a hygienist may legally perform (Appendix A) (Commonwealth of Virginia, Regulatory Board of Dentistry, 1992).

State Practice Act: Laws regulating the duties a dental hygienists may perform. The law also states whether the hygienist may work under direct, general or

independent of supervision, in Virginia only direct supervision is allowable for dental hygiene practice (Commonwealth of Virginia, Regulatory Board of Dentistry).

Direct supervision: Provision that requires the dentist be physically present in the office while the dental hygienist delivers services (Commonwealth of Virginia, Regulatory Board of Dentistry).

General supervision: A provision stating the hygienist may provide services to patients without the physical presence of a dentist. The dentist's practice may be at another location and s/he will work with the hygienist as a consultant or referring agent (Avey, 1991).

Independent practice: Providing services to patients without supervision of the dentist (Rothweiler,1990).

Assumptions

The following assumptions were made for this study:

1. The respondents answered the questionnaire truthfully and objectively.
2. The questionnaire was valid and reliable.
3. The random sample of respondents selected represented the attitude of all Virginia hygienists.

Limitations

Validity and reliability may have been limited by the following:

1. The questionnaire may not have assessed attitudes towards independent practice adequately.

2. The environment in which the questionnaire was answered could not be controlled, therefore, extraneous variables may have influenced the respondents' answers to the questionnaire.

Delimitations:

The scope and focus of the study have been narrowed by the following:

1. The population size was reduced by systematic random sampling of Virginia dental hygienists.

2. Only attitudes relevant to the practice of independent dental hygiene were researched.

Chapter 2

REVIEW OF THE LITERATURE

During the last decade, there has been a controversy within the dental and dental hygiene community. The controversy stems from the debate over settings in and methods by which dental hygiene services are delivered to best benefit the dental health of the community (Forrest, Rigolizzo, Stackhouse, 1981). "Regulatory changes have been sought by dental hygienists" (Johnson, 1989). At present, in Virginia, dental hygiene services are delivered under the direct supervision of the dentist (VDHA Newsletter, Dec. 1992). This method of delivery is stipulated by the Commonwealth of Virginia, in the Rules and Regulations governing the practice of dentistry and dental hygiene (State Laws, 1992). The definition of direct supervision is that all dental hygiene services will be delivered by the express order of the dentist and that the dentist will be present during the delivery of dental hygiene services (Rothweiler, 1990). It also states, following the delivery of the hygiene services, the dentist will perform an examination

of the patient to whom the services have been provided. In this way, the dentist will evaluate the services provided by the dental hygienist (USCG Medical Manual, 1992).

Over the last decade, there has been an opinion developing among some dentists and dental hygienists that direct supervision is a narrow and restricting method of the delivery of dental hygiene services (Rothweiler, 1990). The opinion also is expressed that it does not benefit the community to provide hygiene services in this manner. The method does not allow populations in non-traditional settings to benefit from dental hygiene services (Nader, 1982). These populations are found in nontraditional settings, defined broadly as any settings other than a private dental office (Singer, Cohen & Labelle, 1986). An example of non-traditional practice settings could include hospitals, nursing homes, prisons or rural areas. At this time, people living in these settings experience difficulty in gaining access to dental hygiene services (Rothweiler, 1990). The members of the lobby for less restrictive hygiene practice believe that these are some of the subpopulations within the community who could benefit from a change of the regulations governing the delivery of dental hygiene services

(Johnson, 1989).

Manpower Shortage in Dental Hygiene

The shrinking number of applicants for enrollment in dental hygiene schools is another problem facing dental hygiene. "A serious shortage of available dental hygienists has developed in a significant number of states. The problem seems to center on an inability to attract interested individuals into the dental hygiene field in adequate numbers and a very high attrition rate within a five year time frame" (Studstill, 1990). One explanation for this could be the historically restrictive regulations regarding dental hygiene. When an individual enters a profession they seek "autonomy and collegial maintenance of standards" (Grisetti, 1991).

While the lobby for less restrictive regulations of the dental hygiene profession has been trying to make a change within the governing body of dentistry, they have not gone unopposed. The opposition comes from a group who sees the solution to the manpower shortage as preceptorship of dental hygiene (Parton, 1992). Preceptorship is defined as "on-the-job-training" of a dental hygienist by the employing dentist (Cotton, 1990).

This solution is seen as having some serious flaws by many within the dental community. In effect, it would eliminate standards for dental hygiene education and reduce the professional status (Avey, 1992). Also, the quality of care delivered to the members of the community would be questionable due to the loss of educational standards which presently exist in the United States (Avey, 1992). Some hygienists also believe that independent practice of dental hygiene would lead to fragmented care for the patient, where "he (the dentist) is the teeth and she (the hygienist) is the gums" (Weller, 1983).

In order to more fully understand this ongoing debate, an examination of each point is necessary. In an effort to increase the number of dental hygienists and lower the attrition rate within the profession, opinions were formulated by hygienists and dentists concerned with this issue and a debate began. There are three major groups taking part in this debate. Members of the first group are proponents for less restrictive regulations governing dental hygiene practice, second, are those who are opposed to changing the restrictions and third, those who advocate that preceptorship would be the solution to creating larger numbers of dental hygienists (Rothweiler,

1990). Politics play an important part in the ideological viewpoints of the three debating groups (Ganssle, 1992). Each group has a different opinion of the change in structure and policy in the dental hygiene profession they would like to implement.

Dental Hygiene Education

In the early 1980's a vocal group formed to loosen the restrictions governing the delivery of dental hygiene services (Johnson, 1989; Gurenlian, 1991). The members of the group were proponents of the independent practice of dental hygiene. The definition of independent dental hygiene practice is that the hygienist does not require the direct supervision of a dentist in order to provide dental hygiene services to the community. Not only would dental hygiene services be delivered without the direct supervision of a dentist, independent practice would allow the hygienist to own and operate a private practice (Gurenlian, 1991).

The first question that needed to be answered was: "Is the dental hygienist educationally prepared to deliver dental hygiene services independently?" The proponents of independent practice argued that the hygienist was ready

to meet the challenge (Fitch, 1980). At present, in all of the states of the nation, with the exception of Alabama, which has a preceptorship program, the dental hygienist is required to graduate from an accredited school of dental hygiene (Studstill, 1990). Also, "in order to obtain a license to practice, dental hygienists must pass the National Dental Hygiene Board Examination and a regional or state clinical board examination (Gurenlian, 1991).

The goals of dental hygiene programs are to "prepare dental hygienists to become teachers of oral health education in public schools and institutions, prepare the dental hygienists to deliver prophylactic treatment and prepare dental hygienists to be dental nurses in private offices and institutions" (Hein, 1990). To reach these goals, a dental hygiene curriculum was established. The schools included courses in head and neck anatomy, oral histology and embryology, human anatomy, physiology, teaching strategies, dental materials, periodontalogy, nutrition, pathology, medical emergencies, English, psychology, speech, sociology and pharmacology. This is a list of only a portion of the courses required by an accredited program for dental hygiene. The programs also require two years of clinical

application of acquired knowledge. Guidelines are established to ensure "proficiency treating a variety of patients exhibiting various levels of oral disease and to provide preventive services and oral health education to people of all ages," (Hein, 1990).

In a recent survey of the administrative directors of 36 dental hygiene schools associated with dental schools, the question was asked, "Do you believe dental students receive sufficient experience working with dental hygienists to gain a reasonably adequate appreciation for the knowledge, skills and services of dental hygienists?" (Hein, 1990). Of the 23 respondents, 15 reported "no" and 8 reported "yes". The proponents of independent practice believe that the lack of knowledge among dentists regarding the education of dental hygienists is a factor influencing the attitude of dentists toward dental hygienists. The proponents of independent practice believe that those in favor of preceptorship would lower the quality of the dental hygiene education and as a result lower the health care, provided by the dental hygienist, to the community (Avey, 1992). The proponents of independent practice believe that the strong didactic education in accredited programs gives the hygienist the theory on which to base decisions

involving patient care (Hein, 1990). They also believe that the lowering of educational standards would adversely affect the professional judgement on the part of the dental hygienist in delivering services (Hein, 1990). Preceptorship would require clinical instruction of the preceptee by the employing dentist (Studstill, 1990). Those against this concept base their opinion on the fact that the dentist will not provide adequate instruction, because production time will be reduced while the dentist trains the preceptee (Cotton, 1990). It is not financially sound reasoning for the employing dentist to spend time training a preceptee when the revenue is lost because time is not spent providing patient care (Cotton, 1990). Could it be expected that the employing dentist would sacrifice his/her financial security in order to train the preceptee? Preceptorship also would require instruction to be accomplished by a dentist when two-thirds of dentists do not have a thorough knowledge of the education and skills acquired by dental hygienists (Hein,1990). So the question is, can a dentist teach a dental hygienist skills when s/he does not adequately understand the scope of those skills?

Medical Emergencies and the Dental Hygienist

Advocates of maintaining current regulations governing the practice of dental hygiene raise another question, are dental hygienists capable of handling medical emergencies in the dental office (Rothweiler, 1990)? Those within the dental community who are not in support of the independent practice of dental hygiene do not believe hygienists have the education that would prepare them to handle the emergency situations which may arise (Rothweiler, 1990). The proponents of independent practice for dental hygiene state that accreditation standards for dental hygiene programs require current Cardiopulmonary Resuscitation Certification and courses in Medical Emergencies. The proponents of the independent practice of dental hygiene state that the curriculum could be expanded, if further evaluation revealed the need to include more extensive emergency courses or courses in other areas of interest such as business management. A commission including representatives from the Federal Trade Commission, the Government Accounting Office and the Council of State Governments determined "that the concept

of independent practice is a viable solution to the need for preventative dental care" (Forrest, et al., 1981).

Another concern is that the dentist may suffer financially from the loss of revenue generated by the dental hygienist if the hygienist is permitted to practice independently (Dolan, 1980). "Dentist representatives have a vested economic self interest in defining, regulating and controlling dental hygiene practice and otherwise influencing its development" (Johnson, 1989). "The potential benefits (to the hygienist) of independent practice are professional growth and financial independence" (Golden, Douglas, 1983).

These are some of the concerns found at the heart of the ongoing debate. The dental hygiene profession is experiencing a tremendous attrition rate; the cause of which needs to be determined. In a recent interview conducted with a dental hygienist, it appears that the issues connected with the debate are the same issues upon which she based her decision to leave the dental hygiene profession. A portion of the interview follows:

> Q. Why did you decide to study dental hygiene?
>
> A. When I graduated from high school I began working as a dental assistant. When the opportunity later presented itself to pursue a college degree it logically

followed that I would further develop my skills in an area that I had enjoyed. Also during the time I was an assistant, I admired the hygienist that worked in our office. I knew that she earned at least twice the salary I earned, with more freedom of decision in many areas. I decided I preferred her professional status.

Q. How do you feel about the educational background that you received?

A. When I consider the question, I experience mixed emotions. I believe I attained a strong knowledge base from which I delivered my skills in the treatment of patients. The conflict arose because I was strictly governed in my delivery of these services. I understood the need for professional regulations, but some were political in nature, and did not fully serve the best interest of the public. I had a discussion with a dentist concerning his clinical training in providing oral prophylaxis. He said his school provided two weeks of clinical practice. I wondered if this qualified him to evaluate an oral prophylaxis provided by a dental hygienist that received over two years clinical practice dedicated to the development of this skill.

Q. Have you found job satisfaction in practicing as a dental hygienist?

A. Initially after graduation I went to work in a private practice that I soon learned was dedicated to production. It became apparent that quantity was more important than quality. Time allotted to provide patient services was cut from 45 minutes to 30 minutes and the dentist frequently added extra patients to my schedule, seemingly without concern for quality of care or my own stress level. The only reward in this was the economic security I received. As you can imagine, this became a very unrewarding position.

> I began to seek a position that placed more emphasis on quality of care and would allow more professional growth. I must say that the first position was not typical of what is found in most dental practices. The fact that I had accepted the job, showed a lack of experience in the interview process. I was more fortunate in the next position I held. Professional growth was encouraged and quality of care was extremely important. So, at some levels I have received job satisfaction. Hygiene has provided an opportunity for professional growth and economic security. But I began to realize that the professional growth was limited by the governing regulations and I decided to leave dental hygiene.

This interview was conducted by the principal investigator in 1991.

This interview revealed an attitude that is shared by some of the proponents of independent practice and is contributing to the controversy.

Those who endorse independent practice believe that it would benefit the public economically by lowering dental health care costs (Fitch, 1980). Institutions could employ a dental hygienist to deliver preventive dental hygiene services at a lower rate than employing a dentist. This also would be reflected in lower cost to the patient. Numerous authors also believe that patients

situated in non-traditional settings would benefit from the services of a dental hygienist practicing independently or under general supervision of a dentist (Singer et al.,1986). General supervision is defined as a dental hygienist practicing under orders from a dentist, but the dentist's presence is not required while services are being rendered (VDHA Newsletter, Dec. 1992).

Some of the deterrents for clients in seeking health care include: "lack of conveniently located dental services, access problems because of traditional design of the care system, medically comprising conditions, lack of transportation and provider attitudes. The hygienists' role in non-traditional settings may provide patients with access to care and help meet their needs" (Singer et al., 1986; Fitch, 1980). A study was conducted by Public Health Services which reported that of the patients presenting for dental treatment in non-traditional settings, 90.4% were in need of dental hygiene services. Of the total population, one-fourth required only dental hygiene services. So for one-fourth of the population all of the dental needs could be met by a hygienist. These numbers support the need for access to dental hygiene services. This study also addressed the issue of acceptance by the patients of the services provided by the

dental hygienist in a non-traditional role and 94.5% responded that they were "very well accepted" (Singer, et al., 1986).

This study was the first to investigate the role of the dental hygienist in a non-traditional setting. In 1986 when this study was conducted, only 7% of dental hygienists were employed in this type of setting. This was largely due to the state regulations governing dental hygiene through the requirement of direct supervision by the dentist. If this study showed such a large number of patients required dental care from the 7% of hygienists employed in this environment, it can be assumed that this is only a small portion of the population in need of dental hygiene services if those services were made available throughout non-traditional settings (Singer, et al., 1986).

Summary

In order to meet the need of disenfranchised populations for better access to dental care, the dental community must work together to form a solution. The answer may be to lift some of the restrictions governing the dental hygiene practice (Forrest,et al., 1981). The

services provided now by dental hygienists are not dissimilar to the services needed by patients found in the non-traditional settings. Professional ethics of the dental hygienist concerning quality of care delivered are not governed by the presence of a dentist. Because of the dramatic need for dental hygiene services in the non-traditional setting many do not believe that the community would be well served by reducing the role of the hygienist through lowered educational standards as a preceptorship program (Parton, 1992). The dental needs of the public demonstrate that the current role of the dental hygienists should be expanded to better serve the public. If additions to the dental hygiene curriculum would accomplish this, then this may be part of the solution (Winkley, Brown, White, Hoffman, 1991). Perhaps, an addition to dental school curriculum concerning dental hygiene services would allow dentists to become more aware of the skills and services that can be rendered by hygienists (ADHA, 1983). Furthermore, the American Dental Association (ADA) and the American Dental Hygiene Association (ADHA) will hopefully work together to resolve these issues (Smith, 1982).

As the attrition rate from dental hygiene practice increases, so does the need for hygiene services. The

dental community needs to work together to make dental hygiene a more attractive career to encourage future professionals to choose dental hygiene (Hein, 1990). Attributes a professional will seek are autonomy, ability to govern actions and respect of professional status (Grisetti, 1991). Denigration of the standards will not call the brightest to participate (Woodall, 1992). Preceptorship will denigrate the standards (Avey, 1992). The professional status of dental hygiene will be reduced, by lowered educational standards. It also will reduce the ability of the hygienist to serve the community, because lowering the educational standards would necessarily require more restrictions and supervision concerning care delivery. Instead of making dental hygiene practice more narrow, the dental community should expand the hygiene program to entice the brightest college students to join a profession that could meet the needs of the community (Hein, 1990).

CHAPTER 3

METHODS AND MATERIALS

This study was designed to assess the attitudes of dental hygienists licensed in Virginia toward the independent practice of dental hygiene. This proposal is classified as a descriptive survey. Participants were chosen by systematic randomization of individuals who hold a license to practice dental hygiene in Virginia. The sample was be chosen from a list of Virginia dental hygienists obtained from the Commonwealth of Virginia's Department of Health Regulatory Boards.

Sample Description

Mailing labels of all Virginia dental hygienists were obtained through the Virginia Department of Health Regulatory Boards. There were 2,551 hygienists licensed by the state of Virginia, 1,913 of whom have Virginia addresses; the sample included those hygienists with Virginia mailing addresses. To achieve a 95% level of confidence, the sample size was taken from Isaac and Michael's (1990, p 193) table for determining sample size.

For the population size of 1,913 the sample size is 322 completed and returned questionnaires. Systematic randomization was employed to select the sample. A finger was randomly placed on a name and every sixth name following was be chosen until there were 322 names for the sample.

Research Design

This was a descriptive survey. The attitudes of the Virginia dental hygienists relevant to the independent practice of dental hygiene is the dependent variable. The dependent variable was measured by the attitude questionnaire completed by each participant. The results will be transmitted back to Virginia dental hygienists.

Methodology

Upon request the Virginia Department of Health Regulatory Boards provided mailing labels for each hygienist with a Virginia mailing address, sorted according to zip code facilitating bulk mailings. The first hygienist was identified by randomly selecting the first name and each sixth subsequent hygienist was be chosen to ensure the proper sample size.

Each study participant received a cover letter

(Appendix B), an attitude questionnaire (Appendix C) and a postage paid, return addressed envelope. The attitude questionnaire was designed by the principle investigator.

Instrument Construction

The self-designed questionnaire contained 32 questions which were Likert scaled (see appendix C). This scale is utilized frequently when attitudes are assessed and contains varying degrees between the intensity of the responses, ranging from strongly disagree to strongly agree. Strongly disagree was given a value of 1, strongly agree was given a value of 5 and undecided was given a value of 3.

A pilot study was conducted with 8 members of the dental hygiene faculty at Old Dominion University to determine the reliability of the instrument. The pilot study utilized the test-retest method. Analysis produced a .6839 correlation. This indicates a moderate level of reliability.

Data Collection Methods

Data were collected by mail from the responding participants who answered and returned the

self-administered questionnaire. A cover letter was included (Appendix B) stating the purpose of the research and assuring the respondents of the confidentiality of their participation. The questionnaire began with the instructions necessary for completion of the instrument. The questionnaires were returned in a postage paid return addressed envelope.

Statistical Methods

Frequency of responses was utilized for data analysis in this study. The choices on the attitude questionnaire ranged from strongly disagree to strongly agree with five answers from which to choose. Each of the five answers was assigned a value for use during data analysis. The value assigned was between 1-5, with the higher values being attached to a positive response (strongly agree). The positive response showed an attitude in support of the practice of independent dental hygiene. A t-test also was utilized to examine differences among the demographic data.

Research Questions

1. Do Virginia dental hygienists perceive themselves to be educationally prepared to practice

independently?

2. Do the Virginia dental hygienists perceive that they can handle medical emergencies in an independent practice setting?

3. Is it perceived by the Virginia dental hygienists that independent practice of dental hygiene would benefit the public, by allowing increased access to dental hygiene services to those patients located in what is now considered a nontraditional setting?

4. Is it the perception of the Virginia dental hygienists that the public would benefit from the independent practice of dental hygienists by lowering the cost of dental hygiene services?

Summary

A descriptive survey approach was utilized. Virginia dental hygienists were chosen by systematic randomization. According to the Virginia Board of Dentistry and as of July 1,1992 there were 2,551 dental hygienists licensed in the state of Virginia. There were 1,913 hygienists with a Virginia mailing address. To

ensure an adequate sample size, 322 dental hygienists were surveyed. This sample size ensured a 95% level of confidence (Isaac & Michael 1990). After selection each sample participant received a cover letter (Appendix B), an attitude questionnaire (Appendix C) that assessed Virginia dental hygienists attitudes relevant to the practice of independent hygiene and a stamped return envelope. The attitude questionnaire was self designed questionnaire with answers using the Likert Scale Style. Frequency, percentage of responses and t-test were the methods utilized to report the responses of the sample participants.

Chapter 4

RESULTS

Three-hundred seventy questionnaires were mailed to Virginia dental hygienists. The first mailing resulted in a return of 132 completed questionnaires (33% response rate). A second mailing was conducted and resulted in an additional return of 126 usable questionnaires. A total of 258 completed questionnaires from both mailings was returned (65% response rate) for data analysis. Four questionnaires were received following the deadline for questionnaire return and were not included in the analysis.

Demographics

An assessment of the educational level of the respondents indicated that 71 (27.5%) hygienists held a certificate in dental hygiene, 113 (43.8%) held a B.S. in Dental Hygiene, 11 (4.3%) held a M.S. in Dental Hygiene, 4 (1.6%) held a Doctoral Degree, 55 (21.3%) have an "other" degree, and 4 (1.6%) did not respond to the question.

When asked, "Are you currently practicing dental

hygiene?" 223 (86.4%) responded yes, 30 (11.6%) responded no and 5 (1.9%) did not respond to the question.

The majority of the respondents did not teach dental hygiene, more specifically 23 (8.9%) responded that they did teach while, 228 (88.4%) responded no, seven (2.7%) did not answer the question.

Year of graduation from a dental hygiene program and age distribution of respondents are displayed in Tables 1 and 2, respectively.

A gender distribution was three (1.2%) males, 252 (97.7%) females, and 3 (1.2%) did not respond to the question.

Frequency Results

The questionnaire was a Likert scale with responses arranged as follows: strongly disagree, disagree, undecided, agree and strongly agree. The first question was, "are you satisfied with the regulation governing the practice of dental hygiene in Virginia?". Of the 258 participants, 70 (27.1%) responded strongly disagree, 90 (34.9%) responded disagree, 34 (13.2%) responded undecided, 50 (19.4%) responded agree, 9 (3.5%) responded strongly agree, and 5 (1.9%) did not respond to the question.

Table 1

Year of Graduation from Dental Hygiene Program

Year of Graduation	N	Percentage
1988-1992	42	16.3%
1983-1987	50	19.4%
1978-1982	63	24.4%
1973-1977	37	14.3%
1972-1968	31	12.0%
1963-1967	20	7.8%
before 1963	12	4.7%
no response	3	1.2%

Table 2

Age Distribution of Respondents

Age Range	N	Percentage
20-25	12	4.7%
26-30	49	19.0%
31-35	57	22.1%
36-40	59	22.9%
41-45	37	14.3%
46-50	23	8.9%
51-55	10	3.9%
56-60	5	1.9%
no response	4	1.6%

When presented with the statement, "I can respond to a medical emergency should it arise while I am providing dental hygiene services", 2 (0.8%) responded strongly disagree, 12 (4.7%) responded disagree, 50 (19.4%) responded undecided, 139 (53.9%) responded agree, 53 (20.5%) responded strongly agree, and 2 (.8%) did not respond to the question.

When presented with the statement, "I am educationally prepared to practice dental hygiene independent of a dentist's supervision", 4 (1.6%) responded strongly disagree, 35 (13.6%) responded disagree, 52 (20.2%) responded undecided, 92 (35.7%) responded agree, 70 (27.1%) responded strongly agree and 5 (1.9%) did not respond to the question.

When asked, "I am competent performing dental hygiene services", 0 (0%) responded strongly disagree, 0 (0%) responded disagree, 3 (1.2%) responded undecided, 46 (17.8%) responded agree, 207 (80.2%) responded strongly agree, and 2 (.8%) did not respond to the statement.

Responding to the statement, "Dental hygienists should be able to provide dental hygiene services in non-traditional settings, such as nursing homes, without supervision", 3 (1.2%) responded strongly disagree, 9 (3.5%) responded disagree, 14 (5.4%) responded undecided,

83 (32.2%) responded agree, 148 (57.4%) responded strongly agree, and 1(.4%) did not respond to the statement.

When presented with the statement, "Dental hygienists should have autonomy in providing dental hygiene services", 3 (1.2%) responded strongly disagree, 27 (10.5%) responded disagree, 51 (19.8%) responded undecided, 80 (31.0%) responded agree, 91 (35.3%) responded strongly agree, and 6 (2.3%) did not respond to the statement.

When considering the statement, "The independent practice of dental hygiene would make oral health care more accessible to the public", 16 (6.2%) responded strongly disagree, 25 (9.7%) responded disagree, 64 (24.8%) responded undecided, 75 (29.1%) responded agree, 75 (29.1%) responded strongly agree, and 3 (1.2%) did not respond to the statement.

When asked, "The quality of the dental hygiene services is higher because dental hygienists are supervised by a dentist", 71 (27.5%) responded strongly disagree, 116 (45.0%) responded disagree, 30 (11.6%) responded undecided, 32 (12.4%) responded agree, 4 (1.6%) responded strongly agree, and 5 did not respond to the statement.

When asked, "A manpower shortage in dental

hygiene, if it exists, is justification for having preceptorships in dental hygiene", 221 (85.7%) responded strongly disagree, 33 (12.8%) responded disagree, 3 (.8%) responded undecided, and 2 (.8%) responded strongly agree.

When presented with the statement, "Preceptorship in dental hygiene will reduce the quality of care that the public receives," 8 (3.1%) responded strongly disagree, 2 (.8%) responded disagree, 2 (.8%) responded undecided, 32 (12.4%) responded agree, and 214 (82.9%) responded strongly agree.

When considering the statement, " I support preceptorship in dental hygiene," 236 (91.5) responded strongly disagree, 18 (7.0%) responded disagree, 2 (.8%) responded undecided, and 2 (.8%) responded agree.

When responding to the statement, "If preceptorship in dental hygiene is legally allowed, the dentist should be responsible for training the preceptee," 134 (51.9%) responded strongly disagree, 39 (15.1%) responded disagree, 42 (16.3%) responded undecided, 19 (7.4%) responded agree, 18 (7.0%) responded strongly agree, and 6 (2.3%) did not respond to the statement.

When asked, "If preceptorship is legally allowed, the registered dental hygienist should be responsible for training the preceptee in dental hygiene", 49 (19.0%)

responded strongly disagree, 17 (6.6%) responded disagree, 65 (25.2%) responded undecided, 45 (17.4%) responded agree, 73 (28.3%) responded strongly agree, and 9 (3.5%) did not respond to the statement.

When presented with the statement, "It would be economically advantageous for the dental hygienists to practice independently", 22 (8.5%) responded strongly disagree, 53 (20.5%) responded disagree, 121 (46.9%) responded undecided, 36 (14.0%) responded agree, 23 (8.9%) responded strongly agree, and 3 (1.2%) did not respond to the statement.

When considering the statement, "Supervision of dental hygienists in Virginia should be by general supervision as opposed to direct supervision (which is current Virginia law), 6 (2.3%) responded strongly disagree, 13 (5.0%) responded disagree, 24 (9.3%) responded undecided, 80 (31.0%) responded agree, 133 (51.6%) strongly agree, and 2 (.8%) did not respond to the statement.

When responding to the statement, "If I practice as an independent hygienist, I would immediately refer a patient to a dentist if I detected any suspicious areas", 3 (1.2%) responded strongly disagree, 2 (.8%) responded undecided, 47 (18.2%) responded agree, 203 (78.7%)

responded strongly agree, and 3 (1.2%) did not respond to the statement.

When asked, "I am aware that in some dental schools dental students are trained by dental hygienists to provide dental hygiene services, I agree with this practice", 5 (1.9%) responded strongly disagree, 8 (3.1%) responded disagree, 35 (13.6%) responded undecided, 85 (32.9%) responded agree, 124 (48.1%) responded strongly agree, and 1 (.4%) did not respond to the statement.

When presented with the statement, "I am aware that while it is against Board of Dentistry regulations for dental hygienists to diagnose dental caries, it is permitted for registered nurses to do so, I agree with this practice", 181 (70.2%) responded strongly disagree, 55 (21.3%) responded disagree, 10 (3.9%) responded undecided, 3 (1.2%) responded agree, 6 (2.3%) responded strongly agree, and 3 (1.2%) did not respond to the statement.

When considering the statement, "I believe that the fear of the loss of revenue generated by the dental hygienist is a major reason for dentists to oppose independent dental hygiene practice", 7 (2.7%) responded strongly disagree, 19 (7.4%) responded disagree, 31 (12.0%) responded undecided, 80 (31.0%) responded agree,

119 (46.1%) responded strongly agree, and 2 (.8%) did not respond to the statement.

When responding to the statement, "I believe that the independent practice of dental hygiene would lower the cost for dental hygiene services", 18 (7.0%) responded strongly disagree, 61 (23.6&) responded disagree, 102 (39.5%) responded undecided, 51 (19.8%) responded agree, 25 (9.7%) responded strongly agree, and 1(.4%) did not respond to the statement.

When presented with the statement, "I believe with slight modification to the dental hygiene curriculum, such as adding classes in practice management, that dental hygienists would be educationally prepared to practice independently", 15 (5.8%) responded strongly disagree, 28 (10.9%) responded disagree, 61 (23.6%) responded undecided, 90 (34.9%) responded agree, 61 (23.6%) responded strongly agree, and 3 (1.2%) did not respond to the statement.

When considering the following statement, "Lack of autonomy in the practice of dental hygiene contributes to the high turnover rate in dental hygiene", 11 (4.3%) responded strongly disagree, 52 (20.2%) responded disagree, 53 (20.5%) responded undecided, 81 (31.4&)m responded agree, 52 (22.9%) responded strongly agree, and

2 (.8%) did not respond to the statement.

When asked, "Lack of autonomy in the practice of dental hygiene contributes to job burn-out", 12 (4.7%) responded strongly disagree, 49 (19.0%) responded disagree, 46 (17.8%0 responded undecided, 87 (33.7%) responded agree. 61 (23.6%) responded strongly agree, and 3 (1.2) did not respond to the statement.

When responding to the statement, "I view dental hygienists as professionals", 4 (10.1%) responded agree, 231 (89.5%) responded strongly agree, and 1 (.4%) did not respond to the statement.

When asked, "Dentists view dental hygienists as professionals", 18 (7.0%) responded strongly disagree, 61 (23.6%) responded disagree, 56 (21.7%) responded undecided. 95 (36.8%) responded agree,22 (8.5%) responded strongly agree, and 6 (2.3%) did not respond to the statement.

t-test Pooled Variance Comparison

A t-test was conducted on attribute comparisons of all demographic variables related to each test items.

When asked if satisfied with the regulations governing the practice of dental hygiene in Virginia there

was a significant difference in response between those respondents with a certificate and those with a M.S. in Dental Hygiene [$t(77) = -2.64$, $p < .010$], M.S. in Dental Hygiene and "other" [$t(63) = 2.08$, $p < .042$], between those hygienists ages 20-25 and those ages 36-40 [$t(69) = -1.99$, $p < .050$], those hygienists ages 20-25 and those 46-50 [$t(32) = -2.16$, $p < .038$] and between those that teach dental hygiene and those that do not teach [$t(245) = 3.65$, $p < .000$]

There was a significant difference in the response to the statement, "I can respond to a medical emergency should it arise while I am providing dental hygiene services", between certificate and B.S. in Dental Hygiene [$t(181) = -2.38$, $p < .018$], between certificate and M.S. in Dental Hygiene [$t(80) = -3.23$, $p < .002$], certificate and "other" degree [$t(124) = -2.33$, $p < .022$], between B.S. in Dental Hygiene and M.S. in Dental Hygiene [$t(121) = -2.42$, $p < .017$], between M.S. in Dental Hygiene and "other'" degree [$t(64) = 2.50$, $p < .015$], between those hygienists graduating 1988-1992 and those graduating 1968-1972 [$t(71) = 2.63$, $p < .010$], those graduating 1988-1992 and those graduating before 1963 [$t(50) = 2.90$, $p < .006$], those graduating 1983-1987 and those graduating before 1963 [$t(58 = 2.02$, $p < .048$] and those that teach

dental hygiene and those that do not [t(248) = 4.09, p <.000].

There was a significant difference in the response to the statement, "I am educationally prepared to practice dental hygiene independent of a dentist's supervision", between certificate and B.S. in Dental Hygiene [t(178) = -2.77, p < .006], between certificate and M.S. in Dental Hygiene [t(79) = -3.95, p < .000], between certificate and Doctoral degree [t(72) = -2.00, p < .049], between M.S. in Dental Hygiene and "other" degree [t(63) = 3.13, p < .003], between those ages 36-40 and those ages 51-55 [t(65) = 2.11, p < .039], between those graduating 1988-1992 and those graduating before 1963 [t(51) = 2.65, P < .011], those graduating 1983-1987 and those graduating before 1963 [t(58) = 2.20, p < .032] and those who teach dental hygiene and those who do not [t(245) = 4.24, p < .000].

There was a significant difference in the response to the statement, "I am competent performing dental hygiene services", between those graduating 1968-1972 and those graduating before 1963 [t(39) = -2.02, p < .050].

There was a significant difference in the response to the statement, "dental hygienists should be able to provide dental hygiene services in non-traditional

settings, such as, nursing homes without supervision", between certificate and M.S. in Dental Hygiene [t(80) = -2.77, p < .007], between B.S. in Dental Hygiene and M.S. in Dental Hygiene [t(121) = -2.18, p < .031], between M.S. in Dental Hygiene and "other" degree [t(64) = 2.38, p < .020], between those graduating 1978-1982 and those graduating 1973-1977 [t(97(= 2.11, p < .037] and between those who teach dental hygiene and those who do not [t(248) = 2.99, p < .003].

There was a significant difference in the response to the statement, "dental hygienists should have autonomy in providing dental hygiene services", between certificate and B.S. in Dental Hygiene [t(177) = -2.18, p < .030], between certificate and M.S. in Dental Hygiene [t(77) = -2.16, p < .034], between certificate and "other" degree [t(120) = -2.01, p < .046], between those ages 51-55 and those ages 56-60 [t(12) = -2.85, p < .015] and between those who teach dental hygiene and those who do not [t(244) = 2.62, p < .009].

There was a significant difference in the response to the statement, "the quality of the dental hygiene service is higher because dental hygienists are supervised by dentists", between those ages 20-25 and those 31-35 [t(67) = -2.19, p < .032], those ages 20-25 and those

41-45 [t(45) = -2.88, p < .006], those ages 41-45 and those 56-60 [t(38) = 2.81, p < .008], between those graduating 1988-1992 and those graduating 1983-1987 [t(89) = -2.67, p < .009], those graduating 1983-1987 and those graduating 1978-1982 [t(109) = 2.00, p < .048], those graduating 1983-1987 and those graduating before 1963 [t(58) = 2.97, p < .004] and those who teach dental hygiene and those who do not [t(248) = 3.41,p < .001].

There was significant difference in the response to the statement, "a manpower shortage in dental hygiene, if it exists, is justification for preceptorships in dental hygiene", between those hygienists with a certificate and those with a B.S. in Dental Hygiene [t(182)= -1.97, p < .050], those hygienists 31-35 and those 51-55 [t(65) = 2.49, p <.015], and those hygienists between the ages 46-50 and those 51-55 [t(31)= 2.24, p , .033].

There is a significant difference in the response to the statement, "Preceptorship in dental hygiene will reduce the quality of care that the public receives", between those hygienists with a certificate and those with and "other" degree [t(124) = -2.05, p < .043], those hygienists between the ages of 36-40 and those 51-55[t(67) = 2.28, p < .026], those graduating between 1978-1982 and

those graduating 1963-1967 [t(81) = 2.61, p < .011] and those hygienists graduating 1978-1982 and those graduating before 1963 [t(73) = 3.01, p < .004].

There was a significant difference in the response to the statement, "if preceptorship is legally allowed, the registered dental hygienist should b e responsible for the training the preceptee in dental hygiene", between those with a a certificate and those with a B.S. in Dental Hygiene [t(177) = -1.98 p < .049], between those hygienists 31-35 and those 41-45 [t(90) = 2.77, p < .007], between those 36-40 and those 41-45 [t(92) = 2.53, p < .013] and those hygienists 41-45 and those 46-50 [t(54) = -2.30, p < .026].

There was a significant difference in the response to the statement, "it would be economically advantageous for dental hygienists to practice independently", between those hygienists with a certificate and those with a B.S. in Dental Hygiene [t(180) = -2.62, p < .010], those with a certificate and those with an "other" degree [t (124) = -2.35,p < .020], between those 20-25 and 56-60 [t(15) = 2.39, p < .031], those hygienists between 26-30 and 56-60 [t(52) = 2.66, p < .010], those hygienists 31-35 and those 56-60 [t(59) = 2.16, p < .035], those hygienists graduating 1988-1992 and those graduating 1968-1972 [t(70)

= 2.45, $p < .017$], those hygienists graduating 1983-1987 and those graduating before 1963 [$t(59) = 3.18$, $p < .002$] and those graduating 1973-1977 and those graduating before 1963 [$t(46) = 2.57$, $p < .014$].

There was a significant difference in the response to the statement, "if independent practice of dental hygiene became legal, I would practice independently", between those hygienists with a certificate and those with a B.S. Dental Hygiene [$t(179) = -2.02$, $p < .045$], between those hygienists with a certificate and those with an M.S. in Dental Hygiene [$t(79) = -3.14$, $p < .002$), those with a certificate and those with an "other" degree [$t(122) = -2.59$, $p < .011$], between those with a B.S. in Dental Hygiene and those with a M.S. in Dental Hygiene [$t(120) = -2.01$, $p < .047$], between those graduating 1988-1992 and those graduating before 1963 [t (49(= 2.66, $p < .011$], those graduating 1983-1987 and those graduating before 1963 [$t(58) = 2.68$, $p < .010$], those graduating 1978-1982 and those graduating before 1963 [$t(71) = 2.18$, $p < .033$] and those graduating 1973-1977 and those graduating before 1963 [$t(43) = 2.48$, $p < .017$].

There was a significant difference in the response to the statement, "supervision of dental hygienists in Virginia should be by general supervision as opposed to

direct supervision (which is current Virginia law)", between those hygienist with a certificate and those with a M.S. in Dental Hygiene [t(80) = -2.11, p < .038], between those with a M.S. in Dental Hygiene and those with a "other" degree, [t(62) = 2.01, p < .049], between those ages 20-25 and those 26-30 [t (59) = -2.35, p < .022], between those 20-25 and those 36-40 [t(69) = -2.43, p < .018], between those ages 20-25 and those 41-45 [t(46) = -2.57, p < .014] and between those who teach and those who do not teach [t(247) = 2.98, p < .003].

There was a significant difference in the response to the statement, "if I practiced as an independent dental hygienist I would immediately refer a patient to a dentist if I detected any suspicious areas", between those who teach and those who do not [t(246) =, p < .033].

There was a significant difference in the response to the statement, "I am aware that in some dental schools dental students are trained by dental hygienists to provide dental hygiene services, I agree with this practice", between those ages 20-25 and those 51-55 [t(20) = 3.69, p < .001] and between those ages 46-50 and those 51-55 [t(31) = 2.67, p < .012].

There was a significant difference in response to the statement, "I am aware that while it is against Board

of Dentistry regulations for dental hygienists to diagnose dental caries, it is permitted for Registered Nurses to do so, I agree with this practice", between those with a certificate and those with a B.S. in Dental Hygiene $t(181) = -2.78$, $p < .006$] and those with a B.S. in Dental Hygiene and those with M.S. in Dental Hygiene [$t(121) = 2.95$, $p < .004$]

There was significant difference in response to the statement, "I believe that the independent practice of dental hygiene would lower the cost of dental hygiene services", between those with a certificate and those with a B.S. in Dental Hygiene [$t(181) = -2.24$, $p < .034$], between those with a certificate and those with a M.S. in Dental Hygiene [$t(80) = -223$, $p < .029$], between those graduating 1988-1992 and those graduating before 1963 [$t(51) = 2.64$, $p < .011$], between those graduating 1983-1987 and between those graduating before 1963 [$t(59) = 3.17$, $p < .002$], between those graduating 1973-1977 and those graduating before 1963 [$t(46) = 2.77$, $p < .008$] and those who teach and those who do not [$t(249) = 2.24$, $p < .026$].

There was a significant difference in response to the statement, "I believe with slight modification of the dental hygiene curriculum, such as adding classes in

practice management, that dental hygienists would be educationally prepared to practice independently", between those graduating 1988-1992 and those graduating before 1963 [$t(51) = 3.02$, $p < .004$], between those graduating 1978-1982 and those graduating before 1963 [$t(72) = 2.01$, $p < .048$], between those graduating 1973-1977 and those graduating before 1963 [$t(45) = 2.89$, $p < .006$], between those graduating 1968-1972 and those graduating before 1963 [$t(39) = 2.07$, $p < .045$] and those graduating 1963-1967 and those graduating before 1963 [$t(29) = 2.12$, $p < .043$].

There was a significant difference in the response to the statement, "lack of autonomy in the practice of dental hygiene contributes to the high turnover rate in dental hygiene", between those with a certificate and those with an "other " degree [$t(124) = -2.11$, $p < .037$], between those graduating 1983-1987 and those graduating before 1963 [$t(59) = 3.00$, $p < .004$], between those graduating 1973-1977 and those graduating before 1963 [$t(46)$ 2.31, $p < .025$] and those who teach and those who do not [$t(248) = 2.28$, $p < .024$].

There was a significant difference in response to the statement, "lack of autonomy in the practice of dental hygiene contributes to job burn-out", between those with a

certificate and those with an "other" degree [t(122) = -2.18, p < .031], between those 41-45 and those 51-55 [t(44) = 2.09, p < .042], between those graduating 1983-1987 and those graduating before 1963 [t(59) = 2.77, p < .008], those graduating 1973-1977 and those graduating before 1963 [t(46) = 2.39, p < .021], those graduating 1968-1972 and those graduating before 1963 [t(39) = 2.33, p < .025], those graduating 1963-1967 and those graduating before 1963 [t(29) = 2.33, p < .027], between those who currently practice dental hygiene and those who do not [t(248) = -2.59, p < .010] and between those who teach and those who do not teach [t(247) = 2.08, p < .039].

There was significant difference in response to the statement, "I view dental hygienists as professionals", between those ages 26-30 and those 36-40 [t(106) = 2.14, p < .034], those 31-35 and those 41-45 [t(92) = 2.10, p < .039], those 36-40 and those 46-50 [t(79) = -2.09, p < .040], between those 41-45 ands those 46-50 [t(57) = -2.42, p < .019], between those graduating 1983-1987 and those graduating 1978-1982 [t(111) = 2.05, p < .042] and between those graduating 1968-1972 and those graduating 1963-1967 [t(48) = -2.09, p < .042].

There was significant difference in response to the statement, "dentists view dental hygienists as

professionals", between those with a certificate and those with a B.S. Dental Hygiene [t(178) = 2.05, p < .041], between those with a certificate and those with a M.S. in Dental Hygiene [t(79) = 3.31, p < .001], those with a B.S. in Dental Hygiene and those with a Doctoral Degree [t(72) = 2.15, p < .035], between those with a B.S. in Dental Hygiene and those with a M.S. in Dental Hygiene [t(119) = 2.29, p < .024], between those with a M.S. in Dental Hygiene and those with an "other" degree [t(62) = -2.98, p < .004], between those graduating 1983-1987 and those graduating 1968-1972 [t(79) = 2.30, p < .024], between those graduating 1978-1982 and those graduating 1977-1973 [t(96) = 2.07, p < .041], between those who currently practice dental hygiene and those who do not [t(246) = 2.31, p < .022] and between those who teach dental hygiene and those who do not [t(244) = -3.87, p < .000]

There was no significant difference in response to the statement, "the independent practice of dental hygiene would make oral health care more accessible to the public", between any demographic groups.

There was no significant difference in response to the statement, "I believe that the fear of the loss of revenue generated by the dental hygienists is a major reason for dentists to oppose independent dental hygiene

practice", between any demographic groups.

There was no significant difference in the response to the statement, "I support preceptorship in dental hygiene", between any demographic groups.

There was no significant difference in the response to the statement, "if preceptorship is legally allowed, the dentist should be responsible for training the preceptee", between any demographic groups.

A complete listing of statistically significant differences is presented in Table 3.

Addressing the Research Questions

There were four research questions being investigated. With the Likert scale, values 1-5 were assigned to each response. Value 5 corresponding with strongly agree to 1 corresponding to strongly disagree.

The first research question asked if the Virginia dental hygienist perceived themselves to be educationally prepared to practice independently. Using the Likert scale the mean response was 3.747, the mode was 4 and the median was 4.

The second research question asked if the Virginia dental hygienists believe that they could handle medical

TABLE 3

ISSUE	GROUP	t-VALUE	df	SIG.
1. I am satisfied with regulations governing the practice of dental hygiene practice in Virginia.	those who teach dental hygiene/ those who do not teach	-1.99	t(245)	.000
	certificate/ M.S. degree in dental hygiene	2.08	t(63)	.010
	ages 20-25/ages 46-50	-2.16	t(32)	.038
	M.S. degree in dental hygiene/ other degree	2.08	t(63)	.042
	ages 20-25/ages 36-40	-1.99	t(69)	.050
2. I can respond to a medical emergency should it arise while I am providing dental hygiene services	hygienists who teach dental hygiene/ hygienists who do not teach	4.24	t(245)	.000
	hygienists with a certificate/ hygienists with a M.S. in Dental Hygiene	3.95	t(79)	.000

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists with a M.S. in Dental Hygiene/ hygienists with an "other" degree	3.13	t(63)	.003
	hygienists with a certificate/ hygienists with a B.S. in Dental Hygiene	-2.77	t(178)	.006
	hygienists graduating 1988-1992 / hygienists graduating before 1963	2.65	t(51)	.011
	hygienists graduating 1983-1987 /hygienists graduating before 1963	2.20	t(58)	.032
	hygienists 36-40 years of age/ hygienists 51-55 years of age	2.11	t(65)	.039
	hygienists with a certificate/ hygienists with a Doctorate	-2.00	t(72)	.049

ISSUE	GROUP	t-VALUE	df	SIG.
3. I am educationally prepared to practice dental hygiene independent of dentist's supervision.	hygienists who teach dental hygiene/ hygienists who do not teach	4.24	t(245)	.000
	hygienists with a certificate/ hygienists with a M.S. in Dental hygiene	-3.95	t(79)	.000
	hygienists with a M.S. in Dental Hygiene/ hygienists with an "other" degree	3.13	t(63)	.003
	hygienists with a certificate/ hygienists with a B.S. in Dental Hygiene	-2.72	t(178)	.006
	hygienists graduating 1988-1992 / hygienists graduating before 1963	2.65	t(51)	.011
	hygienists graduating 1983-1987 / hygienists graduating before 1963	2.20	t(58)	.032

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists 36-40 years of age/ hygienist 51-55 years of age	2.11	t(65)	.039
	hygienists with a certificate/ hygienists with a Doctorate	-2.00	t(72)	.049
4. I am competent performing dental hygiene services.	hygienists graduating 1968-1972/ hygienists graduating before 1963	2.02	t(39)	.050
5. Dental hygienists should be able to provide dental hygiene services in non-traditional settings, such as nursing homes, without supervision.	hygienists who teach dental hygiene/ hygienists who do not teach	2.99	t(248)	.003
	hygienists with a certificate/ hygienists with a M.S. dental Hygiene	-2.77	t(80)	.007
	hygienists with a M.S. in Dental Hygiene/ hygienists with an "other" degree	2.38	t(64)	.020

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists with a B.S. in Dental Hygiene/ hygienists with a M.S. in Dental Hygiene	-2.18	t(121)	.031
	hygienists graduating 1978-1982/ hygienists graduating 1973-1977	2.11	t(97)	.037
6. Dental hygienists should have autonomy in providing dental hygiene services.	hygienists who teach dental hygiene/ hygienists who do not teach	2.62	t(244)	.009
	hygienists 51-55 years of age/ hygienists 56-60 years of age	-2.85	t(12)	.015
	hygienists with a certificate/ hygienists with a B.S. in Dental Hygiene	-2.18	t(177)	.030

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists with a certificate/ hygienists with a M.S. in Dental Hygiene	-2.16	t(77)	.034
	hygienists with a certificate/ hygienists with an "other" degree	-2.01	t(120)	.046
8. The quality of the dental hygiene services is higher because dental hygienists are supervised by a dentist.	hygienists who teach dental hygiene/ hygienists who do not teach	3.41	t(248)	.001
	hygienists graduating 1983-1987/ hygienists graduating before 1963	2.97	t(58)	.004
	hygienists 20-25 years of age/ hygienists 41-45 years of age	-2.88	t(45)	.006
	hygienists 41-45 years of age/ hygienists 56-60 years of age	2.81	t(38)	.008

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists graduating 1988-1992/ hygienists graduating 1983-1987	-2.67	t(89)	.009
	hygienists 20-25 years of age/ hygienists 31-35 years of age	-2.19	t(67)	.032
	hygienists graduating 1983-1987/ hygienists graduating 1978-1982	2.00	t(109)	.048
9. A manpower shortage in dental hygiene, if it exists, is justification for having preceptorship in dental hygiene.	hygienists 31-35 years of age/ hygienists 51-55 years of age	2.49	t(65)	.015
	hygienists 46-50 years of age/ hygienists 51-55	2.24	t(31)	.033
	hygienists with a certificate/ hygienists with a B.S. in Dental Hygiene	-1.97	t(182)	.050
10. Preceptorship in dental hygiene will reduce the quality of care that the public receives.	hygienists graduating 1978-1982/ hygienists graduating 1963-1967	2.61	t(81)	.011

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists 36-40 years of age/ hygienists 51-55 years of age	2.28	t(67)	.026
	hygienists with a certificate/ hygienists with an "other" degree	-2.05	t(124)	.043
13. If preceptorship is legally allowed, the registered dental hygienist should be responsible for training the preceptee.	hygienists 31-35 years of age/ hygienists 41-45 years of age	2.77	t(90)	.007
	hygienists 36-40 years of age/ hygienists 41-45	2.53	t(92)	.013
	hygienists 41-45/ hygienists 46-50	-2.30	t(54)	.026
	hygienists with a certificate/ hygienist with a B.S. in Dental Hygiene	-1.98	t(177)	.049
14. It would be economically advantageous for dental hygienists to practice independently.	hygienists graduating 1968-1972/ hygienists graduating before 1963	3.18	t(59)	.002

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists 26-30 years of age/ hygienists 56-60 years of age	2.66	t(52)	.010
	hygienists with a certificate/ hygienists with a B.S. in dental Hygiene	-2.62	t(180)	.010
	hygienists graduating 1973-1977/ hygienists graduating before 1963	2.57	t(46)	.014
	hygienists graduating 1988-1992/ hygienists graduating 1968-1972	2.45	t(70)	.017
	hygienists with a certificate/ hygienists with an "other" degree	-2.35	t(124)	.020
	hygienists 20-25 years of age/ hygienists 56-60 years of age	2.39	t(15)	.031
	hygienists 31-35/ hygienists 56-60	2.16	t(59)	.035

ISSUE	GROUP	t-VALUE	df	SIG.
15. If independent practice of dental hygiene became legal, I would practice independently.	hygienists with a certificate/ hygienists with a M.S. in Dental Hygiene	-3.14	t(79)	.002
	hygienists graduating 1983-1987/ hygienists graduating before 1963	2.68	t(58)	.010
	hygienists graduating 1988-1992/ hygienists graduating before 1963	2.66	t(49)	.011
	hygienists with a certificate/ hygienist with an "other" degree	-2.59	t(122)	.011
	hygienists graduating 1973-1977/ hygienists graduating before 1963	2.48	t(43)	,017

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists graduating 1978-1982/ hygienists graduating before 1963	2.18	t(71)	.033
	hygienists with a certificate/ hygienists with a B.S. in Dental Hygiene	-2.02	t(179)	.045
	hygienists with a B.S. in Dental Hygiene/ hygienists with a M.S. in Dental Hygiene	-2.01	t(120)	.047
16. Supervision of dental hygienists in Virginia should be by general supervision as opposed to direct supervision (which is current Virginia law).	hygienists who teach dental hygiene/ hygienists who do not teach	2.98	t(247)	.003
	hygienists 2025 years of age/ hygienists 41-45 years of age	-2,57	t(46)	.014
	hygienists 20-25 years of age/ hygienists 36-40 years of age	-2.43	t(69)	.018

ISSUE	GROUP	t-VALUE	df	SIG>
	hygienists 29-25 years of age/ hygienists 26-30 years of age	-2.35	t(59)	.022
	hygienists with a certificate/ hygienists with a M.S. in Dental Hygiene	-2.11	t(80)	.038
	hygienists with a M.S. in Dental Hygiene/ hygienists with an "other" degree	2.01	t(62)	.049
17. If I practiced as an independent hygienist, I would immediately refer a patient to a dentist if I detected any suspicious areas.	hygienists who teach dental hygiene/ hygienists who do not teach	2.14	t(246)	.033
18. I am aware that in some dental schools dental students are trained by dental hygienists to provide dental hygiene services.	hygienists 20-25 years of age/ hygienists 51-55 years of age	3.69	t(20)	.001
	hygienists 46-50 years of age/ hygienists 51-55 years of age	2.67	t(31)	.012

ISSUE	GROUP	t-VALUE	df	SIG.
19. I am aware that while it is against Board of Dentistry regulations for dental hygienists to diagnose dental caries, it is permitted for registered nurses to do so.	hygienists with a B.S. in Dental Hygiene/ hygienists with a M.S. in Dental Hygiene	2.95	t(121)	.004
	hygienists with a certificate/ hygienists with a B.S. in Dental Hygiene	-2.78	t(181)	.006.
21. I believe that the independent practice of dental hygiene would lower the cost for dental hygiene services.	hygienists graduating 1983-1987/ hygienists graduating before 1963	3.17	t(59)	.002
	hygienists graduating 1973-1977/ hygienists graduating before 1963	2.77	t(46)	.008
	hygienists graduating 1988-1992/ hygienist graduating before 1963	2.64	t(51)	.011
	hygienists that teach dental hygiene/ hygienists that do not teach.	2.24	t(249)	.026

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists with a certificate/ hygienists with a M.S. in Dental Hygiene	-2.23	t(80)	.029
	hygienists with a certificate/ hygienist with a B.S. in Dental Hygiene	-2.24	t(181)	.034
22. I believe with slight modification of the dental hygiene curriculum, such as adding classes in practice management, that dental hygienists would be educationally prepared to practice independently.	hygienists graduating 1988-1992/ hygienists graduating before 1963	3.02	t(51)	.004
	hygienists graduating 1973-1977/ hygienists graduating before 1963	2.89	t(45)	.006
	hygienists graduating 1963-1967/ hygienists graduating before 1963	2.12	t(29)	.043
	hygienists graduating 1968-1972/ hygienists graduating before 1963	2.07	t(39)	.045

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists graduating 1978-1982/ hygienists graduating before 1963	2.01	t(72)	.048
23. Lack of autonomy in the practice of dental hygiene contributes to the high turnover rate in dental hygiene.	hygienists graduating 1983-1987/ hygienists graduating before 1963	3.00	t(59)	.004
	hygienists who teach dental hygiene/ hygienists who do not teach	2.28	t(248)	.024
	hygienists graduating 1973-1977/ hygienists graduating before 1963	2.31	t(46)	.025
	hygienists with a certificate/ hygienists with an"other" degree	-2.11	t(124)	.037
24. Lack of autonomy in the practice of dental hygiene contributes to job "burn-out".	hygienists graduating 1983-1987/ hygienists graduating before 1963	2.77	t(59)	.008

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists who are currently practicing/ hygienists who are not currently practicing	-2.59	t(248)	.010
	hygienists graduating 1973-1977/ hygienist graduating before 1963	2.39	t(46)	.021
	hygienists graduating 1968-1972/ hygienists graduating before 1963	2.33	t(39)	.025
	hygienists graduating 1963-1967/ hygienists graduating before 1963	2.33	t(29)	.027
	hygienists with a certificate/ hygienists with an "other" degree	-2.18	t(122)	.031
	hygienists who teach dental hygiene/ hygienists who do not teach	2.08	t(247)	.039

ISSUE	GROUP	t-VALUE	df	SIG.
25. I view dental hygienists a professionals.	hygienists 41-45 years of age/ hygienists 46-50 years of age	-2.42	t(57)	.019
	hygienists 26-30 years of age/ hygienists 36-40	2.14	t(106)	.034
	hygienists 31-35 years of age/ hygienists 41-45 years of age	2.10	t(92)	.039
	hygienists 36-40 years of age/ hygienists 46-50 years of age	-2.09	t(79)	.040
	hygienists graduating 1968-1972/ hygienists graduating 1963-1967	-2.09	t(48)	.042
	hygienists graduating 1983-1987/ hygienists graduating 1978-1982	2.05	t(111)	.042
26. Dentists view dental hygienists as professionals.	hygienists who teach dental hygiene/ hygienists who do not teach	-3.87	t(244)	.000

ISSUE	GROUP	t-VALUE	df	SIG.
	hygienists with a certificate/ hygienists with a M.S. in Dental Hygiene	3.31	t(79)	.001
	hygienists with a M.S. in Dental Hygiene/ hygienists with an "other" degree	-2.98	t(62)	.004
	hygienists who are currently practicing/ hygienists who are not currently practicing	2.31	t(246)	.022
	hygienists graduating 1983-1987/ hygienists graduating 1968-1972	2.30	t(79)	.024
	hygienists with a B.S. in Dental Hygiene/ hygienists with a M.S. in Dental Hygiene	2.29	t(119)	.024
	hygienists with a B.S. in Dental Hygiene/ hygienists with a Doctorate	2.15	t(72)	.035

emergencies in an independent practice setting. The mean response was 3.895, the mode was 4 and the median was 4.

The third research question asked if the Virginia dental hygienists believed that the independent practice of dental hygiene would benefit the public, by allowing increased access to dental hygiene services to those patients located in what is now considered a nontraditional setting. Dental hygienists felt that they should be allowed to practice in the nontraditional settings, the response was 4.416 for the mean, 5 for the mode and 5 for the median. But when addressing the issue of increased access to the public, the Virginia dental hygienists responded with a mean of 3.659, mode of 4 and median of 4.

The fourth research question asked if it is the perception of the Virginia dental hygienists that the public would benefit from the independent practice of dental hygienists by lowering the cost of dental hygiene services. The mean response was 3.016, the mode was 3 and the median was 3.

Summary

The research results indicate a support, although

weak, of independent dental hygiene among Virginia dental hygienists. The results also indicate a strong opposition to preceptorship in dental hygiene.

These findings could be affected by a number of variables. The issue of independent hygiene as stated previously is controversial. Respondents may not have been willing to divulge information of a sensitive nature when they were not absolutely certain of anonymity or how results were going to be used. For this reason, the respondents could have failed to answer in a truthful manner.

The survey questionnaire was tested for reliability with a small group. The results of the test-retest with such a group may not adequately reflect the true reliability of the instrument.

Although there is some generalizability inherent in each study, the predetermined return of 322 completed surveys to ensure generalizability at a 95 percent level of confidence did not occur as only 258 completed surveys were returned for inclusion in this study.

Although the survey indicated support for independent hygiene, it was weak support. The survey did reveal a strong support for general supervision in dental hygiene and a strong belief in competency skills and a

desire for the Virginia dental hygienists to be allowed to practice in nontraditional settings. In regards to ethical issues, Virginia dental hygienists felt that they would refer patients to a dentist if suspicious oral lesions were detected.

Hygienists believe that the loss of revenue produced by the hygienists is a major reason that dentists oppose independent hygiene. Also, hygienists viewed themselves as professionals but were undecided as to how they were viewed by the dentists. Finally only (12%) of the Virginia dental hygienists surveyed would practice independently if given the opportunity. The majority were either undecided (35%) or opposed (52%). This may be related to the perception that it would not economically benefit the hygienists to practice independently.

Overall there were many significant differences in the responses by Virginia dental hygienist to questions relevant to the independent practice of dental hygiene. The differences were found between many demographic attributes as they relate to issues of independent practice. The large number of differences suggest a need for further investigation of this subject to determine the cause of the differences.

CHAPTER 5

Summary and Conclusions

The attitudes of Virginia dental hygienists toward issues relevant to independent practice of dental hygiene remains unresearched. A randomized sample of Virginia dental hygienists was selected for a mailed survey concerning this topic. The instrument utilized for this survey was a questionnaire of Likert-style items, designed by the principle investigator. The instrument was tested by the method of test-retest for reliability with a small group of dental hygiene faculty, it was found to be moderately reliable with a correlation of .6839.

This study revealed varying attitudes towards the independent practice of dental hygiene within the profession of dental hygiene. However, there was little difference in attitudes on issues related to preceptorship. Virginia dental hygienists appear to be strongly opposed to preceptorship as determined from this study.

The purpose of this study was to investigate the attitudes, beliefs and perceptions of Virginia dental

hygienists regarding issues relevant to the independent practice of dental hygiene. The research indicated a weak support for independent dental hygiene but a stronger support for general supervision of hygienists. These results could be used in giving direction to future change within the hygiene profession.

Implications and Interpretation

Attitudes, beliefs and perceptions form an individual's value system. Values will influence the action that a individual or a group is willing to take to produce a desired result. This study investigated the attitudes toward issues related to independent practice of hygiene. By investigating the beliefs, attitudes, and perceptions this study attempted to estimate the level at which independent dental hygiene is valued by dental hygienists in Virginia. If it had been determined that independent practice of dental hygiene was perceived as valuable, then leaders promoting independent practice could predict support of action that could move the profession closer to that mode of practice.

The study revealed weak support among Virginia dental hygienists for independent practice of dental

hygiene. This could indicate that hygienists are not highly motivated as a group to take action toward gaining independent practice.

The study does, however, reveal differences in opinion concerning independent hygiene. The strongest differences occurred with level of education and year of graduation.

Greatest support for independent practice was found among registered dental hygienists with a B.S. in Dental Hygiene and M.S. in Dental Hygiene. The educational program could be changed so that the entry-educational level is the B.S. degree in Dental Hygiene.

Preceptorship would more drastically lower the educational level of hygienists and possibly the motivation of dental hygienists trained by this mode to pursue independent practice. It has been speculated that the threat of preceptorship has been used as a control mechanism by dentists of those hygienists in support of the independent practice of dental hygiene. Hygienists do not govern their profession, they are governed by dentists. This makes the pursuit of independent practice difficult if not impossible to obtain especially when retaliation for this practice evolution could be preceptorship.

Recommendations for further investigation:

1. Test the instrument for reliability with a larger group.

2. Conduct a larger mailing so that a sufficient sample size will produce a statistically significant sample.

3. Investigate causal relationships between level of education and attitudes toward the independent practice of dental hygiene.

4. Conduct this research in a larger geographic region, preferably a random sample of dental hygienists in the United States.

5. Conduct a study of dentists' attitudes about preceptorship and independent practice of dental hygiene.

6. Conduct future statistical analysis of present data to determine specific differences in demographic variables and attributes towards issues in this study.

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APPENDIX A

Dental Hygiene Services:

1. Scaling, root planing and polishing natural and restored teeth using hand instruments, rotary instruments, prophy-jets and ultra sonic devices.

2. Taking of working impressions for construction of athletic and fluoride guards.

3. Performing an original or clinical examinations of teeth and surrounding tissues including the charting of carious lesions, periodontal pockets or other abnormal conditions for assisting the dentist in the diagnosis.

4. Application of topical medicinal agents, including topical fluoride and desensitizing agents (aerosol topical anesthesia excluded).

5. Acid etching in those instances where the procedure is reversible.

6. Placement of sealants.

7. Serving as chairside assistant aiding the dentist's treatment by concurrently performing supportive procedures for the dentist, including drawing up and compounding medications for administration by the dentist. The foregoing shall not prohibit the dentist from delegating to another licensed health care professional duties within the scope of their respective practice.

8. Placing and removing matrices for restorations.

9. Placing and removing rubber dams.

10. Placing and removing periodontal packs.

11. Polishing natural and restored teeth by means of a rotary rubber cup or brush and appropriate polishing agent.

12. Holding and removing impression material for working models after placement by the dentist.

13. Taking non-working impressions for diagnostic study models.

14. Placing amalgam in prepared cavities with the carrier to be condensed by the dentist.

15. Placing and removing elastic orthodontic separators.

16. Checking for loose orthodontic bands.

17. Removing arch wires and ligature ties.

18. Placing ligatures to tie in orthodontic arch wire that has been fitted and placed by the dentist.

19. Selecting and prefitting orthodontic bands for cementation by the dentist.

20. Monitoring nitrous oxide oxygen inhalation analgesia.

21. Placing and exposing dental x-ray film. (No person who is not otherwise licensed by the Board shall place or expose dental x-ray film unless the requirements of Regulation 4.5.A(11) have been fulfilled.)

22. Removing socket dressings.

23. Instructing patients in placement and removal of retainers and appliances after they have been completely fitted and adjusted in the patient's mouth by the dentist.

24. Removing sutures.

25. Removing supragingival cement on crowns, bands, and restorations.

Any procedure not listed above is prohibited

APPENDIX B

January 18, 1993

Dear Hygienist:

I am graduate student of Old Dominion University Department of Community Health Education and am conducting a survey to assess hygienists attitude relevant to the independent practice of dental hygiene. Your participation in this survey would be greatly appreciated. The results will, hopefully, benefit Virginia hygienists who have an interest in this subject.

Please return the completed attitude questionnaire in the stamped and addressed envelope provided. Please answer the questionnaire as honestly and objectively as possible.

Please return the questionnaire by January 15,1993.

Information obtained through the enclosed questionnaire will be reported in group form only. Your responses will be kept anonymous and confidential. Do not put your name on any page.

Your time spent in answering the enclosed questionnaire is very much appreciated and hopefully will assist in upgrading the position of Virginia Dental Hygienists in the professional community. Thank you.

Sincerely,

Linda H. McCain, R.D.H.,B.S.

Enclosures

APPENDIX C

ATTITUDE QUESTIONNAIRE

Instructions: This questionnaire will take approximately 15 minutes to complete. Your time is very much appreciated. This questionnaire will assess the attitudes of Virginia dental hygienists towards issues related to the independent practice of dental hygiene. Please circle the answer that most closely corresponds with your opinion. Please respond honestly and truthfully. Do not place your name anywhere on this form. Thank you.

	STRONGLY AGREE 5	AGREE 4	UNDECIDED 3	DISAGREE 2	STRONGLY DISAGREE 1
1. I am satisfied with the regulations governing the practice of dental hygiene practice in Virginia.	5	4	3	2	1
2. I can respond to a medical emergency should it arise while I am providing dental hygiene services.	5	4	3	2	1
3. I am educationally prepared to practice dental hygiene independent of a dentist's supervision.	5	4	3	2	1
4. I am competent performing dental hygiene services.	5	4	3	2	1
5. Dental hygienists should be able to provide dental hygiene services in non-traditional settings, such as nursing homes, without supervision.	5	4	3	2	1
6. Dental hygienists should have autonomy in providing dental hygiene services.	5	4	3	2	1
7. The independent practice of dental hygiene would make oral health care more accessible to the public.	5	4	3	2	1
8. The quality of the dental hygiene services is higher because dental hygienists are supervised by a dentist.	5	4	3	2	1
Questions 9 - 13 pertain to preceptorship. For the purpose of this study preceptorship is defined as an individual being trained in a dental office to provide dental hygiene services.					
9. A manpower shortage in dental hygiene, if it exists, is justification for having preceptorships in dental hygiene.	5	4	3	2	1
10. Preceptorship in dental hygiene will reduce the quality of care that the public receives.	5	4	3	2	1
11. I support preceptorship in dental hygiene.	5	4	3	2	1
12. If preceptorship in dental hygiene is legally allowed, the dentist should be responsible for training the preceptee.	5	4	3	2	1
13. If preceptorship is legally allowed, the registered dental hygienist should be responsible for training the preceptee in dental hygiene.	5	4	3	2	1

	STRONGLY AGREE 5	AGREE 4	UNDECIDED 3	DISAGREE 2	STRONGLY DISAGREE 1
14. It would be economically advantageous for dental hygienists to practice independently.	5	4	3	2	1
15. If independent practice of dental hygiene became legal, I would practice independently.	5	4	3	2	1
16. Supervision of dental hygienists in Virginia should be by general supervision as opposed to direct supervision (which is current Virginia law).	5	4	3	2	1
17. If I practiced as an independent hygienist, I would immediately refer a patient to a dentist if I detected any suspicious areas.	5	4	3	2	1
18. I am aware that in some dental schools dental students are trained by dental hygienists to provide dental hygiene services, I agree with this practice.	5	4	3	2	1
19. I am aware that while it is against Board of Dentistry regulations for dental hygienists to diagnose dental caries, it is permitted for registered nurses to do so, I agree with this practice.	5	4	3	2	1
20. I believe that the fear of the loss of revenue generated by the dental hygienist is a major reason for dentists to oppose independent dental hygiene practice.	5	4	3	2	1
21. I believe that the independent practice of dental hygiene would lower the cost for dental hygiene services.	5	4	3	2	1
22. I believe with slight modification of the dental hygiene curriculum, such as adding classes in practice management, that dental hygienists would be educationally prepared to practice independently.	5	4	3	2	1
23. Lack of autonomy in the practice of dental hygiene contributes to the high turnover rate in dental hygiene.	5	4	3	2	1
24. Lack of autonomy in the practice of dental hygiene contributes to job "burn-out".	5	4	3	2	1
25. I view dental hygienists as professionals.	5	4	3	2	1
26. Dentists view dental hygienists as professionals.	5	4	3	2	1

DEMOGRAPHIC INFORMATION

27. My educational background is:
a. certificate in dental hygiene
b. bachelor's degree in dental hygiene
c. master's degree in dental hygiene
d. doctoral degree (eg, Ph.D, Ed.D, etc.)
e. other (please specify)_____

28. I am currently practicing clinical dental hygiene.
a. yes
b. no

29. I am currently teaching in an accredited dental hygiene school.
a. yes
b. no

30. I graduated from a dental hygiene program in
a. 1992-1988
b. 1987-1983
c. 1982-1978
d. 1977-1973
e. 1972-1968
f. 1967-1963
g. before 1963 (please specify year)_____

31. My age is
a. 20-25
b. 26-30
c. 31-35
d. 36-40
e. 41-45
f. 46-50
g. 51-55
h. 56-60
i. 61-65
j. other (please specify age)_____

32. My gender is
a. male
b. female

APPENDIX D

February 15, 1993

Dear Hygienist:

Recently, you received an attitude questionnaire concerning the issues relevant to the independent practice of dental hygiene. Please take a few minutes to complete and return the enclosed questionnaire. Your participation is of extreme value to the profession of dental hygiene. By responding, you will have the opportunity to tell the dental hygiene community how you feel about these issues and how you would like to shape the future of dental hygiene. Please complete and return the survey by March 8, 1993. Thank you very much for your time in completing this survey.

Sincerely,

Linda H. McCain, R.D.H., B.S.

Enclosure