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Motivational Factors for Treating Patients with Special Healthcare Needs

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Dentistry at Virginia Commonwealth University.

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Abstract

MOTIVATIONAL FACTORS FOR TREATING PATIENTS WITH SPECIAL HEALTHCARE NEEDS

By Arpi Patel, DDS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Dentistry at Virginia Commonwealth University.

Virginia Commonwealth University, 2015

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Purpose: The purpose of this study is to assess what training and motivational factors dental providers report in providing dental care to PSHCN (patients with special healthcare needs). **Materials and Methods:** An electronic questionnaire was sent to n=104 fourth year dental students, n=147 general dentists with a specific continuing education course pertaining to PSCHN, and n=140 pediatric dentists in Virginia. The questionnaire consisted of four sections including Demographics, Professional Attitudes, Special Needs Patients and Motivational Factors, and PSCHN Cases.

Results: The overall response rate for our study was 21%. The response rates of dental students, general dentists, and pediatric dentists were 30%, 10%, and 25%, respectively. A statistically significant difference was found for 10 out 12 motivational

factors. **Conclusions:** There is a difference in motivational factors among the three different types of dental providers.

Introduction

Oral health is important for proper nutrition, communication, and self-esteem.¹ Unfortunately, there is an unmet need for oral health services in this country. The population that is arguably most affected by this unmet need are patients with special healthcare needs (PSHCN). We will define special health care needs by the American Academy of Pediatric Dentistry (AAPD) definition as any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services or programs.² Special Care Dentistry also defers to the AAPD definition for PSHCN, while the Commission on Dental Accreditation (CODA) defines PSHCN as patients whose medical, physical, psychological, cognitive or social situations make it necessary to consider a wide range of assessment and care options in order to provide dental treatment. According to CODA, these individuals include, but are not limited to, people with developmental disabilities, cognitive impairment, complex medical problems, significant physical limitations, and the vulnerable elderly. PSHCN are at an increased risk for oral diseases throughout their lifetime.³ Patients with the greatest risk are those with compromised immunity or cardiac conditions associated with endocarditis, patients with mental, developmental, or physical disabilities, and patients with disorders or conditions that manifest only in the orofacial complex.³ As such, it is

easy to appreciate the need to improve access to and delivery of oral health care for this population.

In the late 1960's, Andersen developed a conceptual model of healthcare utilization to understand why families use health services, to define and measure equitable access to health care, and to assist in developing policies to promote equitable access for all populations.⁴ The model focuses on the individual as the unit of analysis because of difficulty developing measures at the family level. The original model suggested that people's use of health services is a function of their predisposition to use services, factors that enable or impede use, and their need for care. This original model also rated the degree of mutability of various model components, or rather the amount that a specific component may be altered. The demographic component, the social structure, and the need for health care as perceived by the patient were rated as having low mutability. The health beliefs component was rated as having medium mutability since it can be altered and sometimes affect behavioral change. The enabling component was rated as having a high mutability. It is worth mentioning that community resources, including availability of health service providers available, fall under this category. In the second phase of this model that was developed in the 1970s, the health care system was explicitly included, giving recognition to the importance of national health policy and the resources and their organization in the health care system as important determinants of the population's use of services. An explicit outcome of health service, consumer satisfaction, was also added in this phase. The third, and most recent, phase that was added in 1995 also acknowledges the external environment and personal health practices as important inputs for

understanding use of health services. The framework for this phase can be seen in Figure 1. In 2000, a behavioral model for vulnerable populations was added with modifications from Andersen's latest model, which is of particular interest in our study and is seen in Figure 2.⁵ We will use this model as the framework for our particular study since PSHCN are considered a vulnerable population. As seen in this figure, vulnerable populations have many more variables, aside from the traditional components, that we need to consider when assessing their healthcare utilization.

Research has drawn our attention to the many barriers that PSHCN have to the delivery of oral care that impact their healthcare utilization. On a large scale, we can divide these barriers into 5 different categories including financial reimbursements, lack of trained personnel, a lack of support for training, a lack of recognition of the importance of oral health, and difficulties in physical access with each of these divided into subcategories.⁶ In a study by Crall et al, barriers for this population were broken down into factors concerning behavior of special needs patients, disability level and extent of treatment needs, training for dentists and office staff, and financing and reimbursement for services rendered to PSHCN.⁷ In a survey of parents and caregivers of children with special healthcare needs, the most common barriers to obtaining dental care were lack of insurance, high cost of dental care, health plan problems, inability to get an appointment or inconvenient appointment times, and having insurance that was not accepted by the dentist.⁸ We can appreciate that all of these studies consist of similar elements that contribute to the lack of oral health care for PSHCN. In our study, we are especially concerned with factors that we can potentially control, including the number of dental providers willing and able to treat PSHCN. Some factors that may

contribute to the unavailability of enough dental providers to treat PSHCN include, but are not limited to: a lack of appropriately trained dentists, insufficient pre-doctoral and post-doctoral training that includes PSHCN, and dentists' reluctance to treat PSHCN.^{1, 9,}

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In recent years, there has also been an increasing number of PSHCN requiring oral health services, which can be attributed to multiple reasons. Across the last three decades, the life expectancy of children with special health care needs has increased so that more than 90% survive beyond their 20th birthdays. Today, most adolescents with special health care needs achieve some degree of independence and have productive adult lives increasing the number of PSHCN who need dental practitioners for routine dental care.¹¹ Additionally, deinstitutionalization of more than three-quarters of individuals with mental retardation/developmental disabilities during the past 30 years has also increased the number of PSHCN relying on community practitioners for dental services.¹² The federal government reports that 13% of Americans between birth and 18 years meet the definition of a child with special healthcare needs.¹³ According to the US Census Bureau, this translates to approximately 12.5 million children in the US with special healthcare needs, as of 2012.¹⁴ When looking at the total population, approximately 36.3 million Americans are considered to have a disability.¹⁵ In a study by Nelson et al in 2011, about 20 percent of children with special health care needs had an unmet dental need.¹⁵ With this growing population of PSHCN, the dental care system has been overwhelmed, and there have been an insufficient number of dental providers available to treat PSHCN for those that need dental services, making it important to find ways to increase our dental workforce that treats these patients.¹⁶

When discussing the treatment of PSHCN, it is important to also address the their transition as they grow from children to adolescents. The AAPD guideline for transition of care for adolescents with special healthcare needs suggests following the same six steps that have been outlined by medical organizations. These include: 1. ensuring that all young people with special health care needs have a health care provider who takes a specific responsibility for transition of healthcare, 2. identifying core competencies required by health care providers to render developmentally appropriate health care and health care transition, 3. developing a portable and accessible medical summary to facilitate a smooth transition, 4. developing an up-to-date detailed written transition plan, 5. ensuring that the same standards for primary and preventive health care are applied to these patients as are for their peers, and 6. ensuring that affordable, comprehensive, continuous health insurance is available for this population throughout adolescence and into adulthood.¹⁷ Although these guidelines are in place, many barriers to transitioning this population to an adult based dental clinic still remain and anecdotal evidence indicates that many pediatric dentists are frustrated about how to care for the continuing needs of PSHCN as they become young adults.¹¹ There is agreement in the literature that specific transition planning for all health care services should begin between the ages of 14 and 16 to maximize lifelong functioning and potential through high quality health care that will move individuals from adolescence to adulthood in an uninterrupted fashion.^{18, 19} Transition planning for PSHCN may result in children with special healthcare needs being transferred to an adult specialist that is better able to take care of the patient's needs, or in these children staying with the same provider with reorientation of clinical interactions catered towards

the patient's specific needs.¹⁸ In either situation, it is important to have appropriate communication with adult specialists, and have the availability of adult specialists should these patients need to be transferred. Responses in a survey by Nowak et al show that most pediatric dentists assisted PSHCN with their transition to adult care, but the predominant barrier was the availability of general dentists and specialists who were willing to accept these new patients.¹¹

In an effort to reflect the idea of the “medical home,” which recognizes that care for all individuals, including PSHCN, is best served by having a central professional point of contact, the “dental home” concept was championed by the AAPD in order to increase level and consistency of oral healthcare.⁷ PSHCN with a dental home are more likely to receive appropriate preventive and routine care.²⁰ According to the AAPD, the dental home is inclusive of all aspects of oral health that result from interaction of the patient, parents, dentists, dental professionals, and non-dental professionals.²¹ The policy also states that the dental home should provide referrals to specialists if care cannot be appropriately provided by the dental home and education about future dental treatment to a dentist knowledgeable and comfortable with adult oral health issues.²¹ However, due to the unavailability of enough dental providers to treat this growing population of patients, it can be difficult for pediatric dentists to guide adolescent and adult PSHCN to an appropriate general dentist.

The basic oral healthcare needs of most PSHCN can be completed in a traditional dental setting with staff that is trained to adjust the routine appointment to accommodate the individuals' special needs.⁷ However, there is a small population of these patients that need treatment by clinicians with more advanced training and special

facilities, such as outpatient sedation or treatment under general anesthesia.⁷ Traditionally, and by default, pediatric dentists have provided services for PSHCN regardless of their age due to their advanced training in behavior management, sedation, and general anesthesia. Correspondingly, there is lack of enough general dentists willing and able to treat this population. Only 10% of surveyed general dentists have reported to treating PSHCN, while 70% report that they rarely or never treat PSHCN.²² On the other hand, 95% of pediatrics dentists treat PSHCN on a routine basis.²³ Of the 95% of pediatric dentists that treat children with special healthcare needs, 71% reported following these patients after they turned 21.¹¹ In a study conducted comparing general dentists and pediatric dentists treating patients with autism, 89% of pediatric dentists responded that they treated these patients while only 32% of general dentists stated they treated these patients.²⁴ With about 5953 pediatric dentists and 10.2 million children with SHCN under the age of 19, a broader involvement of general dentists is essential to decrease this unmet need within this population.²⁵ Additionally, when patients reach adolescence and, ultimately, adulthood, their dental needs may be beyond the scope of the pediatric dentist, during which time it may not be in the patient's best interest to be treated solely in a pediatric facility.¹⁷

Along with barriers to the delivery of oral health care for PSHCN, there have been recommendations that have been made to improve access to and utilization of healthcare for this population. Most of these recommendations focus on workforce or financing issues including: increasing the size of the dental workforce, providing additional training for dentists and other members of the dental care delivery team, and improving reimbursement for dental services.^{26, 27} Other recommendations include the

need for special programs or alternative delivery arrangements such as hospital, university, or mobile based dental programs in addition to dental care provided in the private practice setting.²⁸ Although numerous policies and programs have been implemented to facilitate access to quality health services for this population, analyses of national data have determined that a greater percentage of PSHCN still have unmet health care needs relative to the general population.⁷

There have been efforts made to improve the specific issue of an unavailability of enough dental providers. In recent years, a lot of focus has been placed on education that dental providers receive. Current CODA accreditation standards for the treatment of PSHCN, which were revised in 2006, address competency for treating this population during predoctoral dental education, advanced education in general dentistry, and general practice residency. For predoctoral education, the standard states that “graduates **must** be competent in assessing the treatment needs of patients with special needs.”²⁹ For both advanced education in general dentistry and general practice residency programs, the standards states that “the program **must** have goals and objectives or competencies and proficiencies and provide didactic and clinical training to ensure that upon completion of training, the student/resident is competent to: Assess, diagnose and plan for the provision of multidisciplinary oral health care for a wide variety of patients including patients with special needs.” Although these standards have been implemented, they are relatively vague without any mention of competency in actually treating this population. Hence, there is still an inadequate amount of training in treating PSHCN that occurs during both predoctoral and postdoctoral education. In a study by Dao et al, most general dentists did not think their undergraduate dental

education had prepared them well enough to treat special needs patients. However, the better they reported to have been educated, the more likely they were to treat special needs patients.³⁰

Although it has been suggested that dental education is an important key to increasing the number of providers available to treat PSHCN, there is no consensus about whether to concentrate the educational efforts on the predoctoral or postdoctoral level, or both.³¹ Although potential barriers to oral health care for PSHCN have been identified, along with factors that may impede dental practitioners from treating these patients, there may be a difference in motivational factors for treating this population among different groups of practitioners based on amount of exposure to PSHCN in the dental setting.

The purpose of this study is to identify motivational factors of different types of practitioners depending on their level of experience with PSHCN via a questionnaire and recognize if there is a difference among the three groups. If there is a statistically significant difference among the three groups, we may better be able to identify where we should focus our efforts in order to increase the number of providers willing and able to treat PSHCN. We hypothesize that there will be a difference in motivational factors among the three different groups of dental practitioners.

Materials and Methods

This project is a cross-sectional electronic survey of dental providers. Our subjects included three different groups of practitioners who were identified depending on their level of experience with PSHCN. These three groups are fourth year dental students, general dentists that have taken a continuing education course pertaining to PSHCN, and pediatric dentists. Fourth year dental students were chosen for this study if they were in their last year of dental school at Virginia Commonwealth University because they are considered entry level general dentists in accordance with CODA guidelines. General dentists that have taken a continuing education course pertaining to PSHCN were chosen if they had taken a specific course titled “Caring for Children with Developmental Disorders and Very Young Children” and were considered as general dentists with additional experience in treating PSHCN for this study. Ten courses were administered in various regions of Virginia over a three-year time span by the Virginia Department of Health’s Division of Dental Health. The course was conducted in a two-day format with the first day being a didactic lecture series including special health care conditions, patient behavioral management techniques, infant oral health assessment and prevention and sedation; the second day of the course consisted of one half-day hands-on session where participants had the opportunity to hone their clinical skills. Pediatric dentists were chosen if they were members of the American Academy of Pediatric Dentistry (AAPD) and practiced in Virginia. We are

categorizing fourth year dental students, general dentists with exposure to a continuing education course pertaining to PSHCN, and pediatric dentists as having little to no experience, moderate level of experience, and a significant level of experience with PSHCN, respectively.

Email addresses were obtained for the three different groups of practitioners via three different sources. Email addresses for the fourth year dental students were obtained via VCU School of Dentistry's intranet. Email addresses for general dentists that had taken the specific continuing education course were obtained via Virginia Department of Health and Virginia Dental Association Foundation's database of past attendees of the course. Email addresses for pediatric dentists were obtained via the American Academy of Pediatric Dentistry's database of pediatric dentists practicing in Virginia.

The questionnaire was emailed out to 104 fourth year dental students, 147 general dentists that have taken the specific continuing education course, and 140 pediatric dentists in Virginia three times between June 13, 2014 and August 21, 2014 via an online survey tool, Red Cap. The questionnaire consists of four sections including Demographics, Professional Attitudes, Special Needs Patients and Motivational Factors, and Patient Cases. Questions for the study were based off of previous studies as well as feedback from a panel of dental faculty members at VCU with expertise in patients with special health care needs and survey methodology. A pilot questionnaire was sent to 15 members of VCU Pediatric Dentistry, consisting of 6 faculty members and 9 residents, for feedback pertaining to wording and content of

questions. This project was approved under exempt status from the Virginia Commonwealth University Institutional Review Board (VCU IRB #: HM20000581).

We chose to use pediatric dentists as one of the groups in this study because we know that at least 95% of this group treats PSHCN on a routine basis.¹⁹ Our rationale for using the other two groups of general dentists is to compare their motivational factors in treating PSHCN to see if there is a statistically significant difference among the three groups, using pediatric dentists as the control group.

The primary goal of this study was to evaluate whether there is a statistically significant difference in motivational factors for treating PSHCN among the different types of practitioners and to distinguish what the specific motivational factors are for each type of practitioner. Additionally, we will be able to assess the comfort level of dental practitioners in treating PSCHN of varying levels of difficulty.

A distribution analysis was completed to determine the distribution of demographics of all practitioners that completed the questionnaire including level of training, age, race, gender, and hours of continuing education completed treating PSHCN. A distribution analysis was completed to determine the distribution of responses to questions pertaining to professional attitudes pertaining to treating PSHCN. A chi square analysis was completed to determine whether there is a statistically significant difference in professional attitudes among the three groups of practitioners. If a statistically significant difference was found, a cell chi squared analysis was completed to determine where the differences lied. A distributional analysis was completed to determine the distribution of responses to motivational factors in treating PSHCN. An ANOVA test was subsequently completed for each

motivational factor to determine if there is a statistically significant difference in motivational factors based on specific predictor variable including the three types of practitioners, practitioners of varying age, practitioners of different genders, and practitioners with varying hours of continuing education in treating PSHCN. If a statistically significant difference was found for any given motivational factor based on the predictor variable, Tukey's test was used to determine exactly where the statistically significant difference lied. Subsequently, a repeated measure mixed model analysis of variance was used to determine the combined effect of all of the predictor variables and the motivational factors. A distribution analysis was completed to determine the distribution of responses to the patient-based questions pertaining to treating PSHCN of three different complexity levels. A chi square analysis was completed to determine whether there is a statistically significant difference in how the three different groups of practitioners responded to completing treating for PSHCN. If a statistically significant difference was found, a cell chi squared analysis was completed to determine where the differences lied. All analyses were performed using JMP software.

Results

The results of the study will be shown in four sections corresponding to the four sections on the electronic survey.

Section 1: Demographics

The overall response rate for the questionnaire was 21%. The response rates of dental students, general dentists, and pediatric dentists were 30%, 10%, and 25%, respectively. A total of 80 practitioners responded to the survey with their demographic data displayed on Table 1. Of these respondents, 39% were dental students, 18% were general dentists, and 44% were pediatric dentists. 36% of the respondents were under 30 years old, 21% were between 30-39, 18% were between 40-49, 9% were between 50-59, 15% were between 60-69, and 1% was above 75 years old. 48% of the respondents were male, while 53% were females. Additionally, 26% of respondents had no additional continuing education training pertaining to PSHCN, 31% of respondents had 1-10 additional hours of continuing education training, 13% had 11-20 additional hours of training, 4% had 21-30 additional hours of training, and 26% had greater than 30 additional hours of training.

Section 2: Professional Attitudes

In this section, practitioners were surveyed about their professional attitudes towards treating PSHCN. The four questions that were asked were “Do you or will you routinely see any PSHCN in your office?,” “I have an interest in treating PSHCN,” “I am

confident in treating PSHCN,” and “It is part of my mission as a dentist to treat PSHCN.” The distribution of responses is described in Table 2. 81% of dental students, 79% of general dentists, and 100% of pediatric dentists stated that they routinely do or will see PSHCN and 27% of dental students, 69% of general dentists, and 94% of pediatric dentists are confident in treating PSHCN with the differences being statistically significant for both of these questions. 90% of dental students, 79% of general dentists, and 91% of pediatric dentists stated that they have an interest in treating PSHCN and 94% of dental students, 77% of general dentists, and 97% of pediatric dentists responded that they felt it was a part of their mission to treat PSHCN with the differences not being statistically significant for these two questions.

Section 3: Special Needs Patients and Motivational Factors

In this section, various motivational factors for treating PSHCN were assessed among the three groups of practitioners. These factors were broken down into dentist factors, patient factors, and structural factors. Dentist factors included amount of clinical training/experience, amount of didactic training/experience, training/experience in behavior management, training/experience in consulting with medical colleagues, and training/experience with oral conscious sedation. Patient factors included complexity of patient’s medical condition and cooperation level of patient. Structural factors included amount of reimbursement, amount of time necessary for treatment, hospital privileges, accessible and comfortable facilities, and adequately trained staff. Practitioners were asked if their experience and/or access to these specific factors affected their motivation in treating PSHCN. Each of the questions were answered by *strongly agree*, *agree*, *neither agree nor disagree*, *disagree*, or *strongly disagree*. Each of these answers was

assigned a numerical value of 2, 1, 0, -1, or -2, respectively, for analytical purposes. The mean score for each motivational factor was computed for each practitioner type, for each category of amount of continuing education, for each age group, and for both genders as seen in Tables 3,4,5,and 6, respectively. An ANOVA analysis was computed for each motivational factor to determine if there was a statistically significant difference in responses among the various predictor variables, including type of practitioner, age, hours of continuing education, and gender. If there was a statistically significant difference, a Tukey's test was conducted to determine exactly where the difference lied which is also shown in Tables 3,4,5, and 6. Significant differences were found among the three different types of practitioners for all of the factors except experience consulting with medical colleagues and amount of reimbursement. The repeated measure mixed model analysis indicated that the practitioner groups remained significant ($P = 0.0018$) and that gender ($P > 0.5$), age ($P > 0.6$), and number of CE hours ($P > 0.6$) were not significantly related, after the practitioner group differences were accounted for.

Section 4: Patient Cases

In this section, cases with different complexity levels were given to the practitioners as seen in the included questionnaire. Practitioners were asked to respond as to how they were treat each case, with the response choices being "Attempt to treat in my office without use of any anxiolysis or conscious sedation," "Attempt to treat in my office with use of nitrous oxide anxiolysis," "Attempt to treat in my office with use of conscious sedation," "Treat in hospital under general anesthesia," and "Refer to a

specialist.” The distribution of responses is described in Table 7, with the difference in distribution of responses being statistically significant for all 3 cases.

Discussion

The primary goal of our study was to evaluate whether the three groups of practitioners that we are targeting have differing motivational factors for treating PSHCN. A statistically significant difference for motivational factors to treating PSHCN among the three different types of practitioners was found for four out of five dentist related factors, both of the patient related factors, and four out of five of the structural factors. The following factors showed a statistical significance: clinical training/experience, didactic training/experience, training/experience in behavior management, complexity of patient's medical condition, cooperation level of the patient, amount of time necessary for treatment, hospital privileges, training/experience with oral conscious sedation, accessible and comfortable facilities, and adequately trained staff. The factors that did not have a statistically significant difference in response were the following: training/experience consulting with medical colleagues and amount of reimbursement.

Dental students agreed more strongly than general dentists and pediatric dentists that clinical training and experience would lead them to treat more PSHCN. Dental students also agreed more strongly that didactic training and experience and training and experience in behavior management would lead them to treat more PSHCN than general dentists, who in turn agreed more than pediatric dentists. Additionally, both dental students and general dentists agreed that more experience with oral conscious

sedation may lead them to treat more PSHCN, while pediatric dentists did not feel that more training with oral conscious sedation would lead them to treat more PSHCN. This can be interpreted as dental students and general dentists may need more experience in oral conscious sedation, while pediatric dentists may feel comfortable with the amount of training that they have received in this area. Given these findings, we can discern where to focus our efforts in these areas. Due to the responses of dental students, we should consider introducing additional clinical and didactic training with PSHCN in the pre-doctoral curriculum. Although the CODA standard states that “graduates **must** be competent in assessing the treatment needs of patients with special needs,”²⁹ the statement is vague and leaves a lot up to interpretation of the pre-doctoral pediatric dentistry director. More specific requirements for dental schools regarding this population may help dental students feel more comfortable with treating PSHCN when they graduate from dental school, which in turn will lead to more general dentists treating these patients. Special Care Dentistry Association (SCDA) has also recognized the need for more specific standards; with SCDA’s recommendation, the American Dental Education Association (ADEA) adopted a resolution in 2005 to call for CODA to strengthen the pre-doctoral and dental hygiene standards by adopting standards that “ensure that education programs include both didactic instruction and clinical experiences involving treatment of PSHCN as defined by the Commission, and appropriate for the type of educational program in which the student is enrolled.”^{32, 33} As of 2009, CODA has not acted on the recommendations made by ADEA. In regards to training for oral conscious sedation, both dental students and general dentists agreed that more training may lead to more involvement in treating PSHCN. More continuing

education in oral conscious sedation specifically for PSHCN that are able to safely tolerate this procedure may help recruit more general dentists that are motivated to treat this patients.

In terms of patient-related factors, dental students agreed more strongly than general dentists, who in turn agreed more than pediatric dentists, that the complexity of a patient's medical condition is a factor in whether or not they treat PSHCN. Both dental students and general dentists agreed that the cooperation level of the patient is a factor in whether or not they treat PSHCN, while pediatric dentists slightly disagreed that this factor influenced their likelihood of treating PSCHN. We can propose that additional exposure to patients with a complex medical history or to patients that cannot cooperate during both dental school and continuing education courses will allow for more general dentists to treat PSHCN. In order for this to occur in a standardized manner for dental students, we can again turn our focus to accreditation standards. Having a set of standards that are more specific requiring a certain amount of time treating these types of patients or a set number of experiences may help ensure that more pre-doctoral students feel comfortable with treating PSHCN. Additionally, more hands-on continuing education courses, much like the earlier mentioned course that the Virginia Department of Health administered, may be helpful for general dentists that are already practicing, but need more experience with this patient population.

Both dental students and general dentists also agreed that the amount of time that would be necessary for treatment is a factor that would influence whether or not they treat PSCHN, while pediatric dentists tended to disagree with this factor influence their decision to treat this population. Dental students agreed more strongly than

general dentists, who agreed more than pediatric dentists that accessible and comfortable facilities as well as adequately trained staff are factors in whether or not these practitioners are likely to treat PSHCN. Structural factors such as comfortable facilities and adequately trained staff are elements that can be taken into account when building a new facility or hiring new staff. It may also be advantageous to include continuing education courses pertaining to treating PSHCN for staff members. These courses can be a part of the same courses for dentists or can be separate courses specifically aimed at staff members. Dental students and pediatric dentists both agreed that whether or not they had or would have hospital privileges was a factor in whether they treated PSHCN, while general dentists slightly disagreed. An interesting finding is that all three types of practitioners slightly disagreed with the amount of reimbursement being a factor in their likelihood of treating PSHCN because in previous studies, financing and reimbursement have been cited as barriers for PSHCN receiving care.^{15,}

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In addition to motivational factors, we identified varying professional attitudes towards treating PSHCN among the three different types of practitioners. Although all three groups had an interest in treating PSHCN and felt it was their mission to treat this population, there was a statistically significant difference between pediatric dentists and the other two groups when asked if they routinely see or will see PSHCN in their office. 100% of pediatric dentists reported to seeing PSHCN in their office routinely while 79% and 81% of general dentists and dental students, respectively, reported to seeing PSHCN either currently or in the future. A study by Cassamassimo reporting that only 10% of general dentists reported to treating PSHCN on a routine basis, which is

drastically different from our results.²² This can be attributed to the fact that the general dentists that we surveyed were those that attended the continuing education course for treating PSHCN and were therefore motivated to treat this population, and perhaps more experienced due the continuing education course itself. When asked if they were confident in treating PSHCN, there was a statistically significant difference between pediatric dentists and dental students, with general dentists falling in the middle. As expected, dental students were extremely unconfident in treating PSHCN, general dentists that took the continuing education course were somewhat confident, and pediatric dentists were extremely confident in treating PSHCN. Studies have shown that an increased exposure to PSHCN during dental school leads students feeling more capable of treating these patients.³⁵⁻³⁷ This allows us to ascertain that the dental school curriculum for treating PSHCN needs to be adjusted and that the hands-on continuing education course that the general dentists in this study took increased the confidence of these practitioners in treating PSHCN.

The purpose of the patient cases section of our questionnaire was two-fold: to gauge the comfort level of the three different levels of practitioners with varying PSHCN of varying complexity levels and to gauge the comfort level of the different practitioners with different methods of treatment in the context of treating PSHCN. Interestingly, more dental students and general dentists responded that they would refer the case that our study deemed minimally complex to a specialist, while stating that they would attempt to treat the moderately and highly complex cases in the dental chair with or without nitrous oxide. This can be attributed to a difference of opinion amongst the varying practitioners in what cases they consider to be challenging and possibly a lack

of understanding of what may constitute a challenge in the inexperienced dental student. Almost all of the pediatric dentists were comfortable treating all three cases that we presented. These findings further allow us to conclude that additional training needs to be included at both the pre-doctoral and post-doctoral level.

There is a consensus in the literature that training of dentists is critical to increase workforce and increase the number of general dentists. As mentioned earlier, 95% of pediatric dentists report to treating PSHCN on a routine basis, while only 10% of general dentists report to treating PSHCN on a routine basis.²² An ADEA survey of senior dental students graduating in 2005 noted that the provision of oral health care to PSHCN is among the top four topics in which they are least prepared.¹⁶ Additionally, many studies show that prior experiences in treating PSHCN that is meaningful lead to dentists feeling more comfortable and willing to treat this population. As such, it is important for us to recognize the need for an improvement in a meaningful experience with treating PSHCN for both dental students and general dentists. Theirer et al states that although dental education is an important key to increasing the number of providers available to treat PSHCN, there is no consensus about whether to concentrate educational efforts on the pre-doctoral or post-doctoral level, or both. Based on our study, we conclude that it is important to focus our efforts in the dental school curriculum, as well as continuing education courses.

One limitation of this study is its sample size. This study was only conducted in Virginia. Therefore, a nationwide study with an equal number of practitioners of all three types may reveal additional information. In the future, it may be advisable to include general dentists that have completed an AEGD or GPR program to relate their

motivational factors to the other groups. Additionally, it may be advisable to include young alumni rather than dental students since young alumni have experience, albeit slight, in the workforce.

Conclusions

1. There is a difference in motivational factors among the three different types of practitioners. These differences allow us to recognize where to focus our efforts when developing pre-doctoral and post-doctoral curriculums.
2. Dental students were significantly less confident than general dentists who were significantly less confident than pediatric dentists in treating PSHCN.
3. None of the practitioners reported reimbursement as being factors in treating PSHCN.

Literature Cited

1. Howell R, Brimble M. Dental health management for children with special healthcare needs. *Nurs Child Young People*. 2013;25:19-22.
2. American Academy on Pediatric Dentistry Council on Clinical Affairs. Definition of Special Health Care Needs. *Pediatr Dent* [serial online]. 2014;36:16.
3. Thikkurissy S, Lal S. Oral health burden in children with systemic diseases. *Dent Clin North Am*. 2009;53:351-7, xi.
4. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav*. 1995;36:1-10.
5. Gelberg L, Andersen RM, Leake BD. The Behavioral Model for Vulnerable Populations: application to medical care use and outcomes for homeless people. *Health Serv Res*. 2000;34:1273-1302.
6. Edelstein BL. Conceptual frameworks for understanding system capacity in the care of people with special health care needs. *Pediatr Dent*. 2007;29:108-116.
7. Crall JJ. Improving oral health for individuals with special health care needs. *Pediatr Dent*. 2007;29:98-104.

8. Kenney MK, Kogan MD, Crall JJ. Parental perceptions of dental/oral health among children with and without special health care needs. *Ambul Pediatr.* 2008;8:312-320.
9. Nalliah RP, Allareddy V. What is the dental profession's contribution to worsening access-to-care problems? *J Mass Dent Soc.* 2013;61:26-29.
10. Subar P, Chavez EM, Miles J, Wong A, Glassman P, Labarre E. Pre- and postdoctoral dental education compared to practice patterns in special care dentistry. *J Dent Educ.* 2012;76:1623-1628.
11. Nowak AJ, Casamassimo PS, Slayton RL. Facilitating the transition of patients with special health care needs from pediatric to adult oral health care. *J Am Dent Assoc.* 2010;141:1351-1356.
12. Waldman HB, Perlman SP. Providing general dentistry for people with disabilities: a demographic review. *Gen Dent.* 2000;48:566-9; quiz 570-1.
13. Charles JM. Dental care in children with developmental disabilities: attention deficit disorder, intellectual disabilities, and autism. *J Dent Child (Chic).* 2010;77:84-91.
14. US Census Bureau. Disability Characteristics. 2010 American Community Survey 1-Year Estimates. Available at: <http://www.factfinder2.census.gov>. Accessed July 15, 2012.
15. Nelson LP, Getzin A, Graham D, et al. Unmet Dental Needs and Barriers to Care for Children with Significant Special Health Care Needs. *Pediatr Dent.* 2011;33:29-36.

16. McTigue DJ. Dental education and special-needs patients: challenges and opportunities. *Pediatr Dent*. 2007;29:129-133.
17. American Academy on Pediatric Dentistry Council on Clinical Affairs. Policy on Transitioning from a Pediatric-centered to an Adult-centered Dental Home for Individuals with Special Health Care Needs. *Pediatr.Dent*. [serial online]. 2014;36:104-106.
18. American Academy of Pediatrics, American Academy of Family Physicians, American College of Physicians-American Society of Internal Medicine. A consensus statement on health care transitions for young adults with special health care needs. *Pediatrics*. 2002;110:1304-1306.
19. Geenen SJ, Powers LE, Sells W. Understanding the role of health care providers during the transition of adolescents with disabilities and special health care needs. *J Adolesc Health*. 2003;32:225-233.
20. American Academy of Pediatric Dentistry. Council on Clinical Affairs. Guideline on management of dental patients with special health care needs. *Pediatr Dent*. 2012;34:160-165.
21. American Academy on Pediatric Dentistry Council on Clinical Affairs. Policy on the dental home. *Pediatr Dent*. 2008;30:22-23.

22. Casamassimo PS, Seale NS, Ruehs K. General dentists' perceptions of educational and treatment issues affecting access to care for children with special health care needs. *J Dent Educ.* 2004;68:23-28.
23. Nowak AJ. Patients with special health care needs in pediatric dental practices. *Pediatr Dent.* 2002;24:227-228.
24. Weil TN, Inglehart MR. Dental education and dentists' attitudes and behavior concerning patients with autism. *J Dent Educ.* 2010;74:1294-1307.
25. Sheller B. Systems issues workshop report. *Pediatr Dent.* 2007;29:150-152.
26. Fenton SJ, Hood H, Holder M, May PB, Jr, Mouradian WE. The American Academy of Developmental Medicine and Dentistry: eliminating health disparities for individuals with mental retardation and other developmental disabilities. *J Dent Educ.* 2003;67:1337-1344.
27. Glassman P, Folse G. Financing oral health services for people with special needs: projecting national expenditures. *J Calif Dent Assoc.* 2005;33:731-740.
28. Slavkin HC, Baum BJ. Relationship of dental and oral pathology to systemic illness. *JAMA.* 2000;284:1215-1217.
29. American Dental Association Commission on Dental Accreditation. Clinical Sciences Standard 2-26 in Accreditation Standards for Dental Education Programs. Available at:

http://www.ada.org/sections/educationAndCareers/pdfs/current_predoc.pdf. Accessed August 2, 2012.

30. Dao LP, Zwetchkenbaum S, Inglehart MR. General dentists and special needs patients: does dental education matter? *J Dent Educ*. 2005;69:1107-1115.

31. Thierer T, Meyerowitz C. Education of dentists in the treatment of patients with special needs. *J Calif Dent Assoc*. 2005;33:723-729.

32. Glassman P, Caputo A, Dougherty N, et al. Special Care Dentistry Association consensus statement on sedation, anesthesia, and alternative techniques for people with special needs. *Spec Care Dentist*. 2009;29:2-8; quiz 67-8.

33. American Dental Education Association. ADEA policy statements. C. Curriculum, Curriculum Content, No. 11. In ADEA 2006 House of Delegates manual. *J Dent Educ*. 2006;70 (6):744-56.

34. Rouleau T, Harrington A, Brennan M, et al. Receipt of dental care and barriers encountered by persons with disabilities. *Spec Care Dentist*. 2011;31:63-67.

35. Wolff AJ, Waldman HB, Milano M, Perlman SP. Dental students' experiences with and attitudes toward people with mental retardation. *J Am Dent Assoc*. 2004;135:353-357.

36. Baumeister SE, Davidson PL, Carreon DC, Nakazono TT, Gutierrez JJ, Andersen RM. What influences dental students to serve special care patients? *Spec Care Dentist*. 2007;27:15-22.

37. Sanders C, Kleinert HL, Boyd SE, Herren C, Theiss L, Mink J. Virtual patient instruction for dental students: can it improve dental care access for persons with special needs? *Spec Care Dentist*. 2008;28:205-213.

Table 1. Distribution of Demographics

	Count	%
Level of Training		
Dental Student	31	38.8
General Dentist	14	17.5
Pediatric Dentist	35	43.8
Age in Years		
under 30	29	36.3
30-39	17	21.3
40-49	14	17.5
50-59	7	8.75
60-69	12	15.0
75 or older	1	1.3
Gender		
Male	38	47.5
Female	42	52.5
Race*		
White/Caucasian	56	70.0
Black/African		
American	6	7.5
Hispanic	3	3.8
Asian/Pacific		
Islander	8	10.0
Arabic/Middle		
Eastern	6	7.5
Native American	0	0.0
Other	1	1.3
Hours of CE treating PSHCN		
0	21	26.3
1-10	25	31.3
11-20	10	12.5
21-30	3	3.75
30+	21	26.3

Abbreviations: CE = Continuing Education, PSHCN = Patients with Special Healthcare Needs

*Race percentage calculated from number of responses for the question instead of number of responses for survey

Table 2. Professional Attitudes, Percentage Yes

	Practitioner Type			P-value
	Dental Student	General Dentist	Pediatric Dentist	
Routinely see or will see PSHCN in their office	80.7	78.6	100.0*	0.0190 *
Have an interest in treating PSHCN	90.3	78.6	91.4	0.4104
Confident in treating PSHCN	22.6	69.2	94.3	<.0001 *
Feel it is their mission to treat PSHCN	93.6	76.9	97.1	0.0603

*significantly different by Chi-Square, $p < .05$. Group differences identified using Cell Chi Squares. Means with different superscripts were significantly different.

Table 3. Agreement on Motivational Factors by Practitioner Type, Mean (SE)

	Practitioner Type			P-value
	Dental Student	General Dentist	Pediatric Dentist	
Dentist Factors				
Clinical Training/Experience	1.50 (0.16) ^A	0.62 (0.24) ^B	0.03 (0.15) ^B	<.0001 *
Didactic Training/Experience	1.13 (0.18) ^A	0.62 (0.27) ^{A,B}	-0.06 (0.17) ^B	<.0001 *
Training/Experience in Behavior Management	1.10 (0.19) ^A	0.69 (0.28) ^{A,B}	0.03 (0.17) ^B	0.0003 *
Experience Consulting with Medical Colleagues	0.77 (0.18)	0.77 (0.27)	0.47 (0.16)	0.4076
Experience with Oral Conscious Sedation	1.03 (0.16) ^A	0.69 (0.24) ^A	-0.47 (0.15) ^B	<.0001 *
Patient Factors				
Complexity of Patient's Medical Condition	1.23 (0.20) ^A	0.62 (0.31) ^{A,B}	0.18 (0.19) ^B	0.0014 *
Cooperation Level of Patient	1.13 (0.20) ^A	0.85 (0.30) ^A	-0.24 (0.18) ^B	<.0001 *
Structural Factors				
Amount of Reimbursement	-0.20 (0.19)	-0.23 (0.28)	-0.58 (0.18)	0.3007
Amount of Time Necessary for Treatment	0.40 (0.19) ^A	0.38 (0.28) ^A	-0.47 (0.17) ^B	0.0018 *
Hospital Privileges	0.63 (0.18) ^A	-0.38 (0.28) ^{A,B}	0.24 (0.18) ^B	0.0121 *
Accessible and Comfortable Facilities	1.07 (0.18) ^A	0.46 (0.27) ^{A,B}	0.21 (0.17) ^B	0.0034 *
Adequately Trained Staff	1.43 (0.17) ^A	0.77 (0.25) ^{A,B}	0.30 (0.17) ^B	<.0001 *

Abbreviations: SE = Standard Error

Agreement was scored using Strongly Agree = 2, Agree = 1, Neither Agree nor Disagree = 0, Disagree = -1, Strongly Disagree = -2

*significantly different by ANOVA, $p < .05$. Group differences were identified using Tukey's HSD. Means with different superscripts were significantly different.

Table 4. Agreement on Motivational Factors by Hours of Continuing Education, Mean (SE)

	Hours of Continuing Education					P-value
	0	1-10	11-20	21-30	30+	
Dentist Factors						
Clinical Training/Experience	1.42 (0.19) ^A	1.13 (0.18) ^{A,B}	0.40 (0.28) ^{B,C}	-0.33 (0.50) ^{B,C}	-0.25 (0.19) ^C	<.0001*
Didactic Training/Experience	1.10 (0.21) ^A	0.87 (0.20) ^A	0.30 (0.31) ^{A,B}	-0.33 (0.56) ^{A,B}	-0.25 (0.22) ^B	0.0002*
Training/Experience in Behavior Management	1.14 (0.22) ^A	0.91 (0.21) ^A	0.30 (0.31) ^{A,B}	-0.33 (0.57) ^{A,B}	-0.20 (0.22) ^B	0.0002*
Experience Consulting with Medical Colleagues	0.67 (0.21)	0.74 (0.20)	0.30 (0.31)	0.67 (0.56)	0.65 (0.22)	0.8304
Experience with Oral Conscious Sedation	0.86 (0.21) ^A	0.74 (0.20) ^A	0.00 (0.30) ^{A,B}	-0.67 (0.56) ^{A,B}	-0.45 (0.22) ^B	<.0001*
Patient Factors						
Complexity of Patient's Medical Condition	1.05 (0.25) ^A	1.00 (0.24) ^{A,B}	0.60 (0.36) ^{A,B}	-0.33 (0.66) ^{A,B}	0.05 (0.25) ^B	0.0192*
Cooperation Level of Patient	1.10 (0.23) ^A	0.83 (0.22) ^{A,B}	0.70 (0.34) ^{A,B,C}	-1.00 (0.62) ^{B,C}	-0.45 (0.24) ^C	<.0001*
Structural Factors						
Amount of Reimbursement	-0.43 (0.21)	-0.13 (0.20)	0.20 (0.31)	-1.00 (0.57)	-0.79 (0.23)	0.0599
Amount of Time Necessary for Treatment	0.33 (0.22) ^A	0.26 (0.21) ^A	0.50 (0.32) ^A	-1.00 (0.58) ^{A,B}	-0.70 (0.22) ^B	0.0017*
Hospital Privileges	0.43 (0.23)	0.43 (0.22)	0.00 (0.36)	0.00 (0.62)	0.15 (0.24)	0.7366*
Accessible and Comfortable Facilities	1.05 (0.21) ^A	0.87 (0.20) ^{A,B}	0.30 (0.31) ^{A,B}	-0.67 (0.56) ^B	0.10 (0.22) ^B	0.0032*
Adequately Trained Staff	1.48 (0.20) ^A	0.96 (0.19) ^{A,B}	0.38 (0.33) ^B	1.00 (0.54) ^{A,B}	0.17 (0.22) ^B	0.0007*

Abbreviations: SE = Standard Error

Agreement was scored using Strongly Agree = 2, Agree = 1, Neither Agree nor Disagree = 0, Disagree = -1, Strongly Disagree = -2

*significantly different by ANOVA, $p < .05$. Group differences were identified using Tukey's HSD. Means with different superscripts were significantly different.

Table 5. Agreement on Motivational Factors by Age, Mean (SE)

	Age					P-value
	under 30	30-39	40-49	50-59	60-69	
Dentist Factors						
Clinical Training/Experience	1.46 (0.17) ^A	0.65 (0.22) ^B	0.46 (0.25) ^B	-0.43 (0.34) ^B	-0.08 (0.26) ^B	<.0001 *
Didactic Training/Experience	1.07 (0.19) ^A	0.59 (0.24) ^{A,B}	0.31 (0.28) ^{A,B}	-0.43 (0.38) ^B	-0.08 (0.29) ^B	0.0016 *
Training/Experience in Behavior Management	1.04 (0.19) ^A	0.76 (0.25) ^{A,B}	0.46 (0.28) ^{A,B}	-0.43 (0.38) ^B	-0.17 (0.29) ^B	0.0015 *
Experience Consulting with Medical Colleagues	0.75 (0.18)	0.53 (0.23)	0.38 (0.26)	1.29 (0.36)	0.42 (0.27)	0.2557
Experience with Oral Conscious Sedation	1.00 (0.18) ^A	0.06 (0.23) ^B	0.31 (0.26) ^{A,B}	-0.86 (0.36) ^B	-0.25 (0.27) ^B	<.0001 *
Patient Factors						
Complexity of Patient's Medical Condition	1.21 (0.20) ^A	0.76 (0.26) ^{A,B}	0.54 (0.30) ^{A,B,C}	-0.71 (0.41) ^C	0.17 (0.31) ^{B,C}	0.0008 *
Cooperation Level of Patient	1.07 (0.21) ^A	0.47 (0.27) ^A	0.46 (0.31) ^A	-1.14 (0.42) ^B	0.08 (0.32) ^{A,B}	0.0002 *
Structural Factors						
Amount of Reimbursement	-0.21 (0.19)	-0.41 (0.25)	-0.08 (0.28)	-0.83 (0.41)	-0.75 (0.29)	0.3266
Amount of Time Necessary for Treatment	0.39 (0.19) ^A	0.29 (0.24) ^{A,B}	0.00 (0.28) ^{A,B,C}	-1.14 (0.38) ^C	-0.58 (0.29) ^{B,C}	0.0019 *
Hospital Privileges	0.61 (0.20)	0.12 (0.26)	0.15 (0.29)	-0.14 (0.40)	0.18 (0.32)	0.3497
Accessible and Comfortable Facilities	1.04 (0.19) ^A	0.47 (0.24) ^{A,B}	0.69 (0.27) ^{A,B}	-0.43 (0.37) ^B	0.17 (0.28) ^{A,B}	0.0056 *
Adequately Trained Staff	1.39 (0.17) ^A	0.69 (0.23) ^{A,B}	0.83 (0.27) ^{A,B}	-0.29 (0.35) ^B	0.40 (0.29) ^B	0.0004 *

Abbreviations: SE = Standard Error

Agreement was scored using Strongly Agree = 2, Agree = 1, Neither Agree nor Disagree = 0, Disagree = -1, Strongly Disagree = -2

*significantly different by ANOVA, p<.05. Group differences were identified using Tukey's HSD. Means with different superscripts were significantly different.

Table 6. Agreement on Motivational Factors by Gender, Mean (SE)

	Gender		P-value
	Male	Female	
Dentist Factors			
Clinical Training/Experience	0.38 (0.17)	1.00 (0.17)	0.0123 *
Didactic Training/Experience	0.30 (0.18)	0.73 (0.17)	0.0906
Training/Experience in Behavior Management	0.30 (0.18)	0.80 (0.17)	0.0480 *
Experience Consulting with Medical Colleagues	0.51 (0.16)	0.75 (0.15)	0.2823
Experience with Oral Conscious Sedation	0.14 (0.18)	0.48 (0.17)	0.1786
Patient Factors			
Complexity of Patient's Medical Condition	0.35 (0.19)	0.95 (0.18)	0.0276 *
Cooperation Level of Patient	0.30 (0.20)	0.65 (0.20)	0.2153
Structural Factors			
Amount of Reimbursement	-0.28 (0.17)	-0.45 (0.16)	0.4651
Amount of Time Necessary for Treatment	-0.08 (0.18)	0.10 (0.17)	0.4718
Hospital Privileges	0.44 (0.18)	0.15 (0.17)	0.3723
Accessible and Comfortable Facilities	0.41 (0.17)	0.75 (0.17)	0.1537
Adequately Trained Staff	0.69 (0.17)	1.00 (0.17)	0.1976

Abbreviations: SE = Standard Error

Agreement was scored using Strongly Agree = 2, Agree = 1, Neither Agree nor Disagree = 0,

Disagree = -1, Strongly Disagree = -2

*significantly different by ANOVA, $p < .05$

Table 7. Repeated Measure Mixed Model Analysis of Variance Results

Source	Num DF	F Value	P-value
Motivational Factor	11	3.1	0.0026 *
Level of training	2	4.0	0.0231 *
Motivational Factor* Level of Training	22	2.4	0.0018 *
Age	4	1.7	0.1574
Motivational Factor*Age	44	0.9	0.6432
Gender	1	0.5	0.4763
Motivational Factor*Gender	11	0.8	0.6122
Hours of Continuing Education	4	1.2	0.3102
Motivational Factor*Hours of Continuing Education	44	0.9	0.7183

*statistically significant ($p < .05$)

Table 8. Method of Treatment, Percentage

	Practitioner Type			P-value
	Dental student	General Dentist	Pediatric Dentist	
Minimally Complex Case				
In Chair	3.6	38.5 *	5.9	0.0005*
Nitrous Oxide	60.7	30.8	50.0	
Oral Sedation	7.1	0.0	11.8	
Hospital	3.6 *	7.7	29.4 *	
Refer	25.0 *	23.1	2.9 *	
Moderately Complex Case				
In Chair	25.0 *	92.3 *	67.7	0.0004*
Nitrous Oxide	57.1 *	7.7	11.8 *	
Oral Sedation	7.1	0.0	2.9	
Hospital	3.6	0.0	14.7	
Refer	7.1	0.0	2.9	
Highly Complex Case				
In Chair	58.6	92.3 *	23.5 *	<.0001*
Nitrous Oxide	41.4	0.0 *	61.8 *	
Oral Sedation	0.0	0.0	14.7 *	
Hospital	0.0	7.7 *	0.0	
Refer	0.0	0.0	0.0	

*significantly different by Chi-Square, $p < .05$. Group differences identified using Cell Chi Squares. Means with different superscripts were significantly different.

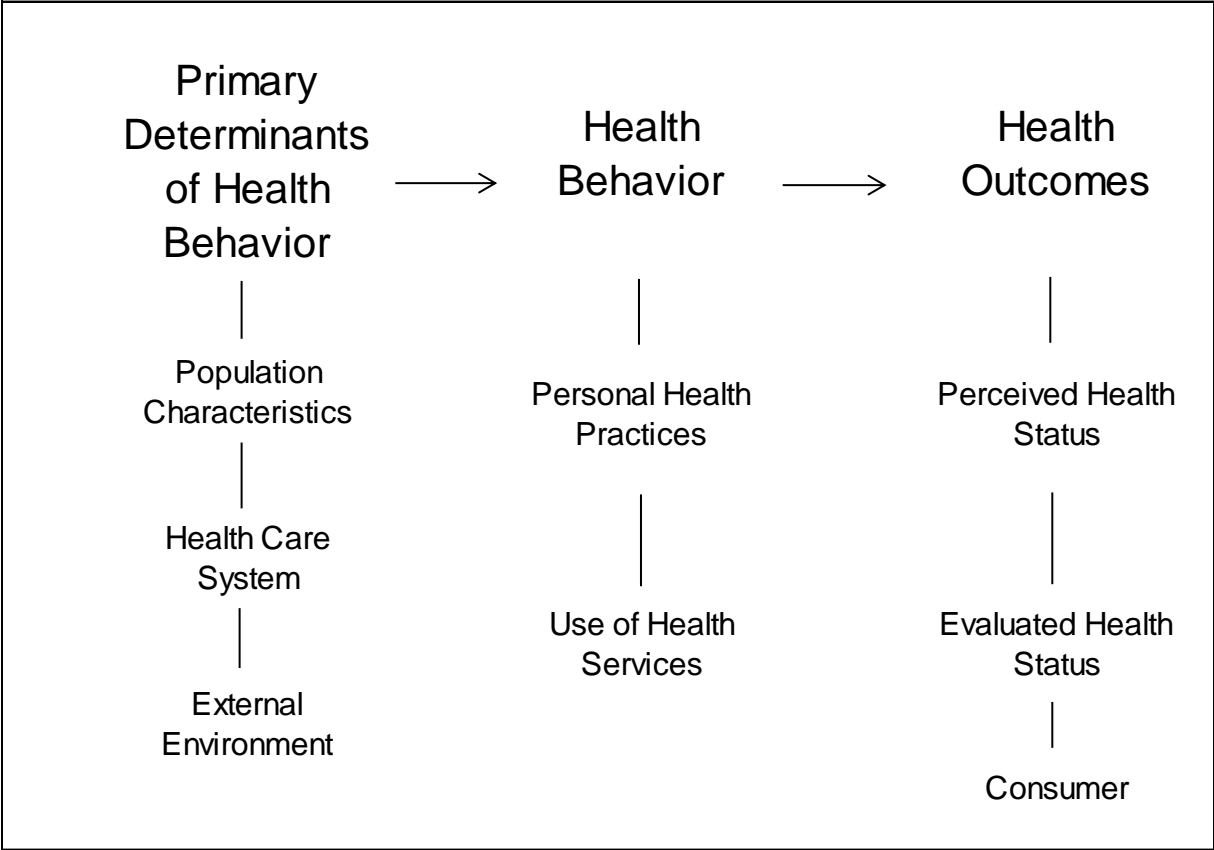


Figure 1. Andersen's Model of Health Care Utilization

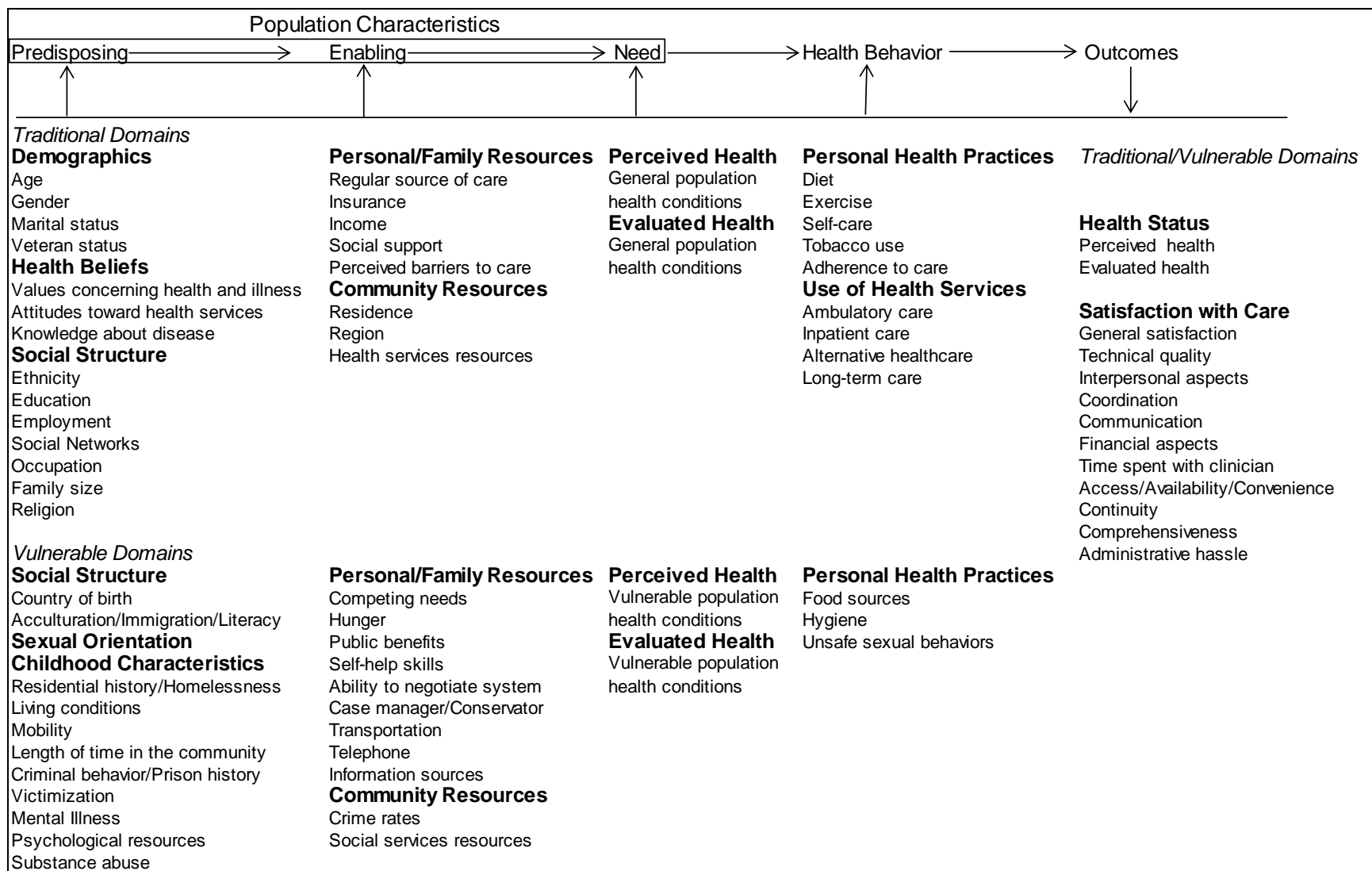


Figure 2. Andersen's Model of Health Care Utilization, modified for Vulnerable Populations

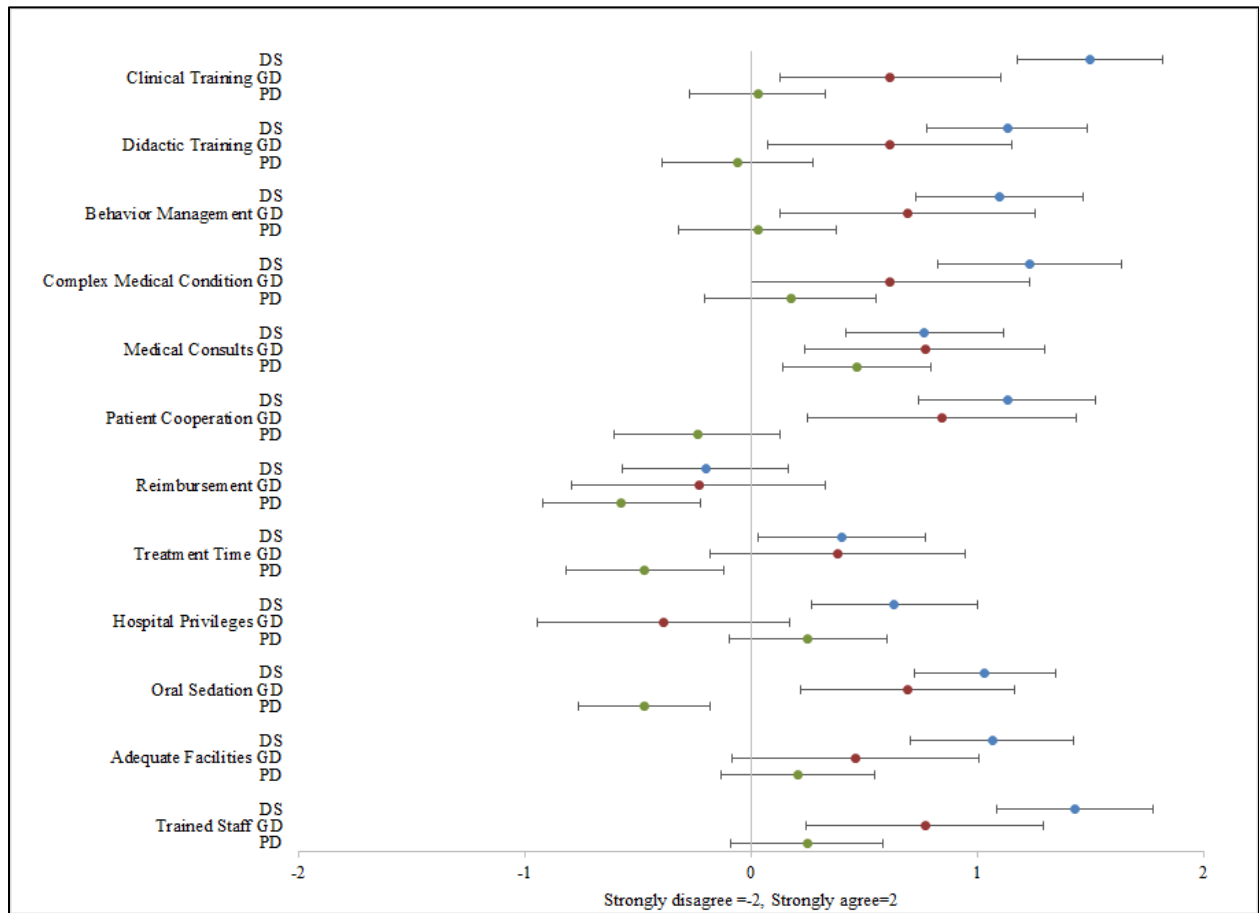


Figure 3. Agreement on Motivational Factors by Practitioner Type

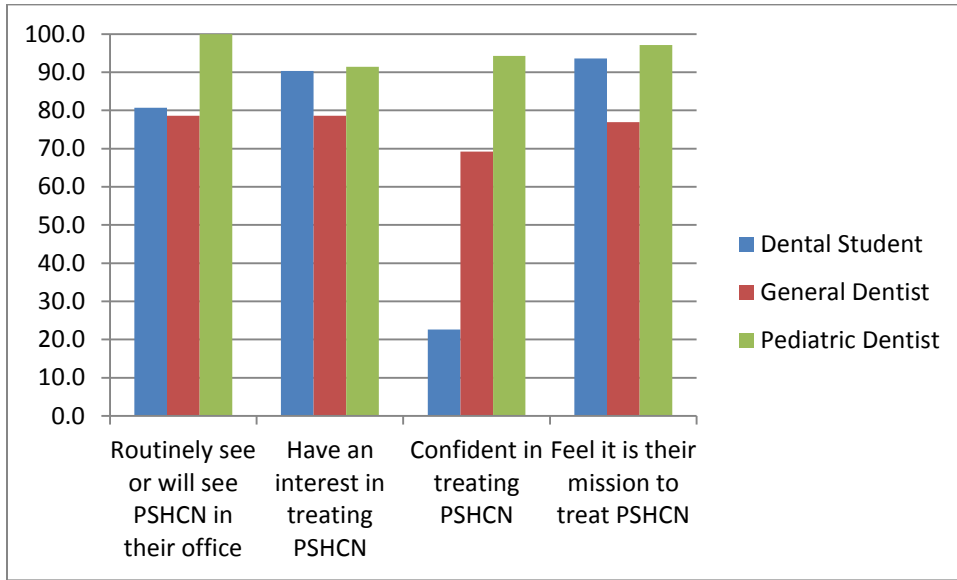
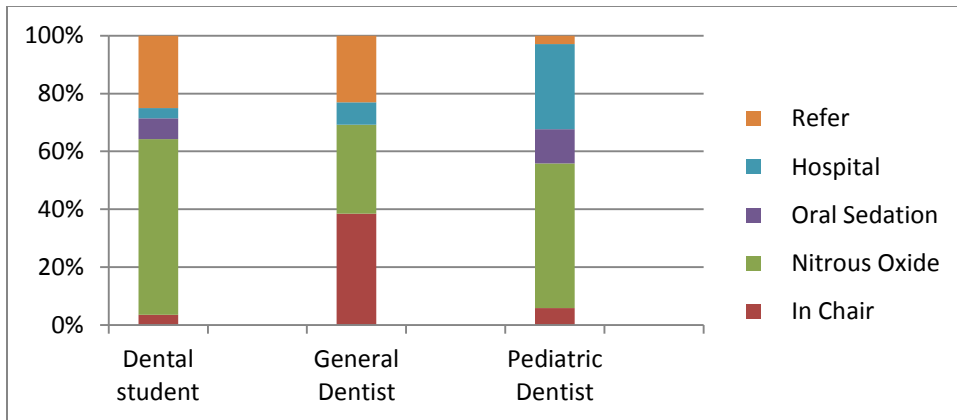
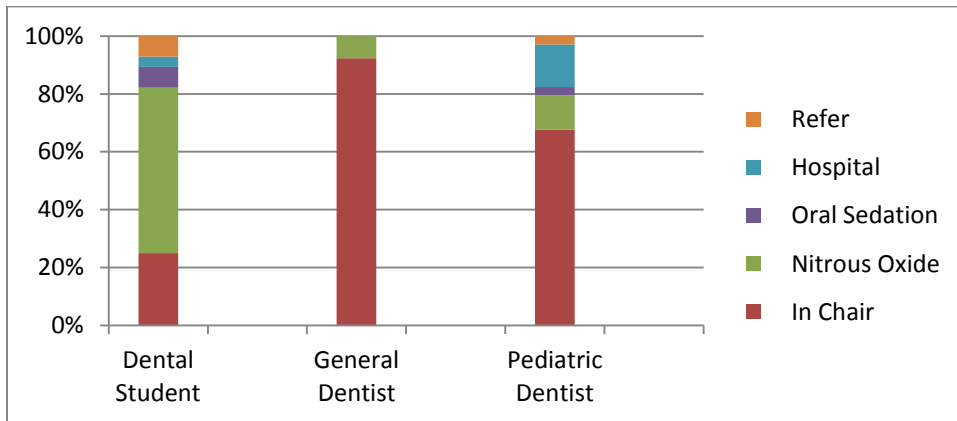


Figure 4. Professional Attitudes by Practitioner Type, Percentage Yes

Minimally Complex Case



Moderately Complex Case



Highly Complex Case

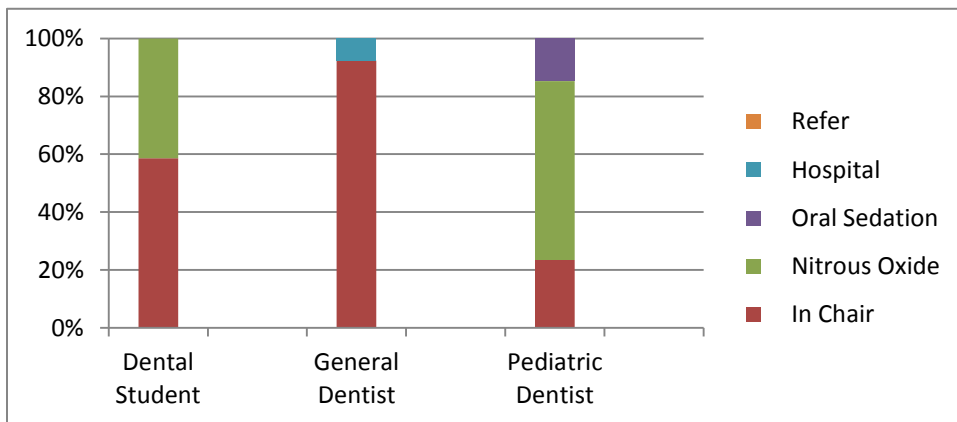


Figure 5. Method of Treatment by Practitioner Type

Appendix

Questionnaire

Section 1: Demographics

1. What is your level of training?
 - a. Dental student
 - b. General dentist → if pick this, prompted to question below
 - i. Did you complete an AEGD/or GPR?
 - a)Yes
 - b)No
 - c. Pediatric dentist
2. What is your age in years? _____
3. What is your gender?
 - a. Female
 - b. Male
4. How many hours of continuing education do you have in special needs education?
 - a. 0
 - b. 1-10
 - c. 11-20
 - d. 21-30
 - e. 30+
5. Please select the race that you most closely identify with.
 - a. White/Caucasian
 - b. Black/African American
 - c. Hispanic
 - d. Asian/Pacific Islander
 - e. Arabic/Middle Eastern
 - f. Native American
 - g. Other:_____

Section 2: Professional Attitudes

1. Do you or will you routinely see any PSHCN in your office?
 - a. Yes
 - b. No
 - i. If yes, how many? _____
2. I have an interest in treating PSHCN.
 - a. Yes
 - b. No
3. I am confident in treating PSHCN.
 - a. Yes
 - b. No
4. It is part of my mission as a dentist to treat PSHCN.
 - a. Yes
 - b. No

Section 3: Special Needs Patients and Motivational Factors

1. I would treat more PSHCN if I had more clinical training/experience with these patients.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree
2. I would treat more PSHCN if I had more didactic training pertaining to these patients.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree
3. I would treat more PSHCN if I had more training/experience in behavior management.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree
4. The complexity of a patient's medical condition is a major factor in whether I treat PSHCN or not.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree
5. The amount of training/experience that I have had in consulting with medical colleagues for patients with complicated medical conditions is a major factor in whether I treat PSHCN or not.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree

6. The cooperation level of a patient in the dental chair is a major factor in whether I treat PSHCN or not.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree

7. The amount I am reimbursed for treatment is a major factor in whether I treat PSHCN or not.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree

8. The amount of time it takes to treat PSHCN is a major factor in whether I treat these patients or not.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree

9. I would be more likely to treat PSHCN if I had hospital privileges.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree
 - f. I already have hospital privileges

10. I would be more likely to treat PSHCN if I had more training/experience with oral conscious sedation.
 - a. Strongly agree
 - b. Agree
 - c. Neither agree nor disagree
 - d. Disagree
 - e. Strongly disagree

11. I would be more likely to treat PSHCN if I had facilities that were highly accessible and comfortable for the provider and the patient.
- Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree
12. I would be more likely to treat PSHCN if my staff were adequately trained in the treatment of these patients.
- Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree
13. I feel comfortable treating PSHCN with the following dentition. Please check all that apply.
- Primary dentition
 - Mixed dentition
 - Permanent dentition
 - None of the above

Section 4: Patient Cases

Please review the following cases and answer the questions associated with each case.

Case 1

Below is a brief patient history. Please review and answer the associated question.



Photo credit:
<http://blog.photoeditinc.com>

Presenting patient

15 year old female

New patient

Chief complaint

Relocated to Virginia recently, needs a cleaning and exam

Medical history

Cerebral palsy, asthma, developmental delay, history of seizures

G-tube fed, receives no food by mouth

Wheelchair bound, unable to be transferred to a dental chair but can be reclined 45 degrees in her wheelchair

Dental history

Last dental appointment was 6 months ago

Radiographs are unable to be obtained

Behavior

Clinical exam able to be obtained with help of 2 assistants and several breaks

Clinical exam

Generalized spacing between teeth

Generalized calculus buildup

No caries found clinically

Medical consult

No antibiotic prophylaxis necessary

No contraindications to dental treatment

Treatment plan

Gross debridement of all teeth

- Attempt to treat in my office without use of any anxiolysis or conscious sedation
- Attempt to treat in my office with use of nitrous oxide anxiolysis
- Attempt to treat in my office with use of conscious sedation
- Treat patient in the hospital under general anesthesia
- Refer to a specialist

Case 2

Below is a brief patient history. Please select how you would treat this patient.



Photo credit:
<http://www.autismspeaks.org>

Presenting patient

19 year old female

New patient

Chief complaint

Referred from pediatrician for comprehensive dental care

Medical history

ADHD

Moderate autism

Dental history

Has not seen dentist in 5 years

2 BWX obtained – see below

Behavior

Cooperative, but cautious

May cooperate for treatment in chair with tell-show-do technique and behavior management

Clinical/Radiographic exam

#15- occlusal caries

Deep pits and fissures -

#2,3,18,19,30,31

Treatment plan

One class 1 composite restoration

Six sealants



- Attempt to treat in my office without use of any anxiolysis or conscious sedation
- Attempt to treat in my office with use of nitrous oxide anxiolysis
- Attempt to treat in my office with use of conscious sedation.
- Treat patient in the hospital under general anesthesia.
- Refer to a specialist

Case 3

Below is a brief patient history. Please select how you would treat this patient.



Photo credit: <http://cdss.ca>

Presenting patient

16 year old male

New patient

Chief complaint

Referred from pediatrician for comprehensive dental care

Medical history

Down Syndrome

Congenital defect of tricuspid valve, no surgical repair required

Dental history

Has not seen a dentist in 3 years

2 BWX obtained – see below

Behavior

Able to complete a clinical exam and obtain radiographs

Patient visibly anxious and cried if anything was uncomfortable

Clinical/Radiographic exam

Four class 2 lesions

Two incipient class 2 lesions

Medical consult

No antibiotic prophylaxis necessary

No contraindications to dental treatment

Treatment plan

Four class 2 composite restorations



- Attempt to treat in my office without use of any anxiolysis or conscious sedation
- Attempt to treat in my office with use of nitrous oxide anxiolysis
- Attempt to treat in my office with use of conscious sedation
- Treat patient in the hospital under general anesthesia
- Refer to a specialist

Vita

Arpi Patel was born on September 22, 1986 in Westwood, New Jersey. She moved to Virginia with her family in 1996. She received her Bachelor of Arts in Psychology with a minor in Biology from the University of Virginia in 2007. After deciding to pursue a career in dentistry, she attended University of Maryland Dental School, graduating magna cum laude with a Doctor of Dental Surgery in May 2013. Arpi will complete her Pediatric Dentistry training at Virginia Commonwealth University in June 2015.