

The Well Child Visit: Oral Health Assessment and Guidance

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THESIS

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SG

DEDICATION

This thesis is dedicated to my adorable nephew, Kethan Penumalli. May his first of many dental check-ups be caries free!

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LIST OF ABBREVIATIONS

AAP	American Academy of Pediatrics
AAPD	American Academy of Pediatric Dentistry
CAT	Caries Risk Assessment Tool
CME	Continuing Medical Education
ECC	Early Childhood Caries
PCP	Primary Care Provider
PI	Primary Investigator
SECC	Severe Early Childhood Caries
UIC	University of Illinois at Chicago
UIMCC	University of Illinois Medical Center at Chicago
WCV	Well-Child Visit

SUMMARY

An exit survey and a chart review from similar time periods were conducted to determine what, if any, oral health issues were discussed and documented during pediatric well-child visits at The University of Illinois at Chicago Medical Center. This study focused on children age 6 months to 4 years old. Results from both the survey and chart review were compared and contrasted for similarities and differences.

One hundred surveys and 133 chart reviews were analyzed. Over 80% of both survey and chart review subjects were from ethnic minorities. The population was of low socioeconomic status as a majority of parents identified their primary method of payment to be from governmental insurance.

Diet, oral assessment, and referral for the age 1 dental visit and/or determining establishment of a dental home were the oral health topics most frequently discussed and documented by parents and providers. Fluoride use and placement of fluoride was negligible. Weaning from the bottle and/or sippy cup, juice consumption, teething, identifying if tooth pain was present, and dental injury prevention were discussed and/or documented at varying levels between the survey and chart review. No statistically significant differences between the survey and chart review were noted.

Although more frequently discussed and documented, only 41% of parents could correctly identify the correct timing of the first dental visit. Minimal variance among provider type was noted. Third year residents provided significantly less oral health assessments compared to second year residents. No overall variance related to counseling or recommendations was noted between provider levels. Juice consumption

was discussed more frequently with nurse practitioners. Attending physicians tended to document less bottle/sippy cup discussion and less referrals for the age 1 dental visit.

1. INTRODUCTION

1.1 Background

Dental caries is the most common, chronic disease affecting today's children in the United States. In 2000, the Surgeon General reported that dental caries had become five times more common than asthma and seven times more common than hay fever. More than 40% of children have caries by the time they reach kindergarten (US Department of Health and Human Services, 2000). A tooth is susceptible to caries immediately following eruption. Pediatric care providers (PCPs) are in the best position to encourage preventive measures due to the frequency of well-child visitations and immunizations encountered in the first years of life (AAP, 2000). In the last decade, both the American Academy of Pediatric Dentistry (AAPD) as well as the American Academy of Pediatrics (AAP) made policy shifts changing the recommended timing of the first dental visit. Both the AAP and the AAPD support the first dental visit occurring by 12 months of age (AAPD, 2009; AAP, 2008).

For children, PCPs require limited training in order to perform oral screenings and make timely referrals to oral health care professionals (Rozier et al., 2003; Mouradian et al., 2003; Douglass et al., 2005; Slade et al., 2007; Wawrzyniak et al., 2006; Herndon et al., 2010). Such training programs are being implemented nationwide including in Illinois. Early oral health intervention before one year of age could potentially prevent and/or reduce dental caries risk levels in children. Parents are more likely to schedule an appointment with a dentist if a pediatric health care provider recommends their child seek dental treatment (Biel and Rozier, 2010).

1.2 Statement of the Problem

Early childhood caries is a preventable disease that if unaddressed can lead to problems such as malnutrition, disturbance of growth, disturbance of the developing dentition, acute pain/infection, lack of concentration in schools, and possible psychological impacts such as effects on self-image. Early oral health intervention before one year of age has the potential to prevent or reduce the prevalence of dental caries in children (AAPD, 2008). PCPs are well-positioned to improve the oral health of children because they see infants and young children frequently in the early years of life when prevention is critical and lifelong habits are being established. Unfortunately, many PCPs cite lack of appropriate training to implement proper screenings and referrals (Lewis et al., 2000; Krol, 2004; de la Cruz et al., 2004; Caspary et al., 2008; Close et al., 2010). Limited data is available to the scope and practice of oral health as part of the routine history and physical practiced by PCPs.

1.3 Purpose of the Study

The objective of this study was to determine what topics related to oral health were being discussed and documented during well-child visits in children age 6 months to 4 years old. Both a survey and chart-review were conducted to determine what, if any, topics were mentioned as documented by pediatric health care providers and cited by parents.

1.4 Hypotheses

- 1.4.1. A majority of parents will state that oral health related to assessment, counseling, and recommendations were provided during the well-child visit.
- 1.4.2. A majority of parents will report being told of the age 1 dental visit.

1.4.3. Providers will under-report their oral health recommendations in documentation when compared to parents' responses.

1.4.4. Parent responses will vary based on the type of health care provider performing the well-child visit.

2. REVIEW OF LITERATURE

2.1 Early Childhood Caries

Caries is a plaque-induced acid demineralization of dental hard tissue mediated by saliva. Early Childhood Caries is the presence of one or more decayed, missing, or filled surface in a child age 71 months or younger. Severe Early Childhood Caries is the presence of any caries on the smooth surface of a primary tooth on a child less than three years of age or from ages 3-5 having any decayed, missing, or filled tooth surfaces greater than or equal to the child's age (AAPD, 2008).

Dental caries presents in all socioeconomic classes but tends to be more prominent in children of the lowest socioeconomic class. (Rozier et al., 2003; Lewis et al., 2000; Mouradian et al., 2000; General Accounting Office, 2005).

2.2 Policies on Infant Oral Health Care

The Guideline on Infant Oral Health Care supported by both the AAPD and AAP recommends that all infants have an oral health risk assessment completed by a qualified health care provider by six months of age and no later than one year of age. This assessment should include use of the Caries Risk Assessment Tool (CAT) to provide anticipatory guidance to parents and caregivers. Both the AAPD and AAP recommend parents establish a dental home no later than 12 months of age (AAPD, 2009; AAP 2008).

2.3 Rationale for the One Year Visit

Caries is initiated by the micro-organism *Mutans Streptococci* (MS). Traditionally, MS colonizes infants with the eruption of the primary dentition, since eruption provides a non-shedding surface for colonization (Berkowitz, 2006). This can

take place from age 6 months to 30 months. The most common source of infection with MS is from mother to child, which is known as vertical transmission. Horizontal transmission may also occur from family members or other caregivers to the child. Recently, studies have found MS colonies in pre-dentate infants. Thus, early intervention is necessary in decreasing caries risk in the pediatric population.

In 2004, Savage et al. published a longitudinal cohort study looking at the effects of early preventive dental visits on subsequent utilization and costs of dental services among pre-school aged children. The study was aimed at children in North Carolina who were continuously enrolled in Medicaid from birth to age 5. The study determined that those children who had their first preventive dental visit by age 1 were more likely to have subsequent preventive visits, but were not more likely to have subsequent restorative or emergency visits. Children who had their first preventive dental visit by age 2 or 3 were more likely to have subsequent preventive, restorative, and emergency visits. The average dentally related costs were significantly less for children who received earlier preventive care (Savage et al., 2004).

Prior to 2003, the AAP recommended that all dental referrals occur at the age of 3 (AAP, 2000). The unfortunate consequence of waiting until a patient was 3 years old was that children were more likely to already have caries and at many times would require treatment under sedation or general anesthesia due to the extent of treatment needed. These treatment modalities have their own inherent risks and could be avoided with earlier dental visits as a means of prevention.

In 2003, the AAP changed their recommendation so that individuals who were deemed to be at increased risk were directed to establish a dental home six months after

the first tooth erupted or by 1 year of age (AAP, 2003). In 2008, in collaboration with the AAPD, the American Dental Association, and the American Association of Public Health Dentistry, the AAP updated their policy statement on Preventive Oral Health Intervention for Pediatricians to state that “every child should have a dental home established by 1 year of age” (AAP, 2008).

2.4 Anticipatory Guidance

Anticipatory guidance should be provided by healthcare providers to parents and caregivers because dental caries is a preventable disease. The AAPD and AAP endorse anticipatory guidance for the mother/caregiver before and during the colonization process. Caregivers should be counseled on oral hygiene, diet, fluoride, caries removal, delay of colonization, and the use of xylitol chewing gum for the caregiver as ways of decreasing or preventing caries in children. Anticipatory guidance for children age 0-3 years should include counseling on oral hygiene, diet, and fluoride exposure (AAP, 2008, AAPD, 2009).

2.5 Oral Assessment

PCPs routinely examine children as many as 10 or more times in the first 2 years of life to administer immunizations and for well-child visits (AAP, 2000). Thus, PCPs are in a position best to provide patients with an oral health screening, anticipatory guidance, and patient education on oral health. PCPs are expected to perform an oral health risk assessment or screening to determine a patient’s relative risk for caries and refer as appropriate. Pediatricians understand they serve an important role in performing oral assessments and educating families about preventive oral health (Lewis et al., 2000; Lewis et al., 2009). PCPs express interest but seem to lack the necessary training to

ensure proper assessment, counseling, and referral. A study published in 2003 found that PCPs could adequately triage dental needs of young children but that they were not properly screening children for early signs of tooth decay. If they provided the proper screening, PCPs were able to assess the caries-risk of a child and refer to a dentist when needed (Ismail et al., 2003). PCPs report limited previous dental health training in medical school or residency. (Lewis et al, 2000; Caspary et al., 2008; Lewis et al., 2009). However, oral health training during residency could increase pediatrician confidence in promoting oral health (Caspary et al., 2008).

2.6 Caries Risk Assessment Tool

The Caries Risk Assessment Tool (CAT) was adopted by the AAPD to assist health care professionals (dental and non-dental) in assessing risk levels for caries development in infants, children, and adolescents. The CAT does not render a diagnosis but looks at clinical conditions, environmental characteristics, and general health conditions and then helps divide patients into three categories: low risk, moderate risk, high risk (AAPD, 2009). PCPs are expected to use the CAT in order to determine patient risk and appropriately refer (AAPD, 2010).

2.7 Fluoride

Optimal fluoride levels in community water supplies have been shown to be the least expensive method of reducing the occurrence of dental caries (CDC, 2001). PCPs are expected to assess fluoride exposure and provide fluoride supplementation when appropriate. It is important to note that PCPs consider other methods of fluoride exposure with exception to water supply since many other products such as juices and foods also contain fluoride. Clinical trials have confirmed the anti-caries effect of 5%

neutral sodium fluoride or fluoride varnish (Beltran-Aguilar and Goldsteine, 2000). Fluoride varnishes have been shown to have beneficial effects as part of a comprehensive preventive program (Vaiduntam, 2000). PCPs express interest in applying fluoride varnish in their practices (Lewis et al., 2000, Lewis et al., 2009). Certain states have begun Medicaid reimbursements for PCPs applying fluoride varnish. PCP placement of fluoride varnish has been shown to effectively reduce caries-related treatment for children (Pahel et al., 2011).

2.8 Perceived Barriers to Providing Oral Health Screenings

A study published in 2002 reviewed data from the 1999 National Survey of America's Families (NSAF) and reported that overall, 23.4% of children did not meet the AAP's well-child visit recommendations. The study continued to demonstrate that 46.8% of children were not in compliance with the AAPD dental recommendations of seeing a dentist twice a year. 21.1% of children had not been to a dentist at all in the previous year (Yu et al., 2002). With almost a quarter of US children not seeking well-child care from their physicians it is difficult for these providers to monitor their patients' oral health and provide continuing assessments and counseling.

Another study looked at the National Survey of Children's Health in 2003 and found that 28% of reported US children did not have a preventive dental care visit in the previous 12 months. Children who were 5 years and younger were the lowest proportion receiving preventive dental care. Children in states with State Child Health Insurance Program dental coverage and broadest income eligibility had a 24% higher likelihood of a preventive dental visit when compared with children in states with limited or no State Child Health Insurance Program coverage for dental services (Lewis et al., 2007).

Providers may not be in compliance with the 2003 AAP policy, and updated 2008 AAP policy, because they are ill-equipped due to inadequate training in oral health. In 2004, Krol performed a review of then-current medical education guidelines, programs, surveys, and pediatrician experiences in oral health training at the undergraduate, graduate, and continuing medical education levels. The review demonstrated that few programs included oral health training in their curricula and that when surveyed, pediatricians stated that the time spent on oral health education at each level of training was inadequate. A search of The American Association of Medical Colleges' (AAMC's) online Curriculum Directory, classes, courses, and clerkships found no topics related to oral health. Furthermore, a graduate questionnaire distributed by the AAMC to graduating medical students made no mention of oral health in any form (Krol, 2004). These findings could lead recent graduates to view oral health as an educationally less important topic.

Another study demonstrated that in order to increase referral patterns, instructional efforts needed to increase PCP confidence and abilities to correctly identify and refer patients (de la Cruz et al., 2004).

While PCP confidence was considered an important factor, referral environment could be considered more important than providers' knowledge, opinion, or experiences (de la Cruz et al., 2004). PCPs report difficulty in referring uninsured and Medicaid patients to a dental home (Lewis et al., 2000; Lewis et al., 2009).

After limited training in infant oral health, PCPs achieve an adequate level of accuracy in identifying children with cavitated carious lesions; however, providers still tend to under-refer children with evidence of dental disease (Pierce et al., 2002).

Hallas and Shelley reviewed pediatric nurse practitioner (PNP) curricula and training and found that oral health was included in the published core curriculum and their certification process required specific oral health knowledge. PNPs consider oral health to be a routine part of well-child care. Despite these findings, gaps in postgraduate training remain and little data exists to the extent of which current oral health-related educational goals are being achieved. There is no national report on how PNP programs evaluate students' oral health-related clinical ability, to what extent they implement the recommended oral health core curriculum, and how they measure success and failure of curriculum innovations. Furthermore, evaluation of student's skills are solely based on clinical hours rather than specific appraisals of clinical competencies making it unlikely that these evaluations measure the desired educational outcomes (Hallas and Shelley, 2009).

One study reviewed providers' perceived barriers to implementation of oral health assessment and fluoride application following training in the North Carolina based "Into the Mouth of Babes" CME. Providers identified lack of knowledge to be the most frequent barrier prior to enrolling in the program. Following the program, the most frequently reported barrier was difficulty integrating dental procedures into practice routines, followed by difficulty in applying fluoride varnish, resistance among office personnel, and difficulties referring children in need of a dentist. Fluoride application was the most frequently overcome barrier. Nearly 70% of providers were classified as full or partial adopters and took on average 4-7 weeks following training to begin preventive procedures (Close et al., 2010).

Lewis et al. conducted a study among twelve Washington state community-based medical practices regarding the practice of applying fluoride varnish and found that when staff were included in the fluoride varnish decision-making and planning process, the practice was more likely to be successful in implementing fluoride varnish. Furthermore, the application of fluoride varnish provided an opportunity to discuss preventive oral health with families (Lewis et al., 2005).

A study conducted at the University of Illinois at Chicago in 2006 found that substantial proportions of pediatric dentists and pediatricians were not in compliance with AAPD/AAP policies on the timing of the first dental visit. Illinois pediatricians were not following AAP policy on timing and establishment of the dental home. Only 2% of Illinois pediatricians were knowledgeable about the Caries Risk Assessment Tool (CAT) and practice use. Interestingly, 98% reported they were trained to do oral exams/assessments during their professional training (Albert et al., 2008).

2.9 Physician Oral Screening and Referral Practices—The Role of CME

As stated previously, while physicians express interest in taking a more active role in oral health and prevention of caries, studies demonstrate that many feel ill-equipped due to lack of training (Lewis et al.; 2000, Krol, 2004; de la Cruz et al., 2004; Caspary et al., 2008; Lewis et al., 2009; Close et al., 2010). Studies have shown that oral health education programs can improve physicians' knowledge in oral health and encourage placement of fluoride varnishes as well as timely dental referral. Referrals by PCPs lead to an increase in dental visits among young children (Beil and Rozier, 2010).

Infant oral health education programs improve physicians' oral health knowledge and behaviors, particularly regarding the promotion of the age 1 dental visit. Web-based training demonstrates similar success to in-person training (Douglass et al., 2005).

A high proportion of practices that receive oral health continuing medical education (CME) courses appear capable of adopting preventive dental services. Rates of preventive dental services provided in medical offices are not influenced by the type of CME offered to physicians and their staff (Slade et al., 2007). A study that took place at Dartmouth found that after a 2 year oral health curriculum, New Hampshire-Dartmouth faculty and residents were competent with oral health screenings and fluoride varnish application (Wawrzyniak et al., 2006).

Herndon et al. conducted a survey of Florida pediatricians and family physicians and found that oral health training appeared to increase provider confidence in providing recommended oral health practices (Herndon et al., 2010).

The North Carolina oral health curriculum "Into the Mouth of Babes" has been demonstrating that billing for preventive dental visits has steadily increased in medical offices since the program was initiated (Rozier et al., 2003).

Similarly, an Illinois based program "Bright Smiles from Birth," initiated in 2006, has been actively striving to address prevention and management of early childhood caries (ECC). Between May 2006 and March 2007 over 250 practitioners were trained including over 140 pediatric and family medicine residents (Neiderman et al., 2008).

While previous training in traditional medical settings has been inadequate, efforts are being taken to improve medical students', residents', and PCPs' knowledge. These efforts include a recommended increase in oral health education by the American

Association of Medical Colleges, revisions of the current AAFP Commission on Education guidelines, and mandatory requirements on oral health education for accreditation for the Family Medicine residency (Douglass, et al. 2009).

2.10 Primary Care Provider Documentation

Very little data is available in reference to PCP documentation related to oral health. A prospective blinded study conducted at the University of Illinois at Chicago in 2000 demonstrated only 0-15% documentation on any topic related to oral health in patient charts when providers were not prompted. When providers were prompted by adding the word “teeth” into the review of systems portion of the oral cavity assessment, dental health documentation increased significantly to 33-100%, with variance based on provider levels. Attendings provided the most documentation (Soh et al., 2000).

Unfortunately, the previous study did not assess the potential for the provider to discuss dental health topics but fail to document whether it was discussed. Consequently, the current study using both caregiver responses and a chart review will be the first study to look at both types to assess what topics relative to oral health are being discussed and documented.

3. METHODOLOGY

3.1 Study Design

This study was conducted at the University of Illinois at Chicago Pediatric Outpatient Clinic. The Bright Smile from Birth Curriculum was previously offered to all students, residents, and attending faculty as a routine series of lectures consistent with their schedules and was not affiliated with this study. This two-part investigation was conducted by using two forms of data collection. The first method involved a survey distributed to qualifying caretakers following their child's well-child visit. The second method was a chart review conducted at a period two weeks prior to the survey distribution for the purpose of reviewing documentation.

3.1.a. Survey.

Data collection occurred at the University of Illinois Medical Center at Chicago in the Pediatric Outpatient Clinic. At the beginning of each clinic session, the administrative staff provided a list to the primary investigator (PI) of all appointments fitting the inclusion criteria for the day. The inclusion criteria were as follows: a well-child visit qualified if the child did not present for acute care, the child was age 6 months to 4 years old, and the child had no significant special needs. The list of names of the qualifying patients was destroyed at the end of each day.

Following his or her well-child visit, the parent was requested to complete an exit survey. The PI approached the parent in the examination room at the completion of the appointment. The PI reviewed the cover letter with the parent and requested participation. Participation in the study was voluntary. Each participant in the study received a survey questionnaire and was instructed to take a few minutes to complete the questionnaire.

If they did not wish to participate, they were asked to return a blank survey. The survey was anonymous.

3.1.b. Chart Review.

After survey collection was completed, the PI conducted a chart review of 200 randomly selected potential well-child visits of children age 6 months to 4 years old occurring two weeks prior to the survey. The PI was only permitted to access patient charts based on the aforementioned inclusion criteria. A list of all qualifying potential well-child visits was provided to the PI from the Department of Pediatrics. After the PI determined the chart fit the inclusion criteria, the PI recorded which topics were mentioned based on the data extraction sheet. The chart review was anonymous with no identifiers collected. The list of qualifying charts was destroyed immediately following data collection. Providers contributing to the study were to include medical students rotating on the floor, first/second/third year pediatric residents, attending physicians, and pediatric nurse practitioners.

3.2 Survey Development

The survey was developed by the principal investigator and consisted of 34 questions distributed on 4 pages. A number of revisions to the questions and format were made and the final questionnaire was designed and printed. The final instrument consisted of a cover letter and the survey. This final instrument was then translated into Spanish by a pediatric dental resident fluent in Spanish. The end product yielded both an English and Spanish survey with corresponding cover letters. To review the script and surveys please see Appendices A, B and C.

The survey instrument included questions related to demographic information and oral health topics necessitating discussion during a well-child visit. The topics were selected based on the AAPD Guidelines for anticipatory guidance and the Bright Futures curricula provided to Illinois physicians. Demographic information included areas such as gender, race, level of education, age of child, and method of payment. Oral health topics included assessment, counseling, referral patterns to a dental home, diet as related to dental health, fluoride usage and its dental effects, trauma prevention, and oral habits and their dental effects.

3.3 Data Extraction Sheet Development

The Data Extraction Sheet was developed by the principal investigator based on the survey instrument. The extraction sheet was one page and consisted of topics related to oral health and demographics. A number of revisions to the data extraction sheet and format were made and the data extraction sheet was designed and printed. Please see Appendix D.

3.4 IRB Approval

This study was approved by the Institutional Review Board of the University of Illinois at Chicago and was supported by funds from the University of Illinois at Chicago, College of Dentistry, Department of Pediatric Dentistry. See Appendix E.

3.5 Sample Size and Selection of Subjects

The sample population for the survey consisted of all well-child visits fitting the inclusion criteria, within a two week period, at the UIMCC identified by the primary investigator. The target sample size was 100. Qualifying well-child visits (WCVs)

consisted of parents of healthy children age 6 months to 4 years old who did not present for acute care and had no significant special needs.

The chart review (n=200) was conducted for the period two weeks prior to the survey distribution. The primary investigator was the sole person completing the chart review. A chart was selected based on the child's age being between 6 months and 4 years old.

Any lists created to identify qualifying WCVs or charts were destroyed once data collection was completed.

3.6 Data Collection and Response Rates

3.6.a. Survey.

As previously described, the survey package included a cover letter and questionnaire (Appendices B and C). The cover letter was signed by the primary investigator. The surveys were coded in order to ensure all questionnaires were properly accounted for.

100% of parents who were approached agreed to participate in the survey. A total of 110 questionnaires were distributed. Ten surveys were excluded from data analysis because the parent either did not identify the visit as a well-child visit or the patient had considerable special needs. The primary investigator determined the criteria for considerable special needs. Conditions such as asthma were not considered special needs. A total of 100 questionnaires were used for data analysis.

3.6b Chart-Review.

200 charts were randomly selected from a list of potential qualifying visits. 67 charts were excluded from data analysis due to not fitting the aforementioned inclusion criteria. A total of 133 charts qualified for analysis.

3.7 Statistical Analysis

The 100 eligible surveys and 133 chart reviews were included in the data set. The information was coded and entered on the computer in an Excel file by the PI. The data was analyzed using SPSS to obtain descriptive statistics and to compare differences between the survey and chart review.

Descriptive statistics were used to illustrate data from the demographics section. A two-sample t-test was used to compare measurements of interval data such as age. A chi-square test was used to analyze categorical data. The Mann-Whitney-U test was used to analyze rank order data.

4. RESULTS

Table I demonstrates the demographics of both the survey population and those from the chart review.

Greater than 80% of both data sets were identified to be of either Hispanic or African American descent. More Hispanics and Caucasians were included in the survey compared to the chart review. Both studies showed a prevalence of female caretakers presenting to the appointment and an equal distribution of both male and female patients was evident. For the survey, an overwhelming majority of caretakers identified themselves as the parent. Greater than 90% of parents surveyed completed at least a high school diploma. The child's age was greater in the chart review in comparison with the survey. Greater than 80% of surveyed parents identified their primary method of payment to be via governmental insurance (Medicaid). More attending physicians and first year residents were evaluated in the survey compared to the chart review.

TABLE I
DEMOGRAPHICS OF SURVEY AND CHART REVIEW

DEMOGRAPHICS	Survey (n=100)	Chart Review (n=133)
<i>*Race/Ethnicity:</i>		
Caucasian	14% (n=14)	3% (n=4)
African American	55% (n=55)	61% (n=79)
Hispanic	26% (n=26)	28% (n=36)
Asian	2% (n=2)	2% (n=3)
Asian Indian	1% (n=1)	1% (n=1)
Other	0	5% (n=7)
TOTAL	98% (n=98)	98% (n=130)
<i>Gender (Adult)</i>	90% (n=90) Female	84% (n=111) Female
<i>Gender (Child)</i>	50% (n=50) Female	53% (n=70) Female
<i>Relationship to patient:</i>	97% (n=97) Parent	Not assessed
<i>Education Level of Adult :</i>		
Did not complete HS	9% (n=9)	Not Assessed
High School	56% (n=56)	
Technical College	15% (n=15)	
University or College	20% (n=20)	
TOTAL	100% (n=100)	
<i>**Age of Child:</i>		
6-12 months	32% (n=32)	30% (n=40)
1-2 years	48% (n=48)	32% (n=43)
2-3 years	12% (n=12)	8% (n=10)
3-4 years	8% (n=8)	23% (n=30)
4+	0% (n=0)	8% (n=10)
TOTAL	100% (n=100)	100% (n=133)
<i>Method of Payment:</i>		
Governmental Insurance	82% (n=82)	Not Assessed
Commercial Insurance	16% (n=16)	
Self-Pay	1% (n=1)	
TOTAL	99% (n=99)	
<i>***Provider Level:</i>		
Medical Student	1% (n=1)	0
PGY1	28% (n=28)	19% (n=25)
PGY2	16% (n=16)	22% (n=29)
PGY3	28% (n=28)	37% (n=48)

TABLE I
DEMOGRAPHICS OF SURVEY AND CHART REVIEW, Continued

DEMOGRAPHICS	Survey (n=100)	Chart Review (n=133)
Attending MD	20% (n=20)	9% (n=11)
Nurse Practitioner	7% (n=7)	13% (n=17)
TOTAL	100% (n=100)	98% (n=130)

*Likelihood Ratio: More Hispanic and Caucasian answered survey than chart review

($p < 0.05$)

**Mann-Whitney U: Patient age older in chart review ($p < 0.05$)

***Pearson Chi Square: More MDs and PG1s in surveys than chart review ($p < 0.05$)

Table II demonstrates the frequency with which each topic of interest was discussed or documented in the survey or chart review based on percentage. Frequencies differed by data collection method. Only teething and fluoride application showed no significant difference between the survey and chart review when comparing the two data sets.

TABLE II
FREQUENCY OF DISCUSSION OF TOPIC ACCORDING TO EXIT SURVEYS AND
CHART REVIEWS

Topic	Survey	Chart	Significance
Diet	84%	100%	p=0.00
Oral Assessment	72%	89%	p=0.00
Age 1 Visit/Dental Home	40%	82%	p=0.00
Bottle/Sippy Cup	52%	72%	p=0.00
Juice Consumption	66%	36%	p=0.00
Teething	35%	34%	p>0.05
Tooth Pain	29%	6%	p=0.00
Dental Injury	12%	29%	P=0.00
Oral Habits	28%	2%	p=0.00
Fluoride Use	17%	0%	p=0.00
Fluoride Application	3%	1%	p>0.05

Table III compares the rank of frequency with which a topic was discussed according to exit surveys compared with chart reviews. Table III demonstrates that the two methods of data collection resulted in roughly similar rankings of frequency of oral health topic discussion. Both methods are in agreement about which topics were discussed most frequently (among the top 5) and which were discussed least frequently (among the bottom 5). Diet, oral assessment, the age 1 visit/establishing a dental home, bottle/sippy cup usage and juice consumption were more likely to be reviewed. Teething, tooth pain, dental injury, oral habits, and fluoride use were least likely to be reviewed. Frequency of fluoride application was negligible from both the survey and chart review.

TABLE III
RANKING OF FREQUENCY OF TOPIC ACCORDING TO EXIT SURVEYS
COMPARED TO CHART REVIEWS

Topics Discussed/Documented	Survey	Chart
Diet	1	1
Oral Assessment	2	2
Age 1 Visit/Dental Home	5	3
Bottle/Sippy Cup	4	4
Juice Consumption	3	5
Teething	6	6
Tooth Pain	7	8
Dental Injury	10	7
Oral Habits	8	9
Fluoride Use	9	11
Fluoride Application	11	10

The survey assessed seven topics related to oral health. These topics included diet, juice consumption, assessing dental pain, performing an oral assessment, evaluating potential oral habits, fluoride usage, and establishment of a dental home. The number of assessments performed was calculated from the exit surveys. Table IV demonstrates that 53% of providers assessed at least 3 of the 7 mentioned topics. Parents reported only 24% of providers assessed more than half of the topics. Interestingly, parents reported that 4% of providers did not provide any type of oral health assessment during the well-child visit. Only one provider was reported to have assessed all seven topics.

TABLE IV
FREQUENCY WITH WHICH ASSESSMENTS WERE PROVIDED ACCORDING TO
THE EXIT SURVEY

Number of Assessments	n	Valid %	Cumulative %
0	4	4	99
1	20	21	95
2	20	21	74
3	28	29	53
4	12	12	24
5	7	7	12
6	4	4	5
7	1	1	1
Total	96	100	
Missing	4		
TOTAL	100		

The survey assessed if providers gave counseling and/or recommendations for the following nine topics: diet, juice consumption, bottle/sippy cup usage, trauma prevention, oral habits, fluoride usage, oral hygiene practices, teething, and establishment of a dental home. Table V demonstrates that 50% of providers either provided counseling or gave recommendations for at least 4 of the 9 topics. Parents reported that only 37% of providers gave counseling/recommendations for more than half of the issues recommended by the AAPD/Bright Smiles from Birth curricula. Ten percent of providers did not give any counseling or recommendations. Only 4% of providers gave counseling/recommendations for all 9 topics.

TABLE V
FREQUENCY WITH WHICH COUNSELING/RECOMMENDATIONS WERE
PROVIDED ACCORDING TO THE EXIT SURVEY

	n	Valid %	Cumulative %
0	9	10	100
1	6	6	90
2	15	16	84
3	17	18	68
4	13	13	50
5	16	17	37
6	7	7	20
7	8	8	13
8	1	1	5
9	4	4	4
Total	96	100	
Missing	4		
TOTAL	100		

Figure 1 shows that 41% of parents were able to identify the correct timing of the first dental visit. 54% of parents stated that the provider did not discuss the timing of the first dental visit with them.

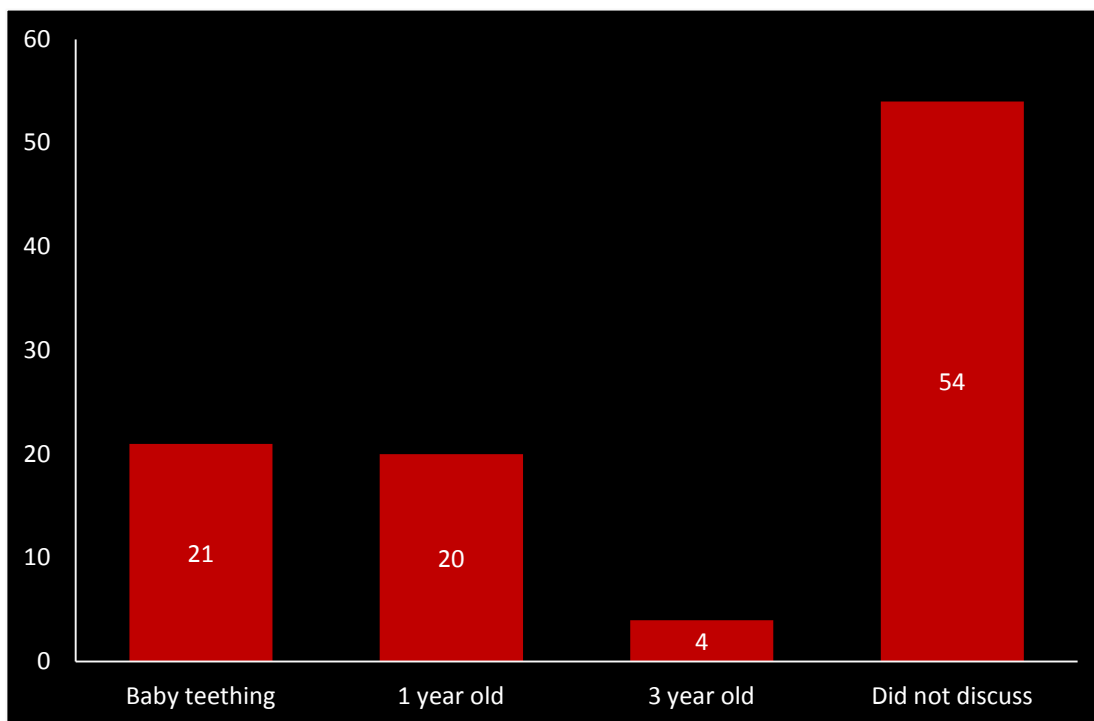


Figure 1: Parents' Report of When the doctor Advised Them to Begin Child Dental Visits

Figure 2 demonstrates that oral health assessments varied by provider, with the third year residents providing significantly fewer assessments compared to the second year residents.

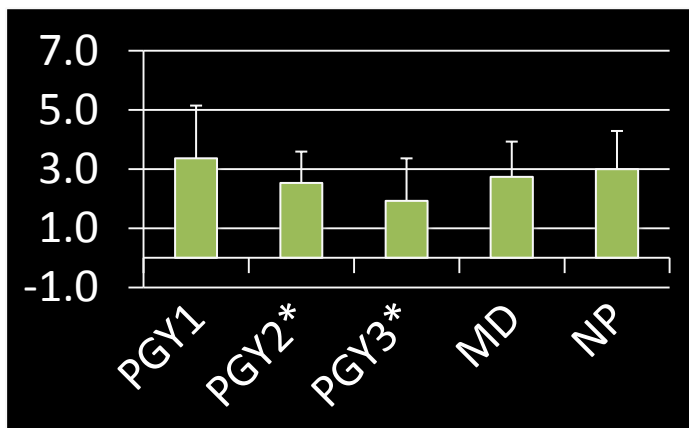


Figure 2: Mean Number of Topics Assessed by Each Provider Level According to the Exit Survey

*Number of assessments completed differed by provider level (ANOVA $p < 0.05$), PGY2 provided more than PGY3 (Dunnet's T post-hoc test)

Figure 3 demonstrates that no difference existed between provider levels in relation to mean number of recommendations and counseling.

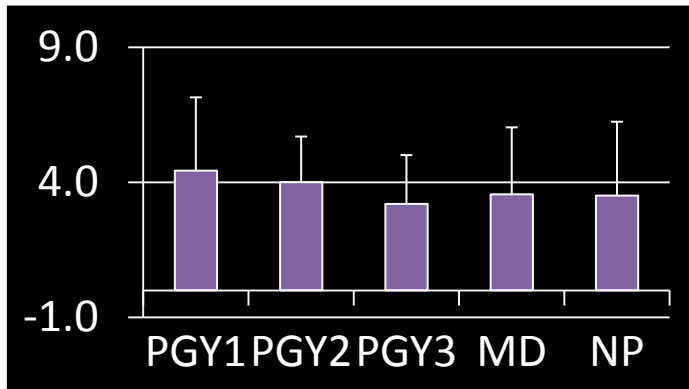


Figure 3: Number of Topics that Received Counseling/Recommendations based on Provider Level, Survey

Counseling/Recommendations did not differ significantly by provider levels (ANOVA $p>0.05$)

Table VI shows how oral health topics related to provider level were reported by the chart review. Diet was documented among all provider levels at the 100% level. Juice consumption was discussed more frequently with nurse practitioners (77%).

Attending physicians tended to document less bottle/sippy cup discussion and less dental recommendations regarding the age 1 dental visit. The second year residents did not document performing oral assessments as much as the other providers but did document performing them 76% of the time.

TABLE VI
FREQUENCY OF DOCUMENTATION OF ORAL HEALTH TOPICS BASED ON
PROVIDER LEVEL

% Documented	PGY1	PGY2	PGY3	Attending MD	NP
Diet	100% (n=25)	100% (n=29)	100% (n=48)	100% (n=11)	100% (n=17)
Juice consumption*	24% (n=6)	35% (n=10)	27% (n=13)	46% (n=5)	77% (n=13)
Bottle/sippy cup*	84% (n=21)	79% (n=23)	73% (n=35)	36% (n=4)	59% (n=10)
Tooth pain	8% (n=2)	7% (n=2)	4% (n=2)	0%	12% (n=2)
Oral assessment*	100% (n=25)	76% (n=22)	90% (n=43)	82% (n=9)	94% (n=16)
Age 1 visit*	88% (n=22)	62% (n=18)	96% (n=46)	55% (n=6)	82% (n=14)
Teething	40% (n=10)	31% (n=9)	38% (n=18)	18% (n=2)	29% (n=5)
Oral Habits	0%	0%	2% (n=1)	9% (n=1)	6% (n=1)
Fluoride use	0%	0%	0%	0%	0%
Fluoride application	0%	0%	2% (n=1)	0%	0%
Dental injury prevention	24% (n=6)	35% (n=10)	33% (n=16)	9% (n=1)	29% (n=5)
Other dental documentation	0%	0%	2% (n=1)	9% (n=1)	0%

* Juice: varied by provider with NP providing more counseling (Pearson chi square: $p < 0.01$)

*Bottle/sippy cup: varied by provider with MDs providing less (Pearson Chi-Square: $p < 0.05$)

*Oral assessment: documented less in PG2 (Likelihood Ratio: $p < 0.05$)

*MDs document less age 1 visit discussion (Pearson Chi Square: $p < 0.005$)

5. DISCUSSION

1.1 Findings of the current study

Over 80% of both the survey and chart review subjects were from ethnic minorities. The survey demonstrated that the population was of low socioeconomic status as a majority of parents identified their primary method of payment to be from governmental insurance. Both of these factors related to demographics place this population at high-risk. Thus, strict compliance with AAPD and AAP policies is warranted.

Assessment, Counseling, and Recommendations

The University of Illinois at Chicago Pediatric Medicine residents and faculty had several lectures based on the Bright Smiles from Birth curricula offered to Illinois providers. Thus, providers have been given the educational tools necessary to provide proper oral assessment, counseling and recommendations. The first hypothesis stating a majority of providers would provide assessments, counseling and recommendations during their well child visits was a likely possibility.

However, only 24% of providers assessed and only 37% of providers gave counseling and/or recommendations for over half of the topics recommended by the AAPD. This was considerably lower than the anticipated 50% in both cases rendering the first hypothesis unsupported. Compared with the study performed by Soh et al. in 2000, however, the findings appear promising. Virtually no documentation related to oral health was provided without prompt when the previous study was performed (Soh, 2000). Ten years since that study was presented, at least some level of assessment, counseling, and recommendation is being provided. This level, however, is not considered optimal.

The Age One Dental Visit

41% of parents correctly identified the timing of the first dental visit while 54% stated that the timing of the first visit was not discussed with them. These results did not vary significantly from 50% leading to acceptance of the null hypothesis. This rejects the presumption that a majority of parents would be informed of the age 1 dental visit. The majority of patients presenting to the University of Illinois Pediatric Outpatient Clinic are high-risk patients based on demographics. Hence, all patients should have an established dental home and parents should be aware of the timing of the first dental visit.

Interestingly, when compared with the chart review, 82% of providers documented recommending the age 1 dental visit or ensuring establishment of a dental home. Perhaps providers are discussing the importance of the age 1 visit and establishing a dental home but parents might have so much information to remember that they may not recollect all that was discussed during their appointment. Another possibility could be providers are documenting that they discussed dental referral but may not have actually discussed it with the parents.

Documentation By Providers

It is possible that providers discuss more relative to oral health than they document. If so, then parents would report more was discussed compared to documented findings in the chart review. Diet, bottle/sippy cup usage, oral assessment, the age 1 dental visit/establishing a dental home, and dental injury prevention were documented more frequently than parents' reports. Juice consumption, tooth pain, oral habits and fluoride use was documented less than parents' reports according to the survey. This partially supports the third hypothesis. However, the purpose of this study was not to

compare the occurrences between the two data sets but rather determine what, if any, similarities existed. No significant difference was found in reports of teething discussion or fluoride application between the survey and the chart review. Both the survey and chart review found that diet, oral assessment, establishment of a dental home, bottle/sippy cup usage, and juice consumption were the most frequently discussed topics related to oral health. A rather distinct difference was noted between the top 5 and bottom 5 topics discussed and their percentages. While it is applauded that oral health discussion and documentation is taking place, it is necessary to determine how to maintain current levels of discussion/documentation relative to frequently discussed topics and how to improve discussion on topics that are not being discussed.

Provider Levels

No significant differences were noted in provider levels regarding recommendations and counseling, however it was interesting to note that parents reported the second year residents provided significantly more assessments than the third year residents. Otherwise, parents did not report a significant difference between other provider levels. In both groups, the first year residents appeared to perform slightly better than the remaining providers, however, this was not statistically significant. An explanation for the findings could stem from first year residents not seeing as many patients per clinic session as third year residents, thus providing them more time to discuss a variety of topics.

From the chart review, it was interesting to note that the nurse practitioners provided significantly more discussion regarding juice consumption. Even more

interesting was the attending physicians' lack of documentation related to weaning from the bottle/sippy cup and the age-1 dental visit/establishment of a dental home.

Lastly, while in the survey second year residents seemed to perform better in regards to assessments, they were least likely to document oral health assessments in their charts.

5.2 Limitations

This study is only able to generalize the findings from this study with a population of similar background. The sample population consisted mostly of those on governmental insurance and of ethnic minority status, which is not characteristic of the population as a whole. All patients were deemed at "high-risk" and thus merit close attention by pediatric personnel to their oral health status. The results obtained from this data would best be characteristic of other urban populations of minority status and/or low income status.

Further limitations include the chart review and survey collection not corresponding to the same individuals. Although from a similar sample, results could not be compared one-on-one for consistency between medical documentation and parents' report. This method was chosen over surveying parents and asking for permission to review their charts because parental refusal of a chart review following his or her visit could potentially introduce bias into this study.

Although this study attempted to address caregivers' recollection as well as provider's documentation, no attempt was made to ask providers what they thought they discussed during well-child visits.

5.3 Future Studies

Future research could expand this study to other outpatient clinics to obtain a more diversified population and larger sample size. Further research could also be conducted surveying primary care providers who have completed continuing education courses regarding this subject matter and how they feel it has impacted the way they practice. Studies could also evaluate referral patterns in relation to access to care for low income and higher income families. Future studies should be conducted to determine how to motivate providers and continue to keep them motivated to aid in oral health and disease prevention. Furthermore, since oral health training was not perceived to be a barrier for this study, research should be conducted to determine what other barriers exist to promoting oral health during well-child care since the findings of this study were not optimal.

5.4 Recommendations

1. Continue to educate providers on the importance of oral health and the impact these providers have on disease prevention.
2. Continue to support lectures and hands-on demonstrations with providers in relation to oral health to boost confidence in discussions with caregivers.
3. Set a standard of quality assessment in relation to oral health to be reviewed on an ongoing basis to ensure effective communication and documentation.
4. Provide further educational programs on oral health assessment, anticipatory guidance, and fluoride varnish application.
5. Review the current pediatric residency curricula to determine competency levels expected of graduates concerning oral health.

6. Increase emphasis to medical colleagues regarding the importance of the age 1 dental visit.

6. CONCLUSIONS

The conclusions of this study are the following:

1. While some level of assessment, counseling, and recommendations are being provided during well-child visits, this level is not optimal.
2. Topics such as diet, bottle/sippy cup usage, and oral assessments are being performed at an acceptable level.
3. Topics related to fluoride and oral habits were least likely to be discussed.
4. Fluoride varnish application was negligible.
5. A majority of parents could not identify the correct timing of the first dental visit although providers documented that it was discussed.
6. Discrepancies were consistently noted between the surveys and chart-review.
7. Limited variation was noted between provider levels.

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APPENDICES

Appendix A: Script

SCRIPT:

Hello, my name is Sabina Gupta, and I am a pediatric dental resident here at the University of Illinois at Chicago. I am interested in learning more about dental health being discussed during doctor visits.

I would like to invite you to help in this research project. If you agree, you will answer some questions about yourself and your child's doctor visit. This survey is anonymous, so we will NOT be able to identify you or your child.

The study is completely voluntary and should take about 5 minutes of your time. Your help in this project is very valuable to us and would help us to serve children and their parents with excellent care and better communication between primary care doctors and pediatric dentists.

If you choose not to answer the questions, please return a blank survey. Please remember that whether you participate or not participate will not affect you or your child's relationship with the clinic.

You may also ask any questions of me right now, or you may call me or my advisor, Dr. Punwani, later at (312) 996-7531.

Thank you for your cooperation in this project!

Appendix B: Survey, English

LETTER TO SUBJECTS

Dear Parent,

My name is Sabina Gupta, and I am a pediatric dental resident at the University of Illinois at Chicago. I am interested in learning more about dental health being discussed during doctor visits.

I would like to invite you to help in this research project. If you agree, you will answer some questions about yourself and your child's doctor visit. This survey is anonymous, so we will NOT be able to identify you or your child.

Your help in this study is completely voluntary and should take about 5 minutes of your time. By answering the questions, you will provide us with helpful information on what doctors say to you during your visit. At the same time, this is a chance for you to better educate yourself about your child's dental health needs.

Your help in this project is very valuable to us and would help us to serve children and their parents with excellent care and better communication between primary care doctors and pediatric dentists.

If you choose not to answer the questions, please return a blank survey. Please remember that whether you choose to participate or not participate will not affect your or your child's relationship with the clinic.

If you have any questions or concerns about this study, please contact the Office for the Protection of Research Subjects of University of Illinois at Chicago at (312) 996-2862. You may also ask any questions of me right now, or you may call me or my advisor, Dr. Punwani, later at (312) 996-7531.

Thank you for your cooperation in this project!

Sabina Gupta, DMD
Second Year Resident
Department of Pediatric Dentistry

Appendix B, Continued

Please circle your answers:

1. What was the purpose of your visit **today**?

- (1) General check-up (well-child visit)
- (2) Sickness
- (3) Follow-up appointment

I. DEMOGRAPHICS:

2. What is **your** gender?

- (1) Male
- (2) Female

3. What is the gender your child?

- (1) Male
- (2) Female

4. What is your relationship with the child?

- (1) Parent
- (2) Relative
- (3) Foster Parent/Guardian
- (4) Other

5. What is the highest level of education **you** have completed?

- (1) Did not complete high school/GED
- (2) High school degree/GED
- (3) Technical college degree (A.A.)
- (4) University/College degree (B.A. or B.S.)

6. How old is your child?

- (1) 6months-1 year
- (2) 1 year - 2 years
- (3) 2 years-3 years
- (4) 3 years-4 years

7. What is your child's ethnic background? (Circle all that apply)

- (1) Caucasian
- (2) African-American
- (3) Hispanic
- (4) Asian
- (5) Asian Indian
- (6) Other

Appendix B, Continued

8. What is your child's method of health insurance?

- (1) Public Aid
- (2) Private Insurance
- (3) No health insurance

9. Does your child have any special needs? If yes, Please list: _____

- (1) Yes
- (2) No

II. APPOINTMENT:

10. Did your doctor discuss your child's diet?

- (1) Yes
- (2) No

11. Did your doctor discuss your child's diet as it relates to dental health?

- (1) Yes
- (2) No

12. Does your child drink juice?

- (1) Yes
- (2) No

13. Did your doctor ask you if your child drinks juice?

- (1) Yes
- (2) No

14. Did the doctor make any recommendations about how much juice your child should be drinking?

- (1) Yes
- (2) No

15. Does your child use a bottle or sippy cup?

- (1) Yes
- (2) No

16. Did your doctor discuss when to take your child off the bottle or sippy cup?

- (1) Yes
- (2) No

17. Does your child have any tooth pain (ex: teething, infection, cavities)?

- (1) Yes
- (2) No

Appendix B, Continued

18. Did the doctor ask whether your child has any tooth pain (ex: teething, infection, cavities)?

- (1) Yes
- (2) No

19. Did your doctor look into your child's mouth at **today's appointment**?

- (1) Yes
- (2) No

20. Did your doctor make any reference to your child's teeth or gums after looking into his or her mouth?

- (1) Yes
- (2) No
- (3) My doctor did not look into my child's mouth today.

21. Has your child ever been to a dentist office?

- (1) Yes
- (2) No

22. Did your doctor address whether your child was seeing a dentist?

- (1) Yes
- (2) No

23. Did your doctor recommend your child begin seeing a dentist (if they are not yet seeing one)?

- (1) Yes
- (2) No
- (3) My child has a dentist

24. When did your doctor tell you to begin taking your child to a dentist?

- (1) When the baby teeth begin coming in
- (2) 1 year old
- (3) 3 years old
- (4) When the adult teeth begin coming in
- (5) My doctor has not discussed this with me

25. Did your doctor discuss the importance of brushing your child's teeth with you?

- (1) Yes
- (2) No

26. Did your doctor talk to you about your child's baby teeth or adult teeth coming in?

- (1) Yes
- (2) No

Appendix B, Continued

27. Did your doctor ask about oral habits (such as thumb sucking or pacifier usage)?

(1) Yes

(2) No

28. Did your doctor discuss how oral habits (such as thumb sucking or pacifier usage) effect your child's teeth?

(1) Yes

(2) No

(3) My child does not suck their thumb or use a pacifier

29. Did your doctor ask whether your child's toothpaste contains fluoride?

(1) Yes

(2) No

30. Did your doctor apply fluoride on your child's teeth during **today's** appointment?

(1) Yes

(2) No

31. Has your doctor *ever* applied fluoride on your child's teeth during an appointment?

(1) Yes

(2) No

32. Did your doctor talk about the importance of your child drinking water with fluoride (city water, bottled water with fluoride)?

(1) Yes

(2) No

33. Did your doctor talk to you about what to do if you child hurts his or her teeth (such as falls, bumping into objects)?

(1) Yes

(2) No

34. Did your doctor talk to you about how to prevent dental related injuries from occurring at home?

(1) Yes

(2) No

Office use only: MS PR1 PR2 PR3 MD RN

Appendix C: Survey, Spanish

CARTA A SUJETOS

Querido Padre/Madre,

Me llamo Sabina Gupta, y soy una residente del Departamento de Odontología Pediátrica de la Universidad de Illinois en Chicago. Estoy interesada en aprender más de lo que los doctores te dicen acerca de la salud dental de su hijo(a) durante su visita.

Me gustaría pedirle su asistencia en este proyecto de investigación. Si usted está de acuerdo, usted contestará algunas preguntas sobre la visita con el doctor de su niño(a). Esta encuesta es anónima, y no podremos identificar a usted o su niño(a).

Su ayuda en este estudio es completamente voluntaria y debe tomarle aproximadamente 5 minutos de su tiempo. Al contestar las preguntas, usted nos proveerá información provechosa de lo que los doctores le dicen durante su visita acerca de la salud dental de su hijo(a). Al mismo tiempo, esta es una oportunidad para que usted pueda educarse mejor sobre las necesidades de salud dentales de su niño(a).

Su ayuda en este proyecto es muy valiosa para nosotros y nos ayudará a servir a niños y a padres con cuidado excelente y mejor comunicación entre doctores pediátricos y dentistas pediátricos.

Si usted decide no contestar las preguntas, por favor devuelva el cuestionario revisión en blanco. Por favor recuerde que si usted decide participar o no participar no afectará la relación de su niño(a) con la clínica.

Si usted tiene alguna pregunta o preocupaciones por este estudio, por favor póngase en contacto con la Oficina para la Protección de Sujetos de Investigación de la Universidad de Illinois en Chicago en (312) 996-2862. Usted también puede hacer cualquier pregunta a mí ahora mismo, o usted puede llamarme a mí o a mi consejero, Dr. Punwani, al numero (312) 996-7531.

Gracias por su cooperación con este proyecto!

Sabina Gupta, DMD
Residente de Segundo Año
Departamento de Odontología Pediátrica

Appendix C, Continued

Por favor circule sus respuestas:

1. Cual fue el objetivo de su visita hoy?

- (1) Chequeo general
- (2) Enfermedad
- (3) Cita de continuación

DATOS DEMOGRÁFICOS:

2. Cual es **su** género?

- (1) masculino
- (2) femenino

3. Cual es el género es de su niño(a)?

- (1) masculino
- (2) femenino

4. Cual es su relación con el niño(a)?

- (1) Padre o Madre
- (2) Pariente
- (3) Guardian
- (4) Otro

5. Cual es el nivel más alto de educación que usted ha completado?

- (1) No complete la escuela secundaria/GED
- (2) Complete de la escuela secundaria/GED
- (3) Complete el colegio técnico (A.A.)
- (4) Complete de la universidad (B.A. o B.S.)

6. Que edad tiene su niño(a)?

- (1) 6 meses-1 año
- (2) 1 año – 2 años
- (3) 2 años – 3 años
- (4) 3 años – 4 años

7. Cual es el grupo étnico de su niño(a)? (Circule todo lo que aplica)

- (1) Caucásico
- (2) Afroamericano
- (3) Hispano
- (4) Asiático
- (5) Indio asiático
- (6) Otro

Appendix C, Continued

8. Que tipo de aseguranza medica tiene su niño(a)?

- (1) Ayuda Pública
- (2) Seguro Privado
- (3) Ningún seguro médico

9. Su niño(a) tiene alguna necesidad especial? Si es sí, Por favor explique:

- (1) Sí
- (2) No

10. Su doctor hablo con usted sobre la dieta de su niño(a)?

- (1) Sí
- (2) No

11. Habló su doctor de la dieta de su niño(a) en relación a la salud dental?

- (1) Sí
- (2) No

12. Su niño(a) toma jugo?

- (1) Sí
- (2) No

13. Su doctor le preguntó si su niño(a) toma jugo?

- (1) Sí
- (2) No

14. El doctor hizo alguna recomendación sobre cuánto jugo su niño(a) debería tomar?

- (1) Sí
- (2) No

15. Su niño(a) toma de un biberón o vaso con tapadera?

- (1) Sí
- (2) No

16. Su doctor le aconsejo cuando retirarle el biberón o el vaso con tapadera?

- (1) Sí
- (2) No

17. Su niño(a) tiene dolor en algunos de sus dientes? (por ejemplo: mudando dientes, infección, caries)?

- (1) Sí
- (2) No

Appendix C, Continued

18. Le pregunto su doctor si su niño(a) tiene algún dolor de diente (ex: mudando dientes, infección, caries)?

- (1) Sí
- (2) No

19. Su doctor le examinó la boca a su niño(a) **en la cita de hoy?**

- (1) Sí
- (2) No

20. Su doctor le hizo alguna referencia a los dientes o encías de su niño(a) después del examen de su boca?

- (1) Sí
- (2) No
- (3) Mi doctor no examinó la boca de mi niño(a) hoy.

21. Su niño(a) a visitado un dentista alguna vez?

- (1) Sí
- (2) No

22. Su doctor le pregunto si su niño(a) veía a un dentista?

- (1) Sí
- (2) No

23. Su doctor le recomendó que comenzara a ver una dentista (si nunca lo han llevado)?

- (1) Sí
- (2) No
- (3) Mi niño(a) tiene una dentista

24. Cuándo le dijo su doctor que comience a llevar su niño(a) al dentista?

- (1) Cuando los dientes de leche comienzan a mudar
- (2) al año
- (3) A los 3 años
- (4) Cuando los dientes adultos comiencen a brotar/salir
- (5) Mi doctor no ha hablado de esto conmigo

25. Su doctor habló sobre la importancia de cepillarle los dientes a su niño(a)?

- (1) Sí
- (2) No

26. Hablo con usted su doctor sobre cuando los dientes de leche o los dientes adultos de su niño(a) van a brotar/salir?

- (1) Sí
- (2) No

Appendix C, Continued

27. Su doctor le pregunto sobre hábitos orales (como chuparse el dedo o uso del chupon)?

(1) Sí

(2) No

28. Su doctor converso sobre como los hábitos orales (como chuparse el dedo o uso del chupon) afectan los dientes?

(1) Sí

(2) No

(3) Mi niño no se chupa el dedo o usa el chupon.

29. Su doctor le pregunto si la pasta de dientes de su niño contiene fluoruro?

(1) Sí

(2) No

30. Su doctor le aplicó fluoruro a los dientes de su niño(a) durante la cita de hoy?

(1) Sí

(2) No

31. Su doctor le a aplicado fluoruro a los dientes de su niño(a) durante una cita?

(1) Sí

(2) No

32. Su doctor le hablo sobre la importancia de que su niño(a) consuma agua potable que contiene fluoruro (agua de ciudad, agua embotellada con el fluoruro)?

(1) Sí

(2) No

33. Su doctor converso que se puede hacer si su niño(a) se golpea sus dientes (como caídas, o tropesarse con objetos)?

(1) Sí

(2) No

34. Su doctor le hablo sobre como prevenir heridas dentales que ocurren en la casa?

(1) Sí

(2) No

Office use only: MS PR1 PR2 PR3 MD RN

Appendix D: Data-Extraction Sheet

Office use only: MS PR1 PR2 PR3 MD RN

Data Extraction Sheet:

Date: _____

Sequence #:_____

DEMOGRAPHICS:

Age: 6-12months 1-2 years 2-3years 3-4years 4+

Well-child visit:	Yes	No
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(If no, do not proceed to complete form)

Race of child: Caucasian AA Hispanic Asian Asian Indian Other

Gender of adult: Male Female

Gender of child: ☐ Male ☐ Female

Special Needs: Yes No

APPOINTMENT:

Was diet discussed?	Yes	No
1. How many times did you discuss diet with your doctor?		
2. How many times did you discuss diet with your dietitian?		
3. How many times did you discuss diet with your nurse?		
4. How many times did you discuss diet with your pharmacist?		
5. How many times did you discuss diet with your physical therapist?		
6. How many times did you discuss diet with your occupational therapist?		
7. How many times did you discuss diet with your social worker?		
8. How many times did you discuss diet with your psychologist?		
9. How many times did you discuss diet with your psychiatrist?		
10. How many times did you discuss diet with your other healthcare provider?		

Was juice consumption discussed?	Yes	No
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Was bottle or sippy cup discussed?	Yes	No
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Was tooth pain documented?	Yes	No
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3	1	1
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Oral Assessment documented?	Yes	No

Were any dental recommendations documented?	Yes	No

Was teething documented?	Yes	No

Were oral habits documented?	Yes	No

Was fluoride use documented?	Yes	No
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Was fluoride applied?	Yes	No
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Was dental injury assessment/prevention documented?	Yes	No

Was any other dental documentation present other than what is listed above?	Yes	No

Appendix D, Continued

If yes to previous question, state documentation:

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AT CHICAGO

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Appendix E, Continued

unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation; and

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

HIPPA Determination: The IRB has determined that the request for a waiver of authorization satisfies the criteria for a waiver of authorization in accordance with 45 CFR Part 164.512.

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

1. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.
2. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.
3. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).
4. Information for Human Subjects UIC Policy requires investigators to provide information about the research protocol to subjects and to obtain their permission prior to their participating in the research. The information about the research protocol should be presented to subjects in writing or orally from a written script. When appropriate, the following information must be provided to all research subjects participating in exempt studies:
 - a. The researchers affiliation; UIC, JBVMAC or other institutions,
 - b. The purpose of the research,

Appendix E, Continued

- c. The extent of the subject's involvement and an explanation of the procedures to be followed,
- d. Whether the information being collected will be used for any purposes other than the proposed research,
- e. A description of the procedures to protect the privacy of subjects and the confidentiality of the research information and data,
- f. Description of any reasonable foreseeable risks,
- g. Description of anticipated benefit,
- h. A statement that participation is voluntary and subjects can refuse to participate or can stop at any time,
- i. A statement that the researcher is available to answer any questions that the subject may have and which includes the name and phone number of the investigator(s).
- j. A statement that the UIC IRB/OPRS or JBVMAC Patient Advocate Office is available if there are questions about subject's rights, which includes the appropriate phone numbers.

Please be sure to:

→ Use your research protocol number (listed above) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact me at (312) 355-2908 or the OPRS office at (312) 996-1711. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Charles W. Hoehne, B.S., C.I.P.
Assistant Director, IRB # 2
Office for the Protection of Research
Subjects

Enclosure(s): None

cc: Indru C. Punwani, Pediatric Dentistry, M/C 850
Phillip Marucha, Dentistry, M/C 621
Privacy Officer, Health Information Management Department, M/C 772

Appendix E, Continued
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AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Exemption Determination
Amendment to Research Protocol – Exempt Review
UIC Amendment # 1

November 23, 2010

Sabina Gupta, DMD
Pediatric Dentistry
801 S. Paulina St.
M/C 850
Chicago, IL 60612
Phone: (312) 996-7532 / Fax: (312) 413-8006

RE: Protocol # 2010-0862
“The Well Child Visit: Oral Health Assessment and Guidance”

Dear Dr. Gupta:

The OPRS staff/members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research, and have determined that your research protocol continues to meet the criteria for exemption as defined in the U. S. Department of Health and Human Services Regulations for the Protection of Human Subjects [(45 CFR 46.101(b)).

The specific exemption categories under 45 CFR 46.101(b) are:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation; and

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

You may now implement the amendment in your research.

Appendix E, Continued

Please note the following information about your approved amendment:

Exemption Period: November 23, 2010 – November 22, 2013

Amendment Approval Date: November 23, 2010

Amendment:

Summary: UIC Amendment #1 dated November 5, 2010 and submitted to OPRS on November 8, 2010 is an investigator-initiated amendment and is the submission of the Spanish-language consent document and survey instrument.

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

5. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.
6. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.
7. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).
8. Information for Human Subjects UIC Policy requires investigators to provide information about the research protocol to subjects and to obtain their permission prior to their participating in the research. The information about the research protocol should be presented to subjects in writing or orally from a written script. When appropriate, the following information must be provided to all research subjects participating in exempt studies:
 - f. The researchers affiliation; UIC, JB VAMC or other institutions,
 - g. The purpose of the research,
 - h. The extent of the subject's involvement and an explanation of the procedures to be followed,
 - i. Whether the information being collected will be used for any purposes other than the proposed research,
 - j. A description of the procedures to protect the privacy of subjects and the

Appendix E, Continued

- confidentiality of the research information and data,
- f. Description of any reasonable foreseeable risks,
- k. Description of anticipated benefit,
- l. A statement that participation is voluntary and subjects can refuse to participate or can stop at any time,
- m. A statement that the researcher is available to answer any questions that the subject may have and which includes the name and phone number of the investigator(s).
- n. A statement that the UIC IRB/OPRS or JB VAMC Patient Advocate Office is available if there are questions about subject's rights, which includes the appropriate phone numbers.

Please be sure to:

→ Use your research protocol number (2010-0862) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact me at (312) 355-2908 or the OPRS office at (312) 996-1711. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Charles W. Hoehne, B.S., C.I.P.
Assistant Director, IRB # 2
Office for the Protection of Research
Subjects

Enclosure(s): None

cc: Indru C. Punwani, Pediatric Dentistry, M/C 850
Phillip Marucha, Dentistry, M/C 850

UNIVERSITY OF ILLINOIS
AT CHICAGO

Exemption Determination
Amendment to Research Protocol – Exempt Review
UIC Amendment # 2

Sabina Gupta, DMD
Pediatric Dentistry
801 S. Paulina St.
M/C 850
Chicago, IL 60612
Phone: (312) 996-7532 / Fax: (312) 413-8006

The OPRS staff/members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research, and have determined that your research protocol continues to meet the criteria for exemption as defined in the U. S. Department of Health and Human Services Regulations for the Protection of Human Subjects [(45 CFR 46.101(b)).

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation; and

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Appendix E, Continued

You may now implement the amendment in your research.

Please note the following information about your approved amendment:

Exemption Period: February 1, 2011 – January 31, 2014

Amendment Approval Date: February 1, 2011

Amendment:

Summary: UIC Amendment #1 dated January 13, 2011 and submitted to OPRS on January 21, 2011 is an investigator-initiated amendment and includes the following: The PI will conduct a chart review (n=200) of well child visits age 6 months to 4 years old occurring from 10/25/2010 - 11/05/2010. This period is prior to when the PI collected the previously approved survey data.

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

9. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.
10. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.
11. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).
12. Information for Human Subjects UIC Policy requires investigators to provide information about the research protocol to subjects and to obtain their permission prior to their participating in the research. The information about the research protocol should be presented to subjects in writing or orally from a written script. When appropriate, the following information must be provided to all research subjects participating in exempt studies:
 - k. The researchers affiliation; UIC, JB VAMC or other institutions,
 - l. The purpose of the research,

Appendix E, Continued

- m. The extent of the subject's involvement and an explanation of the procedures to be followed,
- n. Whether the information being collected will be used for any purposes other than the proposed research,
- o. A description of the procedures to protect the privacy of subjects and the confidentiality of the research information and data,
- f. Description of any reasonable foreseeable risks,
- o. Description of anticipated benefit,
- p. A statement that participation is voluntary and subjects can refuse to participate or can stop at any time,
- q. A statement that the researcher is available to answer any questions that the subject may have and which includes the name and phone number of the investigator(s).
- r. A statement that the UIC IRB/OPRS or JB VAMC Patient Advocate Office is available if there are questions about subject's rights, which includes the appropriate phone numbers.

Please be sure to:

→Use your research protocol number (2010-0862) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact me at (312) 355-2908 or the OPRS office at (312) 996-1711. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Charles W. Hoehne, CIP
Assistant Director, IRB # 2
Office for the Protection of Research
Subjects

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