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Title

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Permalink

<https://escholarship.org/uc/item/76v109xk>

Journal

Pediatric Dentistry, 40(1)

ISSN

0164-1263

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Publication Date

2018

Peer reviewed



Published in final edited form as:

Pediatr Dent. 2018 January 01; 40(1): 30–36.

Importance of content and format of oral health instruction to low-income Mexican immigrant parents: A qualitative study

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Abstract

Purpose—To explore how content and format of children's oral health instruction in the dental clinic is perceived by parents and might affect parents' knowledge and behaviors.

Methods—Thirty low-income Mexican immigrant parents of children age five and under were recruited from dental clinics in 2015-2016. In-person qualitative interviews in Spanish about their children's and their own experiences of dental care and home oral hygiene practices were conducted, digitally recorded, translated, and transcribed. Data analysis involved iteratively reading text data and developing and refining codes to find common themes.

Results—Twenty-five out of 30 parents recalled receiving oral hygiene instruction, and 18 recalled receiving nutrition instruction and were included in analyses. The format and effectiveness of instruction varied. More engaging educational approaches were recalled and described in more detail than less engaging educational approaches. As a result of oral hygiene and nutritional instruction, most parents reported changing their oral hygiene home behaviors for their children, and half aimed to reduce purchasing sugary foods and drinks.

Conclusions—Most parents recalled receiving oral hygiene and nutrition instruction as part of their child's dental visit and reported incorporating the instruction and recommendations they received into their children's home routine.

Keywords

Oral Hygiene; Health Education (Dental); Teach-Back Communication

INTRODUCTION

Dental caries is the most prevalent chronic childhood disease.¹ Early Childhood Caries (ECC) is defined as one or more primary teeth affected due to caries (dental decay) in children under six years of age. This rampant infectious disease destroys the primary dentition² and is a significant public health problem.³ ECC can negatively affect overall health and quality of life including performance in school, ability to learn, and future oral health.^{4,5} Recent data on ECC in the United States^{6,7} show caries prevalence in the primary dentition to be higher in children aged two to eight years of Latino origin than non-Hispanic white or black children.⁶ This is consistent with other literature that has long cited ECC as being disproportionately high in Latino children generally.^{8,9}

Further, oral health professionals and the American Dental Association (ADA) argue for the importance of educating patients to practice proper oral hygiene and nutrition. Latina mothers in particular may benefit from OH education, as they have been shown to have low knowledge relating to the purpose of sealants and brushing.¹⁰ Recent literature shows that knowledge alone is insufficient to foster behavior change. Mothers may not optimally perform caries prevention behaviors even when they have high oral health knowledge.¹¹ Studies have shown Latino parents of young children benefit from receiving information on how caries form and how to properly care for their children's teeth.^{11,12} An added benefit of mothers receiving oral health education is that it significantly improves their own oral health status.¹³ One study found that maternal untreated tooth decay nearly doubled the odds of children having untreated tooth decay, suggesting a link between mother's oral health status and child's oral health status.¹⁴ The ADA and American Academy of Pediatric Dentistry (AAPD) strongly urge practicing dentists to educate parents on proper oral hygiene and nutrition for their children.^{2, 15} AAPD emphasizes the importance of brushing and flossing as major educational content.¹⁵ However, the format or method of communicating the educational information from practitioner to parent in the clinic setting is mentioned in only one guideline, and emphasizes the importance in effective communication between the provider, the child, and the parent, which is essential for successful outcomes in the dental office.¹⁶

Despite the existence of these guidelines, there is little evidence available about if and how dentists are educating the parents of their pediatric dental patients. There are a limited numbers of studies conducted on the impact or effectiveness of oral health instruction for caregivers, and those studies are now rather dated.¹⁷ Especially lacking are studies on this issue with Spanish-speaking groups, including low-income Mexican-immigrant mothers of children aged five and under. The objective of this study was to describe content and format of health education that low-income immigrant Latino parents recall receiving in their children's dental visit, as well as describe caregiver views on the education's impact on their knowledge and home oral health behaviors.

The research objectives guiding this study were:

1. To determine the content (e.g., discussion of tooth brushing technique) and format (e.g., didactic instruction versus skill-building activity) of the oral health (both hygiene and nutrition) instruction parents recall receiving;

2. To understand how low-income Spanish-speaking Mexican immigrant parents feel the content and format of oral health instruction affect their learning of the material; and
3. To understand how these parents see their role in caring for their children's teeth and how they feel their role had been impacted through health instruction at a dental clinic.

METHODS

Ethical Approval

The study was approved by University of California San Francisco Institutional Review Board. Study participants provided informed consent and received a \$30 gift card to compensate for their time and contribution to the study.

Study Site, Population, and Recruitment

Participants were recruited from dental clinics that accept public insurance and have Spanish-speaking staff, day cares and elementary schools, and an immigrant grass roots woman's community-based organization in an urban county in California from 2015-2016. Twenty-three percent of this county's population was Latino.¹⁸

Eligible participants were community members who self-identified as: low-income Mexican immigrant parents/primary caregivers of children age five years or under; as adults aged at least 21 years; and, as Spanish-speakers. Recruitment occurred through in-person invitation by bilingual research staff as well as through flyers and snowball sampling via referrals.

Oral Health and Nutrition education administration

Data Collection—Data from one- to two-hour face-to-face individual interviews conducted in Spanish were digitally recorded, translated into English, and transcribed. The target number of participants was 30. Interviews addressed the oral health and dietary instruction received at their child's local dental clinic. Demographic information was collected for parents and their children. Interviewers specifically asked caregivers to describe their recent experiences at local (US) dental clinics when seeking care for their children.

Data Analysis—Transcribed audio recordings were checked for accuracy and completeness, and interview transcripts were input into the software package ATLAS.ti® for coding.¹⁹ Coding involved iteratively reading text and applying codes. Observed and reported health education was comprised of two major parts: oral hygiene, by which we mean ways to maintain proper health of the oral cavity through brushing and flossing; and, diet or nutrition, by which we mean education on making healthy food choices for both oral and systemic health, as well as, the knowledge of which foods and drinks contribute to caries. Development of codes involved annotating interview transcripts, jotting down analytic thoughts as they occurred, and finding connections across data. A combination of top down (deductive, pre-defined codes derived from existing literature) and bottom up (inductive, emergent) codes were employed, as were a combination of descriptive (e.g.

“brushing routine”) and conceptual (e.g. “perception of oral hygiene instruction”) codes. After initial assignment of codes to text, transcripts were re-read, new themes were identified, new interpretations emerged, and initial codes were refined—categories were assessed and adjusted.²⁰ This process continued until no new codes emerged. All authors consulted regularly to discuss the coding scheme. After coding, summaries were prepared of what participants recalled, what they liked and found most effective, what they didn’t like, and their suggestions on how to improve health instruction for Latino immigrant parents of children age five years and under how to care for their children’s teeth.

Quotes presented in Tables 2 and 3 reflect what the caregivers, or subgroups of caregivers, typically stated in the interviews.

RESULTS

Table 1 details the socio-demographic characteristics of the 27 out of 30 parents/primary caregivers (hereafter ‘parents’) who were interviewed and their children. Three interviews were excluded from the data set because caregivers either did not receive or recall receiving oral hygiene and nutrition instruction in US dental clinics. Most participants were married or partnered women caring for between two or three children. Few of these women had an extensive educational background. Just under one-half (44 percent) were employed. Some had been in the US under a year, whereas most had been here almost 15 years.

Dental professionals and health educators delivered oral health education to participants in individual sessions. The majority of caregivers reported receiving this information in the treatment room while the child was being examined and treated. Two participants reported the class took place while the dental provider was applying fluoride varnish to the child’s teeth, and another reported the dentist giving a quick lesson during examination of the child’s teeth. Participants described two major education topics: oral hygiene instruction and nutritional advice.

Understanding of Oral Hygiene Instruction (OHI)

Caregivers included in the data set received oral hygiene and nutrition advice at local (US) dental clinics. Three out of 30 parents interviewed did not recall receiving OHI. Two received OHI in settings outside the dental clinic. Thus, five interviews were excluded from the OHI data set.

Content—Table 2 contains content that 25 parents recalled receiving in dental clinics. The dominant discussion during oral hygiene instruction was brushing (25/25), followed by flossing (21/25). There was little variation in the messages surrounding brushing. Messages included the importance of brushing twice a day and brushing in gentle, tiny circles. There was variation in advice on flossing.

Format—Parents received OHI in various formats, and through varying levels of engagement as shown in Table 2. For 15 of 25 parents, a dental provider provided OHI through a **verbal only** explanation, two were taught by watching a **video**, and eight received a **demonstration**. Demonstration involved the dental provider showing the parents how to

properly brush or floss, using a model or their child. Further, through the **Teach-Back Method**²¹, a dental provider demonstrated to and provided opportunity to practice for three out of the eight parents receiving a demonstration.

Parents did not distinguish between or express a preference for OHI to be delivered by a dentist, dental assistant, or dental hygienist; they perceived the staff member giving the information as trustworthy and having adequate dental knowledge. Regardless of which provider delivered the messages, the description of education was typically longer from parents who received a demonstration or teach-back when compared with verbal only or video explanations.

Parent's Reception of OHI

Eleven parents specifically reported that they liked or found the information helpful. Seven of the 11 who liked the information had received a demonstration. Two reported they disliked the tone used when the information was presented. Quotes demonstrating variation of how parent's received OHI are included in Table 2.

Impact on Home Behaviors—Nineteen of 25 parents reported changing home behaviors for their children as a result of the OHI they received in the dental clinic. Four specifically reported the impact it had on their own oral health routines.

Nutrition Instruction

Content—Eighteen of 30 parents recalled receiving nutrition education in US dental clinics, the data from these 18 parents are presented below.

Table 3 includes quotes from parents describing the content received during nutrition instruction. All 18 reported understanding which foods and or/drinks should be avoided, though responses greatly varied in depth and length. Nine spoke about how they should make an effort to reduce purchasing sugary foods and drinks, and to instead purchase healthy foods, such as vegetables and fruits.

Format—Table 3 shows the variation in nutrition instruction presented to the parents. Sixteen parents received the information through a verbal explanation. One parent stated she received written information through an informational pamphlet, and another stated she received the information from a display in the dental office. Eleven parents reported that the nutrition education they received at the dental clinic reinforced prior knowledge or knowledge they obtained from WIC classes.

Influence on behavior—Nine parents said the nutrition education they received at the dental clinic influenced their behavior of reducing their children's sugar intake and eating healthier foods.

DISCUSSION

Overall, 25 out of 30 parents recalled receiving OHI in a dental setting. All 25 recalled receiving information on brushing, and 21 of 25 recalled receiving information on flossing.

While the main educational message delivered to parents was fairly consistent on the importance of brushing, the dental providers' messages on flossing differed across individuals. The AAPD states, "when all sides of a tooth cannot be cleaned by brushing alone, it is time to begin flossing the child's teeth."²² However, this closure of dental spacing occurs at different ages and at different places in the mouth, leading to confusion for parents, especially those who have more than one child. The inconsistency seen in our study reflects the lack of consensus in the literature around flossing in children, but parental or professional dental flossing can be effective in minimizing interproximal caries risk.²³

A dental provider verbally explained OHI to 15 parents; eight received a demonstration, and two watched a video. Parents who received a demonstration or teach-back had longer, more detailed and in-depth responses than those who received just a verbal explanation or watched a video. However, despite our finding that demonstration of oral health information was better recalled and retained, we also found that it was experienced less often. It was less important who in the dental clinic delivered the information, but that the information received was from a knowledgeable, trusted source, namely a staff member at a dental clinic.²⁴ Many study participants did not specify (or did not know) if the instructor was the dentist versus a dental assistant or hygienist.

The preference for demonstration and skill-based activities is consistent with current literature. Salama and colleagues found that using a jaw model to explain tooth brushing was more effective in improving plaque score in children than using a video on tooth brushing, though both methods were accepted by all children.²⁵ Because tooth brushing and flossing involve specific techniques, skills-building activities such as a demonstration or the opportunity to practice would likely enhance the learning experience.

Most parents who recalled receiving nutrition education at the dental clinic had prior knowledge surrounding this topic. Some mentioned that they first received detailed education on nutrition and diet at Women, Infants and Children (**WIC**), a program that educates participants on the importance of nutrition and physical activity to their children's overall health.²⁶ The dental clinic is an important site for reinforcement of these messages on nutrition and diet. In terms of delivery, most of the nutrition messages were delivered verbally though parents positively received information through two alternate methods. A nutrition pamphlet with diagrams and a wall poster display showing the amount of sugar in sugary drinks drew their attention. While the informational pamphlet and display seemed to influence nutrition topics, these information channels would most likely be less effective or influential for oral hygiene messages.

Our findings suggest that parents retain and recall dental education messages they are taught in dental clinics. This suggests that oral health and nutrition instruction should be constantly reinforced in the dental clinic. Our data suggest that parents benefit significantly from the highest level of engagement during educational sessions, especially when given the opportunity to teach-back what they have learned to the instructing provider.

Only three participants were asked to "teach-back" information provided, and were given an opportunity to practice demonstrated oral health behaviors. The literature documents well

that the Teach-Back Method is an effective means of provider to patient communication.^{21,27} In primary care, the Teach-Back Method helps patients to better understand their own medical conditions, and actively participate in their treatments, leading to greater patient satisfaction.²¹ The method has been shown to be effective in educating and assessing patients.²⁷ Patients who received a longer teaching retained significantly more information when compared to patients who received a briefer teaching.²⁷ Our results support the Teach-Back Method as a well-liked and engaging means of delivering oral health information to parents and primary caregivers of young children, but it was used very rarely in our study sample.

Previous studies reveal that health education alone may not be sufficient in changing behavior; rather skill building and motivational interviewing may prove to help patients change behavior.²⁸⁻³¹ A previous study evaluated the effectiveness of oral health education for mothers with children of six to 18 months of age in preventing ECC by assigning mothers into three groups: motivation group, traditional health education group, and control group. Although traditional health education increased the number of parents in caring for their children's teeth, motivational interviewing improved practice and frequency of caring for their children's teeth.³² Several other studies suggest that skills-based activities, and not just knowledge-based learning, would increase parental confidence and self-efficacy and be more likely to result in behavior change.^{12,13, 37-39} However, there is more research needed in this area.

In our study some parents stated they benefitted from the oral health instruction. Oral health instruction about children has been shown to enhance the knowledge of parents about their own oral health.³³ We suggest oral hygiene instruction should involve both parents and their children. This is consistent with other studies indicating that parental behavior is linked to children's oral health³⁴ and that there is great parental influence on children's oral health-related behavior.^{35, 36} In addition, dental providers need to be careful as to how they present information, focusing on tone as well as content of education, as there are clear indications in our data that some parents felt disrespected or scolded. This turned their focus away from learning to concentrate on how they were inappropriately treated, and occasionally delayed their return to the dental office. A previous qualitative study on oral health of Early Head Start children revealed the need to find a more effective means to communicate oral health.³⁷ In that study, staff members misperceived the reasons for parents' failure to incorporate oral health routines into their children's daily lives as placing a low regard for their children's oral health. However, parents attributed the failure to a lack of time and difficulties in managing their demanding lives and stated that staff members subjected them to unfair judgment and criticism. These discrepancies frustrated and dissuaded the parents from accepting the staff's oral health education messages.³⁷ Findings such as these suggest that the communication of oral health instruction needs improvement.³⁸

At present, dentists who accept Medi-Cal patients are not compensated for the time they spend teaching patients oral health hygiene instruction. Medi-Cal is California's form of Medicaid, providing those who qualify with free or low-cost health coverage.⁴⁰ Our findings suggest the importance of provider time delivering oral health hygiene instruction and the need for appropriate compensation to ensure that instruction is provided equitably. Because

parents did not insist the messages had to come from dentists, it is worth considering having dental hygienists or assistants who are well-trained engage in delivering these messages to parents and their child-patients in a demonstration and/or teach-back format.

Limitations

Data were gathered from interviews conducted in the course of a larger study with a set of compatible yet different goals. Participants were not asked in detail about instruction, but interviews were replete with systematically gathered information sufficient to produce this report. This is a small qualitative study; a larger survey with a random sample would provide more detailed evaluative information about comparative effectiveness of different educational formats. Our research is investigating the oral hygiene and nutrition advice in the dental setting only. We have not assessed the oral health related information families have received at WIC, physician's offices, and other settings. Also this study was geographically and socioeconomically limited as it focused on a specific language and income group in one urban location. Caution must be exercised in making generalizations. Nevertheless, this is one of very few studies to examine low-income, Spanish-speaking caregivers recollection, perception, and resulting actions from oral hygiene and nutrition instruction received in their children's dental encounters, which is an important topic given the oral health disparities faced by this population.

CONCLUSION

The following conclusions can be drawn from this study's results:

Most parents recalled receiving OHI as part of their child's dental visit, though the format and effectiveness of this instruction varied. Parents provided more in-depth descriptions of demonstrations or teach-back education compared to parents who received less engaging educational formats.

The content and format of the educational messages on nutrition consistently communicated that sugar is not good for children's teeth.

Most parents found the OHI they were given to be helpful. Two disliked OHI for the negative tone the instructor used.

Most parents reported that they incorporated the oral hygiene and dietary instruction they were given into their children's oral health hygiene care routine.

Acknowledgments

We are grateful for the support that enabled this study to be conducted. Support was provided by the New York Academy of Medicine David E. Rogers Grant; National Institute of Dental and Craniofacial Research Grant R21-DE024261 and USCF Summer Research Fellowship Program in Global Oral Health. We are also grateful to the dental clinics and staff that partnered with us in the study. The views expressed in this report are those of the authors and do not represent any official position of any of the funders.

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Table 1

Demographics for Low-income Mexican Caregivers and their children

Demographics for Low-Income Mexican Caregivers (N=27)		
Characteristic	Mean (\pmSD) or %	Range
Mothers	93% (rest are grandmothers)	
Number of Children Cared for	2.5 \pm 1.1	1–5
Age in years	35.1 \pm 6.9	24–54
Years of Education	9.4 \pm 3.3	2–14
Live with a Partner/spouse	78%	
Years living in the US Caregiver works	15.0 \pm 7.3 44%	<1 yr–40 yrs
Demographics for Children of Community Interviews (N=75)		
Characteristic	Mean (\pmSD) or %	Range
Age in years	6.8 \pm 4.5	<1–18
Gender Female	48%	
Ever had cavities	52%	
Have Dental Insurance	92%	
Dental visit (regular checkup)	91%	
Mo. Since Last Dental Visit	3.4 mo \pm 2.4	range= 0–12, mo

Table 2

Quotes on Oral Hygiene Instruction

	Content
General topics covered	<p>Brushing <i>Interview 7:</i> “They have to brush their teeth a minimum of twice a day. In the morning and at night.”</p> <hr/> <p><i>Interview 12:</i> “Because we were used to using the brush or putting the brush like this, because that is how they taught us. But they said, ‘No. You have to brush it like this, as if you are combing your teeth. Up and down.’ So that is how I tell [my children] how to brush their teeth.”</p> <p>Flossing <i>Interview 7:</i> “They teach us how to use the dental floss. The dental floss between the teeth for the children too and all that.” <i>Interview 19:</i> “The dentists have told us many times to use dental floss. [They] told us to put it inside and go like this.” <i>Interview 22:</i> “[The dentist said to my daughter] that’s why it is very important for you to use floss, because sometimes everything stays at the bottom, on the gums and if you don’t take it out, while you are sleeping, [plaque] starts to form.”</p>
Variation in flossing techniques	<p><i>Interview 11:</i> “The youngest [child] does not need [to floss] because his teeth are very far apart... so just with the toothbrush you can clean everything properly”. <i>Interview 18:</i> “[My children] use dental floss because at the [dental] clinic they taught me that if you only use the tooth brush that it is not correct. You have to use the dental floss to get everything out.”</p>
	Format
Verbal	<p><i>Interview 15:</i> “[The dentist] told me [how to clean my child’s teeth], he explained it to me step by step.” <i>Interview 17:</i> “There’s a woman who comes and explains to you how to care for your child’s teeth three times a day.”</p>
Demonstration	<p><i>Interview 20:</i> “I have taken a few classes on how to brush their teeth and they tell us—they show us photos of what can happen to gums and teeth. I have also show it to him and to my daughter. They have a model of teeth there and they show you how to brush them step by step, and then they show us the photos that I told you about.” <i>Interview 27:</i> “They gave us a model of some teeth and they taught us how to... they asked for us to do it to see if we were doing it right. First, they asked us: ‘How do you brush their teeth?’ So we showed her, and she said, ‘No, the right way is like this.’ I think it’s helpful, even for [me and my husband] to know how to brush teeth properly.”</p>
Video	<p><i>Interview 29:</i> [At the dentist] they showed me a video about how to take care of the [children’s teeth] when they reach a certain age.”</p>
	Parent’s Reception
Helpful	<p><i>Interview 5:</i> “When I took that class, I was like wow. You just go like this and think you cleaned [your teeth], but it’s all really important, the way you clean them.”</p>
Dislike	<p><i>Interview 30:</i> The instructor was like, “What do you do here and what do you do afterwards? [Aggressive tone of voice]” So I was like, “I am not going to take classes anymore. I was very far into the pregnancy, very nauseous and all of those things that come with pregnancies. I didn’t even want to taste the toothpaste. I did everything very fast, and I wasn’t doing it very well anyway. He told me, ‘Oh, no, what are you doing? Why so fast?’ Like scolding me.”</p>
	Impact on home behaviors
	<p><i>Interview 18:</i> Participant: “[The class] has helped me because at the beginning I didn’t know how [to take care of my teeth]. I didn’t know how to brush my teeth. I used to brush them, but in my own way. But I even told my husband once, ‘Sit down so I can brush your teeth.’ He said, ‘Why? I brush my teeth already.’ I told him, ‘No, so I can teach you how to brush your teeth because we are not brushing them the right way.” <i>Interview 22:</i> Participant: “[The oral hygiene education] was very good. [My daughter] began to brush her teeth by herself; she would brush them properly, floss them every day.” Interviewer: “Did it help you personally as well?” P: “Yes, also because sometimes you also say ‘Ah, just quickly and let’s go.’ And now I say ‘No, it is very good to brush your teeth properly because well, yes if you go to sleep and something is left there..., well...”</p>

Table 3

Quotes on Nutrition Instruction

	Content
	<i>Interview 2:</i> “[Nutrition education] helped me in that, that I know I shouldn’t give them sweets frequently. Because I do give them sweets. I’m not going to deny it... But, she [child] knows that when she finishes she has to brush her teeth... But I hardly ever buy that kind of food. I always have things like fruit and stuff for her because I’ve been told [by the dentist] to try not to have too many sweets.”
	Format
Verbal Explanation	<i>Interview 18:</i> Interviewer: Have any of the dentists talked to you about the food that the children need to eat and what type of food to avoid? Participant: Yes, I have to give them [the children] more vegetables, more fruits, that I shouldn’t give them so much junk food, that I shouldn’t give them a lot of chips, or sodas; because sodas eat away their teeth. I shouldn’t give them cookies that have a lot of chocolate or cookies that are very fatty. And they do eat those things, but not very often. Juice, they shouldn’t drink juice either or if I am going to give them then once a day and diluted with water.”
Pamphlet	<i>Interview 5:</i> “A pamphlet that shows how much sugar is in soda, juice, and since my son really likes juice... I said, look. And he said, ‘Oh, it has all that?’ He said, ‘I have to do all that walking?’ Because it tells you how much you have to walk if you drink a juice, you have to walk, the time you’d have to walk.”
	Format
Display	<i>Interview 6:</i> “Every time we go to the dentist, they [children] start looking and go, “Oh! Mommy, look how much sugar that juice has. And Gatorade, look how much sugar it has. They have all juices that have too much sugar here. So then they realize and say, “It’s a lot right?” “Yes, that’s why I tell you not to ask me for juice, I tell them, just drink water.”
	Reinforcement of Prior Knowledge
	<i>Interview 21:</i> Interviewer: “In those classes or when you have taken your son or daughter, have they spoken to you about the food? What to give them and what to avoid?” Participant: “Yes, they have told me to stop with the juices and sweets, to give them soft things, to not give them a lot of fried things. Or that if I give them juice, that much juice but that I mix it with water.” Interviewer: “And did they tell you that at the dentist or at WIC?” Participant: “They have told me in both places.”
	Influence on Behavior
	<i>Interview 12:</i> “[After nutrition education], I am telling him we should avoid juice at all times to only get used to drinking juice with the meals. <i>Interview 17:</i> “Having a dentist here to tell you how to care for your child’s teeth is a huge privilege. I like it very much—I’ve always asked about what amount of Sabritas (chips), or what candy he can chew. What happens if I give him chocolate at night, does he need to brush his teeth? Do I only need to give him water to rinse his mouth? I ask the dentist all of these things. Once he tells me, I follow it and don’t allow it anymore.”