



## Qualitative Analysis of Interpersonal Oral Health Communication between Providers and Caregivers in the Medical Home: A Pilot Study

Melani B Decker<sup>1</sup>, Rocio B Quinonez<sup>2</sup>, R Gary Rozier<sup>3</sup>, Paul Mihas<sup>4</sup>, Rebecca Wilder<sup>1</sup> and Michael J Steiner<sup>5\*</sup>

<sup>1</sup>Department of Dental Ecology, School of Dentistry, University of North Carolina, USA

<sup>2</sup>Department of Pediatric Dentistry and Pediatrics, Schools of Dentistry and Medicine, University of North Carolina, USA

<sup>3</sup>Department of Health Policy and Management, Gillings School of Global Public Health, University of North Carolina, USA

<sup>4</sup>The Odum Institute, University of North Carolina, USA

<sup>5</sup>School of Medicine, University of North Carolina, USA

### Abstract

**Objective:** This study aimed to identify content and patterns in the interpersonal communication between provider and caregiver regarding oral health during medical visits in early childhood.

**Methods:** Using qualitative analysis, 15 transcripts of caregiver-provider interactions collected in 2008 were assessed during visits for 0-42 month old children. Preventive messages by five providers participating in a Medicaid preventive oral health initiative in North Carolina were evaluated. The American Academy of Pediatrics (AAP) 2008 oral health guidelines and American Dental Association's communication domains were used as standards to examine information and communication styles.

**Results:** A total of 9 sick and 6 well-child visits were transcribed and analyzed. Limiting counseling to two to three topics at one time, an interpersonal communication domain, was the most commonly used communication technique. Providers often used a sequence of questioning, answering/advising, and explaining in their communication with caregivers.

**Conclusion:** This study found that while AAP oral health guidelines are being followed in the medical home, gaps remain regarding referrals to a dental home. Emerging sequential communication pattern should be examined in future studies. Efforts to incorporate effective communication techniques could maximize benefits of anticipatory guidance in clinical practice.

### Keywords

Oral health, Communication, Prevention, Pediatrics, Qualitative analysis

## Introduction

Delivery of preventive oral health services in the medical home can increase access to care and decrease caries and related treatment for young children [1]. The incorporation of these services is supported by the American Academy of Pediatrics' most recent oral health policy statement (AAP, 2014) and the fifty states that reimburse Medicaid eligible children to receive these services in the medical home [2-4]. The AAP provides specific recom-

**\*Corresponding author:** Michael J Steiner, MD, MPH, Associate Professor, School of Medicine, University of North Carolina at Chapel Hill Chapel Hill, NC 27599, USA, E-mail: [msteiner@med.unc.edu](mailto:msteiner@med.unc.edu)

**Received:** February 13, 2017; **Accepted:** April 08, 2017;  
**Published online:** April 10, 2017

**Citation:** Decker MB, Quinonez RB, Rozier RG, et al. (2017) Qualitative Analysis of Interpersonal Oral Health Communication between Providers and Caregivers in the Medical Home: A Pilot Study. Clin Pediatr Res 1(1):6-13

mendations for oral health counseling that should be addressed by providers [3]. In North Carolina, a physician based program called “Into the Mouths of Babes” (IMB) trains providers to deliver caregiver oral health counseling, screenings, referral to a dental home, and topical fluoride varnish to eligible patients. Though providers are trained to discuss oral health related anticipatory guidance, including homecare, diet, use of topical and systemic fluoride as part of IMB, little is known about the depth of discussions in which these topics emerge during well- and sick-child visits.

Communication techniques between providers and patients in the medical home have been investigated [5-8]. Clinical-practice textbooks refer to provider-patient communication during exams but lack assessment of its effectiveness and process. Cleland, et al. called for further research to help understand how best to examine communication in clinical practice and to elucidate how it should be taught and learned [5]. Similarly, Weather- spoon, et al. investigated communication techniques of family practice physicians and pediatricians, and recommended that improved training in communication should have higher importance in medical education [8].

Specific to oral health, provider recommendations have been documented to influence oral health-related behaviors. For example, a 24,403-participant study performed in North Carolina medical practices demonstrated that children with early childhood caries referred to a dental home by their provider during their well-child visit were more likely to follow up than those who had disease but no referral [9]. Similarly, Beil, et al. reported children ages 2 to 5 year being nearly 3 times more likely to

visit the dentist when a recommendation was made by a physician or another health care provider [10]. Understanding the communication techniques and content of the information delivered can help influence health promotion, disease prevention and professional education. The American Dental Association (ADA) encourages a communication technique framework that includes best practice communication styles and emphasizes ‘teach-back’ [11].

The purpose of this study is to use qualitative methods to describe and analyze content and techniques pediatric medical providers use in oral health communication. Specifically, we will compare the content to AAP guideline recommendations and analyze the communication techniques using the ADA communication style framework for the caregiver-provider interaction.

## Methods

### Study population and design

We used a convenience sample of 15 medical transcriptions of caregiver-provider interactions obtained in 2008 and available to the research team. Providers included 4 pediatricians and 1 physician assistant trained to deliver preventive oral health services in a private pediatric office in eastern North Carolina. Like most private pediatric practices in North Carolina, this office accepted Medicaid as an insurance payer. Caregiver participants were all English speaking and the pediatric patients were children age 6-42 months enrolled in Medicaid. The data were originally collected for a pilot study titled, “Oral Literacy Demand of Preventive Dental Visits in a Pediatric Medical Office: A Pilot Study.” Using these data, we

**Table 1A:** Study domains and communication techniques using the American dental association framework.

Domains: Communication techniques	Criteria for coding	Frequency technique used in a visit
<b>Interpersonal communication</b>		
Present no more than two to three concepts at a time	Provider presented two to three concepts at one time. For example- when discussing oral hygiene, the provider did not bring in other topics such as diet.	80%
Ask patients whether they would like a family member or friend involved in the discussion	Provider asked the caregiver if they would like a family member or friend involved in the discussion.	0%
Draw pictures or use printed illustrations	Provider asked vocabulary consistent with use of pictures/ illustrations. For example- “Let me draw this for you” or “Do you see in this picture...”.	0%
Speak slowly	Not coded as it is undetectable on paper transcripts and not able to be quantified.	N/A
Use simple language	Provider used lay oral health terms rather than medical and dental jargon.	93%
<b>Teach-Back method</b>		
Ask patients to repeat information or instructions back to you	Provider asked the caregivers to repeat instructions they were given.	0%
Ask patients to tell you what they will do at home to follow instructions	Provider asked the caregivers what they would do at home from here forward to follow the instructions given.	0%

adopted a qualitative analysis perspective and reviewed the 15 medical transcripts of caregiver-provider interactions with both deductive codes, based on ADA’s communication style framework, and inductive codes, topics that two coders discerned as relevant to communication in their systematic and iterative review of the transcripts. The ADA communication style framework includes five techniques for interpersonal communication and then emphasizes use of ‘teach-back’ where a provider has the patient or family member re-explain or ‘teach back’ the information to the provider (Table 1A).

### Procedures

Transcripts capturing caregiver-provider interaction through audio recording of medical visits were obtained from the original pilot study (paper transcripts available from authors) [4]. Informed consent had already been provided by the 15 caregivers and 5 providers. This secondary analysis of data were reviewed by the University

of North Carolina’s Institutional Review Board (IRB) and determined to be exempt from full Board review. Recordings of all medical visits were transcribed by a commercial company and reviewed for completeness by study investigators. All information came from 15 recordings including both sick and well visits.

### Qualitative analysis

Data were coded deductively for content (oral health content) and technique (communication style) (Table 1A and Table 1B) using a qualitative data analysis software program, MAXQDA [12]. The AAP standards were used to examine broad content regarding oral health-related domains, including screening, counseling (solid and liquid diet, oral hygiene practices, and fluoride) and referral to a dental home. To assess provider communication styles and technique during oral health messaging, we used the ADA’s communication technique framework focused on the presence of five interpersonal communication techniques and

**Table 1B:** Study domains and visit content using the American Academy of Pediatrics oral health guidelines as standard of care.

Pilot study domains	American Academy of Pediatrics (AAP) guidelines	Frequency discussed during visits
Screening	Oral health screening Determine whether tooth eruption and loss are proceeding according to schedule Assess tooth irregularities and alignment of teeth Assess oral hygiene (e.g., plaque and debris on the teeth). Demonstrate to the parent how to remove plaque and debris using the appropriate size toothbrush correctly Assess for: Tooth decay (dental caries) Malocclusions (improper alignment of the jaws and teeth) Oral injuries Other risk factors	87%
Diet:	Dietary counseling	
Liquid (bottle/milk)	Parents and caregivers should be counseled on the importance of reducing exposure to sugars in foods and drinks	Bottle and milk: 13%
Liquid (juice/sippy cup)		Juice and sippy cup: 87%
Fluoride:	Optimal use of fluorides	
Systemic	Community-based Professionally applied	Systemic: 40%
Topical	Self-administered	Topical: 66%
Oral Hygiene:	Anticipatory guidance	
Parent brushing/No brushing	Oral hygiene instruction Counseling regarding nonnutritive oral habits	Parent brushing: 87%
Child brushing	Age appropriate information regarding dental injury prevention	Child brushing: 20%
Dental home	Interprofessional collaboration and establishment of a dental home Dental home established within 6 months of eruption of first tooth but no later than 12 months of age	33%

two teach-back techniques commonly recommended in health communications. [Table 1A](#) describes how communication techniques were coded using the seven ADA recognized domains; five “interpersonal communication” and two “teach-back.” [Table 1A](#) gives examples of how the coding was categorized for each domain. For example, the technique of “presenting two-to-three concepts at one time” was recorded when the provider addressed no more than two or three ideas before moving onto a different subject.

In addition to the observed domains using the ADA communication framework, the researchers identified several emerging codes related to communication techniques that focused on patterns and sequence of their interactions. Identifying inductive codes is a strength of qualitative analysis and provides a richer codebook for follow-up studies [13].

Because particular codes followed each other in interactions between providers and caregivers, qualitative proximity coding was used to identify communication patterns across the transcripts. That is, in analyzing codes that occurred sequentially, a type of proximity coding, we were able to identify patterns of codes adjacent to or overlapping other codes. Proximity coding has been reported as a speculative approach to explore data, but has not been comprehensively explored in the medical and dental literature [14]. The rationale for analyzing codes sequentially related to other codes is that this close review provides a more nuanced understanding of provider-caregiver interactions and how communication techniques play out across an interaction. Analyzing sequential patterns are common in conversation analysis but can also benefit more pragmatic qualitative studies [15].

One primary researcher coded the data with a second coder reviewing over 40% of coded text. Coding consensus meetings with the second coder provided ongoing opportunities to discuss emerging codes and their specific application. Using two coders was a form of triangulation and provided qualitative rigor and a systematic approach to define and consistently apply relevant inductive codes.

## Results

Transcripts revealed that when providers are trained on the inclusion of oral health information during the medical visit (IMB), they discussed oral health with their patients across a variety of visit types. Providers covered most content currently recommended by the AAP ([Table 1B](#)) Oral health screening, counseling about juice consumption and parent brushing were covered most consistently. It is notable that even under optimal circumstances of providers who had received IMB training, a referral to a dental home

occurred in only one-third of visits. (E.g., in [Table 2](#), ID2: “If we notice that he has a problem with his teeth at a young age, we’ll send him to a dentist”).

Recommended communication techniques across interpersonal communication and teach back were less frequently identified than the recommended content [Table 1A](#). Involving family members, using illustrations, and teach-back methods were not used in any of the coded encounters.

Instead of the recommended communication strategies, inductive coding revealed that when presenting multiple oral health concepts at a time, providers frequently used a sequence of questioning, answering/advising, and explaining (QAE). The “questioning” code referred to explicit inquiries made by the provider of the caregiver concerning the patient. The “advising” code referred to guidance or instruction that the provider gave the caregiver, whereas the code for “explanation” captures language that goes beyond instruction to provide a rationale for the advice given. Inductive coding provided a strategy for defining these codes and identifying the sequence and pattern of communication in which they occurred.

The interactions in [Table 2](#), ID 2 illustrate communication techniques using simple language and numerous sequences of QAE. During coding we also noted if the interaction lacked a component of the QAE code sequence or if these codes were evident in a different order. When the QAE sequence occurred, it was often accompanied by use of simple language, presenting two to three concepts at one time, or both. However, again, “teach-back” of concepts did not occur. The sequence of QAE occurred in over half of the 15 interactions. Other communication approaches-and sequential combinations of these codes-were also evident. In five of the interactions, the questioning-advising pattern (without explanation) emerged; one of the interactions had an advising-explaining sequence (without questioning), and one interaction had no identifiable pattern of questioning, advising, or explaining. The example below (also in [Table 2](#), ID 12) illustrates an example of a question followed by an answer as well as a question and advising sequence without an explanation.

D: Is he drinking from the bottle or sippy cup?

P: The sippy cup and sometimes he’ll drink out of a cup with a straw in it. He does that more than anything because he thinks that’s fun.

D: Okay, alright, and what about night time while he’s asleep, does he get a cup then?

P: Usually he does, just because he’s fighting us going to bed. The past couple of nights, I haven’t been giving to

**Table 2:** Sequential analysis of fifteen transcripts (abridged version/selected interactions).

ID"/visit type	Interaction	Style/Pattern
<p><b>ID 2</b> <b>Well</b></p>	<p>The provider addresses the (male) child as he/she enters the room. This child was previously seen for illness, but presents for a well visit at this appointment. The provider thanks the caregivers for participating in the study and begins discussing the child's growth, developments, and habits.</p> <p>The provider uses the questioning, answering/advising, explanation (QAE) structure when the conversation moves into discussion of diet. The answering/advising and explaining while using simple language continues with recommendation of fluoride use.</p> <p>"Beginning at 6 months old, any baby who's exclusively breast fed should also be getting fluoride. He's probably on tri-be-sol, but this is called tri-vi-fluoro. It is the same dose and everything, but its gives him fluoride, which doesn't go through breast milk very well. Umm, once he's getting water, fluoridated water in juice, or just drinking water, than you can stop the fluoride water".</p> <p>Another QAE sequence concerning tooth brushing and toothpaste occurs following the fluoride recommendation. The provider asks questions on frequency and methods about the child's oral hygiene habits.</p> <p>Another QAE arrangement occurs with age-appropriate tooth brushing instructions.</p> <p>"...by brushing, you're doing two things, one you're keeping his teeth clean, and you're also getting him used to having him in your mouth so teeth brushing becomes second nature." After this thorough conversation about oral health, the provider performs a screening and explains the application of fluoride varnish. He/she mentions that the practice's goal is to examine the child's teeth each time he is here and "If we notice that he has a problem with his teeth at a young age, we'll send him to a dentist".</p> <p>The provider discusses the child's latest developments again as well as screen-time and car seat use. The appointment concludes with a discussion of vaccinations.</p>	<p><b>Question-Advice-Explanation (QAE)*</b> <b>Simple language</b></p> <p><b>Question-Advice-Explanation*</b></p> <p><b>Question-Advice-Explanation*</b></p>
<p><b>ID 8</b></p>	<p>The provider addresses the child directly right away during this interaction. The (male) child is presumably 3 years old because the provider says, "I can't believe that you're 3 already!" They discuss vaccinations the child is due for and the provider asks how the child is doing and what he is eating. There is a discussion about solid diet, but none of it relates to oral health. The provider utilizes questioning when talking about liquid diet. He/she determines that the child drinks water "with a little flavor in it". They talk about brushing, toothpaste and fluoride use. The provider gives advice and presents 2-3 concepts at one time when talking about oral hygiene habits. The caregiver is assertive and reports that the child was "having dental problems last year".</p> <p>The provider asks what types of problems they had and confirms that the caregiver has established a dental home for the child. He/she provides advice concerning liquid diet and begins a physical exam about halfway through the appointment. The provider tells the caregiver "I can see where he's had some build up on here" when he/she looks in the child's mouth. He/she tells them about the fluoride varnish and gives instructions for eating and drinking afterwards. The patient is inquisitive about the fluoride treatment and the provider answers his/her questions.</p> <p>As the provider continues examining the child, he/she gives advice about vaccinations and asks if the care giver has any further questions. The caregiver asks about a skin condition and the provider gives advice on products. The provider exits the appointment by affirming that they do not need to see the child for a year until his next well-child visit and tells them to "keep up the good work".</p>	<p><b>Question-Advice*</b> <b>Inquisitive/Assertive caregiver</b> <b>2-3 concepts at a time</b></p>



<p><b>ID 12</b> <b>Sick</b></p>	<p>The provider immediately thanks the caregiver for participating in the study. He/she addresses the (male) child patient directly, asking how he is feeling. The caregiver answers, listing a number of symptoms. The child is very upset and crying. The provider does a physical exam with the child in the caregiver's lap. The exam includes an oral screening. The provider explains the illness, diagnosis, and treatment. He/she uses questioning and advice discussing oral hygiene habits next, but lacks explanation. The provider does use simple language and only presents 2-3 concepts at a time when providing advice about tooth brushing and toothpaste use as well as liquid diet. The provider explains the treatment for the child's illness once more before exiting the appointment.</p>	<p><b>Question-Advice*</b> <b>Simple language</b> <b>Presents 2-3 concepts at a time</b></p>
<p><b>ID 14</b> <b>Sick</b></p>	<p>The provider enters the appointment and promptly begins questioning the caregiver about the (female) child's symptoms. He/she also addresses the child directly, asking her how she is feeling. The provider begins an exam by first looking in the child's mouth. He/she makes a diagnosis and recommends treatment.</p> <p>The children switch places and another (male) child is assessed. The provider does a physical exam on this sick child and discusses treatment. He/she does an oral screening "Stick your tongue out. Come over here and I'll look at your teeth. "Ahh" Mommy's doing a good job, they look great" and gives some feedback. The provider and caregiver continue conversing about the child's illness and treatment until the last part of the appointment when the provider inserts oral health information. He/she uses simple language while providing advice and explanations concerning liquid diet, homecare habits and topical fluoride varnish. The provider does not utilize any questioning but presents 2-3 concepts at a time while making oral hygiene recommendations. The oral health interaction is brief, but the provider touches on the important topics. The interaction concludes with confirmation of treatment for the children's illnesses.</p>	<p><b>Advice-Explanation*</b> <b>Presents 2-3 concepts at a time</b></p>

\*ID: abbreviation for the de-identified transcripts with their assigned number.

it him because he's been sick and it's been making him throw up more. We only put water in it.

D: That's the best thing to do, anything-if it is milk or juice, because of the sugar-if he's taking it at bed, and especially if he keeps it in there and sucks, he's basically bathing his teeth in sugar.

In contrast, ID 2 includes a questioning-advising-explaining sequence.

D: But he's getting protein from your milk, iron from vegetables, so that's good. Is he on any vitamins right now?

P: Yes, umm, the A, D, and whatever else it is. The vitamin D drops.

D: Okay, well we'll probably change that today. Beginning at 6 months old, any baby who's exclusively breast fed should also be getting fluoride. He's probably on tri-vi-sol but this is called tri-vi-fluoro. It's the same dose and everything, but its gives him fluoride, which doesn't go through breast milk very well. Umm, once he's getting water, fluorinated water in juice, or just drinking water, than you can stop the fluorine water.

Future studies can assess how caregivers experience the difference between a question, a question followed by advice, and a question followed by advice and explanation.

## Discussion

Though studies have shown success in the inclusion

of oral health information in the medical home, limited research exists on the quality of its delivery [1,8,16,17]. This study used qualitative research principles to provide a deeper, more descriptive understanding of 15 caregiver-provider interactions. The transcripts revealed that even among providers who incorporate oral health content, highly effective and recommended communications techniques are not consistently used. The pattern of communication that emerged from the visits was a question-answer/advising-explaining pattern between patients or families.

Providers incorporated a wide variety of recommended oral health content into visits. The overlap of oral and systemic health could explain the frequent occurrence in discussing liquid diet related topics, including juice intake and how it relates to obesity and early childhood caries (ECC). Nelson, et al. reported beverage intake as the most common diet-related topic discussed with caregivers by pediatricians; occurring in 95.9% of the medical interactions [18]. Our findings are similar, whereby providers specifically highlighted the effects of the sugar content of juices on the oral cavity, particularly with frequent daytime exposure from a sippy-cup. Medical providers did not consistently emphasize referral to a dental home despite evidence that this recommendation can influence parent caregiver's behaviors on following up with a visit to the dentist [9,10]. Equally important, however, is having dentists able and willing to accept these

referrals. A national survey of AAP fellows reported few dentists accepting publically insured children under age three years, making this situation an important barrier to referral [19].

Our findings that medical providers did not use recommended communication strategies are similar to previous literature. For example, 75% of orthopedic surgeons surveyed believed that they communicated satisfactorily, but only 21% of the patients recounted satisfactory communication with their doctors [20]. Specific to pediatric care, Isong, et al. reported caregivers value pediatricians' advice on oral healthcare, but did not feel that they receive adequate information, with most of the parents of children with a history of ECC claiming to receive erroneous or no oral health information at their medical visits [21]. It is imperative to provide training in communication techniques and proper oral health content to maximize providers' influence on caregiver's oral health behaviors and health outcomes.

Similarly, "teach-back" was underused by providers in this study. Experts in health quality improvement support "teach-back" methodology as it allows for confirmation of presented information to the patient, caregiver, or both [22]. Peter, et al. studied the influence of using "teach-back" when communicating with patients with heart failure. Their study noted 12% lower readmission after initial hospitalization in patients counseled using the "teach-back" technique when compared to a control group who did not use this communication practice [23]. Limited use of "teach-back" in our study could indicate a missed opportunity to confirm oral health messages are being received as their intended delivery. This is an important consideration to future provider training, particularly given that communication skills training can improve doctor-patient communication by positively influencing patients' emotions and expedite understanding of potentially confusing medical and dental information [24-28].

A sequential communication pattern of questioning-answering/advising-explaining was identified using proximity coding. Though sequential analyses are often associated with quantitative content analysis, we used it here to better understand the extent of the provider's communicative engagement with the caregiver beyond the simple presence or absence of these codes. The descriptive nature of this study does not allow us to claim that using the questioning-answering/advising-explaining is the optimal approach for caregiver-provider-patient communicative interactions; but assessing a questioning-answering/advising-explaining sequence in these data, compared to a shorter questioning-answering/advising or answering/advising-explaining indicated a richer exchange of information between the provider and caregiver and opportunities for providers to

use the interpersonal communication and teach-back domains specified in the ADA guidelines. As with all inductive coding, future studies using these codes can provide greater elucidation of their meaning across data with a larger sample of providers and caregivers.

This study should be assessed in the context of its limitations. First, the small number of visits and single medical practice limits the generalize ability of findings, although there are many primary care medical practices similar to the one reported. A larger sample size may depict a greater variation in content and communication styles. Second, providers in this study were previously trained in the delivery of oral health information and its implementation in clinical practice. IMB training and reimbursement for oral health services created favorable conditions to deliver oral health messages but cannot account for providers who have not had any explicit training in delivery of oral health services. This study was a secondary analysis of previously recorded clinical visits. Despite the delay in qualitatively analyzing the data, there have not been major changes in oral health recommendations or the structure of clinical visits since data was collected. Additionally, the importance of highly effective communication techniques, that are accessible to people at all levels of health literacy, has grown since these recordings were originally made. We believe the results and implications are applicable to current practice. Thirdly, this study did not look at the patient outcomes after counseling behavior. Though previous studies validate the effectiveness of the recommended content and communication strategies, this study was not designed to explore that within the context of oral health recommendations. Finally, this study was based on a pre-determined number of transcripts, and therefore investigators cannot make claims regarding data saturation.

## Conclusion

This preliminary study provides insight into the communication pattern used by medical providers to provide oral health preventive counseling. While some recommended communication patterns are employed, others such as 'teach-back' were not used by providers. As training primary healthcare workforce to become a partner in addressing pediatric oral health issues continues, exploring ways to effectively integrate and communicate relevant messages is paramount to maximizing children's oral health. Delivering the recommended content but not using recommended techniques, as our study suggests is happening, may nullify the utility of including oral health preventive counseling in primary care. Future qualitative research with larger samples is necessary to examine how providers' communication styles and content delivered influences oral health outcomes in the

medical home, using teach-back techniques and comprehensive services, including referral to a dental home.

## Disclosures

Acknowledgements: N/A.

## Declaration of Conflicting Interests/Financial Disclosure

The authors certify that they have no affiliations or involvements in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

## References

1. Pahel BT, Rozier RG, Stearns SC, et al. (2011) Effectiveness of preventive dental treatments by physicians for young Medicaid enrollees. *Pediatrics* 127: e682-e689.
2. Krol D (2014) Policy Statement: Maintaining and improving the oral health of young children. *American Academy of Pediatrics* 134: 1224-1229.
3. (2015) Bright Futures. *American Academy of Pediatrics*.
4. Kranz AM, Pahel BT, Rozier RG (2013) Oral literacy demand of preventive dental visits in a pediatric medical office: A pilot study. *Pediatr Dent* 35: E68-E74.
5. Cleland J, de la Croix A, Cotton P, et al. (2013) Student-patient communication during physical examination. *Clin Teach* 10: 84-87.
6. Opel DJ, Robinson JD, Heritage J, et al. (2012) Characterizing providers' immunization communication practices during health supervision visits with vaccine-hesitant parents: A pilot study. *Vaccine* 30: 1269-1275.
7. Laidsaar-Powell RC, Butow PN, Bu S, et al. (2013) Physician-patient-companion communication and decision-making: A systematic review of triadic medical consultations. *Patient Educ Couns* 91: 3-13.
8. Weatherspoon DJ, Horowitz AM, Kleinman DV, et al. (2015) The use of recommended communication techniques by Maryland family physicians and pediatricians. *PLoS One* 10: e0119855.
9. Pahel BT (2008) The effect of dental referrals by primary care providers on children's dental utilization. Diss, The University of North Carolina at Chapel Hill, 25.
10. Beil H, Rozier RG, JS Preisser, et al. (2012) Effect of Early Preventive Dental Visits on Subsequent Dental Treatment and Expenditures. *Med Care* 50: 749-756.
11. (2009) American Dental Association Council on Access, Prevention and Interprofessional Relations. *Health Literacy in Dentistry Action Plan 2010-2015*. American Dental Association, Chicago.
12. MAXQDA, 1989-2017, VERBI Software, Berlin Germany.
13. Saldaña J (2013) *The coding manual for qualitative researchers*. (3<sup>rd</sup> edn), Sage Publishing.
14. Gibbs G (2014) Using software in qualitative analysis. In: U Flick, *The SAGE handbook of qualitative data analysis*. SAGE Publications Ltd, London, 277-295.
15. Peräkylä A, Ruusuvuori J (2011) Analyzing Talk and Text. *Sage Handbook of Qualitative Research* 529-543.
16. Slade GD, Rozier RG, Zeldin LP, et al. (2007) Training pediatric health care providers in prevention of dental decay: Results from a randomized controlled trial. *BMC Health Serv Res* 7: 176.
17. Rozier RG, Stearns SC, Pahel BT, et al. (2010) How North Carolina program boosted preventive oral health services for low-income children. *Health Aff (Millwood)* 29: 2278-2285.
18. Nelson JM, Vos MB, Walsh SM, et al. (2015) Weight management-related assessment and counseling by primary care providers in an area of high childhood obesity prevalence: current practices and areas of opportunity. *Child Obes* 11: 194-201.
19. Quinonez RB, Kranz AM, Lewis CW, et al. (2014) Oral health opinions and practices of pediatricians: updated results from a natural survey. *Acad Pediatr* 14: 616-623.
20. Tongue JR, Epps HR, Forese LL (2005) Communication skills for patient-centered care: research-based, easily learned techniques for medical interviews that benefit orthopedic surgeons and their patients. *J Bone Joint Surg Am* 87: 652-658.
21. Isong IA, Luff D, Perrin JM, et al. (2012) Parental perspectives of early childhood caries. *Clin Pediatr (Phila)* 51: 77-85.
22. Fidyk L, Ventura K, Green K (2014) Teaching nurses how to teach: strategies to enhance the quality of patient education. *J Nurses Prof Dev* 30: 248-253.
23. Peter D, Robinson PD, Jordan M, et al. (2015) Reducing readmissions using teach-back: enhancing patient and family education. *J Nurs Adm* 45: 35-42.
24. Bredart A, Bouleuc C, Dolbeault S (2005) Doctor-patient communication and satisfaction with care in oncology. *Curr Opin Oncol* 17: 351-354.
25. Arora NK (2003) Interacting with cancer patients: the significance of physicians' communication behavior. *Soc Sci Med* 57: 791-806.
26. Platt FW, Keating KN (2007) Differences in physician and patient perceptions of uncomplicated UTI symptom severity: understanding the communication gap. *Int J Clin Prac* 61: 303-308.
27. Ha FJ, Anat DS, Longnecker N (2010) Doctor-patient communication: a review. *Ochcner J* 10: 38-43.
28. Harms C, Young JR, Amsler F, et al. (2004) Improving anaesthetists' communication skills. *Anaesthesia* 59: 166-172.