Opinions of Early Head Start Staff about the Provision of Preventive Dental Services by Primary Medical Care Providers

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Abstract

Objective: This study investigates the opinions of the Early Head Start (EHS) staff about physicians and nurses providing preventive dental services for children in EHS. **Methods:** A cross-sectional survey was undertaken of the EHS staff having contact with families in EHS programs in North Carolina (NC). A self-completed questionnaire solicited their opinions (agree, disagree, don't know) about whether physicians and nurses can "provide preventive dental care" and "identify dental problems" in infants and toddlers. Staff knowledge (four items) and attitudes (five items) were tested for their association with whether staff had an opinion (agree/disagree versus don't know) and if so, what that opinion was (agree versus disagree) using the generalized estimating equation method. **Results:** Questionnaires were completed by 476 staff (98 percent response) in 18 programs (100 percent response). The majority of staff believed that physicians and nurses can provide preventive dental services (66 percent) and identify dental problems (52 percent). Staff placing importance on ensuring access to dental care and who were knowledgeable about fluoride uses were more likely to have an opinion. Among staff with an opinion, those familiar with the NC program where these services are provided in medical offices were more likely to agree that physicians and nurses can provide preventive services and identify problems. **Conclusions:** Although the opinions of the majority of the EHS staff are not a barrier to using primary medical care providers to deliver preventive dental care, education is needed for staff who are unfamiliar with this approach.

Key Words: Early Head Start, preventive dental services, dental screening, staff opinions about prevention

Introduction

The Early Head Start (EHS) programs provide an opportunity to reach large numbers of low-income infants and toddlers with preventive dental services before the onset of dental disease. This federally funded child development and family support program is only a little over a decade old, but already supports programs in all 50 US states (1). Yet, little is known about the impact of EHS programs on the oral health of children (2). Indirect evidence suggests that access to dental care for these children is limited. Population-based surveys report a high prevalence of dental caries in the primary dentition of low-income children, little evidence of treatment, and lack of control of the disease process in those who are treated with extensive restorative care (3-5). The oral health status of Head Start children, who are older but from similar socioeconomic backgrounds, is also known to be compromised (6).

Access to dental services for low-income children in North Carolina (NC) is particularly problematic (7,8).

The state ranks 47th in the dentist-to-population ratio, and the population is growing more rapidly than the supply of dentists. Up to 40 percent of children have experienced dental caries upon entering kindergarten, one-half of whom have untreated disease. Of great concern is an increase in the prevalence of dental caries, particularly among disadvantaged children (9).

As a partial response to these trends, NC implemented a program known as "Into the Mouths of Babes" (IMB) that trains pediatricians and family physicians to provide dental screenings of young children, risk-based referrals to dentists, fluoride varnish applications for children, and parent counseling on oral health (10). Physicians are reimbursed for these services when provided for Medicaid children younger than 3 years of age. More than 400 public and private medical practices in NC are now engaged in providing preventive dental services (11).

EHS program performance standards tie professional dental care to each state's Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) periodicity schedule (12,13). Unfortunately, few states have periodicity schedules that specify the age when children should make their first visit to a dentist. This lack of guidance and current inconsistencies in applying Head Start performance standards to EHS children results in confusion among the EHS staff about

appropriate dental screening and referral practices. Given the undersupply of dentists in many communities, pediatricians and other primary care providers usually are more accessible to EHS programs than dentists and could provide an important source of preventive dental care. Their active involvement in oral health is supported by a number of professional guidelines (14-16), but can be in conflict with guidelines for dentists (17,18), further contributing to confusion on the part of the EHS staff.

Interventions are underway in NC to ensure that EHS programs have access to medical practices where preventive dental services are being provided. An important first step in exploring the advantages and disadvantages of using primary medical care providers as an alternative source of preventive dental care, particularly when recommendations by medical and dental organizations are not in agreement and evidence of effectiveness is lacking, is to understand public opinion about who should provide primary preventive services for infants and toddlers. Public opinion is important in developing policy and often takes precedence in the absence of scientific evidence (19,20). This study seeks to determine the opinions of the EHS staff on the ability of physicians and nurses to identify children with dental problems and to provide preventive dental services during medical visits. We also sought to determine if staff knowledge and attitudes about oral health and access to care affected their opinions about physicians' role in dental care. The findings can provide insights into possible interventions to increase access to dental services for infants and toddlers.

Methods

Overview of Study Design. A cross-sectional survey of staff employed in EHS programs in NC was conducted in June 2005. A questionnaire for each of three different major types of EHS staff (program directors, health coordinators, teachers) was used to gather information for the design of an educational intervention for the EHS staff and to provide a baseline against which similar data collected in follow-up surveys could be compared for the evaluation of the intervention. The study reported in this paper grew out of the need to have baseline information on opinions about the IMB program so that educational interventions could appropriately address the linkage of EHS families with IMB practices. The study was approved by the Institutional Review Board at the University of North Carolina at Chapel Hill and by the NC Head Start State Collaboration Office.

Sample Frame Identification and Sample Selection. The names and addresses of all EHS programs in the state were identified from information provided by the state's Head Start collaborator. This information was verified by published lists of EHS programs maintained by the federal government (1) and communication with the regional office of the federal agency responsible for oversight of most programs in NC. The only American Indian EHS program in the state was included in the study, but we did not include migrant programs. Subsequent reference to EHS includes all nonmigrant programs, including the program for the Eastern Band of the Cherokee Indians.

All 18 EHS programs were included in the survey, and all staff in each of these programs were sampled if they had any direct contact with children or families. The numbers of programs and staff were considered small enough to require a census survey to provide adequate levels of precision for survey estimates.

Questionnaire Development. The content of the questionnaires was based on the objectives of the overall study and on information obtained from a review of the literature, from nine focus groups with staff and parents, from an open-ended survey of 21 EHS staff attending a statewide Head Start meeting, and from a workgroup of EHS staff and study personnel. Head Start program performance standards were reviewed to determine the recommended scope of staff activities (1,13). We also reviewed the content of a number of training materials to further our understanding of dental activities performed by teachers and other nondental staff in child development programs throughout the country (21-24). Where possible, survey questions were derived from previously developed and tested questionnaires used in IMB research (25-29).

Separate questionnaires were constructed for program directors, health coordinators, and teachers because of their different responsibilities. The questionnaires were designed around six domains of interest (knowledge, opinions, confidence in performing dental activities, expected outcomes, current practices, and barriers encountered). All domains contained items related to classroom activities, interactions with families, dental screening, referral, and follow-up of children.

A core set of questions was identical across all surveys that inquired about staff knowledge of the IMB program and their opinions about physicians and nurses providing dental services. Because health coordinators are responsible for ensuring that children are linked to health care providers, they were asked additional questions about access to medical and dental health care providers, dental screenings, dental insurance, and actual numbers of enrollees receiving oral health services. The survey of program directors included questions about the number and ethnic diversity of enrollees, program structure (e.g., home, center-based, or both), and budget. Initial feedback on questionnaire content was obtained from three separate EHS programs via e-mail and telephone conversations. Questionnaires were then pilot tested with staff at one local program, and a number of suggested changes in formatting and wording were incorporated. Next to final versions of the three types of questionnaires were distributed via e-mail to

the workgroup for final recommendations.

Data Collection. Questionnaires and related survey materials were delivered in person to each of the 18 EHS programs by a research staff member trained in data collection methods. On-site visits were preceded by a phone call to the program director and a letter, jointly signed by the state's Head Start collaborator and the president of the NC Head Start Association, explaining the research and what their participation would entail. The on-site visit involved a meeting with the program director and health coordinator to review survey procedures and the incentive scheme. A written set of instructions was also provided to ensure uniformity of data collection across programs. An EHS staff member, usually the health coordinator, was identified during this meeting to take primary responsibility for survey distribution. Completed surveys were collected and returned to us by prepaid FedEx packages within 3 weeks time. Follow-up phone calls were made if surveys were not received within the designated time frame.

After completed surveys were returned, follow-up telephone interviews were conducted with health coordinators to confirm the number of surveys distributed so that response rates could be calculated and to review reported screening and referral numbers. A tiered incentive structure tied to the number of teachers and classrooms that responded provided gift cards for program supplies.

Variable Selection and Construction. Four outcome variables were derived from two questions soliciting staff opinions about primary health care workers providing *preventive* and *screening* services. Two outcome variables were derived from a question asking the staff to indicate their opinion ("agree," "disagree," and "don't know") about whether "a medical doctor or nurse can provide *preventive* dental care needed by most infants and toddlers." The first of

these two variables indicated if the respondent had an opinion ("agree" and "disagree") or not ("don't know"). The second variable was constructed only for those with an opinion, with responses coded as "agree" or "disagree." Although not specifically identified by name, this question and derived variables were intended to elicit opinions about the counseling and fluoride components of IMB. The other two outcome variables were likewise derived from a question that asked the staff their opinion about whether "a medical doctor or nurse can *identify* dental problems in infants and toddlers during a well-child visit." This question and derived variables were intended to measure the EHS staff's opinion about the screening component of the IMB program.

The explanatory model for this study included nine variables related to staff knowledge and attitudes about dental disease and its prevention in general, and dental screening specifically. Five variables measured staff attitudes. They included perceptions about the value of primary teeth (four items); the importance of dental screening and referral (six items); whether they believed children in EHS should be examined by a dentist (one item); the difficulty in finding a dentist for children younger than 3 years of age (one item); and the seriousness of dental problems among infants and toddlers (one item). Responses for individual items were recorded on a five-point Likert-type scale that ranged from "strongly agree" to "strongly disagree" or "very important" to "not important at all." Responses for each item were grouped as "strongly agree, agree" versus "not sure, disagree, and strongly disagree" and "very important" versus "somewhat important, don't know, not important, not at all important" based on their overall frequency distributions, which were highly skewed. Analytical variables for the multi-item constructs of importance placed on dental referrals and treatment (six items) and value placed on primary teeth (four items) were created by summing the

number of "very important" or "strongly agree/agree" responses, respectively.

Three variables assessed general knowledge about the etiology of dental caries (four items), fluoride use (four items), and the recommended age of the first dental visit (one item). Each knowledge question had three possible responses, "agree," "disagree," and "don't know," that were recoded to "correct" versus "not correct." "Don't know" responses were considered "not correct." Again, the analytical variables for the multi-item constructs were created by summing the number of correct responses to all related questions. For the regression analyses, the summary counts for the multi-item knowledge and attitude constructs were collapsed into two- or three-level variables based on their frequency distributions.

The final explanatory variable included an assessment of knowledge about the IMB program, with responses being "not aware of the program," "aware of the program" (heard of the program but do not know much about it), or "familiar with the program" (know about the services it offers). Those who were either aware of the program or familiar with it were asked if they knew (yes or no) of medical offices in their communities participating in the IMB program or of children in their centers who had received preventive dental services from the program. They were also asked to respond ("agree," "disagree," "don't know") to the following question: "I think this dental project offered in medical practices is a good way for children in our EHS center to receive preventive dental services."

Control variables included in the analysis were sociodemographic characteristics of the respondent (educational attainment, race/ethnicity, age), personal dental characteristics (time since last dental visit, self-perceived oral health, personal dental neglect), and factors associated with their EHS employment (position type, years working in child care, and years employed with EHS).

Dental neglect was measured by use of the Dental Neglect Scale (30).

Data Analysis. Descriptive statistics reporting percent distributions of respondents by knowledge, attitudes, and outcome opinions about prevention and screening were generated using the SAS 9.1 statistical software (SAS Institute, Inc., Cary, North Carolina, USA). All explanatory and control variables were examined in bivariate tables using chi-square tests to determine their independent associations with the four outcome variables. Pearson's correlation coefficients were calculated for each of the independent variables to examine for autocorrelation.

Logistic regression models were developed to test the effects of the EHS staff's oral health attitudes and knowledge on opinion outcomes while accounting for control variables. For both the prevention and screening dependent variables, two different regression models were used. In the first model, subjects who had an opinion ("agree" or "disagree") were compared to those without an opinion ("don't know"). The second model selected subjects with an opinion ("agree" or "disagree") and compared those who agreed with those who reported that they disagreed. Regressions included all control variables except those that were strongly correlated with another control variable (correlation coefficient = >0.5), where only one of the variables was included in the final regression models. Interaction terms were not included in regression models because of concerns about small sample sizes.

NC has 18 nonmigrant EHS programs with a total of 51 centers and 10 home-based programs, two of which are entirely home-based. These 18 programs draw from the population living in 29 of the state's 100 counties, and average 27 staff members per program. We specified two-level models to account for the intracluster correlation with the staff as level 1 observations and EHS programs as level 2. We did not specify three-level models to account for

clustering within centers because of the home-based programs, and some centers had fewer than three staff members who responded to the survey. Population-averaged models were estimated using the generalized estimating equation method with the logit link function (31,32). Cluster correlation effects within EHS programs were controlled for using the REPEATED statement with compound symmetry covariance structure in the GENMOD procedure in SAS 9.1.

Results

The questionnaires were completed by the staff in all 18 EHS programs. The response rate was 100 percent for program directors and health coordinators and 98 percent for teachers and other staff. A total of 481 individuals responded, of whom five were excluded from the analysis because they had no direct interaction with EHS children or families. The characteristics of the sample are presented in Table 1. All analyses of the sample are limited to those respondents ($n = 400$) with nonmissing values for all variables. Only small and nonstatistically significant differences ($P > 0.8$) were observed in the characteristics of the full and analytical sample.

Dental Attitudes and Knowledge. The attitudes about dental health as reported by the EHS staff for individual items are presented in Table 2. Most respondents placed a high degree of importance on activities that help ensure that EHS children get the needed dental care. The composite variable of six activities reflecting the role of EHS in dental care showed that 73 percent of the staff considered these activities to be of high importance (rated five or six items "very important"). However, only 49 percent placed a high value on primary teeth as determined by the composite variable for the four items in the table ("agree strongly/ agree" response for three or four items). The knowledge about most individual dental health items was low (Table 3). Only 60 and 43 percent had moderate-to-high

knowledge (two to four items correct) on the composite scores for fluoride use and caries etiology, respectively.

Knowledge and Opinions about IMB. When asked about the IMB program, 53 percent of the staff reported that they were not aware of it; 33 percent were aware of it but did not know much about it, and only 14 percent were familiar with IMB and the preventive dental services it offers. For those staff who either had heard of IMB or were familiar with it, 91 percent agreed that it would be a good way for EHS children to receive preventive dental services. All program directors and 89 percent of the health coordinators believe that IMB services are a good way for children in EHS to obtain preventive dental care. Further, 15 out of 18 health coordinators believe that IMB visits should count as a dental screening for EHS enrollees.

Results pertaining to the two sets of outcome variables and the original question from which they were derived are displayed in Table 4. Overall, 51.5 and 66.6 percent of the staff agree that physicians or nurses can provide preventive or screening services, respectively. Collapsed variables used for the analysis suggest that 82 percent of the staff have an opinion as to whether or not physicians and nurses can provide preventive dental services for infants and children. Among those with an opinion, 62.8 percent indicated they were in agreement with physicians and nurses providing preventive care. For the second set of variables investigating screening for dental disease, 86.1 percent of the staff had an opinion about whether or not physicians and nurses can identify dental problems. Among those with an opinion, 77.3 percent of the EHS staff agreed that medical providers can successfully identify dental disease in young children.

Results of Multivariate Analysis. Because of the similar results obtained from the bivariate and multivariate analysis, only the latter are presented (Tables 5 and 6). Those who placed high importance on

Table 1
Sociodemographic, Dental Health, and Employment Characteristics of the Early Head Start (EHS) Staff

Variable	Full Sample ($n = 476$)		Analytical Sample ($n = 400$)	
	n	%	n	%
Position				
Teacher	341	71.6	288	72.0
Family services	66	13.9	54	13.5
Manager	31	6.5	24	6.0
Health coordinator	20	4.2	18	4.5
Program director	18	3.8	16	4.0
Missing	0	0		
Educational level				
Some/high school	47	9.9	38	9.5
2 years/some college	232	48.7	200	50.0
College degree	191	40.1	162	40.5
Missing	6	1.3		
Ethnicity				
White	222	46.6	205	51.3
Black	178	37.4	144	36.0
Hispanic/Native/other	65	13.7	51	12.8
Missing	11	2.3		
Age				
18-27 years	105	22.0	98	24.5
28-37 years	125	26.3	110	27.5
38-47 years	108	22.7	95	23.8
48-76 years	110	23.1	97	24.3
Missing	28	5.9		
Personal dental health [Dental Neglect Scale (DNS)]				
Low DNS (<8)	86	18.1	69	17.3
Low-moderate DNS (8-9)	132	27.7	111	27.8
Moderate-high DNS (9.1-12)	131	27.5	118	29.5
High DNS (13-23)	116	24.4	102	25.5
Missing	11	2.3		
Last personal dental visit				
More than 1 year ago	173	36.3	149	37.3
Within 1 year	297	62.3	251	62.8
Missing	6	1.3		
Years employed in infant/toddler care				
0-2 years	133	27.9	114	28.5
3-5 years	132	27.7	114	28.5
6+ years	199	41.8	172	43.0
Missing	12	2.5		
Years employed with EHS				
<1 year	98	20.6	86	21.5
1 or 2 years	155	32.3	133	33.3
3 or 4 years	100	21.0	85	21.3
5+ years	116	24.4	96	24.0
Missing	7	1.5		
Personal dental health				
Poor/fair	106	22.3	95	23.8
Good/excellent	361	75.9	301	75.3
Missing	9	1.9	4	1.0
Received continuing dental education from EHS				
No/do not remember	278	58.4	233	58.3
Yes	188	39.5	159	39.8
Missing	10	2.1	8	2.0

referral and treatment were 3.0 times [95 percent confidence interval (CI) = 1.2, 7.5] more likely to have an opinion about physicians providing preventive dental services than those who placed low importance on these activities (Table 5). Those with moderate-to-high knowledge about fluoride were more likely [odds ratio (OR) = 1.8; 95 percent CI = 1.0, 3.3) to have an opinion than those with low knowledge. Among those who held an opinion about prevention, respondents who were familiar with the IMB program were more likely to agree that physicians and nurses can provide preventive dental services (OR = 2.4; 95 percent CI = 1.1, 5.2) than those who were not aware of it.

Explanatory variables associated with the two screening outcomes are the same as those found in the analysis of opinions about prevention, but with somewhat stronger associations (Table 6). Those staff who reported placing high importance on dental referral and treatment (OR = 3.4; 95 percent CI = 1.3, 9.1) and had moderate-to-high knowledge about fluoride (OR = 2.0; 95 percent CI = 1.1, 3.8) were more likely to have an opinion than those who did not. Among the staff with an opinion, those who were familiar with the IMB program (OR = 3.4; 95 percent CI = 1.2, 9.4) or were aware of it (OR = 2.3; 95 percent CI = 1.2, 4.4) were more likely to agree that physicians and nurses can identify dental problems than those who had never heard of the program.

Discussion

This study is the first to examine the opinions of any professional group about the possibility of medical offices functioning in any capacity as dental homes for young children. The majority of EHS staff in NC believes that primary care medical offices can provide preventive dental services for young children. However, 19.5 percent of the respondents believed that physicians and nurses could not identify dental problems in infants and toddlers and 30.5 percent believed that physicians and nurses could not provide pre-

Table 2
Attitudes of the Early Head Start (EHS) Staff about Dental Health

Item	% strongly agree/agree or very important ($n = 400$)
Dental problems and treatment	
Children younger than age 3 years do not have serious dental problems	53.0
Children in EHS should be required to have an exam by a dentist	86.0
Finding a dentist to see a child younger than 3 years is difficult	66.0
How important is it that the EHS staff:	
determine if the family has a dentist	81.7
assist the family in finding a dentist	81.3
conduct screenings to see if the child needs treatment	89.8
arrange dental appointments	92.3
follow-up on completed dental treatment	85.0
prepare the child for dental visit	83.4
Value placed on primary teeth	
Please indicate your level of agreement with:	
cleaning baby teeth is not important	3.3
a child's overall health is not related to having cavities	16.9
fill a baby tooth only if it hurts	25.6
tooth decay can cause an infection in the whole body	64.0

Table 3
Knowledge of the Early Head Start Staff about Dental Health

Item	% correct ($n = 400$)
Dental examination	
First dental exam is recommended by 1 year of age	48.8
Fluoride (F) use	
F toothpaste should cover the bristles	73.7
Preschool children should use F rinse	52.5
All children older than 6 months should get F supplements	34.9
F varnish helps prevent cavities	35.9
Caries etiology	
Please indicate your level of agreement with:	
mothers' gum disease can result in preterm birth	20.0
bacteria that cause cavities are passed from mother to infant	27.9
low-income children are less likely to get cavities	82.3
disabled children are more likely to get cavities	22.5

ventive dental services. Another 13.9 and 18 percent, respectively, did not have an opinion about screening or preventive services by physicians or nurses. Consequently, the opinions of 33 to 49 percent of the staff might pose a barrier to using primary health care professionals as a principal source of preventive dental care for infants and toddlers enrolled in EHS.

The results of this study provide insights into strategies that might be used to overcome any barriers that staff opinions might pose to this approach of increasing access to preventive dental services for children. A key finding in this regard is that the EHS staff are more likely to have an opinion about the use of medical professionals for both the identification and prevention of dental problems if they place greater importance on the role of EHS in assisting enrolled children get needed dental services. Greater knowledge, particularly of fluoride uses, was also related positively to having an opinion. Furthermore, those with an opinion were more inclined to agree that physicians and nurses can both identify and prevent dental problems if they are familiar with the nature of the preventive services offered by the IMB program. We found that 91 percent of all EHS staff who had specific knowledge of the IMB program supported using it as a source of preventive dental care for children enrolled in EHS. Unfortunately, 53 percent of the EHS staff had no knowledge whatsoever of the IMB program and another 33 percent had limited awareness.

Collectively, these findings suggest the need to provide education for staff that will address several key attitudes and knowledge. Education programs will need to establish the importance of early preventive dental screenings and referrals, improve dental knowledge, and boost awareness of the IMB program. Such educational activities would likely further increase support for partnering with IMB medical offices as a means to obtain primary preventive dental care for children enrolled in EHS.

In data not presented in this paper, we found that 84 percent of children enrolled in EHS did not require surgical dental intervention, which suggests that the dental needs of these children are chiefly preventive in nature. Previous IMB research has shown that physicians with specific training in dental screening techniques can accurately identify children with cavitated carious lesions (33). We believe that the results of the present study, combined with knowledge of the predominate dental needs of most children and previous research, suggest that partnerships between EHS programs and medical offices can be considered as one means to improve access to preventive dental care for young children.

Table 4
Opinions of the Early Head Start Staff about Physicians or Nurses Providing Preventive Dental Services

| | In your opinion, a medical doctor or nurse can: | |
| | Provide preventive dental care for infants and toddlers | Identify dental problems in infants and toddlers |
Variable Response	% ($n = 400$)	% ($n = 395$)
Uncollapsed response		
Agree	51.5	66.6
Disagree	30.5	19.5
Don't know	18.0	13.9
Collapsed opinion versus no opinion		
Agree/disagree	82.0	86.1
Don't know	18.0	13.9
Opinion among those with an opinion	($n = 328$)	($n = 340$)
Agree	62.8	77.3
Disagree	37.2	22.7

Such partnerships could have important implications for improvements in dental health. About 63 to 100 percent of children enrolled in the 18 EHS programs in NC rely on Medicaid for dental insurance. Only 25 percent of NC dentists actively participate in Medicaid (34), creating obstacles to dental care because of the substantial numbers of EHS children with public insurance. A further complication for EHS children and their families in gaining access to dental care is that less than one-half of the counties, where programs are located, have a pediatric dentist. These statistics highlight the very real impediments encountered by EHS programs as they try to obtain dental services for enrolled children.

Table 5
Logistic Regression Model for the Likelihood of the Staff Having an Opinion and Agreeing on Physicians or Nurses Providing Preventive Dental Services for Infants and Toddlers

| | Opinion versus No Opinion ($n = 400$) | | Agree versus Disagree ($n = 328$) | |
Variable	Odds Ratio	95% CI	Odds Ratio	95% CI
Attitudes				
Importance of dental referral and treatment				
Moderate versus low importance	1.7	0.6, 4.6	2.0	0.7, 6.2
High versus low importance	3.0	1.2, 7.5	1.6	0.6, 4.3
Infants/toddlers should be required to have a dental exam while in EHS	0.8	0.3, 1.8	0.9	0.4, 1.9
Value of baby teeth				
Moderate versus high value	1.6	0.6, 4.4	0.6	0.2, 1.6
Low versus high value	1.7	0.6, 4.8	0.8	0.3, 2.1
Difficult to find a dentist to treat <3 years old	1.4	0.7, 2.6	0.9	0.5, 1.5
Infants/toddlers have few dental problems	1.3	0.7, 2.3	0.9	0.5, 1.5
Knowledge				
How familiar are you with IMB?				
Aware versus never heard of it	1.3	0.7, 2.5	1.7	0.9, 2.9
Familiar versus never heard of it	1.0	0.4, 2.6	2.4	1.1, 5.2
Knowledge of dental uses of fluoride				
Moderate/high versus low knowledge	1.8	1.0, 3.3	0.8	0.5, 1.3
Knowledge of caries disease etiology				
Moderate/high versus low knowledge	1.9	0.9, 3.5	1.0	0.6, 1.6
Knowledge of the recommended age 1 visit	0.7	0.4, 1.2	1.0	0.6, 1.6

All models exclude the following variables from analyses: personal global health rating, knowledge of organizational recommendations for age of first dental visit, and continuing dental education with EHS because they are highly correlated with other variables in the model.
All models include the following control variables in the analyses: staff position, education, ethnicity, age, DNS, last dental visit, and years of experience with infant/toddler care.
CI, confidence interval; EHS, Early Head Start; IMB, Into the Mouths of Babes; DNS, Dental Neglect Scale.

Table 6
Logistic Regression Model for Likelihood of the Staff Having an Opinion and Agreeing on Physicians or Nurses Identifying Dental Problems in Infants and Toddlers

Variable	Opinion versus No Opinion ($n = 395$)		Agree versus Disagree ($n = 340$)	
	Odds Ratio	95% CI	Odds Ratio	95% CI
Attitudes				
Importance of dental referral and treatment				
Moderate versus low importance	2.5	0.8, 7.7	0.3	0.1, 1.3
High versus low importance	3.4	1.3, 9.1	0.3	0.1, 1.3
Infants/toddlers should be required to have a dental exam while in EHS	0.6	0.2, 1.6	1.8	0.7, 3.9
Value of baby teeth				
Moderate versus high value	1.5	0.5, 4.7	0.6	0.2, 1.7
Low versus high value	1.6	0.5, 4.8	1.0	0.3, 3.0
Difficult to find a dentist to treat <3 years old	1.7	0.8, 3.5	1.5	0.8, 2.7
Infants/toddlers have few dental problems	1.0	0.5, 2.0	0.8	0.4, 1.4
Knowledge				
How familiar are you with IMB?				
Aware versus never heard of it	0.9	0.4, 1.7	2.3	1.2, 4.4
Familiar versus never heard of it	0.8	0.3, 2.4	3.4	1.2, 9.4
Knowledge of dental uses of fluoride				
Moderate/high versus low knowledge	2.0	1.1, 3.8	1.1	0.6, 1.9
Knowledge of caries disease etiology				
Moderate/high versus low knowledge	1.0	0.5, 2.0	1.2	0.7, 2.2
Knowledge of the recommended age 1 visit	0.9	0.5, 1.7	1.3	0.7, 2.3

All models exclude the following variables from analyses: personal global health rating, knowledge of organizational recommendations for age of first dental visit, and continuing dental education with EHS because they are highly correlated with other variables in the model.
All models include the following control variables in the analyses: staff position, education, ethnicity, age, DNS, last dental visit, and years of experience with infant/toddler care.
CI, confidence interval; EHS, Early Head Start; IMB, Into the Mouths of Babes; DNS, Dental Neglect Scale.

In striking contrast to dental care, EHS staff report few barriers to obtaining medical care for children. The use of primary medical care providers to deliver preventive dental services, which is allowed by current program performance standards, should increase access to preventive dental services. But this approach will need to be accompanied by continuing medical education for physicians so that they will provide these services in an appropriate way and by education of staff so that they will support this approach. EPSDT guidelines also will need to be clarified by policymakers and reviewed by each local health advisory committee so that staff will have a clear understanding of the role of physicians and dentists in the care of infants and toddlers.

The results of this study should be considered in light of a few limitations. A primary limitation is its cross-sectional design, which requires that statistical associations between explanatory variables and outcome opinions be interpreted cautiously because they might not be causal. Therefore, an increase in staff knowledge about the IMB program will not necessarily result in more favorable opinions regarding primary health care workers providing preventive dental services. Another limitation is that the results are based on a self-completed questionnaire and therefore, responses are subject to self-reporting inaccuracies. For example, the questions that supplied our outcome variables could have been subject to different interpretations, and we do not have any insights into the cognitive processes involved in how they were answered by the staff. Some staff may have assumed that they were being asked their opinion on what dental services physicians and nurses are allowed to provide according to the state practice acts, others, what they

are willing to provide, and still others, what they have the skill to provide, our intended meaning. Finally, these results might not have external validity. The results are based on the EHS staff in a single state and may not be representative of other states. Nevertheless, we believe the results have the potential to inform and possibly modify EHS policies related to the oral health of children. By broadening the vision of a dental home to include collaboration among all child care and health providers, we can improve children's access to preventive dental services and ultimately, their oral health.

Acknowledgments

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