Pediatric Oral Health Research & Policy Center

Interprofessional Study of Oral Health in Primary Care

Final Report
May, 2014

Leola Mitchell-Royston, MPH
AAPD Program Coordinator, Pediatric Oral Health and Policy Research Center

Art Nowak, BA, MA, DMD, FAAPD
AAPD Fellow, Study Principal Investigator, Pediatric Oral Health and Policy Research Center

Jan Silverman, MS, MSW, LCSW
AAPD Assistant Director, Pediatric Oral Health and Policy Research Center

AMERICA'S PEDIATRIC DENTISTS
THE BIG AUTHORITY on little teeth

Acknowledgment

We would like to express a special thank you to our advisory group:

Lauren Barone, MPH
AAP Manager, Oral Health

Paul Casamassimo, DDS
American Academy of Pediatric Dentistry (AAPD) Director, Pediatric Oral Health and Policy Research Center

Tracy Garland
Director, National Interprofessional Initiative on Oral Health (NIIOH)

Erin Hartnett, DNP, APRN-BC, CPNP
NYU College of Nursing
Program Director, Oral Health Nursing Education and Practice (OHNEP)
Teaching Oral-Systemic Health (TOSH)

Patrick Killeen, MS, PA-C
Past President, American Academy of Physician Assistants (AAPA)
Leader of Special Interest Group on Oral Health for AAPA
Coordinator, PAs for Oral Health

Kim Kimminau, PhD
Research Director, American Academy of Family Practitioners (AAFP) National Research Network
Associate Professor, Department of Family Medicine University of Kansas Medical Center

Adriana Segura, DDS, MS
Chairperson, American Academy of Pediatrics (AAP) Section on Oral Health

Acknowledgment

We would like to express a special thank you to our practice observation sites:

Atkinson Family Practice, MA

Children's Health Center at THEARC, DC

Children’s Hospital of Pittsburgh, Children’s Primary Care Oakland, PA

Contra Costa Health Services, CA

Denver Health, CO

Fairview Clinics- Andover, MN

Iron Horse Pediatrics, CO

Pediatric Health Care, MI

Sixteenth Street Community Health Centers, WI

Tomagwa HealthCare Ministries, TX

University of Illinois Children's and Adolescent Clinic, IL

University of Wyoming Family Medicine at Casper, WY

ABSTRACT

OBJECTIVES:

1. Collect information about oral health promotion in the primary care setting
2. Identify drivers to successful implementation of oral health promotion in the primary care setting
3. Learn which caries-risk assessment tools are being used in primary care and how they might be improved
4. Determine what parents/caregivers think about oral health care information presented by primary care providers

METHODS:

Six focus groups were conducted with primary care providers (17 pediatricians, 11 family medicine physicians, 10 nurse practitioners, and three physician assistants) currently conducting oral health promotion for children 0-12 years old. Participants represented various practice types: public (such as academic medical centers, free clinics, community health centers), private, HMOs, FQHCs, hospital based, and school based.

Twelve practice observations were conducted in primary care facilities that are currently conducting oral health promotion for children 0-6 years old. Various practice types were represented: private, hospital/academic, FQHCs, and faith based/volunteer. Within the 12 sites, the following providers were represented: 73 pediatricians, 51 family medicine physicians, 23 nurse practitioners, 26 physician assistants, 112 pediatric residents, 29 family medicine residents, 71 registered nurses and licensed practical nurses, and 131 medical assistants.

RESULTS:

Oral health care activities studied in the primary care sites visited were: caries-risk assessment, visual inspection/screening, fluoride varnish application, fluoride supplementation, oral health education and anticipatory guidance, and referral to a dentist.

Information regarding oral health promotion obtained was in reference to: workflow, caries-risk assessment tools, documentation of oral health activities, payment for oral health services, challenges to implementing oral health promotion in the primary care setting, referral systems and relationships with dentists, and family/caregiver response. Suggestions for system improvement and simplification were also solicited.

Drivers of successful implementation of oral health promotion reported and observed were:

- Oral health champion(s) present, defined as someone motivated to make a change within the site and willing to work towards sustainability.
- Oral health activities delegated throughout the healthcare team.
- Oral health activities formally integrated into the work flow.
- Oral health prompts and questions included in the electronic health record (EHR):
    - Specific questions and/or prompts included in intake and exam screens
    - Order sets in EHR for dental referral and fluoride varnish automatically bundled together
    - Ability to analyze oral health related data for quality improvement (fluoride varnish application)

CONCLUSIONS:

Incorporating oral health activities into existing primary care workflows is difficult, but there is much that can be learned from this group of providers and practices who have implemented oral health promotion into the practice of primary care medicine, including the following:

- The impetus for integrating oral health promotion into the primary care practice varied from one site to another, however, in all instances, at least one person (i.e. oral health champion) had strong feelings about the importance of oral health and its relationship to systemic health.
- Successful integration of oral health promotion in primary care necessitates a team approach.
- Providers of all types reported a need for improved oral health instruction in professional training programs (e.g., MD, PA, NP, RN, LPN, MA, PharmD).
- Visual inspection was the most commonly identified caries-risk assessment tool by primary care providers.
- External support from recognized experts (e.g., Chapter Oral Health Advocates, American Academy of Pediatrics, Cavity-Free by Three,) was identified as extremely helpful to primary care providers in establishing an oral health program.
- Generally, if not paid for fluoride varnish applications, primary care providers will not provide this service to patients at well child visits.
- Caries-risk assessment tools are not utilized in their original versions and need to be simplified.
- Integration of caries-risk assessment tools and preventive strategies into the EHR makes implementation much easier and was reported as an essential step for consistent implementation, quality assurance and documentation.
- When practices were able to include oral health activities in their quality improvement efforts through EHR-generated reports, they reported an improvement in implementation and consistency.

Introduction

Poor oral health is a major public health concern throughout the world. Caries is the most common chronic condition of childhood.[1, 2] Left untreated, oral disease can result in a broad range of functional impairments such as difficulty eating, sleeping, speaking, maintaining cognitive focus, or controlling behavior. These problems have far-reaching implications for growth, development, school performance, and peer relationships. Although many Americans have a medical home, a great number do not have access to regular dental care. Primary care providers are well positioned to support preventive care and reduce the impact of a wide variety of oral conditions, especially dental caries. [3, 4]

Much of the research available focuses on the barriers to providing oral health promotion in primary care settings.

This project offered an opportunity for the American Academy of Pediatric Dentistry's (AAPD) Pediatric Oral Health and Policy Research Center to collaborate with an interprofessional group to study implementation of oral health promotion in the primary care setting. An advisory group was formed to provide guidance to the study design and execution. Members include: **Lauren Barone, MPH** (AAP Manager, Oral Health); **Paul Casamassimo, DDS** (AAPD Director, Pediatric Oral Health and Policy Research Center); **Tracy Garland** (Director, National Interprofessional Initiative on Oral Health (NIIOH)); **Erin Hartnett, DNP, APRN-BC, CPNP** (NYU College of Nursing, Program Director, Oral Health Nursing Education and Practice (OHNEP), Teaching Oral-Systemic Health (TOSH)); **Patrick Killeen, MS, PA-C** (Past President, American Academy of Physician Assistants (AAPA), Leader of Special Interest Group on Oral

Health for AAPA, Coordinator, PAs for Oral Health); **Kim Kimminau, PhD** (Research Director, American Academy of Family Practitioners National Research Network, Associate Professor, Department of Family Medicine University of Kansas Medical Center); **Adriana Segura, DDS, MS** (Chairperson, American Academy of Pediatrics (AAP) Section on Oral Health); Project staff included: **Arthur Nowak, BA, MA, DMD, FAAPD** (AAPD Fellow, Study Principal Investigator, Pediatric Oral Health and Policy Research Center); **Jan Silverman, MS, MSW, LCSW** (AAPD Assistant Director, Pediatric Oral Health and Policy Research Center); and **Leola Mitchell-Royston, MPH** (AAPD Program Coordinator, Pediatric Oral Health and Policy Research Center).

The advisory group initially identified potential oral health promotion activities in primary care. These activities were then used to develop questionnaires and protocols for focus groups and practice observations. Focus groups and practice observations were conducted with providers and practice sites who have implemented oral health promotion into their practice of primary care medicine. The advisory group specifically targeted primary care providers and sites who were conducting oral health promotion during the recruitment process. The research questions were:

- Of the primary care facilities that have implemented oral health promotion, what are they doing, what has driven their success, and how have they been able to maintain these practices?
- How is caries-risk assessment being used in primary care and how might it be improved?

ORAL HEALTH PROMOTION ACTIVITIES IN PRIMARY CARE

Fluoride Recommendations
- Fluoride Varnish
- Fluoridated Water
- Fluoride Supplement
- Other Types of Fluoride Modalities

Risk Assessment
- Use of risk assessment tool
- Visual Screening

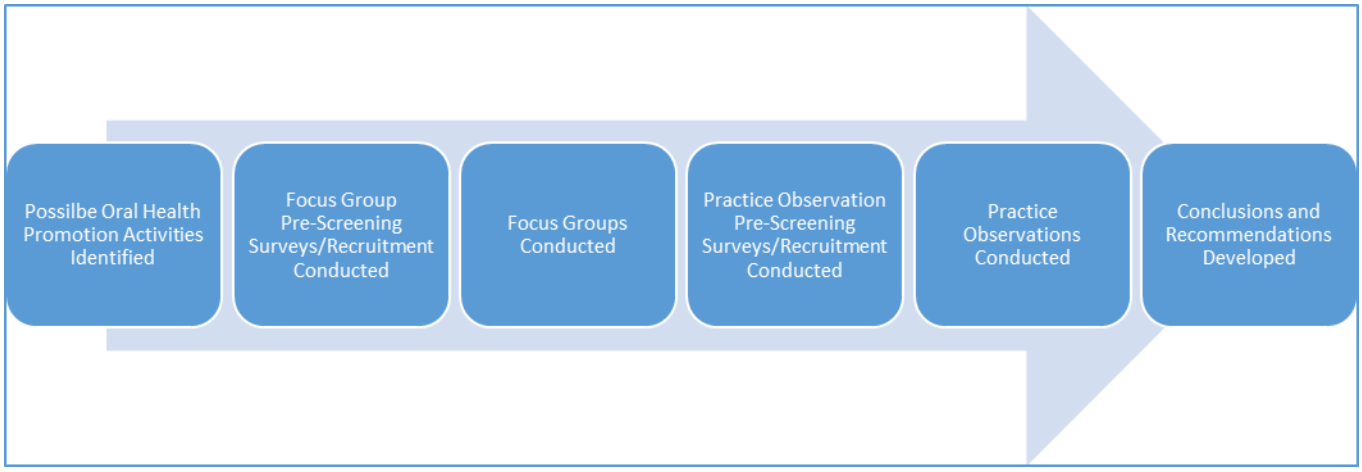
Patient Engagement
- Parent/Patient Education
  - Behavior
  - Diet
  - Hygiene
  - Risk/Protective Factors
  - Anticipatory Guidance
- Goal Setting/Monitoring

Evidence of mechanism in place for referral to dental home

Consultation w/ dental providers

Priority for oral health in Primary Care (provider attitude or "oral health champion" in office)

Room for documentation on oral health in the electronic health record (EHR)



Methods

The methods of data collection for the focus group portion of the study were individual surveys, questionnaires, and focus groups. Surveys were used to pre-screen potential participants in order to determine eligibility for a focus group. Surveys were generated through SurveyMonkey and emailed (via a link) to prospective focus group participants (see Appendix A). Individuals who completed the pre-screening survey and provided their contact information were entered into a drawing for a Kindle Fire HD - 7" (approximate value $200). Once eligible participants were identified, detailed information regarding a focus group was disseminated via email, and they were invited to attend a focus group session. All focus group participants signed a consent form. During each focus group, the moderator followed a guide and asked a series of questions related to oral health promotion in primary care (see Appendix B). Detailed information regarding focus group methods can be found in Appendix C.

The methods of data collection for the practice observation portion of the study were surveys and practice observations. Surveys were used to pre-screen potential participants in order to determine sites that were eligible to participate in a practice observation. Surveys were generated through SurveyMonkey and emailed (via a link) to prospective practice observation representatives (see Appendix D). The individual that completed the survey (and provided their contact information) was considered the site representative. A practice observation checklist was completed during visits (see Appendix E). When possible, research staff interviewed physicians, nurse practitioners, physician assistants, nurses, medical assistants, office staff, front desk staff, office managers, record keepers, and other members of the practice team, as well as family members and/or caregivers of patients age 0-6 years old. Everyone who agreed to speak with the research staff signed a consent form. Detailed information regarding practice observation methods can be found in Appendix F.

Results/Focus Groups

Of the 165 surveys returned, 119 were completed. Of those completed, 66 answered “Yes” (either “Yes, for all patients, regardless of insurance status” or “Yes, for publically insured patients only”) to the pre-screening survey question, “Do you conduct a caries-risk assessment (also known as an oral health risk assessment or oral screening) in your office?” These 66 study participants were invited to participate in a focus group. (This number does not include participants recruited by AAFP.)

Demographic information from focus group participants and their practices is summarized in Table 1. Over half of the focus group participants were: female (68%), reported pediatrics as their specialty (71%), have been in practice over 10 years (71%), and practiced in urban areas (66%).

Results/Practice Observations

Of the 57 surveys returned, 44 were completed. Of those completed, 40 answered “Yes” (either “Yes, for all patients, regardless of insurance status” or “Yes, for publically insured patients only”) to the pre-screening survey question, “Do you conduct a caries-risk assessment (also known as an oral health risk assessment or oral screening) in your office?” Of those 40 eligible sites and two eligible sites recruited by AAFP, Art Nowak, Principal Investigator, selected 19 that reflected a mixture of the study’s variables of interest (geographic location, type of provider leading the site, type of practice, number of years oral health has been implemented). Those 19 sites were invited to participate in the study as practice observation locations. Fourteen sites responded and agreed to be a part of the study. Two site visits were canceled due to travel issues and scheduling conflicts. Twelve practice

observations were conducted in primary care facilities currently conducting oral health promotion for children 0-6 years old (see Tables 2 and 3). Of the 12 sites visited, nine offered fluoride varnish (applied by a medical provider) (75%), ten reported they were conducting oral health screenings (83%), six reported that they were conducting caries-risk assessment (50%), 12 reported providing oral health education (100%), five reported goal setting with parents/caregivers (42%), and 12 reported having a system in place to refer children to a dentist (100%).

TABLE 1. Demographic characteristics of focus group participants

Characteristic	Number	%
Gender		
Male	13	32
Female	28	68
Age (years)		
20-29	3	7
30-40	8	20
41-50	9	22
51-60	12	29
Over 60	9	22
Specialty		
Pediatrics	29	71
Family Medicine	12	29
Years in Practice		
< 5	6	15
6-10	6	15
>10	29	71
Number of children (0-3yr) seen in practice per week		
<25	13	32
26-75	16	39
>75	12	29
Type of practice		
Public	14	34
Private	18	44
HMO	1	2
FQHC	2	5
Group Practice (owned by hospital system)	1	2
Hospital Based Teaching Practice	2	5
School Based Clinic	1	2
Private/HMO	1	2
Employed Physician	1	2
Community		
Urban Area: 50,000 or more people	27	66
Urban Area: At least 2,500 and less than 50,000 people	4	10
Rural: Outside urban areas with more than 10,000 people	6	15
Rural: Outside urban areas with 2,500 -10,000 people	3	7
Rural: Outside urban areas with up to 2,500 people	1	2

Table 2. Practice Observation Site Characteristics n=12

Geographic Location	# of Sites
Suburban	4
Urban	8
Practice Specialty	
Pediatrics	7
Family Medicine	3
Mixed (Pediatrics and Family Medicine)	2
Type of Practice	
Private	5
Hospital/Academic	3
FQHC	3
Faith-based/Volunteer	1
Number of Years Implementing Oral Health	
<1 year	2
1-5 years	5
>5 years	5

Table 3. Provider Distribution Among Sites

Number of Providers Represented	# of Providers
Pediatricians	73
Family Medicine Physicians	51
Nurse Practitioners	23
Physician Assistants	26
Pediatric Residents	112
Family Medicine Residents	29
RNs and LPNs	71
Medical Assistants	131

Discussion

Common themes emerged from both the focus group and practice observation data in regard to oral health promotion in primary care.

Impetus for Initiating an Oral Health Program

"Witnessing patients suffering from dental caries"

"We never would have done it without people coming in our office and explaining to us what we needed to know"

Sites reported a myriad of reasons how and why oral health promotion began. A recurring theme was that providers and staff were upset and fed up with the amount of decay they were witnessing in their pediatric populations and wanted to do something to directly address this issue. Additionally, they recognized families were experiencing gaps in access to dental care. Participants attributed gaps in access to care to a number of reasons, e.g., families without dental insurance, dentists not taking young children, parents not aware of need to take young children to the dentist, no dentist in local area.

For many, outside training programs came to the site and assisted them through various steps of the process (e.g., education on oral health, fluoride varnish application training, EHR assistance, billing). Two programs mentioned repeatedly were AAP's Chapter Oral Health Advocate trainings, and Cavity Free at Three (a preventive oral health program in Colorado). One site hired a dental hygienist to conduct trainings with medical providers on oral health promotion. Topics included caries-risk assessment, oral health education, oral health anticipatory guidance, fluoride varnish, referral to a dentist.

The dental hygienist also conducted focus groups to assist in creating buy-in with staff. This was part of an oral health project they were conducting.

When participants were asked if they received training on oral health related topics during their professional programs, some reported they had, however the majority of participants stated they had not. Those that did not expressed their desire to see more systematic inclusion of oral health into the professional curriculum: "Oral health education for providers is needed." "There is a need for the development of an oral health module for use in medical schools." "I think a big promotion should be out there in medical schools, and primary care residency programs that should be talking to people about inspecting people's mouths."

Drivers to Successful Implementation of Oral Health in Primary Care:

The impetus for integrating oral health promotion into the primary care practice varied from one site to another. However, in all instances, at least one person (i.e., oral health champion) had strong feelings about the importance of oral health and its relationship to systemic health. This person could be a physician, nurse practitioner, physician assistant, nurse, medical assistant, office manager, or any member of the practice team. Oral health champions can be cultivated through professional training programs, train the trainer programs, webinars, medical/dental collaboration programs/ events, new items about oral health in primary care publications, etc., but support of these champions (from the practice leadership and outside organizations) to sustain their efforts is important.

Oral Health Promotion

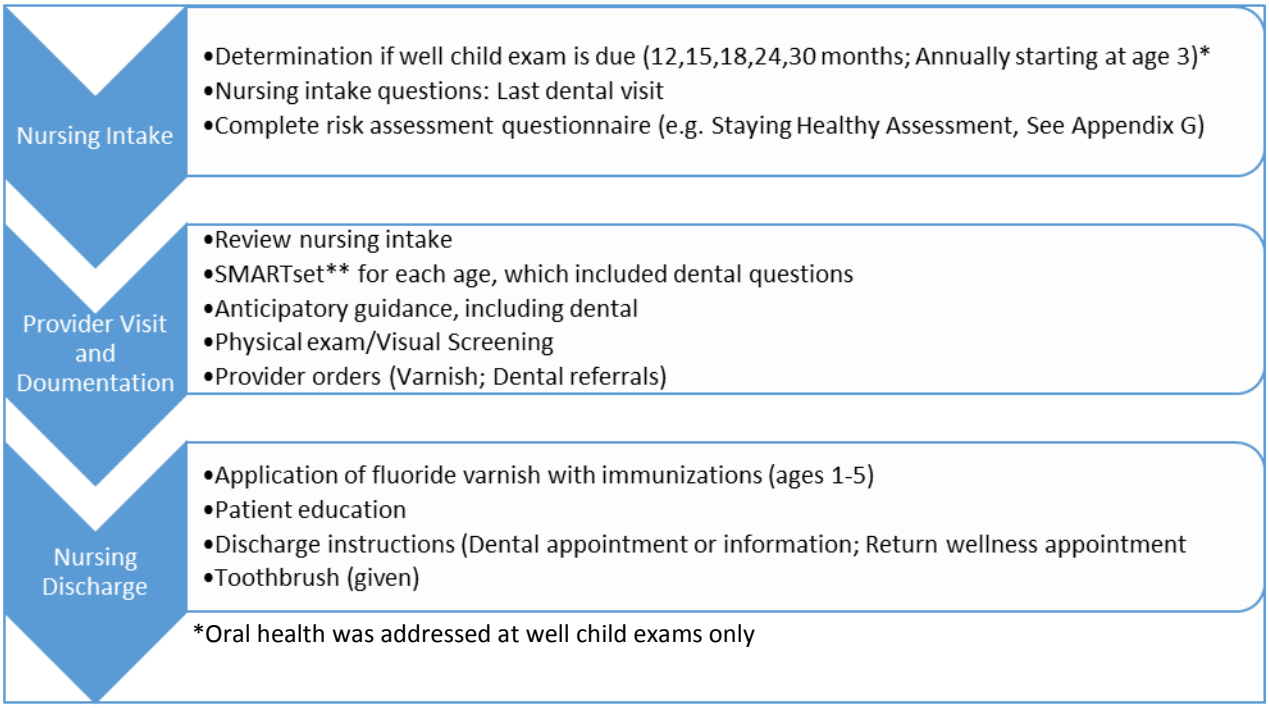
Oral health promotional activities in primary care explored in this study were: caries-risk assessment, visual inspection/ screening, fluoride varnish application, fluoride supplementation, oral health education and anticipatory guidance, and referral to a dentist. Additionally, some sites provided toothbrushes/toothpaste to patients.

Workflow

There were many different approaches to incorporating oral health promotion into the primary care workflow. Some sites utilized paper checklists, while in others it was built into their EHRs. Which staff members provide oral health screening, caries-risk assessment, education, fluoride varnish, and referral also differed by site and, sometimes, by providers within the site.

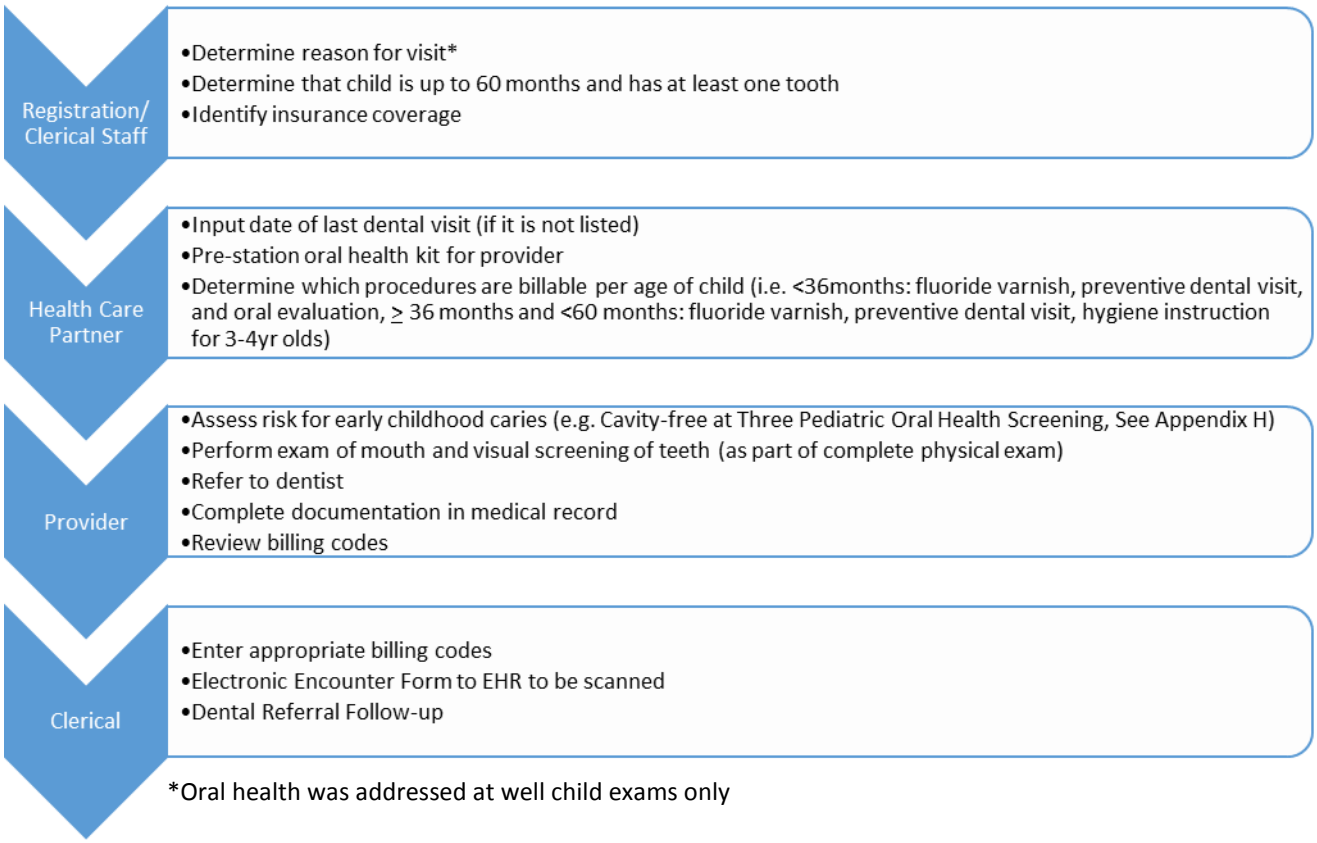
In about half of the sites visited, nurses and medical assistants start the conversation about oral health (e.g., asking questions about eating and drinking habits, oral hygiene habits, fluoridated water intake, informing parent/caregiver of fluoride varnish option). During the exam, the doctor, nurse practitioner, or physician assistant follows up by asking additional questions, assess current oral health status through visual screening, provides education and anticipatory guidance, and offers fluoride varnish treatment, which the nurse or medical assistant then applies. In the other half of sites visited, doctors, nurse practitioners, or physician assistants cover it all: education, anticipatory guidance, application of fluoride varnish. Three examples of how sites delegate duties related to oral health can be found below.

Workflow Example 1: Nursing involved



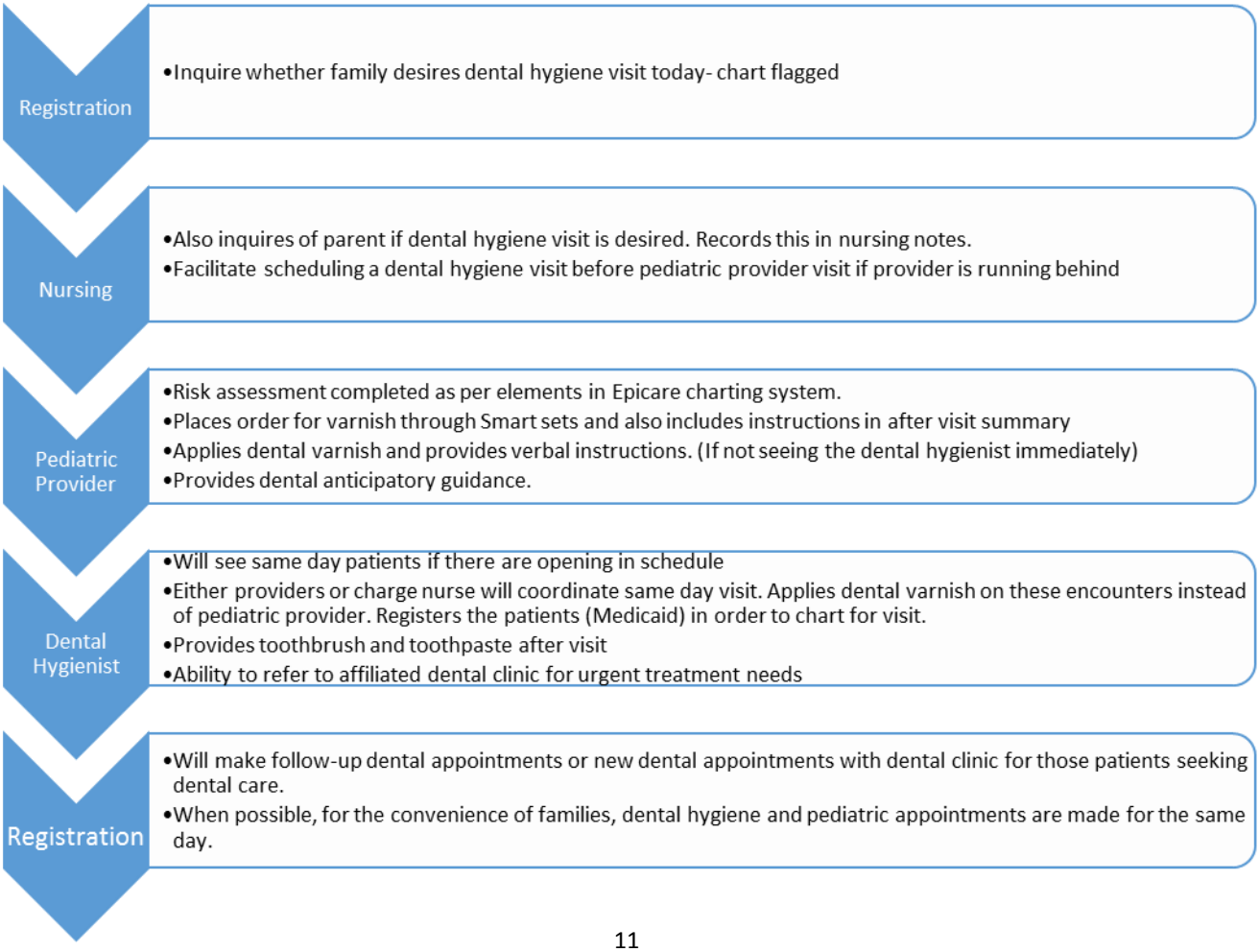
**"According to Epic terminology, a SmartSet is a 'group of orders and other elements, such as notes, chief complaints, and levels of service, that are commonly used together to document a specific type of visit.'"[5]

Workflow Example 2-Registration/Clerical Involved



*Oral health was addressed at well child exams only

Workflow Example 3-Dental Hygienist onsite



Drivers to Successful Implementation of Oral Health in Primary Care:

Work flow varies, but the practices that were able to make oral health promotion a team effort seemed to be most successful. In practices that were most consistent in implementing oral health promotion activities, efforts had been made to create buy-in among all staff and to allow for changes to the workflow over time based on staff experience and preference (from the front desk; to physicians, nurse practitioners and physician assistants; to nurses and medical assistants; as well as other auxiliaries such as referral coordinators).

Caries-risk Assessment

"[Caries-risk assessment] is cumbersome, and needs to be pared down so we can quickly identify the moderate to high risk kids. I don't think most medical providers have time in their practice to complete the entire screening."

As a part of their pre-screening surveys, focus group participants and practice observation sites were asked if they conducted "caries-risk assessment (also known as an Oral Health Risk Assessment or Oral Screening/Visual Inspection) on patients age 0-6/0-12 years old?" Those that answered in the affirmative for this question were then asked what type of caries-risk assessment methods they used. See Tables 4, 5, 6 and 7.

Table 4. Response to focus group pre-screening question #2, "Do you conduct a Caries-risk Assessment (also known as an Oral Health Risk Assessment or Oral Screening/Visual Inspection) in your office on patients age 0-12?" n=119

Response	*Number*	*%*
Yes, for patients (age 0-12 years old), regardless of insurance status	62	52
Yes, only for publically insured patients (age 0-12 years old)	4	3
No	35	29
I do not know	7	6
Other	11	9

Table 5. Response to focus group pre-screening question #3, "Please select the method(s) you use." n=77*

Response	*Number*	*%*
Caries Management by Risk Assessment (CAMBRA)	4	5
American Academy of Pediatrics/Bright Futures Oral Health Risk Assessment Tool	25	33
American Academy of Pediatric Dentistry Risk Assessment Tool	9	12
Visual Inspection	56	73
Other	14	18

*This question was only seen by those that answered, "Yes, for patients (age 0-12 years old), regardless of insurance status", "Yes, only for publically insured patients (age 0-12 years old)", or "Other" for question #2.

Table 6. Response to practice observation pre-screening question #2, "Do you or those in your office conduct a Caries-risk Assessment (also known as an Oral Health Risk Assessment or Oral Screening/Visual Inspection) on patients age 0-6 years old??" n=44

Response	*Number*	*%*
Yes, for patients (age 0-6 years old), regardless of insurance status	38	86
Yes, only for publically insured patients (age 0-6 years old)	2	5
No	4	9
I do not know	0	0

Table 7. Response to practice observation pre-screening question #3, "If you answered "Yes" to #2, please select the method(s) you use." n=36*

Response	*Number*	*%*
Caries Management by Risk Assessment (CAMBRA)	5	14
American Academy of Pediatrics/Bright Futures Oral Health Risk Assessment Tool	9	25
American Academy of Pediatric Dentistry Risk Assessment Tool	6	17
Visual Inspection	22	63
Other	12	33

*This question was only seen by those that answered for those that answered, "Yes, for patients (age 0-6 years old), regardless of insurance status", "Yes, only for publically insured patients (age 0-6 years old)" for question #2.

While most of the participants reported conducting some type of caries-risk assessment, of sites visited, none were using the original version of the currently available caries-risk assessment tools. Sites using a tool generally developed it onsite with information derived from existing tools. Many sites reported that existing caries-risk assessments tools were too long and not feasible for the medical setting and their time constraints.

Although the majority of sites reported that a full caries-risk assessment was not routinely completed, many completed a partial caries-risk assessment specifically targeting questions they felt were particularly relevant. These questions included feeding and bottle habits, the availability of fluoridated water, and whether the child had previous caries experience. Most sites also queried about the child's current access to dental services. Some sites stated the reason behind not using a standardized caries-risk assessment tool was that the population they were serving was vulnerable (e.g., "all of our kids are high risk"), and therefore they did not feel the need to conduct formal routine caries-risk assessments.

Many providers stated that they were only conducting visual inspections. One participant stated "I'm just doing visual inspection. I'd like to see them [caries-risk assessment tools] and maybe start using them." Many others said they were not using any type of "formal tool"; responses included, "I've never heard of them", I've never used them", "I've seen Bright Futures, but I only use it for education, I never use it because I just do visual inspection". Providers also expressed lack of confidence in conducting thorough visual screenings. Many said that they know what "healthy teeth" look like and can recognize caries, but were not as sure they were correctly identifying the "in-between" cases.

Two sites that reported utilizing a version of caries-risk assessment regularly did so by adding oral health questions to existing questionnaires. Paper checklists are completed either by the parent/caregiver in the waiting room or by the nurse or MA prior to the child being seen by the physician, NP, or PA. One of these sites was in the midst of switching their paper checklist over to their EHR, and reported that their MAs would still be in charge of this activity.

When asked to identify successful strategies for incorporating caries-risk assessment tools, participants responded favorably to, "having forms completed before the exam", "[caries] risk assessment is built into our EHR", reducing "paper fatigue". One participant stated, "We are already stressed trying to get everything done, so as many tools that are streamlined together, is more helpful."

Feedback on the existing standardized caries-risk assessment tools included:

- The forms are too long and contain too many questions
- Only a subset of questions seem relevant, with access to fluoridated water being the most frequently identified risk factor by providers
- EHR is used, however caries-risk assessment is not usually included and sites lacked the resources to integrate caries-risk assessment into the EHR
- It would be easier to do the caries-risk assessment if the EHR were able to auto-populate the tool with answers that had been previously discussed – such as those that are used for obesity screening
- The tool would be more helpful if its completion resulted in a statement of risk (low, medium, high) and individualized suggestions for lowering risk

Drivers to Successful Implementation of Oral Health in Primary Care:

Caries-risk assessment was reported as under-utilized and far from standardized in primary care, with most primary care providers using visual inspection as their caries-risk assessment tool. By narrowing the field of questions and providing a mechanism to incorporate this information in an EHR, more primary care practices may be able to adopt it as a step towards oral health promotion.

Fluoride Varnish

Study participants reported that fluoride varnish was being applied by doctors, nurse practitioners, physician assistants, nurses, medical assistants, and dental hygienists. Many said that it had been incorporated into their workflow or scheduling procedures. Some participants reported receiving Medicaid payment for applying fluoride varnish, while others did not. No participants reported receiving payment for oral health services from private insurers. A few participants who were not receiving insurance payment said their site offered fluoride varnish for a fee, either a flat fee or on a sliding scale (out of pocket expense for parent). Most providers expressed that fluoride varnish was an important component in caries prevention and should not stand alone as the sole caries prevention intervention.

In practices where fluoride varnish was applied by nurses or medical assistants, there was some discussion about communication of the order for fluoride varnish. Sites reported various techniques, from the provider calling from the doorway that fluoride varnish was to be applied with immunizations, to writing the order on the door of the exam room, to some indication in the EHR. The recommendation that the fluoride varnish order be displayed in the EHR along with the immunization orders was made by several practices.

Fluoride Supplements

A need for consistent guidelines on fluoride supplementation was identified. Many questions were posed about supplemental fluoride and what were the current recommendations. Some participants felt like professional recommendations were "all over the map" with their recommendations, particularly with new recommendations by the CDC and the American Dental Association. Additionally, many participants reported that parents and providers were concerned about fluorosis. Community water fluoridation and the use of bottled water (without fluoride) was a topic of concern in most practices.

Oral Health Education and Anticipatory Guidance

Most, if not all, participants reported providing some level of oral health education, anticipatory guidance, and visual screenings. Recurring topics included: no bottle in bed, diet, pacifier use, no pre-chewing food or cleaning pacifiers with the mouth, using water with fluoride, tooth brushing and flossing, using toothpaste with fluoride, and recommendation to take child to see a dentist. Several participants expressed that oral health education for parents should start early. "We should start talking about it [oral health] in prenatal visits."

Documentation of Oral Health in Medical Record

The frequency in which oral health activities were documented in the medical record varied by site. Additionally, sites reported that there was also variation among their providers. Examples of topics that were documented were: fluoride varnish, fluoride supplement, last dental visit, and oral screening completed.

Participants reported three methods of (EHR) documentation currently being used in their practices:

- Oral health topics were selectable options
- No assigned location for oral health, but information was inserted by the provider
- Fields (other than caries-risk assessment) are automatically populated in the EHR

Oral health topics were selectable options: Some participants who reported documenting oral health activities said oral health topics were selectable options in their EHR. Examples of this were: a picture of the mouth shows up, a fluoride varnish template was added to the well child visit template, oral health included in their HEENT exam (Head, Eyes, Ears, Nose, and Throat). One participant said "We are able to populate [the EHR] wherever we want. Items are checked off: do you see a dentist, do you brush your teeth, are there problems of cavities in either parent, were there problems of cavities in a sibling, does child use a bottle or eat before bed."

In addition to oral health activities that were specifically documented as completed/not completed, ordered/not ordered, some sites utilized templates (Smartsets[5]) in their EHRs as a guide through the exam. Most commonly reported were age-specific templates that were either created by the site or modified for the site by outside entities. For example, providers open a specific template for a nine-month well baby exam and prompts are provided for what they should be looking for, asking, and ordering. Some sites added oral health topics to these templates. These serve as a guide to providers, but many reported that there is no way to determine if topics listed are actually covered. One site was able to add order prompts in their EHR so dental referral and fluoride varnish were automatically bundled together.

No assigned location for oral health, but information was inserted by the provider: The majority of participants reported inserting oral health activities information into medical records themselves (EHRs and paper charts). Locations included: visit notes, health maintenance section, physical exam, and a stamp in the paper chart.

Fields are automatically populated in the EHR: One participant stated that in his EHR, fluoride varnish was automatically listed in the patient's chart; the provider must uncheck the box if they do not want to give it to the patient.

One site demonstrated their ability to run quality improvement reports on the percentage of patients receiving fluoride varnish application by running billing data. They reported not having the ability to analyze or run reports on other oral health aspects like education, anticipatory guidance, or referral to a dentist. Sites that reported being able to run quality assurance (QA) reports related to oral health did so by utilizing billing data to quantify the percentage of patients who had received fluoride varnish. Practice observation sites reported being unable to run QA reports on dental referrals, completed dental referrals, oral health related anticipatory guidance and risk assessment.

Participants also addressed challenges developing or modifying oral health templates in the EHR, including: in smaller practices, lack of resources to modify EHR, in larger practices, inability to modify their EHR templates locally and a long time frame to modify EHR templates through their organizational process. One participant stated "it took two years to get [oral health] in our EHR". While another stated, "We cannot modify our EHR [onsite], we have a long regulatory process, and it takes from 12 months to two years to get anything passed." One site also reported that they were not able to run reports onsite to determine rate of completion of oral health activities, but that they could request this data.

Drivers to Successful Implementation of Oral Health in Primary Care:

Although most of the practices visited had oral health incorporated into the EHR, they reported difficulties in maximizing its functionality. More support for what should be included in a medical EHR around oral health and how that data may be captured is needed.

Referral Process and Relationship with Local Dentist(s)

Referral to a dentist was identified by participants as an important activity occurring in their practices. Referral occurred by three main methods, verbal, providing lists or information, or site-generated referral.

A few participants reported that they gave verbal suggestions to parents of places they could take their children. However, most participants who were referring patients to dentists reported that they were either providing lists of local dentists, dental programs, dental clinics, or had a referral system in place (dentists with whom they have an existing relationship, who is willing to accept the referral). A number of sites had computer-generated referrals through their EHRs to co-located dental resources, affiliated dental resources, community dental clinics, or onsite mobile dental units.

A few participants reported having referral coordinators or case managers that also assisted with referral to a dentist. One provider reported that her site has a referral management team that has been able to increase their rate of referral completion (all referrals, not just dental) for homeless and low-income families from 7% to 61%.[6]

Sites with either co-located (in the same building) or affiliated dental clinics spoke highly of this model, saying that they were appreciative to have this service available to their patients. However, some of these sites reported difficulty scheduling children into their dental clinics. Some reasons given were: long waiting list (high volume of patients the dental clinics serve), inability for electronic record systems to communicate with one another (dental and medical used different EHR systems), and demands on staff time which prohibited large amounts of time in calling dental offices to get an appointment for patients.

Some sites that were providing fluoride varnish (applied by a medical provider) reported that when dental services were incorporated into the practice, (e.g., an on-site dental hygienist, a co-located dental clinic) their medical providers often started to rely on the dental providers for this service. This was reported as a potential problem because not all of their kids are obtaining or completing dental appointments. This makes a good case for ongoing medical/dental communication even when services are co-located.

Some participants from sites that did not have co-located or affiliated dental clinics reported having a strong working relationship with dentists in their community. When asked how these relationships were developed, one participant reported that a pediatric dentist visits their site and provides training, others reported that they reached out to local dentists to establish a referral relationship.

Those with co-located or affiliated dental clinics and those without this resource had similar responses when asked about referral follow-up (i.e. knowing whether or not a dental appointment was completed). The majority of participants reported that referral follow-up was minimal or not done at all. Some participants reported that they receive correspondence back from dental sites, but the majority reported that are not notified when patients followed through with dental referrals.

At one site, a provider expressed disappointment that dentists never notify them when a patient completes a dental referral. However, the office manager of this site said some dentists always send a letter informing them that the child completed an appointment and what treatment had been performed which she scanned into the EHR – unfortunately, these letters did not automatically show up for the provider. Participants with co-located or affiliated dental clinics stated that many times they were only able to determine whether or not a child completed an appointment, however no other information was available to them. This was partially attributed to the fact that the dental clinic and the medical clinic in the same health system used different electronic health record systems. Others reported they were only notified if patients did not show up for appointments or when they were going into the operating room (OR) and needed a pre-operation assessment.

Drivers to Successful Implementation of Oral Health in Primary Care:

Medical and dental co-location may be beneficial in making sure that a referred child gets to the dentist, but is not essential and, unless the dental and medical teams communicate with one another, not necessarily effective in assisting patients in accessing dental care. Many sites reported having strong relationships with dentists that were not affiliated with their clinic. Medical and dental providers can establish strong collaborative relationships regardless of whether they are co-located or not, for the benefit of the overall health of the child.

Payment

"Varnish reimbursement helps us stay afloat"

"Reimbursement model is always going to be the biggest driver. It's much easier to put fluoride varnish on babies' mouths than to pay for expensive dental work." "Especially in primary

care, because you're not always going to get parents to go in to the dentist."

"Better reimbursement is needed."

"Start lobbying those insurance companies that part of well child medical care has to include coverage for dental care, they should not be separated out."

Repeatedly it was reported that payment and grant funding for oral health promotion prompted and/or sustained oral health promotion in primary care. Some providers received grants to offer fluoride varnish to specific age groups, while others relied on state payment for oral health services they provided.

Eleven states were visited during the study, and payment for application of fluoride varnish from insurers and public assistance programs varied from site to site.[7] Overwhelmingly, sites reported that they were not able to receive payment from private insurance plans for oral health services. Some sites reported that they offer fluoride varnish at a set fee or on a sliding scale, which families pay for as an out of pocket expense. These sites felt this was a good option for their families with insurance that would not cover the treatment and those without insurance. However, the number of families that select this option was not available.

Drivers to Successful Implementation of Oral Health in Primary Care:

Payment for oral health promotion in the primary care setting is lacking and most certainly affects the uptake of oral health services in the medical home. Although 45 states now pay for primary care providers to apply fluoride varnish to children enrolled in Medicaid (and in some states provide payment for caries-risk assessment and counseling) it was reported that private insurers typically do not reimburse primary care providers for these services.

Family/Caregiver Response

Feedback from families/caregiver interviews during practice observations were very positive. Many said they were pleased to be receiving oral health information from their medical providers. In sites that were offering fluoride varnish, family/caregivers reported that they were happy this service was provided during the medical appointment. One reason given was that it cut down the number of appointments they had to schedule. Many said that they knew some of the things their medical provider told them about care for their children's teeth, but that it "was a good reminder." When asked if their medical provider ever provided them with any new knowledge about oral health, many families/caregivers responded that they did not know exactly when they were supposed to take their children to the dentist, some were told at one year, while others were told by three years old.

Drivers to Successful Implementation of Oral Health in Primary Care:

Families like and appreciate receiving oral health information and preventive services in primary care for a variety of reasons. Families reported receiving different information about the age of the first dental visit, brushing with fluoride toothpaste, and pacifier use from various sources. Therefore, a need for consistent messaging regarding good oral health habits was identified.

Conclusion and Recommendations

Based on input from focus groups and practice observations with primary care providers that are currently conducting oral health promotion, we believe areas of improvement that may increase adoption have been identified. We offer several recommendations to increasing oral health promotion in the primary care setting.

Simplified Caries-risk Assessment

All caries-risk assessments that sites developed themselves were pared-down versions of original tools. They took out the pieces they felt were the most important. Sites that were not using any caries-risk assessment stated that if they were to incorporate a tool into their workflow it would have to be brief and not require addition time on the medical teams' part.

Integrated Caries-risk Assessment Tool into the EHR

Having a tool that was integrated into the electronic medical record (into existing procedures, e.g., other risk assessments, physical exam) was more favorably looked upon than having an additional assessment to complete. However, not only is it important that an oral health template be available, sites must also have the necessary resources to modify their EHRs. Additionally, the ability to create reports may also assist practices with quality improvement efforts.

Share the Opportunity to Teach and Reinforce the Importance of Oral Health

Some primary care sites have found success in delegating oral health activities to nurses, medical assistants, and other members of the practice team.

Close the Knowledge Gap

A lack of oral health knowledge was repeatedly conveyed throughout focus group sessions and practice observations. Many providers reported that they had little to no oral health education during their professional training programs. There is a need to increase oral health programs, modules, and/or rotations for all future health care practitioners, as well as to provide continuing education on the subject.

Improve Payment for Medical Providers to Deliver Oral Health Services

Providers from the primary care sites visited reported receiving varying amounts of public insurance payment for oral health services. Public insurance payment for oral health services was touted as a driving and sustaining force to oral health promotion in primary care. However, no participants reported receiving payment for oral health services from private insurers and some did not receive any public insurance payment.

References

1. Edelstein BL, Douglass CW. Dispelling the myth that 50 percent of U.S. schoolchildren have never had a cavity. Public Health Rep Wash DC 1974. 1995 Oct;110(5):522–30; discussion 521, 531–533.

2. Dye BA, Tan S, Smith V, Lewis BG, Barker LK, Thornton-Evans G, et al. Trends in oral health status: United States, 1988-1994 and 1999-2004. Vital Health Stat 11. 2007;1.

3. Douglass JM, Douglass AB, Silk HJ. A practical guide to infant oral health. Am Fam Physician. 2004 Dec 1;70 (11):2113–20.

4. Preventive oral health intervention for pediatricians. Pediatrics. 2008 Dec;122(6):1387–94.

5. Akar, J. SmartSets will provide doctors with virtual 'checklists': An Epic team's task is to make YMG's content work [Internet]. 2011. Yale Practice, 16(5). Available from: http://medicine.yale.edu/ymg/news/371_84930_may11.pdf

6. Children's Health Fund. 2013. Referral Management Initiative [Internet]. Available from: http://www.childrenshealthfund.org/special-initiatives/referral-management-initiative

7. Deinard A. State Medicaid payment for caries prevention services by non-dental professionals [Internet]. 2013. Available from: http://www2.aap.org/oralhealth/docs/OHReimbursementChart.pdf