Improving Oral Health Outcomes for Pregnant Women and Infants by Educating Home Visitors

An Innovation Station Emerging Practice

Purpose: This document is intended to support MCH professionals to implement a practice found in Innovation Station. This resource provides the information needed to replicate the practice and is divided into two sections: the first section provides a high-level overview of the practice while the second section describes how to implement the practice. For additional information on any of the content provided below, please reach out to the practice contact located at the bottom of this document.

Section I: Practice Overview

Location:	Virginia	**Title V/MCH Block Grant Measures Addressed**
Category:	Emerging	**NPM #1:** Percent of women, ages 18 through 44, with a preventive medical visit in the past year **NPM #11:** Percent of children with and without special healthcare needs, ages 0 through 17, who have a medical home **NPM #13.1:** Percent of women who had a preventive dental visit during pregnancy **NPM #13.2:** Percent of children, ages 1 through 17, who had a preventive dental visit in the past year **NPM #15:** Percent of children, ages 0 through 17, who are continuously and adequately insured
Date Submitted:	5/2019	

Practice Description

In an effort to increase the number of families with a dental home, women getting prenatal dental care, and children getting age one dental visits, the Virginia Department of Health (VDH), Dental Health Program (DHP), through the Perinatal and Infant Oral Health Quality Improvement Expansion (PIOHQIE) grant, provides oral health trainings to home visitors, and a home visiting model that supports dental screenings, referrals, and fluoride varnish applications. The goal of the trainings and home visiting model is to improve access to dental care and enhance partner capacity in order to create a sustainable environment for connecting pregnant women and infants to oral health services.

Purpose

The DHP developed a model that provides trainings and resources for home visitors (HVs), family support workers, family educators, and nurses to share with the families they serve.

The goals of the oral health trainings were to provide these non-traditional partners with information on oral health and dental care and to empower them to help improve access to oral health information for pregnant women and infants. The oral health trainings have a strong focus on cultural competency and emphasize the use of key messages from anticipatory guidance, developed based on evidence-based sources on dental care during pregnancy, to educate clients.

During the trainings, HV staff, community health workers, and nurses were given toothbrushes, floss, toothpaste, infant tenders, oral health education brochures, and other resources to assist them with providing oral health education to the families they serve. Trainings included oral health education tips and resources for each of the following populations: perinatal, prenatal, infant, and Individuals with Special Health Care Needs (ISHCN); Virginia Medicaid dental benefits and resources for eligible pregnant women and children were presented on behalf of DentaQuest staff. http://www.dmas.virginia.gov/files/links/1107/Pregnant Women Brochure.pdf

Tools provided to those in training included the "Bright Futures-Oral Health Pocket Guide". This guide gives information on anticipatory guidance, proper nutrition, eruption of teeth, and the dental visit experience, as well as on the effects of allowing children to sleep with a bottle, the importance of wiping an infant's gums after each feeding, and the how to's of practicing good oral hygiene.

In addition to education, community health nurses are taught how to perform oral health screenings, provide referrals, and apply fluoride varnish. Families receive links or referrals to available community services that meet their individual needs, including information on dental benefits available through Medicaid. They also participate in a number of community meetings to increase knowledge on the importance of oral health during pregnancy and caring for an infant's teeth throughout childhood. Two pilot projects were implemented and evaluated to determine if the trainings and home visiting model provided cost-effective and practical methods for delivering oral health referrals and if these programs would lead to increased access to care and benefit utilization among at-risk populations.

Home Visiting (HV) programs in Hampton and Newport News Virginia were chosen to pilot our HV model and training. These sites were selected because leadership expressed interest in oral health and training staff. The location and size of the programs was also a factor. Leaders indicated that oral health was an area of need for many clients and that staff struggled to provide consistent and timely oral health information and resources to their clients.

Hampton Healthy Families (HHFs) was implemented in 1992 and is the largest HV site in Virginia. Family support HV professionals currently serve 450 families with the long-term goal of following families until the target child reaches kindergarten. A key component of the Hampton Healthy Families (HHF) program is the Healthy Start Program that provides intensive support information and education to new and expectant parents in their homes. To determine who should receive these services, a family assessment is administered and scored. A *Family Stress Checklist* score of 25 or greater indicates the family may benefit from Program services and qualifies the family for the Healthy Start Program. Evaluations of women in their first and second trimester of pregnancy and their families determine family strengths and the need for home visitation services. HVs perform individual assessments and determine the need for inclusion of dental and other information based on assessment results.

The Newport News Department of Human Services home visiting program was the second pilot site for training and had similar methods for determining client selection for inclusion. Both HV programs shared the belief that families need a positive first step into dental care and that barriers to care encountered by their clients were inconsistent messages from providers (both dentists and physicians) regarding whether or not to treat pregnant women and when to begin dental care for children.

Practice Foundation

The HV trainings are based on and informed by the Life Course Theory and Bright Futures Guidelines.

Life Course Theory: The DHP training, "The Importance of Oral Health" provides information on the benefits of a pregnant mother seeing a dentist, which includes increasing the chances of her baby having a healthy birthweight and decreasing the chances of the mother having a pre-term delivery. The cycle starts by increasing one's awareness (baby having a healthy birth rate) to initiating a behavior change (pregnant mother seeing a dentist), and progresses to maintaining motivation to continue preventive action.

Home visitors (HVs) are encouraged to explore their client's lives within structural, social, and cultural contexts to determine the best way to reach the pregnant woman with oral health messaging and to identify the powerful historical and socio-economic context in which the clients exist that may cause barriers to compliance.

Bright Futures: Trainings include content and guidance from Bright Futures and focus on health promotion and preventive actions. Each HV is given a "Bright Futures-Oral Health Pocket Guide" and detailed instructions on using the content, including Oral Health Supervision and Risk Assessment, along with preventive services and care coordination, to assist families to improve their oral health. Key concepts from the Bright Futures material include anticipatory guidance, proper nutrition, eruption of teeth, and the dental visit experience, as well as the effects of allowing children to sleep with a bottle, the importance of wiping an infant's gums after each feeding, and how to practice good oral hygiene.

Core Components

The goal of the program was to target health districts with significant Home Visiting (HV) partners; provide training regarding oral health for pregnant women and infants; put in place a referral system for pregnant women and infants enrolled in the HV system. The core components of this program were based on broad engagement of non-dental partners in the community to maximize their ability to reach the target audience with appropriate messaging and generate referrals into the dental care system.

Practice Activities

Core Component	Activities	Operational Details
Partnerships of HV Agencies	Initial meetings with in-home, community-based service providers' leadership were held to determine the feasibility of providing oral health education and resources through HV programs.	A brief survey was developed to determine if HV sites integrated oral health into their programs, what the level of integration was, and what resources and information were needed to further integration efforts, as well as other pertinent information.
Trainings for Home Visitors	HV programs in Hampton and Newport News Virginia were chosen to pilot HV trainings. These sites were selected because of leadership interest in oral health and providing the trainings to staff and the location and size of the programs (high-need areas, with many participants). The oral health trainings had a strong focus on cultural competency and using key messages from anticipatory guidance developed from evidence-based sources on dental care during pregnancy to educate clients.	During the trainings, HV staff were given toothbrushes, floss, toothpaste, infant tenders, oral health education brochures, and other resources to provide oral health education to the families they serve. The training included oral health education tips and resources for the following populations: perinatal, prenatal, infant, and Individuals with Special Health Care Needs (ISHCN). A representative from Virginia's Medicaid dental benefit program, managed by DentaQuest, provided information on coverage and other resources for eligible pregnant women and children.
Referral System in Place for Home Visitors	To support project evaluation, inputs, outputs, and outcomes were tracked. Inputs included resources like supplies, equipment, manpower, and transportation; outputs and outcomes included changes in dental knowledge and referrals to care for women in HV programs, changes in early referral of infants to a dental home by at least year one, and changes in referral to and use of dental treatment services for pregnant women.	To track oral health activities and promotion to the families they serve, the first Home Visiting program developed a tracking system that was utilized by staff. Additionally, a new programmatic policy change was established that requires documentation of dental visits that occur during prenatal care and after the baby arrives.

Evidence of Effectiveness (e.g. Evaluation Data)

Initial Needs Assessment and Interest Survey:
A brief survey was developed to determine HV sites that integrate oral health in their programs, their levels of integration, and integration assistance needs to further their efforts.

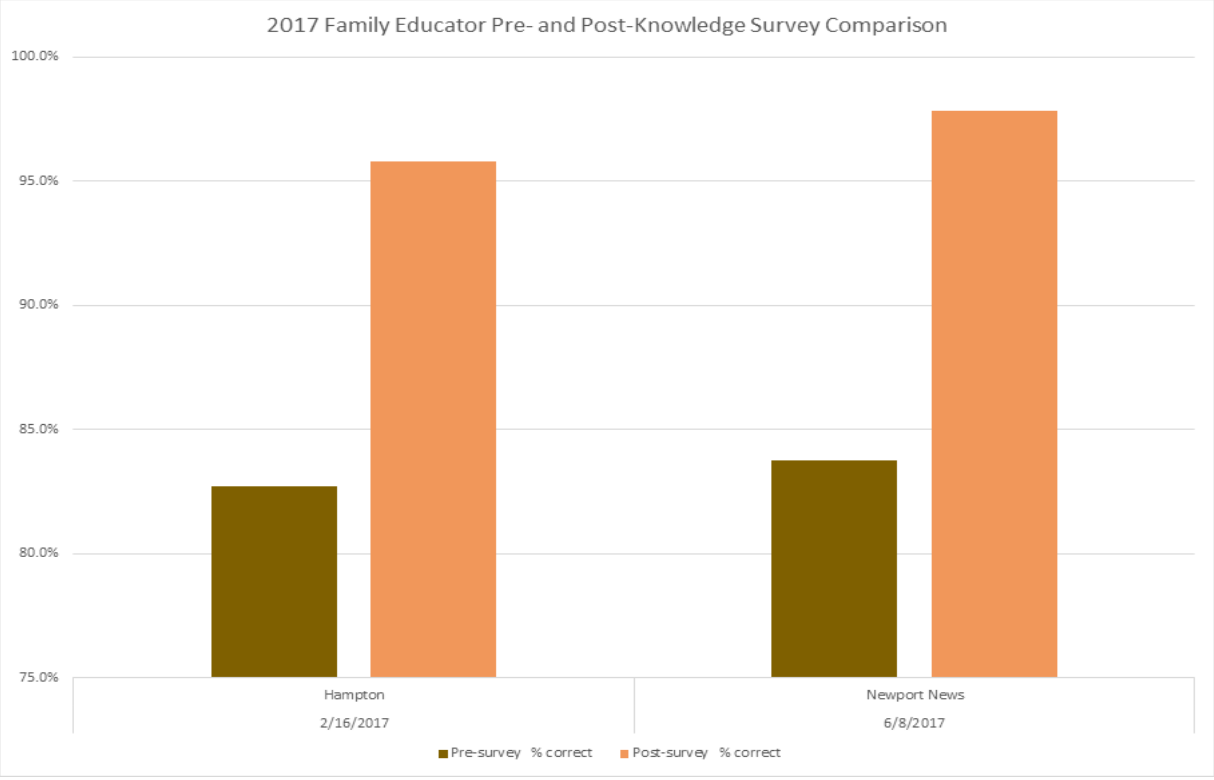
Initially, Oral health surveys were distributed at the Virginia HV Consortium (VHVC) meeting and to Healthy Families Home Visitors (HVs) in Hampton and Newport News to determine the HVs' awareness and efforts towards incorporating perinatal and infant oral health into their existing work plan. At the VHVC, 99 HVs participated in the survey; 19 HVs in Hampton also completed the same survey, and 19 HVs in Newport News responded to a similar version of the survey that was modified as a result of QI actions. The survey included questions regarding the safety of dental care during pregnancy, current incorporation of oral health messages in home visits, interest in oral health educational materials, and whether the families served were aware of Medicaid dental benefits for pregnant women.

Of note, out of 99 home visitors at the VHVC, 60% felt that dental care during pregnancy was very safe (9 or 10), 27% felt dental care was moderately safe (6 to 8), and 13% felt that dental care during pregnancy was fairly unsafe (5 or less). In Hampton, 15 respondents (83%) indicated the highest level of safety, while 3 respondents (17%) indicated care was fairly unsafe during pregnancy. In Newport News, 15 respondents (79%) reported the highest level of safety (9 or 10) followed by four respondents (21%) who reported feeling care was moderately safe (6 to 8). Results indicate a need to educate home visitors on the safety of dental care during pregnancy.

Evaluation of Trainings:

Trainings were developed to respond to this need. Trainings also included evaluation components. Participants were surveyed to determine the degree of oral health education training needed, gauge the level of interest and perceived need for oral health education for families, and determine the extent of current efforts to incorporate perinatal and infant oral health into their existing policies and procedures. HVs and family educators were also given pre- and post-tests to gauge knowledge gained, *and* participants were asked to complete a course evaluation at the end of each training.

The trainings were very well received with a large majority of participants (84%) reporting that they strongly agreed that the course objectives were met, the course was a benefit to the attendee, the speakers were appropriate, and that the overall program was successful. The DHP staff reviewed and evaluated the pre-knowledge surveys, post-knowledge surveys and course evaluations from the training participants. Results from the knowledge test for HVs are also displayed below:



Program Outcomes to Date:

The first HV oral health pilot program, with Hampton Healthy Families, collected oral health data from Healthy Start clients about six months after providing education. Post intervention, 51% of children had an age 1 dental visit and 66% of children participated in the Medicaid dental program; both statistics are above the state average and highlight increases in access to care for these priority populations.

As a result of efforts, oral health was seen as a priority and a policy change was implemented across Hampton Healthy Families requiring that families participating in Healthy Families be linked to oral health providers to assure optimal health and development for target children. (See Hampton Healthy Families Policy Change)

At the conclusion of the second pilot project, with the Newport News Department of Human Services home visiting program, participants seemed eager to increase their oral health knowledge and teaching skills with the families they served. Most importantly, to improve access to oral health information and dental care for children in these at-risk families. During general discussion regarding dental care for pregnant women and infants, HV staff reported that pregnant women and mothers of young children often receive contradictory and inconsistent messages regarding when a child should have their first dental appointment and whether or not it is safe to have dental care during pregnancy. These mixed messages often come from pediatricians, obstetricians, and dental providers. The staff requested training for both medical and dental providers that focused on the promotion of an age-one dental visit and the safety of dental visits during pregnancy. The first training for dental providers in the area was held in April 2017; a pediatric dentist from Virginia Commonwealth University was the speaker for this event.

The DHP staff evaluated both pre-and post-knowledge surveys from the two oral health education pilots showing the percentage comparison of knowledge gained. At the conclusion of the oral health course for HVs and family educators, participants were also asked to complete the course evaluation from the oral health education training. The presentations were very well received with the large majority of participants (84%) reporting that they strongly agreed that the course objectives were met, the course was a benefit to the attendee, the speakers were appropriate, and that the overall program was successful. The DHP staff reviewed and evaluated the pre-knowledge surveys, post- knowledge surveys and course evaluations from the training participants.

Additional evaluation questions, indicators, data collection tools, and reporting frequency are listed below.

Evaluation Questions:	**Indicators**	**Data Collection Tools**	**Reporting Frequency**
What are the characteristics of the women and infants served under the pilot projects?	Reduced oral health disparities in the Maternal and Child Health (MCH) communities	-Data tracking on clients served under pilot models	-Biannually

Evaluation Questions:	Indicators	Data Collection Tools	Reporting Frequency
Does the expansion of home visiting services to include perinatal and infant oral health education and referral to care increase care access and service utilization?	Increased utilization of preventive oral health care and restorative services among pregnant women and infants	-Home visiting tracking logs and reports	-Biannually
Are pilot projects cost-effective methods of delivering oral health services and referrals?	New service models improve outcomes while remaining cost effective	-Expenditure reports for services rendered under pilots -Tracking logs of resource inputs -Outcomes data from WIC BSS, VA PRAMS, Head Start BSS	-Monthly: expenditure reports, tracking logs -Biannually, WIC BSS -Annually, VA PRAMS (subject to reporting lag), Head Start BSS

Replication

The trainings were conducted and HV oral health integration progress was evaluated over a six-month period to determine if HV programs provided cost-effective and practical methods of delivering oral health referrals and would lead to increased access to care and benefit utilization among at-risk populations.

The results proved the projects were having a positive impact on access to care and benefit utilization in the targeted areas.

Following our pilot projects, the Family Lifeline organization in Richmond also organized an oral health training for their HVs. The pre- and post-knowledge surveys showed an increase from 95% to 99% correct answers. The course evaluations for the overall course were 95% positive and 99% positive for the instructor. In addition, DHP offered Bright Smiles for Babies Fluoride Varnish in-person medical provider trainings to Children's Health Investment Partnership (CHIP) of Virginia community health nurses.

The Virginia Oral Health Coalition also collaborated with the DHP and CHIP of Virginia to provide oral health trainings to Family Support Workers and Community Health Workers. Trainings were provided for 88 individuals and 9 nurses at 4 sites across the Commonwealth of Virginia. Each training is a three-hour course presented by DHP staff. Topics include oral health during pregnancy, infant oral health care, oral health nutrition, and oral disease processes and prevention. Post-test scores have shown an increase in correct answer over pre-test scores for all participants, from 83% to 96% correct.

Finally, to expand the reach of our efforts, The VDH HV program, Early Impact Virginia, and James Madison University (JMU) collaborated with the Iowa Department of Public Health and the University of Kansas to develop the Institute for the Advancement of Family Support Professionals, a free, on-line training platform for HV that offers more than 50 competency based e-learning modules for HV professionals. Neither Iowa nor Virginia currently has an oral health HV training online. Iowa Department of Public Health applied for and received a small grant to develop an oral health e-learning module for HVs, and will be contracting directly with JMU in Virginia to develop the module. The team is currently reviewing the DHP oral health training.

Section II: Practice Implementation

Internal Capacity

The Dental Health Program, Perinatal and Infant Oral Health Consultant and the Individual with Special Health Care Needs (ISHCN) Coordinator presented general information on the importance of oral health care, and dental benefits available for pregnant women and infants participating in the Hampton and Newport News home visiting programs. Quality improvement measures, using Plan Do Study and Act (PDSAs), were developed and implemented at both pilot sites to determine if these partnerships could lead to improvement and formal guidance on standardized trainings for home visitors.

Collaboration/Partners

Initial meetings with in-home, community-based service providers' leadership were held to determine the feasibility of providing oral health education and resources through home visiting programs. Surprisingly, the leaders were not only interested, but also indicated that oral health was an area of need for many clients and that staff struggled to provide oral health information and resources to their clients**.**

The Early Dental Home Action Team (EDHAT) workgroup is a network of statewide partners who convene with the goal of getting more children into early dental homes. This team, along with others who were brought in to add a perinatal oral health lens to the group, agreed to serve as the Perinatal and Infant Oral Health Quality Improvement(PIOHQI)/ Project Advisory Board (PAB) and provided resources, guidance, and direction for this project's development and implementation. This Board includes medical and dental clinicians who guide efforts to integrate oral health services, education, and referrals into every applicable health care setting and now has a special focus on pregnant women and infants.

The EDHAT/PIOHQI PAB provided input on developing survey questions used at the Annual HV Consortium Conference and at two pilot HV programs. Members were also instrumental in project development, pilot site selection, and networking with community partners. Continuous quality improvement (CQI) measures, using Plan, Do, Study, and Act (PDSAs) were developed and implemented at both pilot sites to determine if these partnerships could lead to improvement and formal guidance on standardized trainings for HVs. The EDHAT/PIOHQI PAB reviewed Quality Improvement (QI) findings and provided guidance on overcoming challenges and barriers

Practice Cost

Budget			
Activity Item	**Brief Description**	**Quantity**	**Total**
Staff/Personnel Costs	Funding for Perinatal and Infant Oral Health Consultant and Individuals with Special Health Care Needs Coordinator	2	$8,000
Consultants/Trainers	Perinatal and Infant Oral Health Consultant and Individuals with Special Health Care Needs Coordinator	2	$750.00
Equipment	None	None	$0
Supplies	Toothbrushes-infant baby tenders, toddler, child and adult. Floss, handouts, fluoride varnish		$4,500
Travel	Travel vehicle cost/Fuel	6 trips	$1500
Contractual (Virginia Oral Health Coalition Support)	Virginia Oral Health Coalition Executive Director and Program Coordinator	2	$2000
		Total Amount	**$16,750**

Practice Timeline

Practice Timeline				
Phase	**Description of Activity**	**Date/Timeframe**	**# of hours needed to complete/oversee activity**	**Person Responsible**
Planning/ Pre-Implementation	Discussion/Proposal	November 2016	7 hours	Early Dental Home Action Team/Perinatal and Infant Oral Health/Project Advisory Board (EDHAT/PIOHQI PAB)
	Survey Development	November 2016	2 hours	(EDHAT/PIOHQI PAB)
	Partner Approval	November 2016	1 hour	(EDHAT/PIOHQI PAB)
	Deliver Survey	December 2016	5 hours	Perinatal and Infant Consultant and the VAOHC Program Coordinator
Implementation	Deliver Oral Health Education to 2 pilot sites	February 2017-June 2017	16 hours	ISHCN Coordinator
	Conduct Pre/Post/Course Evaluation	February 2017-June 2017	1 hour	ISHCN Coordinator
	Add field to record dental appointments to assessment sheet	June 2017	2 hours	Hampton Healthy Families (HHF)

Sustainability	Recruit additional Home Visiting sites: Healthy Start, Family Lifeline and Child Health Investment Partnership (CHIP) Community Health Nurses and Workers Oral Health Training at Virginia Rural Health Association for Family Support Professionals	July 2017-present	16 hr. a month	ISHCN and Perinatal and Infant Oral Health Consultant
	Dental toolkit for HVs was modified with resources provided electronically for ease of use	August 2017	3 hours	ISHCN and Perinatal and Infant Oral Health Consultant
	Review Online Curriculum	February 2019	3 hours	ISHCN and Perinatal and Infant Oral Health Consultant

Resources Provided

To promote preventive services and participation in collaborative activities, the DHP worked with the VDH communications team (VDHLiveWell) to add online resources for external and internal partners at: http://www.vdh.virginia.gov/oral-health/resources/

Before During and After Pregnancy
Brushing for Two (English and Spanish)
http://www.vdh.virginia.gov/content/uploads/sites/30/2016/10/HL03-7-2016_BrushingforTwocardES.pdf

Brush and Floss Card (English and Spanish)
http://www.vdh.virginia.gov/content/uploads/sites/30/2017/05/HC01-8-2016Brush-FlossCardsENG.pdf

http://www.vdh.virginia.gov/content/uploads/sites/30/2017/05/HC02-8-2016Brush-FlossCardsSPAN.pdf

Smoking and Pregnancy
http://www.vdh.virginia.gov/content/uploads/sites/30/2016/07/VA_SmilesforChildren_OHM_Smoking-and-Pregnancy_EN-SP-288.1729.pdf

Dental Pharmacological Considerations for Pregnant Women
http://www.vdh.virginia.gov/content/uploads/sites/30/2018/12/VADental-PharmaGuide-for-Pregnancy-CardWEB-1.pdf

Practice Guide for Virginia's Prenatal & Dental Providers
http://www.vdh.virginia.gov/content/uploads/sites/30/2019/03/PracticeGuideforVirginiaPrenatalDentalProvidersWEB.pdf

Infants, Toddlers and Preschoolers

Fluoride Varnish English | Spanish
http://www.vdh.virginia.gov/content/uploads/sites/30/2016/08/Fluoridevarnish.pdfhttp://www.vdh.virginia.gov/content/uploads/sites/30/2016/08/Fluoridevarnish.pdf
http://www.vdh.virginia.gov/content/uploads/sites/30/2016/08/Fluoridevarnish_Spanish.pdf

Nutrition and Oral Health English | Spanish
http://www.vdh.virginia.gov/content/uploads/sites/30/2018/11/Nutrition_ENG_HL35-10-2018.pdf
http://www.vdh.virginia.gov/content/uploads/sites/30/2018/11/Nutrition_SPAN_HL36-10-2018.pdf

Baby Teeth Care English | Spanish
http://www.vdh.virginia.gov/content/uploads/sites/30/2016/08/BabyTeethCare.pdf
http://www.vdh.virginia.gov/content/uploads/sites/30/2016/08/BabyTeethCare_Spanish.pdf

Finding a Dentist during Pregnancy
http://www.dentaquest.com/members/

Training Opportunities for Professionals
http://www.vdh.virginia.gov/oral-health/professionals/

Lessons Learned

The most significant lessons learned were identified by listening to HVs directly and through HV surveys. Upon review of evaluation and survey, data some lessons learned included:

- It is important to acknowledge the workload of the community providers and to understand, and communicate that you understand, that providing oral health education and instruction to their clients is just one more thing added to their already enormous list of duties.
- After acknowledging their workload, it is equally important to help HVs understand how improved oral health can benefit their clients in many different ways including improving emotional health and overall wellness.
- It is also important to look at existing duties and find ways to incorporate oral health messages into other mandated messages.

The lessons learned guided staff to modify trainings to show HVs how to incorporate simple oral health messages into existing topic areas like adding toothbrushing tips into hygiene messaging and discussing replacing sugar sweetened beverages with water during nutrition messaging.

There are ongoing challenges in Virginia regarding the willingness of dentists to provide clinical care to pregnant women and infants. Obstetricians and pediatricians express a lot of frustration about not having local dental providers willing to treat pregnant women and provide the age-one dental visit, not to mention the overwhelming need for restorative care for young children. Progress has been made in this area but there are still mixed messages about when pregnant women can receive care, the safety of dental procedures during pregnancy, and when children should start going to the dentist.

Next Steps

- Recruit Nurse Family Partnership and Healthy Start Coordinators to increase oral health data collection in the HV programs. Project surveillance and evaluation data collection will continue with the goal of evaluating progress toward long-term outcome sustainability.

- Provide support to the EDHAT/PIOHQI PAB with new resources for oral health message dissemination, and support efforts with the Virginia Oral Health Coalition efforts by hosting links on their website to continuing education, Medicaid pregnancy dental benefit enrollment information, tips for patients and providers, and data and research for health providers of all disciplines who wish to integrate oral health services, education, and referrals into their practices.

- Support the VAOHC meetings with organizations and community leaders with the power to effect policy and system changes continue to be held and have active participation.

- Identifying a dentist with subject-matter expertise in pregnancy and infant care to provide trainings targeting Medicaid dental providers is an important strategy to increase knowledge and overcome fears and other barriers for dental professionals.

- Continue a concerted statewide effort to promote consistent messaging by the Virginia Dental Association.

- Continue to work with the statewide Certification for Community Health Workers (CCHWs) model in Virginia to train, facilitate and increase clinical-community linkages and improved health outcomes for individuals in Virginia.

- Provide oversight for the online Home Visiting Oral Health training

Practice Contact Information
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