MICHIGAN WIC PILOT YEAR 2 RESULTS

A Partnership Activity of the Michigan Women, Infants, and Children (WIC) Program, Altarum's Michigan Caries Prevention Program (MCPP), McMillen Health, and Funded by the Delta Dental Foundation

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Table of Contents

Acknowledgments & Notes

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Introduction

In 2016, Altarum, Michigan WIC, McMillen Health, and the Delta Dental Foundation collaborated to implement a WIC-oral health pilot project in urban Detroit. Staff in five WIC clinics—serving approximately 23,000 children, or 10% of the state's WIC participation—received the Brush Early Childhood Oral Health Curriculum training to integrate oral health education and dental referrals into the nutrition education provided to mothers with young children.

There were four overall goals to this pilot project:

- Empower WIC staff in the pilot clinics with the education and tools to support good oral health among their clients.
- Provide Brush training and resources to increase the comfort level among WIC staff in discussing oral health with their clients.
- Enable WIC staff to provide education and dental referrals to their clients to encourage them to implement these health behaviors with their families.
- Evaluate the success/benefits of the pilot activities to inform potential statewide implementation.

In visits with WIC staff following training, families received oral health education appropriate to their child's age, resources (toothbrush, floss, etc.), as well as a referral to a dentist based on zip code. Through the pilot, the impact of delivering a common message to WIC families about the importance of oral health and early preventive dental visits and integrating these key messages as complementary education within the nutrition education provided to WIC families, was assessed.

The 2016 implementation was an overwhelming success. Staff knowledge of oral health and comfort with discussing oral health issues increased considerably. Specifically, staff knowledge regarding the recommended age for a child's first dental visit increased from 43% to 95% and comfort level with discussing dental issues increased overall, with a large increase among WIC staff who indicated they were very comfortable (from 36% to 86%). Further, staff felt ready to implement what they learned in the training in their clinics. Among participating staff, 65% did not feel any barriers to implementing Brush oral health education resources into their clinic workflow, and 78% shared open-ended questions they would use to incorporate oral health into their interaction with clients.

The training positively impacted the number of children seeing a dentist, increasing dental visits by 38% when compared to controls. The increase in dental visit rates was most pronounced for children aged 1 and 2 years, a group that has traditionally been least likely to have dental visits. More than 1,000 children successfully visited a dentist following the referral and most received preventive services. This is particularly important since numerous pediatric and dental organizations stress the importance of having children establish a dental home at an early age to minimize the occurrence of early childhood caries.

As a result of the positive impact seen in 2016, the program was expanded to additional urban clinics for

the 2017 year. Michigan WIC staff from 16 clinics in Detroit, Oakland, Wayne, and Kent counties—serving an additional 46,000 children, or 20% of the state's WIC participation—received the Brush training during March, April, and May of 2017. Three clinics were trained from each Detroit, Oakland County, and Wayne County, while seven clinics were trained from Kent County:

- **Detroit:** Moms and Babes Too West Warren, MBT Northwest, MBT Samaritan
- **Oakland County:** Walled Lake WIC, Southfield WIC, Pontiac WIC
- **Wayne County:** Inkster Western Wayne WIC, Taylor WIC Clinic, Hamtramck WIC
- **Kent County:** Fuller WIC, Baxter Community Health Center WIC, Sheldon WIC, North County WIC, Clinica Santa Clara WIC, Cherry Street Health Services WIC, South WIC

The following is an in-depth analysis of pre-post training surveys, qualitative post-implementation surveys, and Medicaid enrollment, claims, and encounter data used to determine the impact of this 2017 project expansion.

Pre-Post Training Survey Results

BACKGROUND

Pre- and post-surveys were delivered to WIC staff before and after receiving the Brush training. The surveys assessed changes in baseline knowledge and behaviors related to children's oral health among WIC staff. It also gathered WIC staff's feedback on the Brush training and resources provided as a pilot activity funded by the Delta Dental Foundation.

Staff received paper surveys for a pre- and post-training assessment in their training materials packets. In total, 110 staff attended the trainings, and 91 completed and returned both pre- and post-surveys. The overall response rate was 83% among attendees, an increase of 10% from Year 1.

KEY FINDINGS

Overall, WIC staff were very positive about the Brush training. When asked if they had any previous training on dental health topics, 95.8% indicated 'no' and 4.2% indicated 'yes, and the training was adequate', making the current Brush training an integral part to discussing oral health with clients.

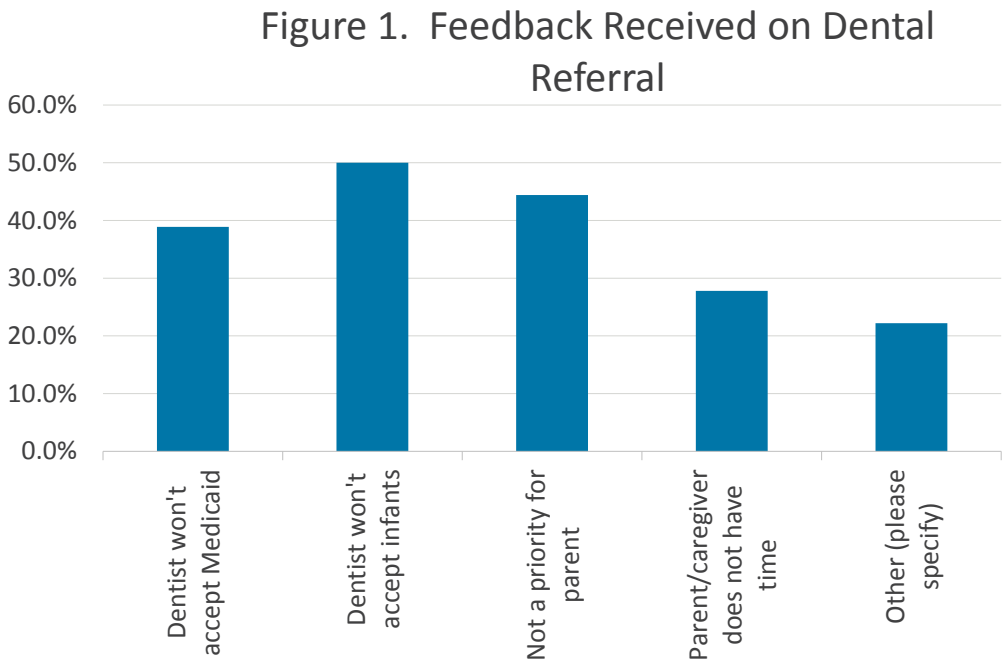
Staff who received the Brush training were predominantly Competent Professional Authority (CPA) staff. CPA staff are classified by the United States Department of Agriculture WIC Federal Regulations, must meet specific education qualifications, and are usually Registered Dietitians and Nurses. The length of time working in WIC varied, with 2-5 years, 11-20 years, and 21 or more years being most common.

Referrals to a Dentist

In the pre-survey, staff were asked if they currently placed dental referrals. 92% indicated yes, while 8% indicated no. Of the 92% that responded yes to currently placing referrals, 57% indicated they follow up on the referrals at a subsequent visit, while 43% said they do not.

Staff who follow up shared that clients face barriers when attempting to complete the referral. Common barriers include dentists who would not accept infants, parental priorities, as well as dentists who would

not accept Medicaid. Below are the full responses:



Training Impact: Knowledge & Comfort

WIC staff knowledge regarding the recommended age for a child's first dental visit (6 months to 1 year, or when teeth erupt) improved from 60% (pre-survey) to 99% (post-survey). Additionally, comfort level with discussing oral health issues increased significantly, with a large increase among WIC staff who indicated they were very comfortable—from 30% (pre-survey) to 76% (post-survey). Moreover, the 19% who indicated they were extremely uncomfortable or not very comfortable in the pre-survey decreased to 0% in the post-survey.

Staff Feedback on Brush! Training

Feedback on the training was very positive, with almost two-thirds of WIC staff describing it as interesting and informative. When asked to describe their impression of the training in one statement, staff reported it was excellent, well done, professional, educational, helpful, and relevant or applicable to their clients. All WIC staff indicated in the post-survey that they would recommend this Brush training to a colleague.

Post-Training Thoughts on Implementation

Following the training, we wanted to explore how staff felt about taking what they had learned from the training and applying it during WIC visits. We asked participants, "Do you feel barriers and/or challenges to implement the Brush resource materials, and other pilot activities, exist at your clinic?" The majority of WIC staff indicated 'no' (67.4%). However, 32.6% felt that barriers and/or challenges exist, and were asked to explain their experience. Some of the responses included: a lack of time with clients to cover everything, space constraints in the clinic setting for display materials, issues with parent or caregiver motivation and compliance, and concerns regarding dentists' acceptance of the age one dental visit.

Staff were also asked in the post-survey how they envisioned incorporating Brush resource materials with their Client Centered Service (CCS) counseling approach. Many staff shared their ideas of how they would introduce the topic with their clients:

> *"Tell me about brushing your teeth…"*
>
> *"Tell me about going to the dentist…"*
>
> *"Will bring topic up with children's meal patterns/teeth issues/dentist referrals"*
>
> *"How do you take care of your teeth?"*
>
> *"Did you know Medicaid covers dental for your child?"*
>
> *"How important is your child's smile to you?"*
>
> *"What concerns, if any, do you have about your child's teeth?"*
>
> *"How is toothbrushing going?"*
>
> *"What challenges do you face keeping your child's teeth healthy?"*
>
> *"Has your child seen a dentist in the last 6 months?"*
>
> *"What age did you introduce your child to the dentist?"*

Summary of Findings and Conclusions

These trainings were much larger than the 2016 trainings, yet feedback was still very positive, with almost two-thirds of staff describing it as interesting and informative. Although most (96%) of the attendees had never received previous oral health training, 100% indicated in the post-survey they would recommend this Brush training to a colleague.

While staff indicated in the pre-training survey that dental referrals and follow-up are common in WIC, their awareness of and comfort with discussing oral health increased considerably as a result of the training. Staff knowledge regarding the recommended age for a child's first dental visit increased from 60% to 99%. Comfort level with discussing dental issues increased overall, with a large increase among staff who indicated they were very comfortable (from 30% to 76%).

Staff felt ready to implement this training in their clinics. When considering clinic workflow, 67% of participants did not feel they had any barriers to implementing the Brush oral health education and resources. 71% of participants shared open-ended questions they would use to incorporate oral health within a CCS counseling approach in their interaction with clients.

Post-Implementation Feedback from Staff

BACKGROUND

In order to gather information to help further assess the staff's perspective on the training and pilot activities, and obtain feedback to adjust and improve implementation processes, Altarum sent an electronic survey to a cohort of WIC clinic coordinators and staff who received the Brush training in 2017. The survey was sent approximately 10 months after the initial training dates, allowing ample time for staff to have encountered both benefits and barriers of pilot implementation.

INTRODUCTION

Altarum sent the electronic survey to 15 WIC coordinators and staff in February 2018. Key staff were identified at each of the year 2 WIC clinics, as were the WIC coordinators for their respective clinics. Individuals from Oakland County, Wayne County, Kent County, and the City of Detroit Samaritan Clinics were contacted with an initial invitation to the survey, along with one follow-up reminder. WIC clinic staff provided information via qualitative and quantitative feedback.

The survey was designed to gather information from the clinic staff in the following areas:

1. To understand what staff feels is working well with implementing this new pilot activity
2. To understand what staff feels could be improved in the pilot activities, including both the initial training and clinic implementation
3. To understand how staff have been integrating this new oral health training with their CCS counseling approach, and the impact of the training on their comfort level in discussing oral health as a topic with families
4. To understand parent and caregivers' reception to the new delivery of this topic
5. To understand any barriers that staff have experienced, as well as to gather their input on how to overcome the indicated barriers

WIC STAFF PERSPECTIVES

What Staff Feels is Working Well in Pilot Implementation

The Brush curriculum visual aids for families (child toothbrush, infant fingerbrush, large mouth model, flip chart, poster, handouts) were commonly reported as being very effective conversation starts with families, as well as staff's favorite part of the Brush training. Staff noted different open-ended questions they use to introduce the oral health topic into their client interactions:

> *"Tell me what your plans are for your child to help maintain his/her baby teeth"*
>
> *"The picture shows what can happen if the child's teeth are not cared for, it's real."*
>
> *"How often does your child visit the dentist?"*

> *"Where does your family go for dental care? What are your concerns about your child's teeth?"*
>
> *"Can you tell me how often you are brushing per day?"*
>
> *"Can you describe your oral health routine?"*
>
> *"Tell me what your plans are for your child to help maintain his/her baby teeth?"*
>
> *"What are your thoughts about oral health?"*

Staff noted that parents and caregivers had very positive reactions to the topic of oral health. For many families, they already knew the importance of children's oral health—but for many, it was a new topic they were interested in learning more about. Many clients expressed that they wanted to give their child a good start with oral hygiene and were open to dental referrals and education. It was commonly noted that toothbrushes were a well-received incentive during visits, and staff found them to be one of the most impactful resources:

> *"They are super excited to receive toothbrushes for their kids. Many mention they don't have toothbrushes, so they were excited."*
>
> *"The toothbrushes so that clients are equipped to take immediate action."*

Almost all participants expressed liking the resources provided to them, especially handouts they are able to send home with families. The majority of WIC staff expressed feeling comfortable discussing this topic with clients, as well as the importance of the topic:

> *"It's such an important part of your health, plus it is easy to discuss."*
>
> *"This is a very important topic and I feel strongly that this topic needs to be discussed."*

Staff additionally reported referrals are going well during WIC visits. Staff noted they are providing multiple location options to families, have a variety of referral options to choose from in the MI-WIC system, and are frequently using the Healthy Kids Dental website and phone line. WIC staff follow up with their clients during their next visit, and most clients indicate they have gone to the dentist following the referral placed.

What Staff Feels Could Be Improved Upon in the Pilot Activities

The staff had no negative feedback related to the training, and many expressed the importance of integrating the topic of oral health in sessions with clients. While some staff had no issues placing referrals to dentists, one commonly noted issue with the pilot activities were the lack of dental providers accepting an age 1 dental visit:

> *"The only barriers we have heard about is some dentists still are not accepting 1 year old children so we have heard they are being turned away when they call even though they are on our referral list."*
>
> *"Clients do complain that dentists do not want to see the child until three."*
>
> *"Many have had a hard time finding a dentist that will see their child at one year of age."*

A few staff indicated that they were still "very uncomfortable" in discussing dental issues with families, though the majority indicated feeling very comfortable. It was also noted that there are time constraints when integrating this new topic during sessions, as well as a need for translated materials.

RECOMMENDED PILOT CHANGES FROM STAFF FEEDBACK

It is clear from the responses that WIC staff were pleased with the training and the new resources they are able to offer their clients. Many of the recommended pilot changes from the Year 1 program were implemented prior to the Year 2 program training, which fine-tuned and refined the current pilot expansion training. Based on feedback from staff, only a few recommended changes exist:

Incentives:

- Ensure that incentives are being distributed by the assigned staff member to clients. It was noted that CPA staff get busy and sometimes forget to send families home with these.
- Increase the amount of incentives provided to each WIC clinic. Staff noted that incentives were important in client interactions, but they quickly ran short of supplies.

Brush! Training Resources:

- Provide staff with more information on how to use the flip chart desk brochure.
- Make sure that a supply of handouts are available to each WIC staff meeting with families, so that families have educational materials to take home from each meeting.

Age 1 Dental Visit:

- Ensure that dental providers listed in the MI-WIC system accept the age 1 dental visit.
- Work with Delta Dental to make sure HKD dental providers will accept the age 1 dental visit.

All project partners are working collaboratively to ensure these changes and feedback are

incorporated into additional pilot expansions to maximize success.

Brush Education Visit & Dental Referral Analysis

OBJECTIVES AND APPROACH

Data from the WIC program office from January 1, 2017 through May 31, 2018 were used to assess the frequency and characteristics of Brush curriculum educational (Brush) visits and dental referrals following the Brush training. The data were provided by 13 WIC clinics that participated in the 2017 Brush training (Year 2 clinics) and 5 Detroit clinics that were trained in 2016 (Year 1 clinics). These data were in turn compared to overall measures of utilization to determine the relative frequency of Brush visits to the total number of visits at each clinic. Program utilization data were linked to Michigan Medicaid enrollment and utilization data to estimate the percent of children referred who had a dental visit following the referral. In order to determine whether this WIC pilot program increased the rate of dental visits, dental visit rates for WIC clients referred to a dental practice were compared to rates observed for a matched control group. We also compared data from the Year 2 WIC clinics to data from clinics trained in the initial (Year 1) pilot. This project was approved by the Michigan Department of Health and Human Services (MDHHS) Institutional Review Board.

METHODS

WIC referral data were obtained for each client referred to a dentist and characterized in terms of age of client, WIC clinic, referral month, number of referrals, dental organizations referred to, and the percent of all WIC client visits resulting in a dental referral.

Preliminary Analysis of WIC Dental Referral Completion Rates: WIC client-level data were linked to Medicaid enrollment and claims encounter data based on the Medicaid ID to determine the percent of referrals that resulted in a dental visit. Validity checks were performed by comparing the Medicaid enrollment age with the WIC-reported age. Medicaid enrollment age was defined as the age at the time of the visit data based on the patient's date of birth. The WIC data reported age, but not date of birth. A WIC case that was linked to Medicaid enrollment data based on Medicaid ID was deemed valid if there was both an exact match on Medicaid age and the WIC age varied by no more than one year. The analyses reported here are preliminary results based on WIC clinic visits dates from January 1, 2017 through September 30, 2017 and represent less than half of the total Brush visit dental referrals that were made. As additional Medicaid data become available, a final analysis will be made for all dental referrals made from January 1, 2017 through May 31, 2018.

No data on Brush visits were obtained from three Kent County clinics (Baxter Community Health Center, Clinica Santa Clara, and Cherry Street Health Services) and these three clinics have been excluded from the analysis.

Populations Studied

Three populations of children under five years were compared in this analysis: children with a WIC Brush visit resulting in a dental referral, children with a WIC Brush visit that did not result in a dental referral,

and children enrolled in Medicaid residing in either Kent, Oakland, or Wayne County but not identified as having a WIC Brush visit.

A logistic regression was estimated based on all Medicaid enrolled children under 5 years residing in any of the three counties. Cases were defined as WIC clients with a dental referral in 2017 from one of the 13 participating WIC clinics. An index date was defined for cases that did not have a WIC visit resulting in a dental referral as either the date of the first WIC visit where no referral was made or randomly assigned as the 15th of the month in a randomly selected month in 2017 for those enrollees where there was no evidence of a WIC visit at all. Independent variables for the logistic regression included age at the index date, gender, race/ethnicity, month of index date, and a variable representing whether the child had any dental visits in the 6 months before the index month.

In order to be able to report dental visits for the six months prior to the index month and 6 months following the index month, we further required individuals to have a minimum of 12 months of eligibility during the 13 month period surrounding the index date (six months before the index month, the index month, and six months after the index month). The outcome measures used for this analysis were dichotomous variables indicating any dental visit within 1, 2, 3, and 6 months following dental referral.

Measures

Program utilization measures included the number of client visits, the number of client visits that involved an educational intervention, the number of educational visits that focused on the Brush curriculum (Brush visits), and the number of referrals to dental providers.

For determining whether a dental referral was associated with a subsequent dental visits, we calculated the percent of individuals who had a claim for dental services in 1, 2, 3, and 6 months following the referral date. Medicaid dental and professional claims and encounter data for 2016 through March 2018 were searched for evidence of dental claims with a Current Dental Terminology (CDT) code (prefix='D') to indicate a dental claim. We searched both dental and professional (medical) claims because some dental services are provided in medical settings (physician office and outpatient settings). For example, the State of Michigan reimburses physician offices for oral health screens (CDT code D0190). We excluded any claim with a CDT code prefix 'D' where the rendering provider specialty indicated the provider was not a dental provider (e.g., pediatrician, family medicine). In addition, for those individuals who had a dental visit in either the 6 months prior to the index date or the six months following the index date, we summarized the type of service provided as either preventive (two-digit CDT code 'D1'), restorative (CDT code 'D2') or other (all other CDT codes).

RESULTS

The 13 Year 2 pilot clinics included in this analysis recorded a total of 158,822 visits from January 1, 2017 through May 30, 2018 of which 60,153 (38%) were visits where an educational topic was the focus. A total of 3,024 Brush visits (5% of all education visits) were recorded with 1,499 (50% of all Brush visits) of these visits resulting in a documented dental referral (Table 1). The majority of the Brush visits and dental referrals were done by clinics in Oakland County. Approximately 16% of all recorded WIC education visits in Oakland County during this time period resulted in a Brush curriculum education topic compared to only 2% in Wayne County and less than 1% in Kent County clinics. Only 287 Brush visits

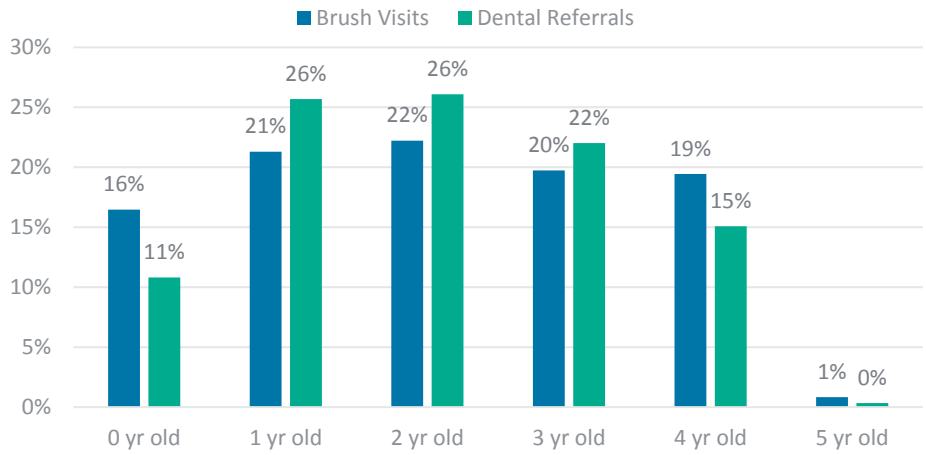
(6% of all visits) and 106 dental referrals (37% of Brush visits) were recorded for Kent County among the four clinics reporting any Brush visits. There were 346 Brush visits (2% of all visits) and 80 dental referrals (23% of Brush visits) reported by the six Year 2 Pilot sites in Wayne County (three clinics in Detroit and three clinics in Wayne County outside of Detroit).

Table 1. Characteristics of WIC Client Visits by Clinic

	Total Visits	Education Visits		Brush Visits		Dental Referrals	
		Number	% of All Visits	Number	% of Educ. Vis.	Number	% of Brush Visits
All Counties Combined	158,822	60,153	38%	3,024	5%	1,499	50%
Kent County Combined	64,994	26,002	40%	287	1%	106	37%
Sheldon	14,802	5,729	39%	17	0%	9	53%
Fuller	19,896	7,839	39%	85	1%	27	32%
North	7,639	3,208	42%	9	0%	2	22%
South	22,657	9,226	41%	176	2%	68	39%
Oakland County Combined	42,309	15,219	36%	2,391	16%	1,313	55%
Pontiac	22,118	7,798	35%	1443	19%	736	51%
Southfield	13,227	4,877	37%	658	13%	439	67%
Walled Lake	6,964	2,544	37%	290	11%	138	48%
Wayne County Combined	51,519	18,932	37%	346	2%	80	23%
Inkster	3,486	1,343	39%	23	2%	3	13%
Taylor	10,470	2,781	27%	82	3%	16	20%
Hamtramck	10,556	3,882	37%	150	4%	28	19%
West Warren	5,222	1,739	33%	13	1%	4	31%
Northwest	15,627	6,557	42%	33	1%	10	30%
Samaritan	6,158	2,630	43%	45	2%	19	42%

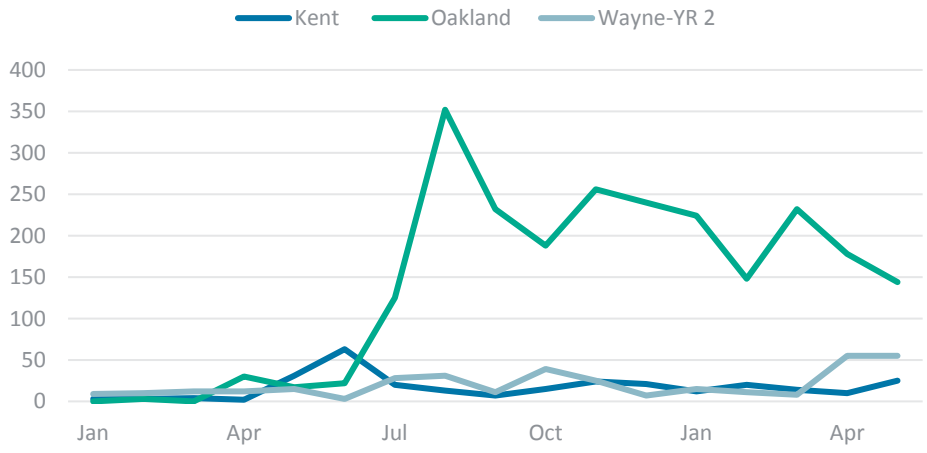
There were fewer Brush visits among children less than 1 year (16%; Figure 2) compared to 1- to 4-year olds (20%-22%). The overall number of visits among 5-year olds was low reflecting the WIC eligibility requirements that end at age 5. Among children receiving a dental referral, children less than 1 year were least likely to receive a referral (11%) compared with older children (15% to 26%).

Figure 2. Distribution of Brush Visits and Dental Referrals by Age of Child



Training of clinics took place in April of 2017, but the number of monthly Brush visits did not increase substantially until July and August of that year, at least for Oakland County clinics (Figure 3). Oakland County did not receive toothbrushes and other oral health supplies until July, which may account for the delay in Brush visits. Oakland County maintained a high level of Brush visits throughout the remainder of the data collection period with some possible decline toward the end.

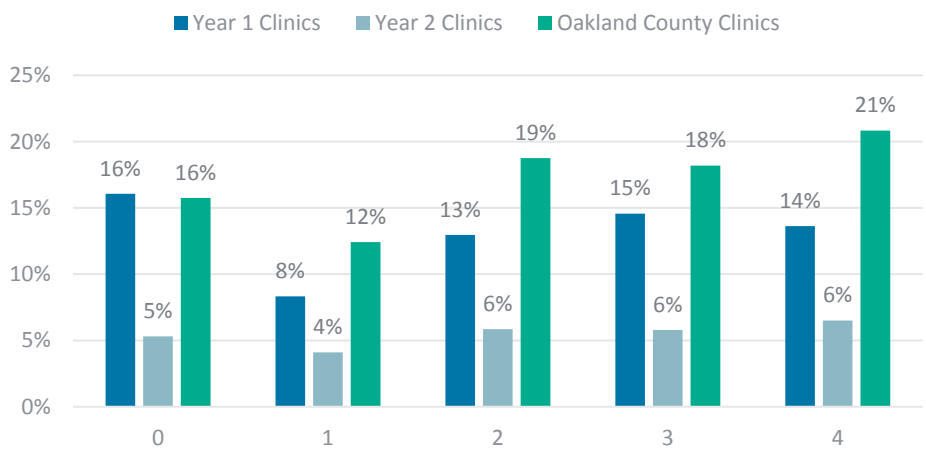
Figure 3. Pilot Year 2 Monthly Visits With Brush Curriculum Topic Discussed: Jan 2017-May 2018



Comparison with Year 1 WIC Clinics

We compared the results obtained with the Wayne County Year 2 pilot clinics to a second year of data for the 5 original Year 1 pilot Detroit clinics (Figure 4). Over the same time period the pilot Year 2 Oakland County clinics performed at least as well as if not better than the Year 1 Detroit clinics on the percent of education visits with a Brush curriculum education topic. The Year 2 Wayne County clinics did not perform as well as the Year 1 Detroit clinics on this measure.

Figure 4. Percent of Educational Visits with a Brush Curriculum Intervention, By Age of Child and Year Clinic Trained



In terms of monthly number of Brush visits, the Oakland County clinics provided roughly the same amount as the Year 1 Detroit clinics (Figure 5).

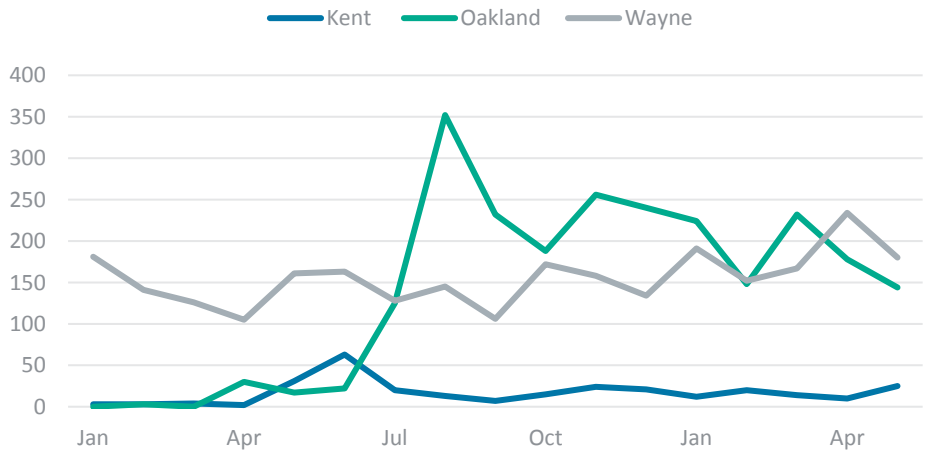


Figure 5. Monthly Visits With Brush Curriculum Topic Discussed: Jan 2017-May 2018

Effect of Referrals on Dental Visits

There were 1,853 Brush visits that occurred prior to January 1, 2018; the date cut-off necessary to ensure at least 6 months of follow-up with Medicaid claims data (Table 2). Of these, 81% were matched to Medicaid data based on the Medicaid ID and all of these except eight matched to within one year on the age reported in the WIC record and the Medicaid data. Approximately 78% of the WIC cases met the requirement of having continuous eligibility in the 6 months before and 6 months after the WIC visit that resulted in a dental referral resulting in 54% to 65% of originally identified cases and controls available for evaluation.

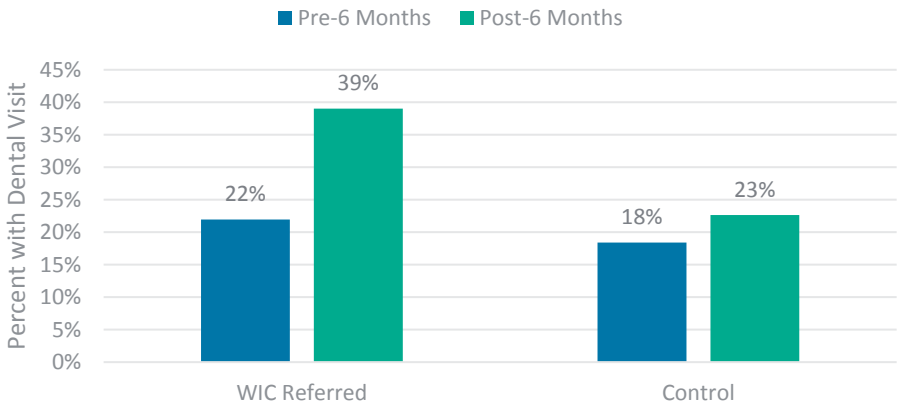
Mean age and percent female were similar across counties and between cases and controls (Table 2). While race/ethnicity was roughly similar among cases and controls within counties, there are important differences across the counties with African American/Blacks more prevalent in Wayne County and Whites more prevalent in Oakland County. This Medicaid population in Kent County has large African American/Black, Hispanic, and White populations.

Table 2. Characteristics of Cases Matched to Medicaid Data

Characteristic	County						Year 2 Pilot Total		Year 1 Pilot
	Kent		Oakland		Wayne				
	Cases	Controls	Cases	Controls	Cases	Controls	Cases	Controls	Cases
Number w/visit < 1/1/2018	204	20,584	1,447	20,701	202	80,207	1,853	121,492	1,505
Matched to Medicaid data	166		1,158		168		1,492		1,260
Percent	81%		80%		83%		81%		84%
Matched on Age +/- 1 year	165		1,152		167		1,484		1,252
Continuously Enrolled	110	12,980	917	13,008	132	55,842	1,159	81,830	974
% of matched cont enrolled	66%		79%		79%		78%		77%
% of total evaluated	54%	63%	63%	63%	65%	70%	63%	67%	65%
Mean Age (years)	2.3	2.1	2.3	2.1	2.2	2.1	2.3	2.1	2.3
Percent female	45%	48.6	49%	49%	42%	49%	48%	49%	51%
Race/Ethnicity									
African American/Black	20%	25%	28%	31%	37%	55%	29%	46%	69%
Hispanic	18%	22%	16%	10%	6%	7%	15%	10%	1%
White	27%	38%	46%	47%	20%	27%	41%	32%	21%
Asian/Other	2%	1%	2%	1%	4%	1%	2%	1%	1%
Unknown	33%	14%	9%	11%	33%	10%	14%	11%	9%

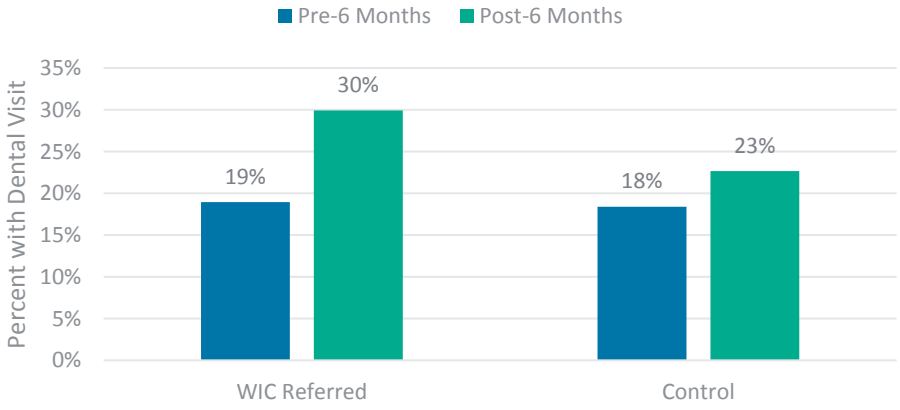
Among the Wayne County WIC clinics, children referred to a dentist at a Brush visit were more likely ($p<.05$ adjusted) to see a dentist in the 6 months following the referral compared with the 6 months preceding the referral compared to similarly aged children in Wayne county (control group in Figure 6). There was a 77% (unadjusted) increase in dental visits rates from 22% in the 6 months before the index date to 39% in the 6 months after the index date for controls compared to a 28% increase (from 18% before to 23% after the index visit) for the control population.

Figure 6. Wayne County (Pilot Year 2): Percent of Continuously Enrolled Children with Dental Visits 6 Months Before and 6 Months After Index Date



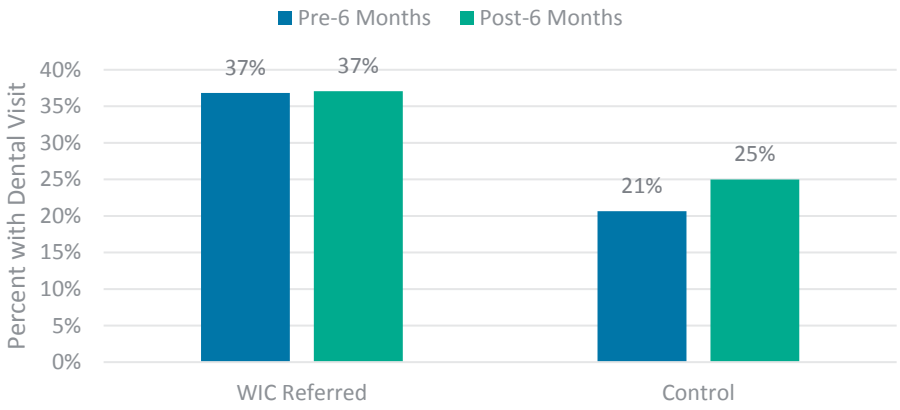
Similar results were obtained for the Year 1 Pilot clinics (Figure 7) with the greatest increase in post-index date dental visits occurring among those children who received a dental referral at a WIC Brush visit.

Figure 7. Wayne County (Pilot Year 1): Percent of Continuously Enrolled Children with Dental Visits 6 Months Before and 6 Months After Index Date



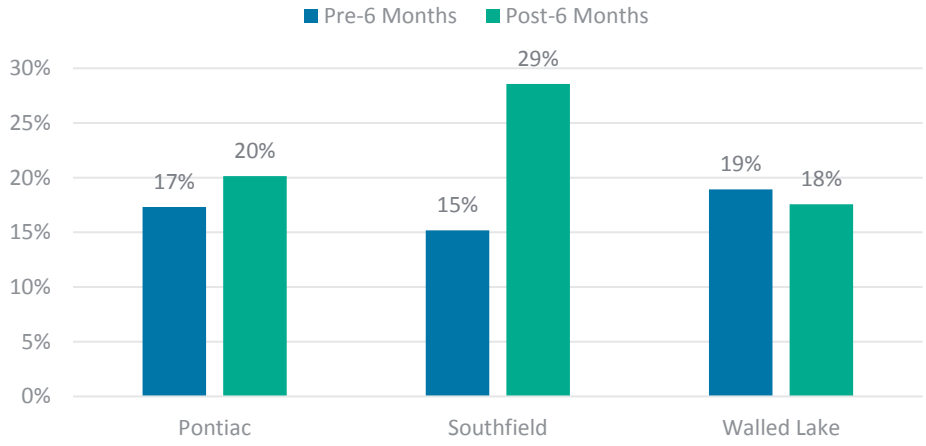
The aggregate results for Oakland County clinics (Figure 8) suggest no significant difference in the change in dental visit rates after training (or the index date for controls). WIC Brush visit referrals were associated with no change in dental visits from before to after the referral date compared to modest increases for both the control group for those children who had a WIC visit, but did not receive a referral.

Figure 8. Oakland County (Pilot Year 2): Percent of Continuously Enrolled Children with Dental Visits 6 Months Before and 6 Months After Index Date



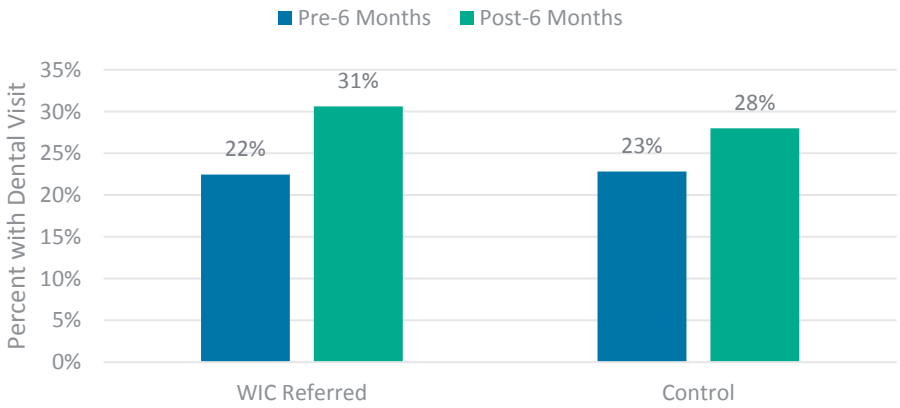
When analyzed at the clinic level, children seen at the Southfield clinic in Oakland County appeared more likely to have a dental visits after the referral than children at either of the other clinics (Figure 9).

Figure 9. Percent of Children with Dental Visits 6 Months Before and 6 Months after Referral, Oakland County by Clinic



While the numbers were small for Kent County (Figure 10), children receiving a dental referral at a Brush visit appear to be more likely to have a dental visit in the subsequent 6 months (31%) compared to the 6 months before the referral (22%).

Figure 10. Kent County: Percent of Continuously Enrolled Children with Dental Visits 6 Months Before and 6 Months After Index Date



Logistic Regression Analysis

Results of the logistic regression analyses are summarized in Table 3 where the dependent variable equals 1 if a dental visit occurred within 6 months following the index visit and 0 if not. WIC referral, age, visit month, dental visit in prior 6 months, and race/ethnicity were significant predictors of dental visit in the 6 months following the index visit (actual referral date for WIC referred cases). Dental referral at a WIC Brush visit was significantly associated with an increase in subsequent dental visits for clinics in Wayne County, but not in either Oakland or Kent Counties. For the Year 2 Wayne County and Detroit Public Health Department clinics, there was a significant association (p=.0492) between WIC referrals and subsequent dental visits. The odds-ratio of 1.98 suggests that referral by a WIC clinic was associated with a nearly 2 fold increase in the likelihood of a dental visit in the six months following the referral. For the Year 1 Detroit pilot clinics evaluated in the second year after training, there was a significant association of WIC referrals to dental clinics and subsequent visits to the dentist. The odds ratio of 1.57 indicates that for the 5 Detroit Year 1 pilot clinics, children referred to the dentist at a WIC Brush visit were 57% more likely to have a dental visit in the subsequent 6 months than children of similar ages enrolled in Medicaid in Wayne County, controlling for other factors. Blacks were less likely (except in Kent County) and Hispanics were more likely than Whites to have a dental visits in the 6 months after the index visit.

Table 3. Summary of Logistic Regression Results: Dependent Variable = 1 if dental visit in 6 months folloing the index visit and 0

	All Clinics		Kent		Oakland		Wayne-Yr 2		Wayne-Yr 1	
Variable	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
WIC Referred v control	1.213	0.0158	1.057	0.8701	0.911	0.4622	1.976	0.0492	1.569	0.0001
Age	1.58	<.0001	1.419	<.0001	1.651	<.0001	1.626	<.0001	3.488	<.0001
Visit Month	1	0.9736	0.987	0.0261	1.006	0.3968	0.999	0.7716	1.62	<.0001
Female v male	1.028	0.1152	0.964	0.3856	1.029	0.5237	1.022	0.3319	1.003	0.3253
pre-dental (yes v no)	3.703	<.0001	3.668	<.0001	4.467	<.0001	3.557	<.0001	1.048	0.0322
Black vs White	0.816	<.0001	1.01	0.0003	0.861	0.0009	0.831	<.0001	0.806	<.0001
Hispanic vs White	1.18	<.0001	1.283	0.0061	1.087	0.0611	1.13	<.0001	1.099	0.0001
Other or Unk vs White	1.085	0.0006	1.384	<.0001	0.993	0.825	1.027	0.1897	1.018	0.1064
N	82,791		13,029		13,477		55,690		56,244	
Likelihood Ratio Test	<.0001		<.0001		<.0001		<.0001		<.0001	
C-statistic	0.757		0.729		0.78		0.759		0.758	

OR: Odds Ratio

DISCUSSION

The Brush training resulted in over 3,000 instances where the Brush curriculum topic was the focus of an educational visit, though the frequency by which the training was applied varied widely from clinic to clinic. Clinics in Oakland County consistently implemented the Brush curriculum while clinics in Kent and the Year 2 pilot clinics in Wayne Counties did not. Across all clinics, dental referrals resulted roughly half of the time the Brush curriculum topic was the focus of the visit.

These dental referrals were associated with an increase in dental visits within 6 months of the referral date in Wayne County, though not in Kent or Oakland Counties. We emphasize that the Medicaid data relating to dental visits is incomplete and these results should be viewed as preliminary.

One difference between Wayne County and the other counties involved in the Year 2 pilot was that staff in Wayne County were able to use a pick list to identify specific dentists to refer to. Staff in the other counties may have made referrals to specific dentists, but the data that were recorded only indicate that a dental referral was made. It is possible that a more specific list of dentists in those counties would result in a higher rate of referral completions.

The fact that the Brush visits in Oakland County did not increase much until after the clinics received the toothbrushes and finger brushes for distribution to parents suggest the importance of these items for successful program operation. Anecdotal stories from staff indicate that the parents greatly appreciated these ‘incentives’ and they may in turn have motivated staff to do the Brush curriculum education topic more often as a result. It is clear from two years of pilots that the Brush curriculum is well received by WIC staff and that WIC staff at many of the clinics have been able to incorporate the Brush topics into their busy schedule of educational activities. What is less clear from our evaluation is how this affects actual behavior at home, though anecdotal stories from staff suggest that many of the ideas communicated by staff have had an important impact on oral health care of young children. It is also apparent that, when provided the correct tools such as lists of dentists who accept young children, WIC staff dental referrals result in an increase in the number of young children seen by dentists. However,

the majority of children referred to dentists have yet to see a dentist within 6 months. There remain significant barriers to getting children to dentists at an earlier age. The WIC Brush curriculum education topic is helping to reduce the gap, but there is more that needs to be done.

FOLLOW-UP WITH CLINICS

Following completion of the above analysis for participating WIC clinics in the Year 2 pilot, Altarum staff conducted data debriefs with WIC coordinators and supervisors in their respective clinics. These phone calls served as an opportunity to have exploratory conversations with key staff to further understand the data. Below, key themes from Kent, Wayne, and Oakland Counties are provided as a supplemental explanation to the above findings.

Kent County

- Participation: Seven clinics were trained in Kent County, but we only saw data for 4 clinics in the analysis. After speaking with a WIC coordinator, we learned that the 3 missing clinics are sub-contractors with lower caseloads and challenges with coordination. One of these clinics also shut down during the pilot period. Hence, we did not see documentation from all trained clinics in Kent County.
- Documentation: As part of this pilot, WIC staff are asked to document the Brush curriculum topic and if a dental referral was placed within the MI-WIC system. Unfortunately, documentation overall may be an issue with these clinics and is something they are actively working to improve.
- Dental Referrals: Every participating WIC clinic was provided a list of dental providers in close proximity to the clinic that accepts Healthy Kids Dental. These lists were then manually uploaded into the MI-WIC system, and it was shared that this can be a burdensome process. Kent County received the list of dental providers in June, but did not have time to upload into the system until July. Additionally, one of these WIC clinics is co-located with My Community Dental Centers (MCDC) and staff were already placing referrals directly to these providers. Therefore, referrals were taking place outside of the MI-WIC system and were not available to see in our analysis. Staff also indicated that the dental referral list was broken down by individual providers, and instead would have liked to see a generic code that alerted them about the provider being affiliated with MCDC.

Wayne County

- Participation: We learned that this agency caseload is at its lowest point in two years, with variation in enrollment across the Inkster, Taylor, and Hamtramck clinics. However, they are actively engaging with clients through the MI Bridges portal and anticipate an increase in participation rates.
- Billing: It was noted that there have been continuous issues with patients being turned away for billing reasons after being referred by a WIC staff member at one of the locations. Though we are not sure exactly what the reason is, we suspect this could be a discrepancy in letting the front desk know the patient has Healthy Kids Dental versus Medicaid and are investigating further.
- Dental Referrals: The Inkster and Taylor WIC clinics are co-located with Federally Qualified Health Centers (FQHCs) that offer dental services, and staff would send patients there for scheduling of appointments. Hence, referrals were taking place outside of the MI-WIC system and therefore

were not available to see in our analysis.

Oakland County

- Documentation: When conducting analyses, we consistently saw a code that differed from the other participating clinics when placing a dental referral. Instead of selecting an individual provider, many WIC staff were selecting a generic code, 'A Healthy Kids Dental (All Areas)', and then placing a referral to a specific provider outside of the MI-WIC system.
- Group Classes: We learned that in addition to delivering the Brush curriculum topic during the nutrition education sessions, Oakland County is also providing this education during group classes that take place on a weekly basis. Hence, they are casting a larger net in providing the Brush educational and referrals to dental providers that are not documented in the MI-WIC system.
- Activated Community: The Southfield WIC clinic had a higher rate of children with a dental visit after the referral had been placed compared to the Pontiac and Walled Lake WIC clinics. We learned that there are more HKD/age 1 accepting dental providers in this area and that the community is more activated in children's oral health.

Overall

Several themes were consistently noted across the three counties:

- Incentives: Kent, Wayne, and Oakland Counties noted that the incentives were well received and inquired if they could request more. These served as great conversation starters and helped to equip families with the tools they needed (with many staff noting that these families did not own a toothbrush, or had to share one).
- Training Refresher: The Brush trainings have taken place one time for each participating WIC clinic, which may not be enough. With staff turnover, competing priorities, and new members joining these clinics, a recorded webinar would be greatly beneficial to share with all pilot clinics. This was suggested on phone calls with all of these counties – even just a simple 'refresher course' would be helpful to remind staff about the importance of oral health and how to discuss with their clients.
- Documentation: Though many of the clinics have been successful in documenting the Brush curriculum topic and dental referrals placed, it would be helpful to remind staff why documentation is important. It is noted in the Brush training given to participating WIC clinics why staff are asked to document, but it may resonate more if they are given a walk through as well as an explanation of how that data is being used. It was additionally noted that a check-in or friendly reminder to clinics would be beneficial to make sure they continue this process.

Summary & Conclusions

SUMMARY

Immediately following training, staff feedback was overwhelmingly positive, with 100% indicating they would recommend this Brush training to a colleague. More importantly, both knowledge and comfort level increased, and staff felt ready to implement this training in their clinics.

After implementing the pilot activities for approximately 10 months, staff feedback remained largely positive. Respondents indicated the Brush visual aids, resources, and incentives are well received by clients, and parents react positively to the topic of oral health. However, staff expressed concerns with dentist acceptance of the age one dental visit, clinic time constraints, and a need for translated materials.

Overall, from January 1, 2017 to May 31, 2018, over 3,000 Brush education topics were recorded by Year 2 pilot WIC staff. Across all three counties, once a Brush education topic was undertaken, children were referred to the dentist 50% of the time. This represents a significant increase in the number of dental referrals, though there is considerable variability across counties and across WIC clinics.

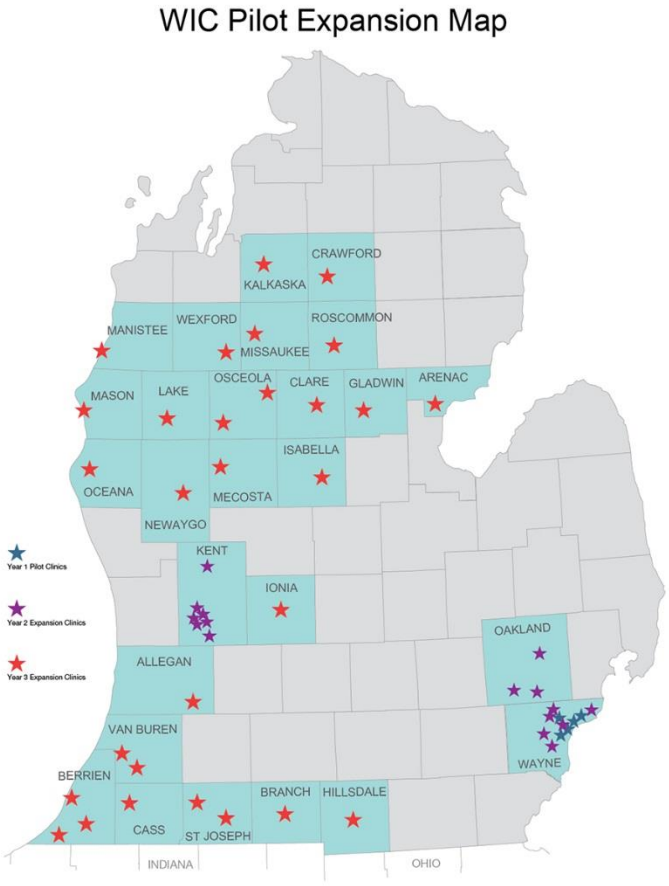
LESSONS LEARNED

We have a variety of lessons learned from the 2017 expansion that can be applied moving into Year 3 of the pilot program.

- The accurate and timely availability of both dental referral lists as well as incentives is important to the implementation of pilot activities. Dental referral completion rates were highest in Wayne County where lists of dentists known to accept young children were available and integrated into the Brush visits promptly. Further, qualitative staff feedback indicates the availability of incentives can influence whether or not a Brush visit will occur, as incentives are good conversation starters.
- A booster shot, or pulse check, consisting of both a check in with staff as well as a MI-WIC and Medicaid data extraction, would be greatly beneficial during the implementation phase. This would allow us to ensure that WIC staff are equipped with the resources and tools they need to provide Brush visits and complete referrals, and provide an opportunity to address barriers to implementation. It would also allow a chance to follow up with WIC staff to reiterate the importance of the topic and documentation within the system.
- There is extreme variation across WIC clinics in terms of the thoroughness of documentation, the existence of co-located clinics with dental services for referrals, and the discussion of oral health topics with clients prior to the Brush training. As these items seem to influence staff's ability to provide Brush visits and complete referrals, assessing them pre-implementation would allow for a better and more informed analysis of pilot activities.
- Dentists' acceptance of 1-year olds, and WIC staff members' fear of referring to dentists without knowing whether they will accept the referral, continues to be a barrier to implementation. Providing WIC staff with referral lists that include only those dentists who are known to accept young patients may increase WIC staff confidence in providing referrals, and therefore increase the overall dental referral rate in pilot clinics.

Following the success of the pilot programs in 2016 and 2017, a further expansion is underway for 2018. This third year focuses on expanding the originally urban-focused training program by enhancing the training to meet the unique needs of 15 rural WIC clinics across the state. Funded by the Delta Dental Foundation of Michigan and the Michigan Health Endowment Fund, we expect to reach more than 19,000 children and infants—or an additional 10% of the state's WIC participation—through an innovative alternative health care setting to tackle access-related disparities.

Below is a map detailing the reach of our pilot activities thus far within the state of Michigan.



Thank you to everyone involved, especially to the Delta Dental Foundation of Michigan for providing funding for this important work for years 1 and 2. We would also like to thank the Delta Dental Foundation of Michigan and the Michigan Health Endowment Fund for providing funding for our third expansion year targeting rural WIC clinics in dental health professional shortage areas.

Appendix A: Pre and Post-Training Surveys

***Brush!* Resource Materials Pre-Training Survey**

1. **What is your job title?** _____

2. **How long have you worked in WIC?**
   - ☐ 0-5 months
   - ☐ 6-11 months
   - ☐ 12-23 months
   - ☐ 2-5 years
   - ☐ 6-10 years
   - ☐ 11-20 years
   - ☐ 21+ years

3. **Have you had any previous training on oral/dental health topics?**
   - ☐ YES, and the training was adequate
   - ☐ YES, and the training was NOT adequate
   - ☐ NO

If yes, please describe the training: _____

4. **What is the recommended age for a child's first dental visit?** _____

5. **How comfortable are you discussing dental issues with clients now?**
   - ☐ Very Comfortable
   - ☐ Somewhat Comfortable
   - ☐ Neutral
   - ☐ Not Very Comfortable
   - ☐ Extremely Uncomfortable

6. **Do you typically/routinely refer clients to dental services?**
   - ☐ YES
   - ☐ NO

If **NO**, why not? (Check all that apply)

- ☐ Client does not have a dental risk
- ☐ Client has too many other risks
- ☐ Client is not interested
- ☐ Client does not want to take child to a dentist or go to a dentist
- ☐ Do not know of any dental clinics to refer to
- ☐ Do not have time during the clinic visit
- ☐ Other _____

7. Do you follow-up on dental referrals at the next clinic visit?

- ☐ YES
- ☐ NO

If **YES**, what feedback do you get?

If **NO**, why not? (Check all that apply)

- ☐ Dentist won't take Medicaid
- ☐ Dentist won't accept infants
- ☐ Not a priority for parent
- ☐ Parent does not have time
- ☐ Other _____
- ☐ No documentation of referral
- ☐ No time
- ☐ I forgot

Other _____

***Brush!* Resource Materials Post-Training Survey**

1. Please describe your impression of this training in one statement (or just a few words).

_____

2. What was your favorite part of the *Brush* Training?

_____

3. What was your least favorite part of the *Brush* Training?

_____

4. Would you recommend this training to your coworkers who did not attend, or to colleagues in other WIC Local Agencies?
   - ☐ YES
   - ☐ NO. Why not? _____

5. Do you feel barriers and/or challenges to implementing the *Brush* resource materials, and other pilot activities, exist at your clinic?
   - ☐ NO
   - ☐ YES. Please describe _____

6. What is the recommended age for a child's first dental visit? _____

7. Now that you've completed the *Brush* training, how comfortable do you think you will be discussing dental issues with clients?
   - ☐ Very Comfortable
   - ☐ Somewhat Comfortable
   - ☐ Neutral
   - ☐ Not Very Comfortable
   - ☐ Extremely Uncomfortable

8. How do you envision incorporating the *Brush* resource materials with your CCS counseling approach? For example, what open-ended questions could you use to introduce the oral health topic?

   _____
   _____

Appendix B: Post-Implementation Survey

Implementation & Impact

1. It's been about 10 months since the initial BRUSH training, we'd like to hear about your experience with this oral health-focused client interaction now.
    a. What are your favorite parts about the BRUSH curriculum and nutrition education interaction?
    b. What are your least favorite parts?

Now let's talk about how you've been using this BRUSH curriculum in your client interactions

2. During your nutrition education sessions, what are you most consistently doing or discussing with clients?
    a. What have you found to be most impactful?
    b. Can you share any open-ended questions you use to introduce the oral health topic?
    c. How have parents and caregivers been reacting to this topic?
    d. What kind of questions or concerns are you getting from the families?
    e. Describe your comfort level in discussing dental issues with families

3. How are the referrals to the dentists going?
    a. Have you been able to find a dentist to refer the family to that is relatively close to where the family lives, or a location with which the mom is familiar?
    b. Have you gotten any feedback from moms at a subsequent WIC appointment that their visit to the dentist took place?
        i. Any feedback on the actual dental visit for the child?
    c. Do you know if your clients have gone to the dentist once referred?
    d. Are you still placing referrals?
    e. Client transportation issues—are clients having trouble getting to dental appointments? Or are there other issues the clients are reporting that serve as barriers to getting to the dentist?

Next, I'd like to know about any challenges you have encountered with the BRUSH counseling, or anything you'd like to see improved in the training

Barriers and Opportunities for Improvement

4. Can you share the barriers and or challenges you have encountered in offering the Brush education or completing the other pilot activities at your clinic?
    a. Is there anything you can think of that would help to overcome these barriers or challenges?

5. Is there anything else you would like to share with us about your experience including the BRUSH counseling and dental referrals into your WIC client interactions?