MARYLAND DENTAL SEALANT PROGRAM ASSESSMENT

2018-2019

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Executive Summary

Dental caries or cavities are the most common chronic disease affecting youth. Dental caries are felt disproportionately by children without dental insurance, minority youth and those of a lower socioeconomic status than their counterparts (Centers for Disease Control and Prevention, 2018). Dental sealants are thin coatings that when painted on the chewing surfaces of the back teeth (molars) can prevent cavities (tooth decay) for many years (Centers for Disease Control and Prevention, 2018).

A 2015-16 Maryland state surveillance study found while the majority of students had their dental needs met, there remain some areas of need (Health, 2017). Similar to the nationwide statistics, Maryland youth without dental insurance and those of a lower socioeconomic status had a higher rate of untreated dental caries. Differences by county of residence were found, with students living on the Eastern Shore of Maryland more likely to have dental caries.
In regards to dental sealants, approximately 60% of students needed at least one sealant on a permanent molar. One highly effective strategy to deliver sealants to children who are less likely to receive private dental care is through school-based dental sealant programs.

To help address unmet dental needs in Maryland, many counties participate in school-based sealant programs. School-based sealant programs are defined as sealant programs conducted completely within the school setting. These programs are conducted by teams of dentists and dental hygienists who work with nurses, program coordinators and other public health professionals who utilize portable equipment, a fixed clinical facility within the school setting, or a mobile dental van parked on school property to conduct dental screenings and sealant applications (Association of State & Territorial Dental Directors, 2017). While dental sealant programs may be available through private networks or other community venues, the intent of this assessment was to examine the status of Maryland School-based Dental Sealant Programs (MSDSP).

The Maryland Dental Action Coalition (MDAC) contracted with the University of Maryland Extension to conduct the first statewide assessment of school-based dental sealant programs to determine facilitators and barriers to school sealant program expansion, describe unmet needs, and make strategic recommendations for expanding the programs. A survey and interview guide was developed based on best practice research for dental sealant programs (Association of State & Territorial Dental Directors, 2017; Children's Dental Health Project, 2017; Children's Dental Health Project, 2014; National Network for Oral Health Access, 2018). Research was conducted during the 2018-19 school year and information reflected programming available during that time frame.

A county stakeholder list of 71 persons was provided by the MDAC and the Maryland Department of Health, Office of Oral Health (OOH). The target stakeholder population included representatives from counties with and without school sealant programs, with representation from school dental sealant program coordinators, local health departments (LHDs), local school administrators, teachers, nurses, and federally qualified health centers (FQHCs).

A total of 20 respondents met commitment requirements and completed the survey, representing 16 Maryland counties. Eleven of the 16 counties reported having a dental sealant program. Thirteen people provided information for these eleven counties, with more than half representing (7 of 13) school-based sealant programs conducted by local health departments, four from the school system, and two from federally qualified health centers (FQHCs) in partnership with the school system. Key findings from counties with sealant programs included:

- The 11 counties with school sealant programs first targeted Title 1 schools. Those with larger percentages of students receiving free or reduced lunches were given priority; sealant programs were expanded to additional schools based on funding.

- The majority of funding for school sealant programs secured by local health departments (LHDs) came from state and local grants; two respondents reported their programs received funding from multiple sources.

- With a few exceptions, the most successful recruitment method was to send program consent forms and information home with students as part of a general packet of information about school activities planned for the year, which the school sends to parents at the beginning of the school year.

- Most respondents (78%) from local health departments reported program success is measured through the number of eligible students served.

- Several respondents shared ideas of ways to expand the reach of the program. Areas identified included: increasing widespread dissemination of oral health information; developing new funding streams; offering youth incentives to return consent forms; and establishing ways to maintain current equipment and secure new equipment when needed.

For counties without dental sealant programs, the major findings include:

- The majority of respondents stated a lack of funding was integral to the lack of a sealant program.

- In rural counties, funding was the main reason a program had not been implemented.

- To start a program, having supportive leadership and mentorship and a clear advocate or champion is needed.

Based on these findings, recommendations were made to address the needs of individual student(s) and families, organizations working with programs, host schools and communities, and policy makers on the state as well as the local level. These include:

- **The development of standardized success measures for all counties**. Standardized measures will enable counties to track local progress toward program goals while also providing data necessary for developing accurate state level status reports.

- **Training programs to help develop new sealant programs and build partnerships within communities.** Feedback from counties without school sealant programs indicated that building understanding and support within the school and community is a critical factor in initiating a school sealant program and that education is needed on the process.

- **Offer assistance and training to counties to support efforts to apply for and secure the 2008 public health dental hygiene waiver.** Securing the waiver would result in that county being able to utilize qualified dental hygienists to apply dental sealants, in addition to dentists, greatly expanding the pool of dental professionals who can serve in this critical role.

- **Extend tuition assistance and loan repayment options to dental hygienists.** The relatively low pay scale for dental hygienists in Maryland was noted as a deterrent to securing and retaining qualified hygienists in school sealant programs. Tuition assistance and loan repayment options would provide added incentives and opportunity to new professionals in communities and schools where more dental hygienists are needed.

- **Create tools using clear communication principles and translate them into additional languages to meet the needs of all community members.** Clear communication strategies are most critical when communicating with parents about school sealant programs to ensure they understand what sealants are, what they are consenting to, and what the long term positive health implications are for their child. Providing information in multiple languages optimizes the opportunity for increased understanding for more parents, which could also increase positive consent returns.

Maryland continues to innovate and seek ways to expand dental sealant services to all of Maryland's youth through school-based dental sealant programs. The OOH provides resources and guidance to existing programs, as well as counties who seek to initiate a new program. This report documents the vital role that school-based sealant programs fill in reaching Maryland youth who may otherwise not have access to services. However, the need for expanding to additional counties and improving the reach of existing programs is documented in this report, as is the need for additional funding to support local program sustainability. All recommendations made in this assessment are based on the feedback provided by respondents and supported by national best practices. Proposed recommendations, if implemented, would contribute to the growth, improvement, and sustainability of Maryland dental sealant programs, resulting in more youth being served and Maryland continuing to be recognized as a leader in oral health.

Burden Report

Dental caries, more commonly known as cavities, are the most common chronic disease affecting youth (Centers for Disease Control and Prevention, 2018). The National Health and Nutrition Examination Survey (Centers for Disease Control and Prevention, 2014) estimates approximately 37% of children aged 2 to 8 have caries in their primary teeth, with 58% of 12 to 19 year olds having caries in their permanent teeth. The majority of caries burden is typically felt by children without dental insurance and those of a lower socioeconomic status. If left untreated, caries can cause chronic pain and difficulty eating, talking, and sleeping, leading to a decreased self-confidence and overall quality of life (BaniHani, 2018).

During the 2015-16 school year, the University Of Maryland School Of Dentistry conducted a statewide oral health surveillance study of Maryland public elementary school children. Below is a summary of their statewide findings (Health, 2017):

- Maryland exceeded the Healthy People 2020 goal of having caries no higher than 49%, with a state rate of 35.9%;
- Maryland's untreated dental caries is 13.6%, again exceeding the national goal of 26%;
- Overall, Maryland has a dental sealant prevalence rate of 41.4%, which is higher than the national target of 28%.

Within the state, the researchers found differences in dental caries rates among students. These included:

- Overall, the majority of school students have had their dental needs met, with less than 1% of the population having urgent dental needs;
- The rate of dental decay varies by region, with the Western region reporting the lowest and the Eastern region reporting the highest;
- Children with a lower socioeconomic status (those who qualify for free/reduced lunches) have a higher rate of dental caries than other students;
- Overall, more than 60% of students needed at least one sealant on a permanent molar.

Overall, Maryland was found to have a lower rate of dental caries among elementary school students when compared nationwide, with a higher rate of dental sealants on permanent molars; however, there is still room for improvement.

One way to further enhance the oral health of students is through school-based dental sealant programs targeting elementary school students. Dental sealants are thin coatings that when painted on the chewing surfaces of the back teeth (molars) can prevent cavities (tooth decay) for many years (Centers for Disease Control and Prevention, 2018). One highly effective strategy

to deliver sealants to children who are less likely to receive private dental care is through school-based dental sealant programs.

To help address unmet dental needs in Maryland, many counties participate in school-based sealant programs. School-based sealant programs are defined as sealant programs conducted completely within the school setting. These programs are conducted by teams of dentists and dental hygienists who work with nurses, program coordinators and other public health professionals who utilize portable equipment, a fixed clinical facility within the school setting, or a mobile dental van parked on school property to conduct dental screenings and sealant applications (Association of State & Territorial Dental Directors, 2017).

School sealant programs have largely been in existence in Maryland since the 2007 death of a 12-year old student linked directly to an untreated dental infection. Dental sealant programs provide a vital link between students with a low socioeconomic status and dental care they may not be getting. While a statewide surveillance study of dental caries has been conducted, no such study of sealant programs exists. The goal of this report is to share the findings of a statewide needs assessment of Maryland School-based dental sealant programs, the needs and wants of counties both with and without school sealant programs, and recommendations to further expand the reach of such programs.

Methods

For the purposes of this assessment, Maryland's definition of rural counties is used. Based on this approach, 18 counties in Maryland are defined as rural, while 5 counties are defined as urban. Baltimore City is considered a separate urban entity (Maryland Department of Health, 2019).

Respondents for this needs assessment were identified through a collaborative effort between representatives of the Maryland Dental Action Coalition (MDAC) and the Office of Oral Health (OOH). The target population included the following groups with and without sealant programs in their respective counties:

- School dental sealant program coordinators
- Local Health Departments (LHDs)
- Local school administrators, teachers, and nurses with and without dental sealant programs
- Federally Qualified Health Centers (FQHCs)

MDAC worked with the OOH to identify stakeholders for the survey. Respondents identified from counties with and without dental sealant programs served as dental sealant program coordinators, public health professionals, or education professionals in those counties. The goal was to recruit representatives from a minimum of 12 counties that would contribute to this assessment.

Procedure

To develop the survey, key informant interviews were conducted with individuals with background, experience or expertise on dental sealant programs who could provide background and perspective on important factors to include in the needs assessment. MDAC provided the names and contact information for three individuals who later agreed to be interviewed to assist in framing the important issues to be explored in this assessment. Three interviews were conducted for background purposes and were recorded following respondent consent. The content of the transcribed interviews provided foundational information used in the development of the assessment survey and interview questions used to collect data for this assessment.

A three-pronged online questionnaire to collect data for the assessment using Qualtrics survey software was developed with input from MDAC and OOH. The three prongs included questions for representatives from:

1. LHDs and other agencies/organizations currently implementing dental sealant programs
2. Schools currently hosting dental sealant programs for one or more grades
3. Organizations, agencies, or schools not currently implementing or hosting a dental sealant program.

A key informant interview script was developed to collect additional in-depth perspective on critical aspects of the data. Key informants were randomly selected from the survey respondents based on whether or not they were currently involved in implementing a school-based dental sealant program and whether their county was defined as rural or urban. A maximum of eight key informant interviews were to be conducted.

IRB Approval

This project was submitted to the University of Maryland, College Park Institutional Review Board, and was approved as an Expedited review category #7. Waiver of written consent was authorized.

MDAC developed a contact list of 71 qualified persons representing all 23 Maryland counties and Baltimore City, as well as multiple schools and organizations within those counties. The Request for Applications (RFA) also required a letter of commitment from each participating organization before it was included in the official pool of respondents. As a result, an initial email letter was sent to the 71 potential respondents explaining the project and asking them to participate. To confirm their intent to participate, the letter included an electronic link to a Qualtrics document where respondents provided their name, organization, title, and agreement to participate. They were also asked to provide an electronic signature to document their commitment to participating. A list of those who committed to participate was shared with OOH.

From the original list of 71 contacts, a total of 28 individuals, representing 17 counties and Baltimore City and 28 different schools and organizations from those counties, returned letters of commitment. This group of 28 became the official pool of study respondents, representing a 39% response rate for this initial mailing.

A letter explaining the study, informed consent process, confidentiality, and voluntary nature of participating was sent to the 28 individuals who committed to participating in the needs assessment, which also included the electronic link to the Qualtrics Survey. All respondents were asked to describe their position and the organization they represented. They were prompted to indicate whether or not their county had a dental sealant program. Those who responded "yes", answered one set of questions and those who indicated "no" answered a different set. Those who represented schools with sealant programs received a different set of questions than other agencies with dental sealant programs.

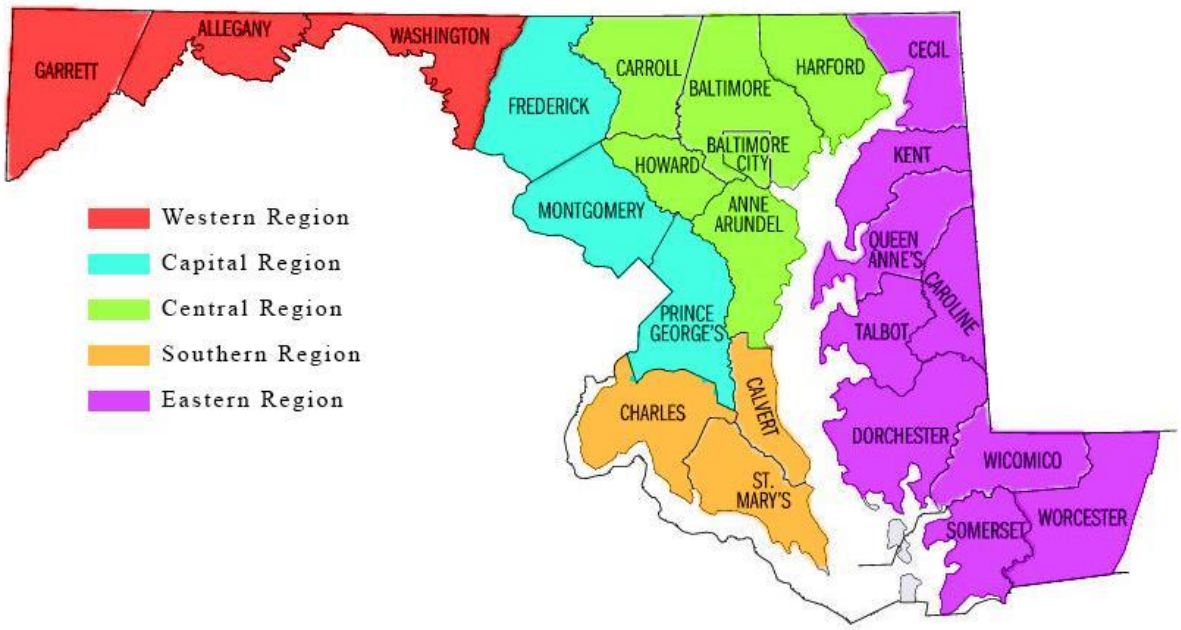
From the 28 individuals who committed to participate in this study, questionnaires were returned from 20 individuals, representing 16 counties and 20 schools or organizations within those counties. This number represents a survey response rate of 31% of those initially invited to participate, and a response rate of 71% of those who committed to participate. Overall, 67% of Maryland's counties and jurisdictions provided data.

Following completion of survey data collection, the list of respondents was sorted by rural/urban counties, whether or not they were involved with a dental sealant program, and type of organization to randomly select up to 8 respondents to contribute additional input via a key

informant interview. Recording and transcription was facilitated through the use of the Transcribeme App.

Six follow-up key informant interviews were conducted with randomly selected survey respondents who met specific criteria. Two of the interviewees represented urban counties, while the remaining four were from rural counties. One interview was conducted with a respondent from each of Maryland's six state regions (Western Region [Garrett, Allegany, and Washington counties], Capital Region [Frederick, Montgomery, and Prince George's counties], Central Region [Anne Arundel, Baltimore, Carroll, Harford, and Howard counties], Southern Region [Calvert, Charles, and St. Mary's counties], and Eastern Region [Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester counties]). Figure 1 below shows the state regions (Maryland Office of Tourism, 2019). Five of the six interviews were conducted with respondents from counties with school sealant programs; the sixth interview was conducted with a respondent from a county without a program, but was in the process of developing one for 2019 school year. Efforts were made to recruit an interviewee from a county without a dental sealant program and without plans to start one; however, they either declined to be interviewed or did not respond to our requests.

Figure 1: State of Maryland Regions



Analyses

The survey data was analyzed through the data analysis software SPSS. Descriptive statistics were run on survey data. The data were examined first by counties with and without school-based sealant programs, and then by rural/urban designation. Five of the six key informant interviews were recorded and transcribed for analysis, with the sixth declining to be recorded. A thematic analysis was conducted to better understand the factors that facilitate a successful

school sealant program, the barriers to expansion or establishment of a school sealant program, and the overall needs of counties regarding school-based sealant programs. Findings from both the survey and interview were used to craft the recommendations presented below.

Findings

Overall, our survey respondents (20 respondents in total) represented 16 of Maryland's 23 counties, with 11 rural counties and 5 urban counties reporting (Figure 2 and Chart 1). Participating rural counties included Allegany, Caroline, Charles, Dorchester, Frederick, Harford, Kent, Somerset, Talbot, Washington, and Worcester. The 5 urban counties that contributed data included Anne Arundel, Baltimore (County), Howard, Montgomery, and Prince George's. Respondents answered based on whether or not their organization currently had a school-based dental sealant program; two respondents represented agencies which cover multiple counties but only provided data for the county they were specifically recruited to provide responses for, and one represented a county that does not currently have a dental sealant program but is developing a program for the next school year. Seven counties and Baltimore City were not represented in the survey data (Calvert, Carroll, St. Mary's, Garrett, Cecil, Queen Anne's and Wicomico counties).

Figure 2: County Reported Dental Sealant Program Status

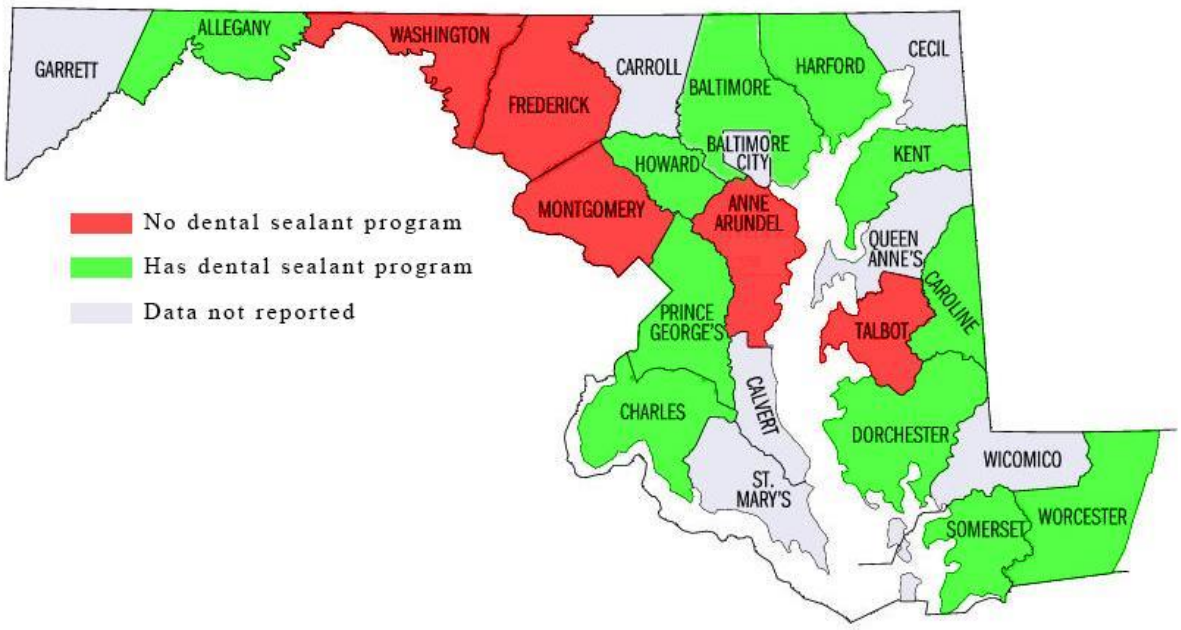
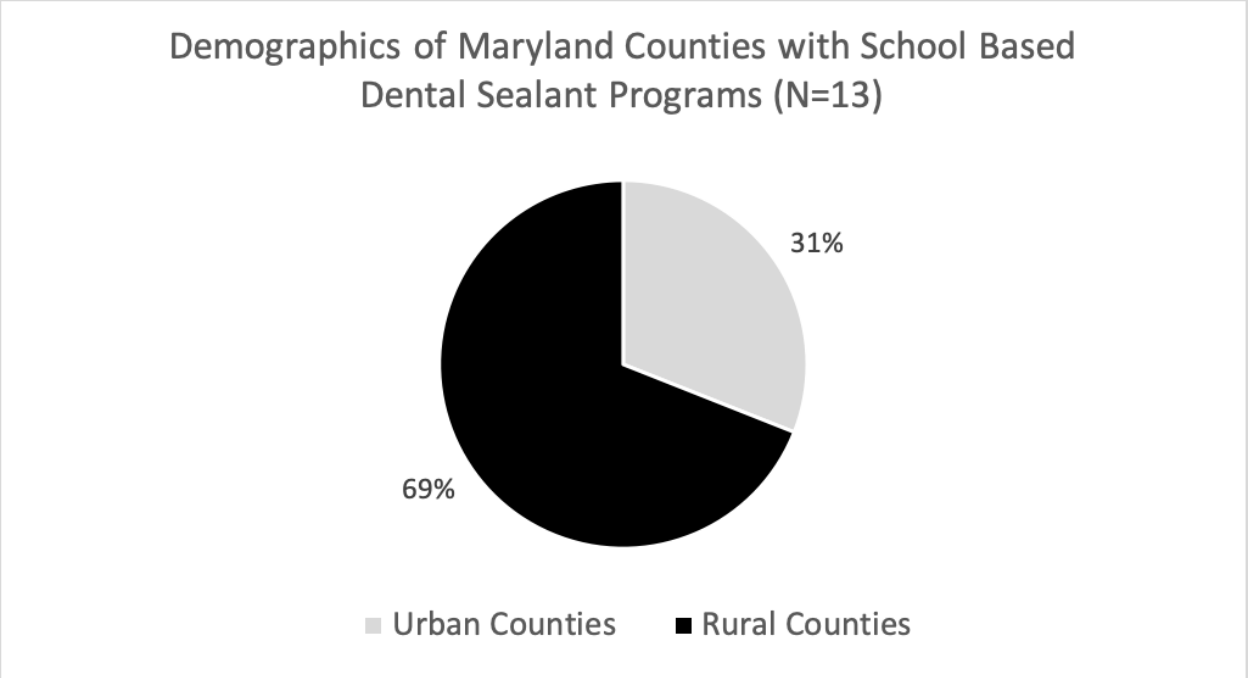


Chart 1: Counties with Dental Sealant Programs: Rural vs. Urban



Of those participating, 13 respondents represented organizations/agencies where a dental sealant program was in place, while 7 respondents represented organizations/agencies that did not currently implement or host a dental sealant program. In total, 11 counties reported having a dental sealant program. Two of the respondents who reported not having a dental sealant program within their agency represented counties where other agencies provided the services, which was established via survey data. Three survey responses were excluded: two were duplicates and one did not have data entered. Table 1 below displays the type of organization respondents represented.

Table 1: Organization of Employment for Dental Sealant Survey Respondents

Host Organization	**Respondents representing Dental Sealant Programs (total 13)**	**Respondents without Dental Sealant Programs (total 7)**
Local Health Department (LHD)	7	4
Federally Qualified Health Center (FQHC)	2	2
School	4	0
Other	0	1 (non-profit)

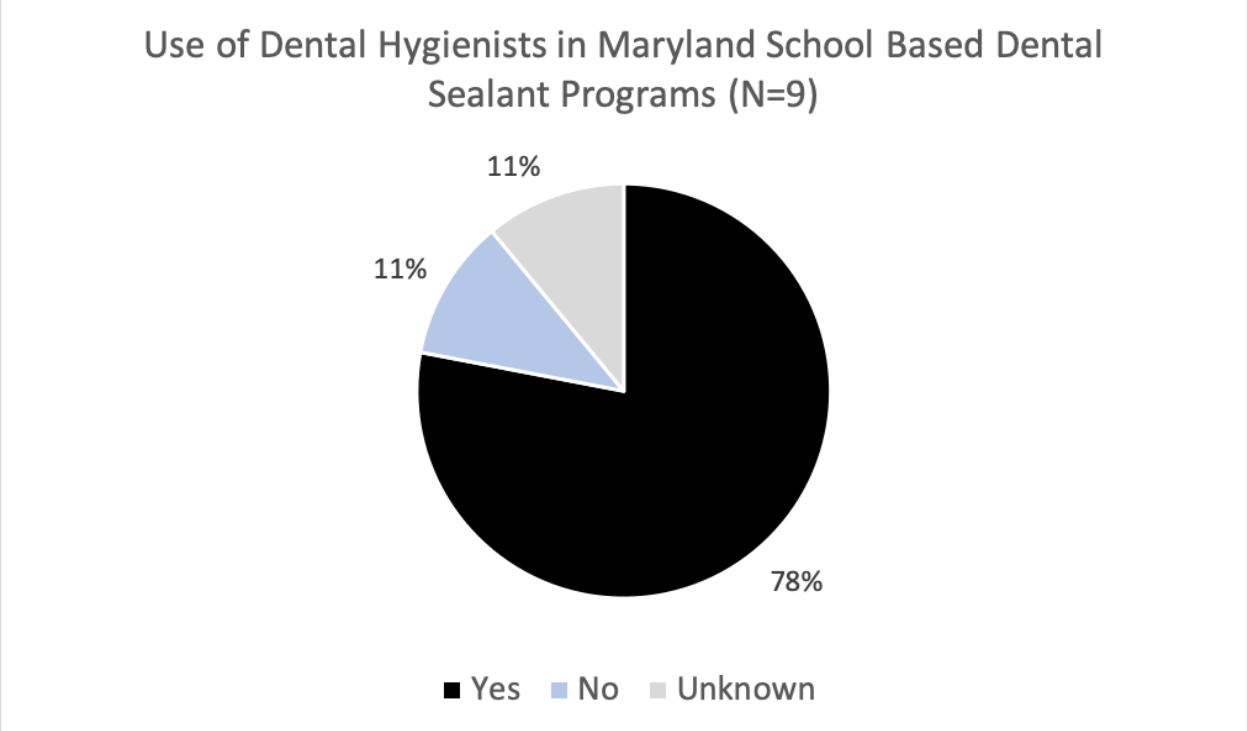
All of the programs surveyed that currently sponsor a dental sealant program reported they provide services to 2nd and 3rd graders, in alignment with national best practices (Maryland Department of Health, 2018). However, three of the counties surveyed provide services to all grades (pre- K thru 12thgrade), with two of these counties also providing services to Head Start programs. The most cited criteria used when choosing a site for a dental sealant program and implementing it was whether the school was a Title I school and had a large percentage of free and reduced meals (FARMS) eligible students, as indicated by 7 out of 9 respondents that work either for the LHD or a FQHC that sponsors a dental sealant program. In addition to the above criteria, 6 of the 9 respondents indicated they consider grade level when making decisions about implementing dental sealant programs and whether the school is in a priority geographical area in terms of low income, physician shortages or medically underserved. Finally, some counties have expanded their program beyond Title 1 schools to include elementary schools that do not meet those requirements.

For those who reported not having a dental sealant program, 5 of the 7 respondents attributed the lack of a sealant program in part to lack of funding. One respondent indicated their county is in the process of creating a dental sealant program, and one of the respondents in this group mentioned that while their agency does not have a dental sealant program, they believe the county does. For the county in the process of implementing a program, they cited that having mentors that have already implemented a program would be a valuable resource. Three of the respondents in this group would be interested in learning more about dental sealant programs and advocating for one. Background research and training on how to implement the program were identified as the types of resources that would be most useful to them. Of the three respondents that would be interested in learning more about dental sealant programs, two have previous experience with a dental sealant program. One respondent shared that their county did not have a dental sealant program due to a lack of leadership belief in dental sealants and the 2008 Dental Hygiene waiver.

2008 Public Health Dental Hygiene Act

In 2008, Maryland passed the Public Health Dental Hygiene Act allowing public health dental hygienists to provide any procedure allowed under the scope of practice for dental hygienists in public health settings without having a dentist on site. The act requires each program to apply for a waiver to operate under this law. All respondents representing LHDs or FQHCs with dental sealant programs that reported having a dental sealant program in our survey were aware of this waiver (N=9), with 7 respondents stating that their organization had received it and were using dental hygienists (Chart 2). Of those that reported not having a dental sealant program, 5 respondents had heard of the waiver and 2 had not. Of these 5 respondents that had heard of the waiver, only 1 believed that securing it would help create a dental sealant program at her agency. In follow up key informant interviews, all interviewees that had applied for the waiver had successfully attained it and did not report any barriers or struggles in the process. One of the interviewees shared that by obtaining the waiver, their program was able to expand dramatically and build another team to serve the schools in their county.

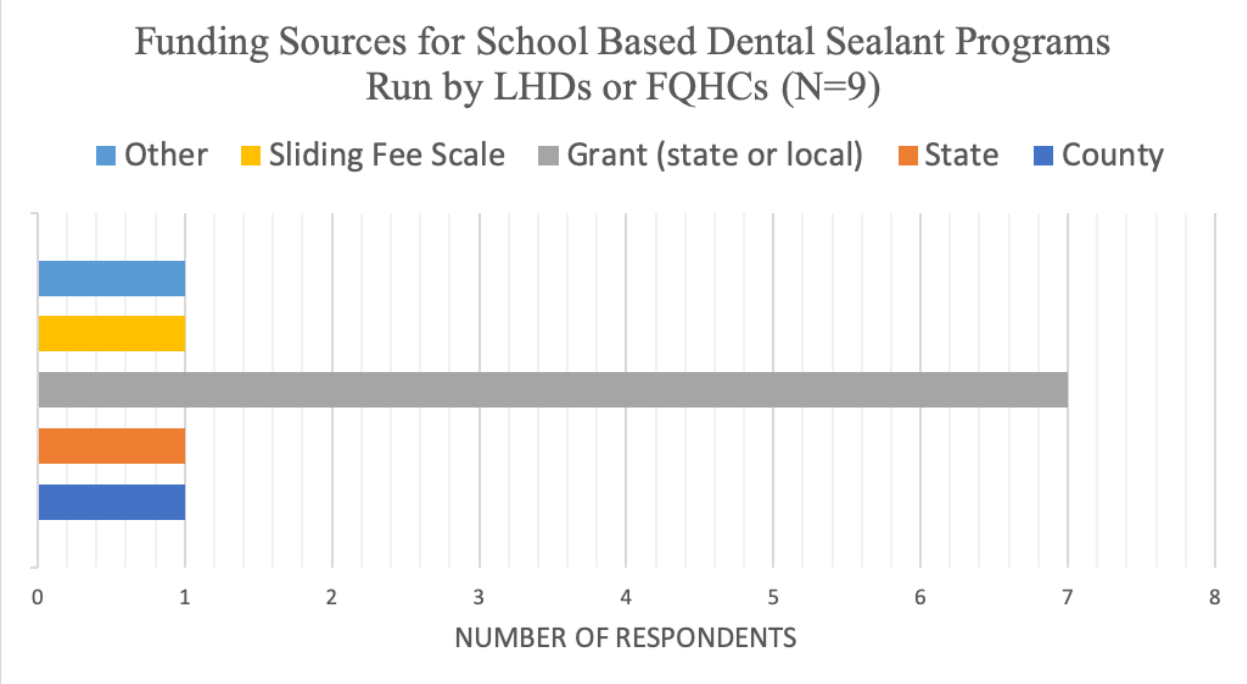
Chart 2: Use of Dental Hygienists in Maryland School Based Dental Sealant Programs



Funding for Programs

The majority of the funding for school-based dental sealant programs run by the LHD or FQHC comes from grants, either state or local (7 out of 9). Only 2 of the respondents from a LHD or FQHC indicated they received funding from multiple sources, which may have included federal, state, local and private resources. Three of the 9 respondents from LHDs and FQHCs surveyed indicated they recently had to limit services due to funding, and of those 3 only 1 applied for additional funding in order to try to maintain services at pre-existing levels. Whether there were no other funding opportunities available for the other 2 organizations or they chose not to look elsewhere was not addressed in the survey. Chart 3 shows the breakdown of dental sealant funding.

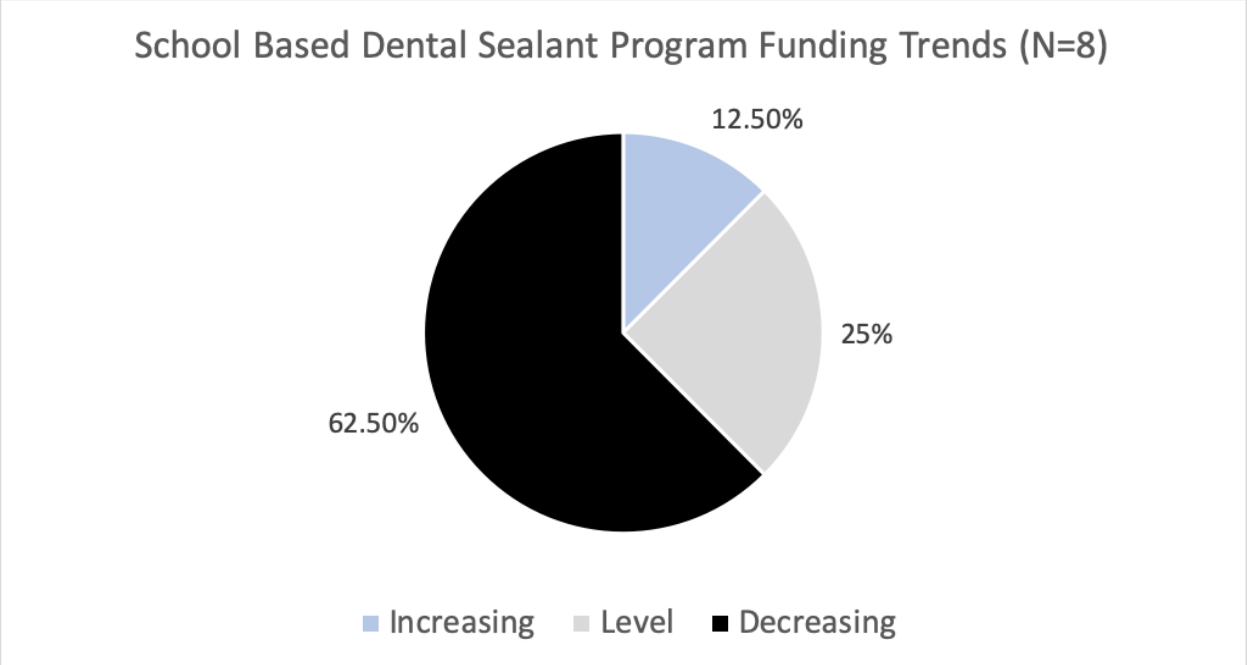
Chart 3: Funding Sources for School Based Dental Sealant Programs Run by LHDs or FQHCs



**Respondents could select multiple funding sources for their organization/agency's dental sealant program.

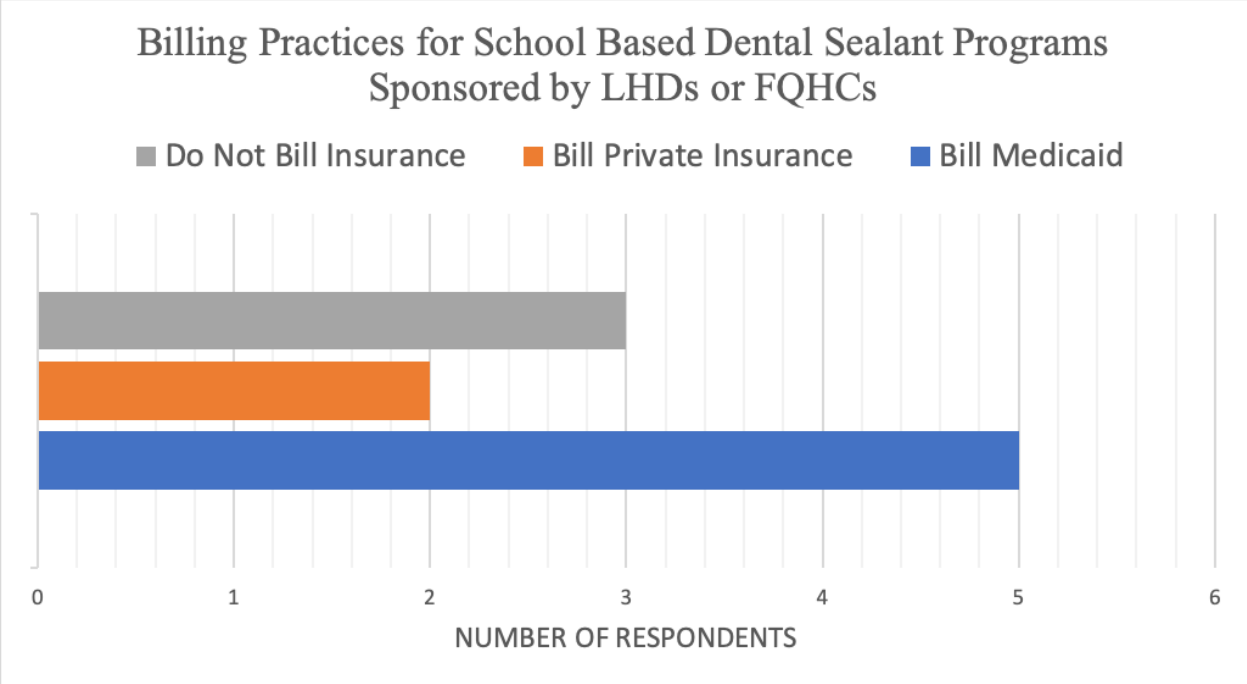
Overall, 5 of the 9 respondents from LHDs or FQHCs that sponsor dental sealant programs shared that the general funding trend has been to reduce funding for dental sealant programs, which mainly affected their ability to expand their program or purchase new equipment. This was further demonstrated in follow up interviews, where one respondent shared that their county was unable to service several of their schools this year due to an inability to fix their van that serves as a mobile dental unit. Another respondent shared they fear that when their van breaks, their program too will be in jeopardy. Only one county indicated they did not plan to apply for funding in the following year. Dental sealant sites were limited due to staffing shortages in 3 counties, and follow up interviews highlighted the struggles that come from the limited salaries that are offered for many of the positions used to staff dental sealant programs. One interviewee highlighted the need for increased access to loan repayment programs that dental hygienists could qualify for; access to these programs could assist them despite the caps that are placed on their salaries. Chart 4 shows the current funding trends.

Chart 4: School Based Dental Sealant Program Funding Trends



One emerging finding of note was the billing of services. *Mighty Tooth* (Maryland Department of Health, 2018) discusses the billing of insurance for services for continued program sustainability. Through survey data and follow up interviews, one theme that emerged was the remaining lack of clarity regarding how to bill insurance for dental sealant services. Several respondents mentioned how their counties are just beginning to bill Medicaid and private insurance for these services, which they believe will help sustain their program in the future. Currently, 5 programs bill insurance for their services, 3 programs reported that they do not bill insurance for services, with one not responding. Of those that bill insurance for services, all bill Medicaid, with two reporting they also bill private insurance companies. Chart 5 shows the breakdown of billing for dental sealant programs.

Chart 5: Billing Practices for School Based Dental Sealant Programs Sponsored by LHDs or FQHCs



**Respondents could select multiple answers for their dental sealant program.

Recruitment of Students and Schools for Participation in Dental Sealant Programs

The distribution of consent forms for dental sealant programs was divided in terms of how they were sent out to parents. Approximately one-half of the counties sent consent forms out in a separate packet before the dental sealant program began, and one-half sent consent forms in a general packet of information sent to parents at the beginning of the school year. The majority of counties that chose to send out the consent in the separate information packet shortly before the program began had lower positive return rates, usually in the 21-40% range (with 3 of the 4 respondents falling into this category and 1 respondent reporting a positive consent return rate of 55%), when compared with those counties that sent it out in the general information packet at the beginning of the year. Five respondents representing six counties reported sending out consent forms in the general information packet, with two of these counties reporting a consent return rate in the 21-40% range, two had rates in the 41-60% range, and one county had return rates in the 61-80% range. The return rate for the sixth county was not known. This data did not align with nurses' perceptions of when it works best to send out consent forms. While individual schools might have better response rates for consent forms sent out separately prior to the beginning of the program, the overall trend shown in our data was that positive return rates are higher when distributing consent forms at the start of the school year along with other information for the new year.

In follow up interviews, one interviewee reported their county recently simplified the consent form after feedback from volunteers and parents, and they also included a Spanish version of the form. They were not the only county to try to address language barriers to improve consent form

return, with another including instructions on their consent forms on how to contact a Spanish or Creole interpreter for those who need it.

One county shared that approximately 90% of their consent forms were returned, with a 55% or higher positive consent rate. This interviewee shared their organization typically provides the school with the highest consent form return rate in their county with a gift for students, such as books or toothbrushes and toothpaste at the end of the year. In addition, they provided all students with a pencil if they returned their consent form. This county was the one outlier in that they sent consent forms out a few weeks prior to the dental sealant program but had much higher positive consent return rates than other counties using this approach. They weren't the only county to cite using incentives. Another interviewee shared that individual schools usually provided an incentive for the class that turned in the highest number of consent forms.

Another interviewee reported they have noted differences based on classroom in terms of how many students return consent forms. The respondent believes this is a result of differences among teachers, such as personality, level of education about dental health, and classroom procedures. They believe that targeting teachers and providing them with dental education could help in this regard. Finally, a fourth interviewee reported they found that including a cover letter from the principal or superintendent of the school endorsing the program and providing information was helpful in increasing the return rate.

Throughout the survey, responses highlighted the extremely vital role that nurses play within dental sealant programs. If there was a "champion" for a dental sealant program within the school, it was the nurse, and nurses were involved in various parts of coordinating and implementing sealant programs. A potential advocate who supports the champion's work is the classroom teacher. This is reflective of the previous finding that teacher characteristics can positively influence return rates of consent forms. Finally, the programs with the highest return of consent forms used multiple strategies for recruitment, highlighting a possible need to provide multiple ways for parents to be both informed of the program and opt in to the service.

Measures of Success

Program success is measured by an evaluation in 6 of the 9 programs surveyed. The most used performance standard used by most programs was the percentage of eligible students receiving sealants (N=7), with the percentage of positive consents returned, percent of eligible children screened, retention rates, and referral completion rates being fairly heavily utilized as well as performance standards (N=6). All but one of the counties provides case management, and the one that does not provide it currently believes it would be beneficial. Case management is the process where families receive help with finding and using oral health care services, including establishing a dental home. Case managers typically connect with parents, schedule appointments, identify local providers, enroll students and their families in insurance plans, assist in utilizing insurance plans, arrange transportation and translation services, and follow up to ensure needed oral health treatment was received.

Out of the 5 interviewees with dental sealant programs we spoke with for follow up interviews, 4 of them shared that they consider their program to be successful, and the fifth shared that they

are on their way to success. The one who believes their program is on the way to success shares that while the program is meeting the needs of those that it currently serves, there are still around 100 schools in the county that do not have a dental sealant program. One county shared that while they consider their program to be a success, they have struggled with funding issues and the number of people that do not know they have access to it. They need funding from grants to improve the program, and are considering billing insurance for services this coming year in order to bring in more revenue, which will hopefully help with some of their funding issues and allow them to increase their workforce by hiring a dental hygienist. Due to the limit imposed on a dental hygienist's salary when working for the state, the lack of benefits, and the contractual nature of their position, it has been difficult to find someone who is willing to work for the state rather than in the private sector in this capacity. This was not the only respondent to cite the salary and benefits as a limitation to retaining staff at dental sealant programs.

One of our interviewees spoke about how many of the students that their program serves indicate this is the only contact they have with dentists, which they find to be evidence of the success of the program in reaching children who otherwise would not receive dental care. Recently, their program was able to expand to cover more grades, which has allowed them to provide care to more students.

Findings in Urban vs. Rural Counties within Maryland

All of the counties categorized as urban within the state of Maryland were represented by our survey respondents (5 counties, 6 respondents). One urban respondent is currently employed at a LHD or FQHC that has a dental sealant program, three respondents are employed in schools that have a dental sealant program, and two urban respondents currently work where there is no dental sealant program. One is in the process of creating a school dental sealant program. If this county is able to start their program, there will only be one urban county in Maryland without a dental sealant program. Respondents to our survey represent 11 of the rural counties in Maryland (14 respondents), with eight working in LHDs or FQHCs that sponsor a dental sealant program, one in a school system where there is a dental sealant program, and five where there is no dental sealant program.

Three counties, two of which are rural and one urban, had to limit sites for their dental sealant programs due to funding. The urban county that reported having to limit sites due to funding cuts was the only county that applied for external funding. The two rural counties did not apply for more funding. While many of the rural counties described the funding trend for dental sealant programs as being reduced, the one urban county that had a respondent from a LHD or FQHC described funding as remaining level. All respondents who indicated sites had to be limited due to staffing shortages were in rural counties.

Funding was a reason why dental sealant programs have not been implemented in rural counties (4 respondents indicated this, with 3 respondents stating that funding was the *main* reason that a program had not been implemented). There were a variety of reasons why dental sealant programs had not been implemented in the urban counties that did not currently have a program (N=2), including lack of funding, program administration, paperwork, reporting and collaboration challenges, lack of time in school or site schedules to implement a program, not

having a ‘mandate’ to implement a sealant program, developing and implementing a dental sealant program is not in anyone’s job description, and lack of time to plan a program. Respondents from all rural counties that do not have a program had not reviewed *Mighty Tooth* (Maryland Department of Health, 2018), whereas one of the two urban counties that does not currently have a program has reviewed it (the urban county that has reviewed it is the county in the process of implementing a dental sealant program for next school year). For all urban counties that do not have a dental sealant program, their respondents indicated they had heard about the 2008 dental hygiene waiver, whereas three of the five respondents from rural counties that did not have a program had heard of the waiver.

Rural and urban counties appear to use similar recruitment strategies for students. Both urban and rural counties report similar barriers to securing consent forms and have similar performance standards that they utilize with their programs.

Barriers/Areas for Improvement

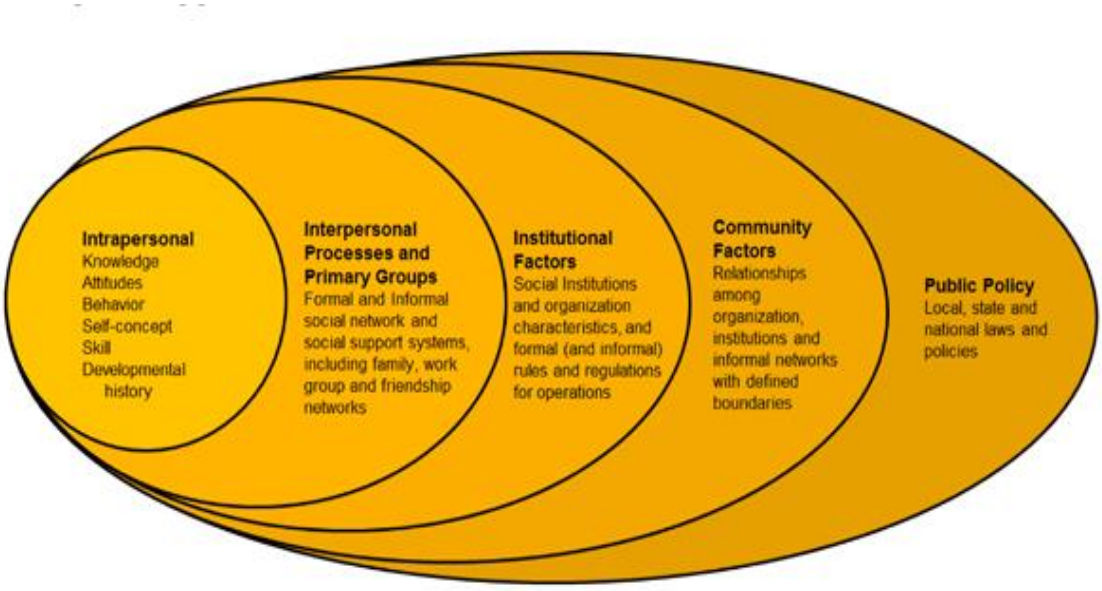
Areas for improvement were addressed in the follow-up interviews. Three interviewees mentioned the need for more widespread dissemination of information about oral health to parents in Maryland, whether this be through a statewide campaign or something similar. They stressed the importance of this information reaching all of Maryland, not just the more populated areas, and being in a simple and concise format. All the follow-up interviewees highlighted the need for more funding. One has equipment that could be used to provide dental sealant programs to many schools, but it is simply sitting in a warehouse waiting for funds to get the program up and running again. Another reported that funding would allow them to make improvements, such as circling back to get students that were missed at earlier visits, expanding their program to other age groups, and retaining sealant staff. Greater opportunities for continuing education (such as webinars, in-services, etc.) would be beneficial, especially ones that allow networking with others in the state that have either already successfully implemented a dental sealant program or are in the process of creating one. Two interviewees reported wondering whether dental screenings could be mandated, as are hearing and vision screenings. This would allow all students to be briefly screened by a prescribed method, and then students who meet specific criteria could be referred for follow up care. If follow up care was recommended based on the initial findings from the screening, the parents would then be provided with the information from the screening and given the consent forms to decide whether or not they would be accepting follow up dental sealant treatment for their child.

Recommendations

The need for dental sealants in youth is universal; however, the way in which the need is addressed varies by county. The State of Maryland does not require school-based dental sealant programs but does offer resources and guidance for those who establish a program.
As a result, each school-based dental sealant program is implemented to meet the needs of their particular county and its financial resources.

A modified social-ecological approach is recommended to strengthen existing programs, expand and establish programs in new counties, and bring continuity across the state. The Social-Ecological Model (McLeroy, 1988) [SEM] was developed to explain how human and health behaviors are a product of individual characteristics, interpersonal relationships, the community in which they live, the organizations that serve their needs and the public policy(s) that govern their lives. Model 1 (American College Health Association, 2018) It has been used to explain and predict health behaviors, injury prevention, obesity, economics and political decision-making. In this case, the end goal is to provide students with access to a quality dental sealant program in their school and create conditions that are conducive to this endeavor.

Model 1: Social Ecological Model



To illustrate the relationship between the SEM and this study, Table 2 shows the example of facilitating a positive consent rate through the different, shared strategies is shown.

Table 2: Maryland Methods of increasing consent using the Social-Ecological Model (SEM)

Level of the SEM	Definition	Consent in Maryland
Public policy	National, state, local policies and laws	Participation in the state dental sealant program Participation in the Public Health Dental Waiver
Community	Relationships between organizations, institutions and networks	Having a letter from the principal or superintendent Outside organizations participating in back to school night to provide information
Institutional	Social institutions and organization characteristics and rules and regulations	Teachers advocating for program participation Classroom incentives for returned forms
Interpersonal	Formal and informal social network and support systems	Parents consent to their children participating in the program
Intrapersonal	Knowledge, attitudes, behavior, self-concept, skill, developmental history	Children participate in the dental sealant program

Public Policy and Community Recommendations

The following policy recommendations are proposed to create continuity among the various programs. The goal is not to dictate how each program is structured but provide guidance on best practices, enhance state resources, and enable programs to hire and retain essential personnel for program operation.

1. **Convene a roundtable to determine statewide standards for school-based dental sealant programs.**

Respondents with school-based dental sealant programs reported tracking program outcomes by number reached, number served, and action taken. However, there was some variability among counties with measures used to obtain data. To develop statewide data on program successes, uniform measures need to be developed and shared with the counties. *Mighty Tooth* (Maryland Department of Health, 2018) does provide guidance on program benchmarks; however, they appear to be overlooked by many programs. Roundtable events are an excellent opportunity to secure 'buy-in' from all participants, increasing the likelihood they will utilize the measures and resources developed through the collaborative process. Further, the Oral Health Survey of Maryland School Children advocates for standardized screening metrics for all programs statewide, including non-school based programs, which would help facilitate reporting of surveillance data. It is recommended that the OOH create a working group of county-based programs and dental experts to explore standards of practice and reporting measures to be used by county programs. Once measures, guidance, and standards are agreed upon, the OOH, with assistance by the working group and MDAC, could host trainings and provide resources on strategies to effectively implement the standards.

2. **Extend the state-based loan repayment programs to include dental hygienists.**
   A common barrier to program retention and expansion is the ability to attract and retain dental hygienists. One way to increase hiring and retention is to expand State-based Loan Repayment Programs (SLRP) to include dental hygienists. Several states provide a model for how this can be done, including Ohio and Colorado. Amounts and length of service vary but tend to cover two to four years of service, with an average repayment amount of $40,000-$50,000. Further information can be found at the American Dental Education Association's website (American Dental Education Association, 2019)

3. **Extend the definition of case managers and provide resources for them in each program.**
   Case managers were cited as being integral to program success. While each county used case managers in a slightly different fashion, many of their duties included coordinating outreach to parents, follow-up to ensure dental visits were scheduled, and communication with parents. Typically, case managers handle the administration side of the school-based programs and not the application of dental sealants. However, counties shared difficulties in hiring and retaining case managers. Two actions are recommended to increase the number of counties with case managers. The first is a uniform policy to expand the definition of case managers to include nurses, community health workers, social workers and others, and establish standard duties for this position. This would assist in recruiting more qualified professionals by expanding the pool. The second is to provide resources to staff case managers in each program. The resources would help free up the administrative duties of dental hygienists and public health dentists, allowing them to focus on applying sealants and serving more youth while the case manager handles the administrative tasks.

4. **Investigate and propose including oral health screenings as part of the Health and Safety standards in the Education section of the Maryland Code.**

The Maryland Code, Education section 7-404 states that "…each county health department shall provide and fund hearing and vision screenings for all students (with few exceptions)" when they a) first enter school, b) enter first grade and c) enter the eighth or ninth grades.

To further enhance the use of screenings, the policy should include a passive consent process similar to what was used when conducting the Oral Health Survey of Maryland School children. In this instance, all students would receive an oral health screening unless their parent sends a letter or consent form opting them out of this service. It has been suggested that including oral health in this policy would enable early identification of students and increase early intervention to prevent dental caries. This inclusion would decrease the number of severe oral health conditions seen in young students.

5. **Develop a standardized policy for reimbursement by Medicaid and health insurance.**
   Another barrier cited to maintaining and expanding programs is the lack of funds for services. Several counties shared that they have been able to bill Medicaid and private insurance for some youth served. The *Mighty Tooth* (Maryland Department of Health, 2018) advocates for billing these resources but indicated exact procedures were being developed. The authors recommend the OOH convene counties successful in private and Medicaid billing, along with insurance companies, the Maryland Health Insurance Commission and others to work to develop policies and procedures for reimbursement by Medicaid and health insurance that can be disseminated to all programs for use. Training recommendations for county school-based dental sealant programs follows in the *Interpersonal* section.

Community and Organizational

1. **Until standards are established, it is recommended that programs track the following metrics: number of students targeted/reached through school-based sealant programs, number of returned consent forms, number of screenings conducted, number of sealants placed, and follow-up case management results with students who need additional oral care.**
   As stated in policy recommendation #1, statewide best practice measures need to be developed that all school-based dental sealant programs could utilize. Until they are developed, the state should request all school sealant programs use a consistent set of uniform measures to report sealant program outcomes. The list above represents the common measures already tracked by many Maryland school sealant programs. This list could be utilized by all school-based dental sealant programs until statewide measures and standards are in place.

2. **Case managers established/supported to track students.**
   As stated in policy recommendation #3, counties with case managers shared that they helped increase the success of programs. All counties should hire a case manager to help: a) track students, b) serve as outreach to families in follow-up, c) assist in connecting students with dental homes, and d) other duties related to the oral health of students.

3. **Connect with school health personnel, health departments, and community dentists to increase buy-in and partnerships with the dental sealant programs.**
   Counties had varying degrees of success with fostering community and professional buy-in of the dental sealant programs. Those who have been successful shared they have standing meetings with local dentists, community events with partners, as well as meetings throughout the year to touch base. These meetings allow each partner to share their activities, seek feedback and buy-in from partners and ensure transparency in efforts. Interviewees shared these activities have fostered community buy-in, limiting perceived competition and pushback from other providers.

4. **Host interagency trainings with dental sealant partners to build partnerships and increase understanding of the sealant programs.**
   Similar to the above recommendation, some partners may not fully understand the need for sealants. Joint training should be conducted for the health department, schools, and other partners to build a shared understanding of the importance of dental sealants.

5. **Review the Memorandum of Understanding (MOU) for county based programs and update as needed.**
   Many, if not all, counties develop MOUs with partnering agencies to operate the dental sealant program. To ensure the MOU is current and meets the needs of all partners, it is suggested that counties revisit it every three years. One way to do this is to have it occur during the federally mandated community health needs assessments, as new priorities and partners are established during this time. This timing would be beneficial as each county is determining what the current health needs are and exploring ways to address them. By being part of the process and updating related MOUs during this time period will ensure the school-based programs continue to stay connected to the community and are responsive to current oral health needs.

6. **Establish MOUs with county facilities to maintain and repair mobile dental vans similar to the Department of Transportation vehicles.**
   Some counties operate their programs through the use of mobile dental vans. To ensure the program can continue to meet community needs, programs need to have facilities identified who can maintain and repair with funds allocated annually.

7. **Institute the best practice of sending out consent forms in the first student packet of each school year.**
   A review of the survey data found programs that sent out consent forms at the start of the school year had a higher return and consent rate than others. It is recommended the forms go out at this time, with optional follow-up a few weeks prior to the program. Additionally, programs should consider a passive return process to increase enrollment. While not explicitly asked, it is implied the majority of consents are active, requiring the parents to sign a form and the child to return it. This is demonstrated by the incentives offered to the children who return their forms and the classes with the highest rate of return for their school. A passive process means children will automatically receive an oral health screening unless their parent(s) opts them out of the process.

8. **Provide student incentives to return consent forms.**
   Many programs reported success with incentivizing the return of consent forms. The common prize given are toothbrushes and pencils, with others providing pizza parties for the class with the highest return rate. Regardless of method, it appears that incentivizing youth leads to a greater rate of return, translating to more youth able to participate in the dental sealant program. In contrast, not returning the consent form is currently the equivalent of a "no" to participation. Programs should provide youth with toothbrushes and pencils, with or without program logo, to increase participation.

Interpersonal

1. **Establish a training program where counties who have successfully billed insurance and Medicaid train other counties on the process.**
   As stated in policy recommendation #5, some sealant programs bill Medicaid and private insurance for services rendered. While the state works on uniform policies and procedures for reimbursement, a training to help others bill insurance should be developed.

2. **Develop a training series to educate all counties on pertinent topics.**
   Many topics were discussed that would increase program participation and success. However, there were varying levels of knowledge and understanding surrounding many. It is recommended that a training series, either delivered via distance or face-to-face, be developed. Topics should include, but not be limited to, the following:
   - the Public Health Dentistry waiver and how to apply for it
   - best practices for county success, including how to cultivate a dental sealant champion
   - how to start a dental sealant program
   - methods and ways to generate revenue
   - standards of practices, including process and outcome measures
   - promoting your program, including educating the public on the needs of sealants
   - review of the *Mighty Tooth*

3. **Conduct trainings with policy makers and community gatekeepers on the importance of oral health.**
   One underlying issue to program success has been buy-in by decision makers, policy makers and community gatekeepers. These individuals are responsible for both introducing a program into a community and creating a positive/proactive environment for success. A coordinated information campaign about the link between oral and physical health, as well as the importance of sealants in youth, needs to be created to increase success. The campaign should target these individuals and be executed on the state and county levels.

4. **Update consent forms and information to follow the principles of plain language/clear communication.**
   Research shows that using plain language and clear communication in health materials increases understanding, retention of information and inclusion in a program. Program consent forms should be updated to follow the principles of plain language. The Horowitz Center for Health Literacy housed in the University of Maryland's School of Public Health can provide guidance on this process. The end goal would be to have a standardized consent form for use by all state programs.

5. **Translate the consent forms and information into the top three languages spoken in the community.**
   Many communities discussed having materials in English and Spanish for community residents. However, this does not appear to meet the needs of all residents. Respondents shared that not all materials have been translated into languages spoken in their migrant communities and while phone translation services are available, it is not known how often they are used. Counties and the state should translate the materials to fit either the top five state languages or the top three in each county to increase the reach of the programs. The University of Maryland Graduate Studies in Interpreting and Translation is one source that may assist in this process.

6. **Explore and establish a text message system to educate parents and send appointment reminders.**
   One interview respondent spoke of the success with using ConnectEd, a text messaging platform to send information and reminders to parents. Text messages have been effectively used in this and other health endeavors nationwide. The programs should investigate the use of text messaging to increase recruitment, retention and follow-up with students.

The recommendations above are designed to help position Maryland to be a leader in school-based dental sealant programs. *Because the issue of oral health is multifaceted in nature, the response needs to be as well.* The responsibility for enacting the recommendations falls not on one entity but several partners at once. Counties can begin implementing strategies on the community level while OOH and other policy partners can advocate for change on the state level. Addressing oral health and dental sealants in particular through these multiple strategies will help increase the likelihood of success and decrease the incidence of dental caries.

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