SECTION I: PRACTICE OVERVIEW

Name of the Dental Public Health Activity:
Massachusetts Department of Public Health SEAL Program

Public Health Functions:
Policy Development – Collaboration and Partnership for Planning and Integration
Assurance – Population-based Interventions
Assurance – Building Linkages and Partnerships for Interventions
Assurance – Building State and Community Capacity for Interventions
Assurance – Access to Care and Health System Interventions

Healthy People 2010 Objectives:
21-1 Reduce dental caries experience in children
21-2 Reduce untreated dental decay in children and adults
21-8 Increase sealants for 8 year-olds’ first molars & 14 year-olds’ first & second molars
21-10 Increase utilization of oral health system
21-12 Increase preventive dental services for low-income children and adolescents
21-13 Increase number of school-based health center with oral health component

State: Massachusetts
Federal Region: Northeast
Region I

Key Words for Searches:
School-based program, dental sealants, fluoride varnish, prevention, children's dental service, oral health, portable dental program, dental hygienist

Abstract:
The Massachusetts Department of Public Health (MDPH), Office of Oral Health has developed and implements the MDPH-SEAL (Seal, Educate, Advocate for Learning) Program. The goal of the Program is to improve the oral health of high-risk children by increasing their access to preventive dental services. This program assists partners to develop their school-based oral health prevention programs with technical support and first-year financial support. MDPH-SEAL also provides direct services delivering dental sealants and fluoride varnish applications in schools. The program serves high-risk children and those eligible for or enrolled in MassHealth (state’s Medicaid/SCHIP program). MDPH-SEAL targets schools with (1) school-based health centers, (2) schools located in dental health professional shortage areas, (3) schools with greater than fifty-percent free and reduced school lunch, and (4) schools in communities with more than 15,000 MassHealth eligible children. Dental hygienists provide screenings, fluoride varnish applications, dental sealants, referrals for restorative treatment, and follow-up as needed. Services are delivered onsite at the schools with portable dental equipment. The preventive services are provided to children with parental consent regardless of their ability to pay; the cost is $42 per child. Since the Program’s inception in 2006-2007, more than 8,000 dental sealants have been placed. The Program collaborates with the state’s public health hospital dental programs, community health center dental programs, and private dental offices to assure resources for restorative services are available. MDPH-SEAL also uses the CDC’s Sealant Efficiency Assessment for Locals and States (SEALS) Tool to determine and assure cost-effectiveness of preventive services delivered through the program, as well as sealant retention and access to restorative treatment.

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SECTION II: PRACTICE DESCRIPTION

History of the Practice:

In 2000, a Special Legislative Commission on Oral Health reported on the oral health of Massachusetts residents describing a "serious crisis", especially for the most vulnerable residents. The Commission made several recommendations to improve oral health including the promotion of population-based prevention programs and services, especially for children and those at high-risk for dental disease. Since the Report’s release, school-based oral health prevention programs have increased in the Commonwealth of Massachusetts.

In 2005, as a result of a federal court order against the Commonwealth (HCFA v. Mitt Romney), the state began corrective action to turn around what were described as weaknesses in the MassHealth (the state Medicaid/SCHIP program) dental program and the low utilization of dental services of the enrolled MassHealth children (especially in obtaining preventive services such as dental sealants).

In 2006, a statewide survey of school nurses (with 82 percent response rate) showed that just eight percent of public schools offered a dental sealant program. This same survey demonstrated that most existing school-based services were provided to second graders and that by seventh grade, there was a significant drop-off in services. Furthermore, school-based dental services were non-existent in high schools.

In response, the Massachusetts Department of Public Health (MDPH) developed the MDPH-SEAL (Seal, Educate, Advocate for Learning) Program, a school-based oral health prevention program to serve MassHealth eligible and other high-risk children.

Justification of the Practice:

Dental caries (tooth decay) is the most common chronic disease of childhood, five times more common than asthma (HHS-Surgeon General, 2000), and is almost entirely preventable. The Centers for Disease Control and Prevention (CDC) states that tooth decay affects more than one fourth of U.S. children aged one to five years and half of those aged twelve to fifteen (HHS-CDC, 2008). Although dental disease may affect every child, children from low income households experience more tooth decay than those from higher income families. Nearly 80 percent of decay is experienced by just 25 percent of the country’s school-aged children (Kaste et al, 1996). Other factors that increase the incidence of dental caries among children include poor nutritional habits, lack of dental insurance, not having a dental home, low exposure to fluoridated water, and teeth without dental sealants.

Dental sealants are a plastic material placed on the pits and fissures of the chewing surfaces of teeth; sealants cover up to 90 percent of the places where decay occurs in school children’s teeth (HHS-CDC, 2002). Sealants prevent tooth decay by creating a barrier between a tooth and caries-causing bacteria and reduce the need for extensive and costly dental treatment. Sealants are 100 percent effective if they are fully retained on the tooth (HHS-Surgeon General, 2000). According to the Surgeon General’s 2000 report on oral health, sealants have shown to reduce decay by more than 70 percent and they are most cost-effective when provided to children who are at highest risk for tooth decay (Burt, 1999). A Morbidity and Mortality Weekly Report (MMWR November 2001) provides the findings of a systematic review of published scientific evidence completed by the Task Force of Community Preventive Services. Based on scientific evidence, the Task Force highly recommends the placement of sealants on students through school-based or school-linked programs. Studies have concluded that the application of sealants in school settings reduce oral health disparities in children (Weintrab et al, 1993). The Centers for Disease Control and Prevention (CDC) strongly recommends school-based prevention (sealant) programs and has estimated that if 50 percent of high-risk children participated in school sealant programs, over half of their tooth decay would be prevented which will result in cost saving by adverting treatment (HHS-CDC, 2002). The combination of sealants and fluoride has the potential to nearly eliminate tooth decay in school-age children (Kim et al, 1999).
Fluoride varnish works by increasing the concentration of fluoride in the outer surface of teeth, thereby enhancing fluoride uptake during early stages of demineralization of tooth surfaces. Fluoride varnish has been found to be effective in preventing cavities on permanent teeth, and has also recently been shown to prevent or reduce tooth decay in the primary teeth of young children (ADA 2006).

In 2007, a statewide assessment was made on the oral health status and needs of school-aged children in Massachusetts. The assessment demonstrated high dental needs with 41 percent of 3rd grade children having experienced tooth decay, 17 percent having untreated decay, and 39 percent of those without a regular dentist having untreated decay. The assessment also showed that 46 percent of the state's 3rd graders had at least one dental sealant; however, only 29 percent of non-Hispanic black and only 18 percent of Hispanic children without a regular dentist had sealants. Additionally, while 52 percent of 6th graders statewide had a dental sealant, just 41 percent of the students from low income families, 20 percent of non-Hispanic black students, and 28 percent of students without a regular dentist had a sealant (Catalyst Institute, 2008).

Preventive dental services and programs providing effective evidence-based intervention (such as dental sealants and fluoride varnish) are needed in Massachusetts to improve the oral health of children and to reduce disparities.

REFERENCES:

Inputs, Activities, Outputs and Outcomes of the Practice:

The MDPH-SEAL Program is administered by the Massachusetts Department of Public Health (MDPH), Office of Oral Health (OOH). The program is funded with federal and state dollars. As funding sources expanded, the program developed into two components that promote and deliver school-based dental prevention services:

Component I: Provides technical assistance, training and guidance to community partners on the development and sustainability of a school-based prevention program with first-year support (providing supplies and the use of portable dental equipment).

Component II: Provides direct preventive services utilizing dental hygienists employed by the MDPH and a dentist who is the director of a state public health hospital dental program.
Program Goal

The goal of the program is to improve the oral health of high-risk children by increasing their access to preventive oral health services. The Program provides services in collaboration with other programs (Component I) and delivers direct preventive services by the OOH staff (Component II).

Population Served

The population served includes children in grades two through twelve. The program provides oral health prevention services (sealants and topical fluoride) to every child with parental consent regardless of the family’s ability to pay.

Staffing

Component I: Services are provided by a registered dental hygienist employed by a local health department with the support from second-year dental hygiene students

Component II: Current staff supporting the MDPH-SEAL Program totals 2.8 FTEs from the OOH, which includes 2 dental hygienists (1.4 FTEs) providing preventive services. Additionally, one licensed dentist, who is Director of one of the state’s public health hospital dental programs, provides supervision and consultation for the program’s dental hygienists through a standing order. The dental hygienists work closely with school nurses and nurse practitioners in the school-based health centers to coordinate the MDPH-SEAL Program.

Implementation of Component I

Since 2006, through the MDPH-SEAL Program, the OOH has provided technical assistance, training and guidance on the development and sustainability of school-based prevention programs. With federal (HRSA BHPR) and state funding, the OOH provides one year of “soft” supplies (e.g., infection control supplies, dental sealant materials supplies and program forms) and the use of portable dental equipment owned by MDPH.

Component I develops collaborations/partnerships with community providers and the local dental safety-net for service delivery, assists in setting up the delivery of dental prevention services and follow-up for unmet treatment needs, and helps with addressing program sustainability. Community agencies, organizations or institutions are matched with the program to provide referral sources for restorative care and to serve as a fiscal agent for the program as needed. MDPH-SEAL targets dental health professional shortage areas (DHPSA), areas of the state with more than 50 percent of the children participating in free and reduced school lunch programs, and rural school districts which have a median income that is at or below 235 percent of the federal poverty level.

For Component I, the OOH provides:
- Technical assistance
- Year 1 consent forms and information materials
- Year 1 supplies
- Year 1 use of MDPH owned portable dental equipment
- A sustainability plan
- Evaluation using CDC’s Sealant Efficiency Assessment for Locals and States (SEALS) Tool

Implementation of Component II

The MDPH-SEAL Program received additional funding in 2007 when OOH was awarded a four-year federal grant by the Maternal and Child Health Bureau to expand school-based oral health prevention programs serving high-risk children. This funding led to the development of Component II. Programs were to be implemented in the state’s 49 funded school-based health centers, dental health professional shortage areas, schools with free and reduced school lunch greater than 50 percent, and schools in communities with greater than 15,000 MassHealth (Medicaid/SCHIP) eligible children.

For MDPH-SEAL’s Component II, direct prevention services are provided by OOH dental hygienists using portable dental equipment and delivering services onsite at the schools. Services include screenings, dental sealants and fluoride varnish, referrals for restorative
treatment, and follow-up as needed. The program is implemented using evidence-based guidelines developed by the Centers for Disease Control and Prevention (CDC).

The Component II of MDPH-SEAL currently focuses on improving the oral health of underserved children attending schools with state-funded school-based health centers (SBHC) by increasing access to oral health preventive services (dental sealants and topical fluoride) and referrals for restorative treatment and follow-up. The program is open to all students regardless of their insurance status. By working with the state-funded school-based health centers, the dental hygienists use already established routes of communication with students and families to promote participation in the MDPH-SEAL Program.

Through collaborations with the state’s public health hospital dental programs, private dental providers and safety-net dental programs, the program ensures that students with a need for restorative treatment will have a dental home.

**Program Processes**

A consent packet consists of: (1) an introductory letter, (2) an information sheet on dental sealants and fluoride varnish, (3) a Health Insurance Portability and Accountability Act (HIPAA) pamphlet, and (4) a medical history/consent form. Consent packets are distributed in English and Spanish. The program has translated program information materials in six additional languages. The distribution of consent packets is a joint effort of the school nursing staff, the school office staff and the dental hygienists primarily at the beginning of the school year. Class lists providing student names by grade and classroom are used to organize the returned consent forms. The lists are also used to track participation for the current prevention treatment schedules and for appointments to check sealant retention in the following school year.

As completed consent forms are collected, scheduling of services begins at each school. In Component I, a licensed dentist travels to the schools to perform dental screenings and determine the need for dental sealants. Along with the screening, each child also receives a fluoride varnish treatment. In Component II, using the standing order, the dental hygienists provide dental screenings, apply dental sealants as needed, and deliver fluoride varnish treatment without a dentist first examining the student. Both Components I and II provide an “oral health report card” for each child, as well as the school nurse. The report card lists: (1) results of the dental screening, (2) preventive services that were provided, (3) presence of plaque/oral hygiene, (4) urgency of needed treatment, and (5) referral and contact information.

Referrals for restorative treatment are structured to assist families in accessing dental treatment for their children. If a child needs further dental treatment, telephone calls are made to ensure that the dental needs are understood, and to assist the family in finding appropriate dental care. Follow-up communication by the dental hygienist occurs with the child, school nurse and family to ensure the child obtains the appropriate restorative care.

Retention of the dental sealants is determined 12 months of the first application. The initial consent form asks for permission to conduct a sealant retention check and provide any follow-up prevention services needed.

**Evaluation**

The evaluation of the MDPH-SEAL program’s Component I and II includes using the CDC’s Sealant Efficiency Assessment for Locals and States (SEALS) Tool. This is an evaluation and bench marking tool. The SEALS computer software helps states and communities evaluate the effectiveness and efficiency of their school dental sealant programs. The software tracks services and costs as well as provides a standard analysis of unit cost (e.g., cost per sealant and cost per child.). The CDC had revised the standard SEALS data collection form to incorporate all tooth surfaces that could be sealed, which has been used since the start of the MDPH-SEAL Program. MDPH-DEAL collects encounter and service information at the screenings, the sealant application visits, retention checks, and restorative treatment appointments. The information is recorded on a SEALS data collection form and then entered into the SEALS computer program.

**Program Sustainability**

The SEALS Tool was used to project the cost and revenue for maintenance and expansion of the MDPH-SEAL Program. As of January 2009, MassHealth reimburses $41 per tooth for dental
sealants (D1351) and $26 per application for fluoride varnish (D1206). The program could be sustained through MassHealth (Medicaid/SCHIP) reimbursement.

Program Outputs and Outcomes

The MDPH-SEAL Program outputs include:

- Since its inception in 2006-2007, MDPH-SEAL began with 137 seventh graders and provided 1,185 sealants. During the school years 2007-2008 and 2008-2009, the program expanded and placed an additional 2,255 sealants. In addition to having dental sealants, each student with consent also receives a fluoride varnish application, oral health education, and a referral for further dental treatment as needed.

- Component II was piloted in the spring of 2008 in two schools with state-funded school-based health centers. The mean number of sealants placed per student was 9.7. In the second year (school year 2008-2009), Component II expanded to include 21 public schools (elementary, middle and high schools). At the end of the second year, 1,300 students participated in the program and more than 5,500 sealants were placed. The mean number of sealants placed per student was 4.2. Among the students receiving sealants and fluoride varnish, over 50 percent were Hispanic and another 30 percent were non-Hispanic black students. This demonstrated that the MDPH SEAL Program’s ability to increase access for at-risk children to reduce oral health disparities.

The MDPH-SEAL outcomes include:

- Increased the number of high-risk and MassHealth eligible children receiving dental prevention services that include fluoride varnish and dental sealants.

- Maintained at least 90% retention of dental sealants delivered to children in school-settings.

- Increased care coordination for children identified with dental treatment (help establish a dental home and obtain restorative care).

- Increased awareness and knowledge of oral health by students, parents, teachers and school administration.

- Increased integration of oral health in general health and wellness activities supported by the schools.

- Increased number of collaborations to support and expand oral health prevention programs

- Increased the number of oral health programs in school-based health center schools.

- Increased the cost-effectiveness of school prevention programs through evaluation and use of the SEAL software to track and analyze unit cost.

Budget Estimates and Formulas of the Practice:

The MDPH-SEAL Program’s Component I is supported by a three-year HRSA Grant to States to Support Oral Health Workforce Activities (first awarded in 2006) and by state funding. Component I provides community partners (for only the first year of their school-based prevention program) “soft” supplies which average less than $1,500.

Component II is funded through a four-year Targeted State Maternal and Child Oral Health Service Systems grant. The cost of the program per child is approximately $42, which includes a dental screening, up to five dental sealants, and two fluoride varnish applications.

Lessons Learned and/or Plans for Improvement:

School nurses are front-line providers and they manage children for a wide range of health issues including oral health problems. School nurses play a key-role in the success of school-based and school-linked health programs. They are important in the promotion of school oral health programs and have the ability to support the expansion of these programs to serve the children at high risk. Active and continuous communication with the school nursing staff is imperative to the success of an oral health program.
Available Information Resources:

**Web Resources**

2. CDC – SEALS Evaluation & Benchmarking Tool
3. MDPH OOH – Dental Sealants Fact Sheet
4. ASTDD – Coordinated School Health Information
5. CDC – Preventing Dental Caries with Community Programs
7. CDC – School-based Dental Sealant Programs

**Journal Articles**

SECTION III: PRACTICE EVALUATION INFORMATION

Impact/Effectiveness
How has the practice demonstrated impact, applicability, and benefits to the oral health care and well-being of certain populations or communities (i.e., reference scientific evidence, outcomes of the practice and/or evaluation results)?

The MDPH-SEAL Program has increased the number and/or level of:
- High-risk children having access to dental prevention services;
- Care coordination for children identified with untreated tooth decay;
- Awareness and knowledge of oral health by students, parents, teachers and school administration;
- Integration of oral health in general health and wellness activities in schools;
- Collaborations to support and expand oral health prevention programs;
- Oral health programs in school-based health center schools; and
- Cost-effectiveness of the school prevention programs through tracking unit cost.

Efficiency
How has the practice demonstrated cost and resource efficiency where expenses are appropriate to benefits? How has the practice demonstrated realistic and reasonable staffing and time requirements? Provide unit cost analysis or cost-benefit analysis if appropriate.

School-based dental programs are successful in reaching low-income children to reduce oral health disparities. These programs also reduce time out of class for students and time from work for parents/guardians.

Using state-employed dental hygienists to administer and place sealants has made the MDPH-SEAL Program efficient and cost effective. Dental hygienists, as the primary MDPH-SEAL provider, deliver a dental screening, place up to five dental sealants and two fluoride applications, and offer case management services for the cost of $42.37 per child. Cost-effectiveness is evident when this cost for prevention is compared to the MassHealth reimbursement of $77 for placing a one-surface amalgam restoration (D2140).

Demonstrated Sustainability
How has the practice showed sustainable benefits and/or how has the practice been sustainable within populations/communities and between states/territories? What mechanisms have been built into the practice to assure sustainability?

The MDPH-SEAL Program is supported by federal grant funding and state funding. The Program works in partnership with the state’s public health hospital dental programs to provide supervision and consultation for the program dental hygienists. MDPH-SEAL has projected its cost based on providing each child with a dental screening, up to five dental sealants, two fluoride varnish treatments per year, and case management for unmet restorative services during a school year. In Year 1 of the program, the projected cost of MDPH-SEAL serving 3,485 children (at least 50% were enrolled in MassHealth) was $147,664 or $42.37 per child. The expected reimbursement from MassHealth and other third-party payors would also cover the cost of providing care to children who do not have private dental insurance or any other ability to pay. Currently, the MassHealth reimbursement for dental sealants (D1203) is $41 per tooth and fluoride varnish (D1206) is $26 per application.

Collaboration/Integration
How has the practice built effective partnerships/collaborations among various organizations and integrated oral health with other health projects and issues? What are the traditional, non-traditional, public and private partnerships/collaborations established by the practice for integration, effectiveness, efficiency and sustainability?

MDPH-SEAL Component I collaborates with community health center dental programs and other agencies, institutions and organizations, as well as the private dental community to ensure that the children needing restorative care have access points to receive needed restorative treatment and follow-up care. These collaborations also provide a strategy for program sustainability leveraging their resources.
MDPH-SEAL Component II collaborates with the state’s public health hospital dental programs to provide dentist supervision and consultation for the program dental hygienists working in the schools. Collaborations with community health centers and the private dental community programs increase access to follow-up dental care for the children.

Both Components I and II work closely with school nurses, and these relationships have helped build additional partnerships with school administration and staff and have established connections to other school-based and community-based groups to promote and support the oral health activities.

Objectives/Rationale
How has the practice addressed HP 2010 objectives, met the National Call to Action to Promote Oral Health, and/or built basic infrastructure and capacity for state/territorial/community oral health programs?

The following Healthy People 2010 objectives are being addressed by the MDPH-SEAL Program:
- Reduce caries experience and untreated decay.
- Increase sealant utilization.
- Increase utilization of the oral health system.
- Increase preventive services for low-income children and adolescents.
- Increase the number of school-based health center with oral health component.

The MDPH)-SEAL Program also addresses the National Call to Action to Promote Oral Health by:
- Changing the perceptions of oral health by enhancing oral health literacy, developing educational messages that are culturally sensitive and linguistically competent; and enhancing knowledge regarding the value of professional oral health services.
- Reducing barriers by replicating effective programs and proven efforts following evidence-based guidelines for the implementation of school-based prevention programs, reducing oral health disparities, and increasing access to oral health services.
- Building the science base and accelerated science transfer through the sharing of best practices and expansion of successful school-based models.
- Increasing oral health workforce diversity, capacity and flexibility by promoting careers in oral health to students participating in the school-based prevention program.
- Increasing collaborations with public agencies, institutions of higher education, local schools, community health centers, as well as the private practice dental community to assure access for needed restorative services.

Extent of Use Among States
Describe the extent of the practice or aspects of the practice used in other states.

The 2009 Synopses of State Dental Public Health Programs showed that 39 states reported having a dental sealant program and 25 states reported having a fluoride varnish program.