**Dental Public Health Activity Descriptive Report**

**SECTION I: PRACTICE OVERVIEW**

**Name of the Dental Public Health Activity:**
*Oregon School-based Dental Sealant Program*

**Public Health Functions:**
- Assessment - Acquiring Data
- Assessment – Use of Data
- Policy Development – Collaboration and Partnership for Planning and Integration
- Policy Development - Oral Health Program Policies
- Policy Development - Use of State Oral Health Plan
- Policy Development - Oral Health Program Organizational Structure and Resources
- Assurance – Population-based Interventions
- Assurance – Oral Health Communications
- Assurance – Building Linkages and Partnerships for Interventions
- Assurance – Building State and Community Capacity for Interventions
- Assurance – Access to Care and Health System Interventions
- Assurance – Program Evaluation for Outcomes and Quality Management

**Healthy People 2020 Objectives:**
- OH-1 Reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth
- OH-2 Reduce the proportion of children and adolescents with untreated dental decay
- OH-7 Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year
- OH-8 Increase the proportion of low-income children and adolescents who received any preventive dental service during the past year
- OH-12 Increase the proportion of children and adolescents who have received dental sealants on their molar teeth

**State:** Oregon  
**Federal Region:** Region X  
**Key Words for Searches:**  
School-based program, dental sealants, children’s oral health, prevention, access to oral health care, screening, acquiring oral health data

**Abstract:**

The *Oregon Health Authority’s (OHA’s) Dental Sealant Program (DSP)* targets schools where at least 50% of the students are eligible for the Federal Free-and-Reduced Lunch Program. In the participating schools, all 1st and 2nd graders with parental permission receive a screening, and sealants are placed when appropriate (1st-5th graders in very small schools). Children with immediate dental needs are referred for care through coordination with the school nurse. Local resources such as Coordinated Care Organizations (Oregon’s Medicaid program), Dental Care Organizations, and community health clinics that offer dental services are utilized.

The DSP uses 10 portable units, 15 contracted dental hygienists, six contracted dental assistants, and many local volunteer assistants. Teams consist of one hygienist/one assistant, with one or two teams serving a school on the same day. The “lead” hygienist is responsible for scheduling the school, transporting equipment, setting up equipment, providing sealants, and managing and submitting the paperwork.

The DSP has experienced significant growth over the past 7 years. During the first school year
(2006-07), the program served 11 schools in three counties and provided 451 screenings and 1,180 sealants. By the 2012-13 school year, it had expanded to 158 schools in 25 counties, providing 8,349 screenings and 16,581 sealants. The DSP has trained local groups in 10 counties in the DSP model. Counties with school-based sealant programs have increased from four counties in 2007 to 31 of Oregon’s 36 counties in 2013. When combining all schools with sealant programs operated by the DSP or other local programs, 76.8% of the state’s eligible schools are being served in 2013-14.

The DSP utilizes the Centers for Disease Control and Prevention’s (CDC’s) Sealant Efficiency Assessment for Locals and States (SEALS) to track all program data. The cost per child screened is $41.87 and per child sealed $63.24.

School dental sealant programs are supported as efficacious in the literature. The DSP is based on the protocols recommended by the American Dental Association and the Association of State and Territorial Dental Directors. While the Oregon Smile Surveys of 2002 and 2007 indicated that in all areas, the dental disease of 1st -3rd graders was worsening, the 2012 Smile Survey indicated that Oregon children exhibited considerable improvement in all areas, surpassing even the 2002 data. The 2007 Smile Survey galvanized Oregon’s dental community. The OHA’s Oral Health Unit served as a guide to lead efforts in an evidence-based direction. The most obvious and measurable results have been realized in the DSP through the meticulous tracking of program data, utilization of metrics for continuous quality improvement, and through the training and technical assistance opportunities offered to and utilized by many local programs. The Oral Health Unit remains dedicated to improving the oral health in Oregon for all populations across the lifespan.

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SECTION II: PRACTICE DESCRIPTION

History of the Practice:

The Oregon Health Authority’s (OHA’s) Dental Sealant Program (DSP)

The Oral Health Unit/Oregon Health Authority (now OHA, then DHS) began with an appeal to state government to address the declining oral health status among Oregon children. The 2007 Smile Survey of 1st -3rd graders found a 7% increase in cavities and a 49% increase in untreated decay from 2002 to 2007. Numerous attempts to implement policy mandating water fluoridation had failed. Only 27% of Oregonians have access to optimally fluoridated water. While four of the 36 counties in Oregon had dental sealant programs, the other counties did not. The Oral Health Program promoted the Smile Survey data, advocated for state general funds, leveraged those funds with matching funds, and included a higher percentage match for service providers. In 2007, the state legislature approved a biennial budget of $300,000 which was used to purchase 10 portable dental equipment units, hire a Sealant Program Coordinator, and support contracting with regional registered dental hygienists (RDH) providers. During that same legislative session, dental hygienists were allowed to determine the need for and place sealants without a dentist’s supervision.

During the first year of the program (2006-07), the DSP served 11 schools in three counties and provided 451 screenings and 1,180 sealants. By the 2012-13 school year, the DSP had expanded to 158 schools in 25 counties, provided 8,349 screenings, and 16,581 sealants. The DSP encouraged and trained local programs to provide school-based services. Counties with sealant program participation increased from four counties in 2007 to 31 of Oregon’s 36 counties in 2013. When
combining all schools with sealant programs operated by the DSP or other local programs, 76.8% of the state’s eligible schools will be served in 2013-14.

In 2008, when budgetary constraints began to prohibit expanding the number of schools served, the DSP focused on improving quality and increasing the number of children served within each school. This included an emphasis on increasing the percentage of parent permission forms returned, streamlining administrative processes, and providing more training for the contracted dental hygienists.

Initially, the DSP often used two units in larger schools that were utilized by one contracted lead hygienist and one volunteer hygienist. However, this situation proved difficult for the lead hygienist due to equipment set-up and caused some issues with quality control and the tracking of retention rates; by 2011 only contracted hygienists provided services.

The DSP also used volunteer dental assistants in the first two years. It soon became evident that volunteer assistant help was difficult to find in rural areas. The program now uses contracted dental assistants in rural and frontier areas, and volunteer assistants in urban settings.

In 2012-13, the return rate for parent permission forms averaged 50% and the retention rate for sealants placed was 87%. Metrics tracked in 2014 will also include caries experience in primary and permanent teeth. The objectives of the program are to increase the number of children receiving screenings and sealants, reduce the number of children referred for early and urgent needs, and reduce caries experience.

Justification of the Practice:

As mentioned previously, the 2007 Oregon Smile Survey of 1<sup>st</sup>-3<sup>rd</sup> graders found a 7% increase in cavities and a 49% increase in untreated decay from 2002 to 2007. Numerous attempts to implement policy mandating water fluoridation had failed. Even today, only 27% of Oregonians have access to optimally fluoridated water. Although school dental sealant programs were strongly supported in the literature, only four of Oregon’s 36 counties had these programs. Many of Oregon’s counties are rural or frontier and children have limited access to dental care. The 2007 Smile Survey indicated that only 30% of Oregon children had dental sealants, far below the Healthy People 2010 goal of 50%.

Oregon’s Medicaid population has been traditionally served by managed care through Dental Care Organizations (DCOs). This system will continue as Oregon undergoes health system transformation. Near the end of 2013, the DCOs began to contract with the state’s new Coordinated Care Organizations (CCOs, modeled on the Accountable Care Organization structure) to provide dental services.

In 2011, DCOs provided sealants for only 14.6% of the eligible children ages 6 to 9. The DSP has been able to reach a greater number of children through the school system for this preventive service.

The 2012 Smile Survey indicated the influence of the DSP. While the 2007 survey demonstrated that in all areas, Oregon children fared worse than in 2002; by 2012 all areas showed improvements which surpassed even the 2002 data. For children in grades 1<sup>st</sup> – 3<sup>rd</sup> grades:

- Children that had a cavity:
  - In 2002 = 57%
  - In 2007 = 64%
  - In 2012 = 52%
- Children with untreated decay:
  - In 2002 = 24%
  - In 2007 = 36%
  - In 2012 = 20%
- Children with rampant decay (decay in seven or more teeth):
  - In 2002 = 16%
  - In 2007 = 20%
  - In 2012 = 14%
- Children with at least one sealant:
  - In 2002 = 32%
  - In 2007 = 30%
Community dental sealant programs also utilize the DSP as a key resource while creating their own programs. The DSP has provided technical assistance and annual training for 10 of these county programs. In 2007, local programs served 81 schools, 64 of which were in one county. By 2014, local programs were serving 205 eligible schools with programs based on the DSP model. Combining the number of eligible schools served by both the DSP and local programs, the percentage served now totals 76.8% of all eligible schools in the state, meeting the Pew Center on the States benchmark of 75%.

**Inputs, Activities, Outputs and Outcomes of the Practice:**

- **Inputs (such as staff, volunteers, funding and other resources)**
  In 2007, the state legislature approved a biennial budget of $300,000 which was initially used to purchase 10 portable dental equipment units, hire a Sealant Program Coordinator, and support contracting with regional RDH providers. Those funds continue to support the DSP. The Oral Health Unit now has one .80 FTE Dental Sealant Program Coordinator dedicated to the school-based oral health programs (Fluoride Program and DSP), with administrative, data-entry, and analysis staff available on a limited part-time basis.

- **Activities (such as administration and operations)**
  The School Programs Coordinator (SPC) gains school participation; coordinates with the contracted hygienists to schedule schools; and ensures supplies are delivered and equipment maintained. The Administrative Assistant (AA) receives the data collection forms (parent permission and screening forms) and prepares the forms for data entry. The data entry person enters the data into the Centers for Disease Control and Prevention’s (CDC’s) Sealant Efficiency Assessment for Locals and States (SEALS) program and prepares individual school reports for the AA. The AA prepares a packet of information for the schools that includes: a results form indicating the number of children screened, number of children receiving sealants, dollar value of the services provided, percentage of eligible children that had parental permission, and the percentage of children that needed early or urgent restorative care; a certificate of participation; and a feedback form, asking: What worked? How could we improve? Would you like to participate next year?” Current contact information is requested.

  The SPC evaluates the data, updates the metrics, and consults with the Oral Health Unit manager and DSP team regarding further program development.

- **Outputs (such as the number of clients served, service units delivered and products developed)**
  In the 2012-13 school year, the DSP provided screenings for 8,349 children, sealants for 5,527 children, provided 16,581 sealants, and referred 2,309 children for dental care. The program trained 10 local groups in the DSP protocol and continues to provide technical assistance for these groups.

- **Outcomes (such as changes in health status, knowledge, behaviors and care delivery systems)**
  The DSP began delivering services in 2007. The program has been an important part of Oregon’s efforts to improve children’s oral health. The 2012 Oregon Smile Survey indicated the following improvements from 2007 to 2012.

  - Caries experience in children declined from 64% to 52%.
  - Untreated decay declined from 36% to 20%.
  - Rampant caries (in 7 or more teeth) declined from 20% to 14%.
  - Number of children with at least one sealant increased from 30% to 38%, with 3rd graders reaching the HP 2020 goal (50%) with 52%.

**Budget Estimates and Formulas of the Practice:**

The Oral Health Unit continues to stretch program dollars through increased efficiency and continuous quality improvement. The DSP trains local partners to use the DSP model, based on evidence-based practice. When local programs demonstrate proficiency and request the responsibility, the DSP moves the schools into local care and control. This transference enables the DSP to move forward to expand the program into other areas.

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*Practice # 40007  Oregon School-based Dental Sealant Program*
Lessons Learned and/or Plans for Improvement:

The biggest barrier to service delivery was the lack of equipment and providers. Legislative support to purchase equipment and changes to the practice act were critical for the program’s success.

Another issue continues to be Oregon’s wide range of urban, rural, and frontier areas. It quickly became clear that the program had to be flexible. In the beginning, for efficiency’s sake, two units were scheduled in schools, with a contracted lead hygienist at one unit and a stipend (paid-by-the-day) hygienist at the other unit. As the number of schools and the distances grew, it became necessary to utilize fewer units in more locations. Lead hygienists also found the transport, setting up, and breaking down of two units too difficult. In frontier areas there were too few local stipend volunteers to help with the second portable unit. The program has gradually shifted to contracted hygienists, with stipend assistants in urban areas and contracted hygienists and contracted assistants in rural and frontier areas. Quality control (evidenced by retention checks) has improved with consistent providers.

During the 2013-14 and 2014-15 school years, we will be looking at sustainability issues as part of our ongoing program evaluation process. Specific activities include:

- Piloting a workforce development model that allows Expanded Practice Dental Hygienists (EPDHs) to utilize their full scope of practice under Oregon’s Dental Practice Act in a school-based setting, including prophylaxes, fluoride varnish, hands-on education, and limited case management;
- Piloting the use of iPads for capturing data electronically and streamlining the data entry process;
- Surveying high-participation schools to determine tools successful in improving parent permission return rates;
- Coordinating with the state Office of Rural Health to increase rural school participation;
- Developing a voluntary certification process for all community school-based dental sealant programs in the state;
- Continuing to nurture collaborative partnerships with local organizations; and
- Coordinating with the Oregon Health Sciences University (OHSU) Department of Community Dentistry to evaluate the effectiveness and associated outcomes of the activities listed above.

We are also determining how our dental sealant program can align with the new Coordinated Care Organizations and their performance measures for dental services.

Available Information Resources:

The DSP utilizes the Lean Daily Management System (LDMS) continuous quality improvement (CQI) model for ensuring ongoing progress. This model includes long-range monthly, quarterly, and annual planning and program evaluation. It also includes a weekly 10-minute huddle in front of a Primary Visual Display (PVD) board where issues are discussed, progress is noted, and challenges considered. The PVD includes a graphic representation of the following three metrics: (1) percentage of eligible children participating by month; (2) the number of schools participating, scheduled, and completed; and (3) the estimated number of children to be screened and receive sealants compared to the actual number of children screened and that received sealants.

The program uses the Centers for Disease Control and Prevention’s (CDC’s) Sealant Efficiency Assessment for Locals and States (SEALS) software program to track the following data: number of children screened, number of children receiving at least one sealant, the number of sealants provided, the percentage of eligible children that have parent permission, the number of children that are referred for early and urgent needs, and total program costs. The Oral Health Unit is currently creating a database (SmartMouth) to incorporate and organize all of this data. Our goal is to have a portal for local programs to more easily submit local data.
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 DSP began delivering services in 2007. The program has been an important part of Oregon’s efforts to improve children’s oral health. The 2012 Oregon Smile Survey indicated the following improvements from 2007 to 2012.

- Caries experience in children declined from 64% to 52%.
- Untreated decay declined from 36% to 20%.
- Rampant caries (caries in seven or more teeth) declined from 20% to 14%.
- Number of children with at least one sealant increased from 30% to 38%, with 3rd graders reaching 52%

Dental sealants are a process measure that will lead to the outcome of reduced caries experience. The DSP has begun tracking caries experience in primary and permanent teeth during the screening process.

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.

The Center for Disease Control and Prevention’s (CDC’s) Sealant Efficiency Assessment for Locals and States (SEALS) program has enabled the DSP to track all programs expenses, including supplies, contractor expenses, administration, and equipment - everything associated with providing the service. The cost per child screened in 2012-13 was $41.87. The cost per child sealed was $63.24. We calculated the expense of providing services to urban, rural, and frontier schools. Compared to the total cost per child in urban areas, the total cost in rural areas was about $3 more per child; in frontier areas about $8 more per child.

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 Oregon Health Authority (OHA) Dental Quality Metrics Workgroup has recommended that dental sealants on permanent molars for children be included in the quality pool. The Workgroup noted that the Centers for Medicare and Medicaid Services (CMS) has an initiative to increase by 10 percentage points over a five-year period the number of sealants in the Medicaid population. The Workgroup also recognizes that many sealants provided to the Medicaid population are underreported as the DSP does not bill Medicaid or track encounters. Therefore, the Workgroup has recommended strongly that the OHA develop a way to integrate the DSP data with the Medicaid data. The Oral Health Unit manager is collaborating with the Dental Care Organization (DCO) dental directors to develop a protocol.

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?

The DSP staff learned in the early stages of the program to collaborate effectively with local programs and continues to work to integrate the DSP into the new Coordinated Care Organization (CCO) structure. The challenge is to develop a standardized method of collaborating, as each organization now requests varying levels of technical assistance. The DSP is developing a voluntary certification program for school-based dental sealant programs to ensure that local programs are focusing first on evidence-based services and that they track data, develop metrics, and establish continuous quality improvement mechanisms, such as retention checks.
Objectives/Rationale

How has the practice addressed HP 2020 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 DSP has addressed the following HP 2020 objectives by screening children for restorative needs, providing referral information for parents, providing dental sealants, raising the level of awareness of oral health in communities, and collaborating with local community organizations to improve oral health efforts:

- **OH-1**: Reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth
- **OH-2.2**: Reduce the proportion of children aged 6 to 9 years with untreated dental decay
- **OH-7**: Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year
- **OH-8**: Increase the proportion of children who used the oral health care system in the past year
- **OH-12.2**: Increase the proportion of children ages 6 to 9 years who have received dental sealants on their molar teeth

The program has addressed the Surgeon General’s Call to Action by confronting the silent epidemic of oral disease and by targeting underserved populations to make oral health care more accessible. By piloting the use of Expanded Practice Dental Hygienists (EPDHs) in school settings through an HRSA workforce development grant, the DSP is testing feasibility and effectiveness of serving the population in this way. This pilot program should also demonstrate the value of providing preventive services through the convenience of the school setting.

By working effectively with local groups, the DSP has demonstrated the value of respectful state-local collaboration and the benefit of data-sharing. Initially local programs were not collecting data or were hesitant to share the data that they had. The DSP has freely shared its own data and shared effective models, and has offered training and CQI tools for these groups, thus effectively opening the door for further collaboration. The DSP is actively working to improve online data collection to enable local groups to share their data more conveniently.

Extent of Use Among States

Describe the extent of the practice or aspects of the practice used in other states?

The DSP attends state and national meetings and participates actively in information sharing. The program has provided the DSP model (e.g., forms, protocols) to partners during these meetings and also online for several states to speed their own program development. Program protocol is posted on the Oregon Health Authority’s website. Training protocols have been shared with Dental Care Organizations that operate not only in Oregon, but also in several western states.

The state has risen to the Pew Center on the States (PCS) challenge to improve prevention efforts. As of 2013, Oregon has met the four PCS benchmarks: (1) 75% of high-need schools with sealant programs (Oregon is at 76.8%); (2) hygienists are allowed to determine the need for and place sealants without a dentist’s exam; (3) submitting data to the national oral health surveillance system; and (4) meeting the 50% sealant goal for 3rd graders (the 2012 Oregon Smile Survey showed 52%).