



Dental Public Health Project/Activity Descriptive Report Form

Please provide a detailed description of your **successful dental public health project/activity** by fully completing this form. Expand the submission form as needed but within any limitations noted. Please return completed form to: lcofano@astdd.org

NOTE: Please use Arial 10 pt. font.

CONTACT PERSON PREPARING THE SUBMISSION AND TO ANSWER QUESTIONS

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PROVIDE CONTACT INFORMATION FOR ONE ADDITIONAL PERSON WHO COULD ANSWER QUESTIONS REGARDING THIS PROGRAM

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SECTION I: ACTIVITY OVERVIEW

Title of the dental public health activity:

Developing Data Queries in Open-Source Dental Practice Management Software to Support SEALS Reporting

Public Health Functions* and the 10 Essential Public Health Services to Promote Oral Health:

Check one or more categories related to the activity.

| "X" | Assessment |
|---------------------------|---|
| X | 1. Assess oral health status and implement an oral health surveillance system. |
| | 2. Analyze determinants of oral health and respond to health hazards in the community |
| | 3. Assess public perceptions about oral health issues and educate/empower them to achieve and maintain optimal oral health |
| Policy Development | |
| X | 4. Mobilize community partners to leverage resources and advocate for/act on oral health issues |
| | 5. Develop and implement policies and systematic plans that support state and community oral health efforts |
| Assurance | |
| | 6. Review, educate about and enforce laws and regulations that promote oral health and ensure safe oral health practices |
| | 7. Reduce barriers to care and assure utilization of personal and population-based oral health services |
| | 8. Assure an adequate and competent public and private oral health workforce |
| X | 9. Evaluate effectiveness, accessibility and quality of personal and population-based oral health promotion activities and oral health services |
| | 10. Conduct and review research for new insights and innovative solutions to oral health problems |

[*ASTDD Guidelines for State and Territorial Oral Health Programs that includes 10 Essential Public Health Services to Promote Oral Health](#)

Healthy People 2030 Objectives: Please list HP 2030 objectives related to the activity described in this submission. If there are any state-level objectives the activity addresses, please include those as well.

Healthy People 2030 Objectives:

- OH-2: Reduce the proportion of children and adolescents with active and currently untreated tooth decay in their primary or permanent teeth
- OH-9: Increase the proportion of low-income youth who have a preventive dental visit
- OH-10: Increase the proportion of children and adolescents who have received dental sealants on 1 or more of their primary or permanent molar teeth

State-level Objectives:

- Standardize school sealant program (SSP) data sharing between partners and the Minnesota Department of Health (MDH)
- Increase the quantity and quality of SSP data reported to the state and Centers for Disease Control and Prevention (CDC)
- Reduce administrative and technological barriers to data sharing

Provide 3-5 Key Words (e.g. fluoride, sealants, access to care, coalitions, policy, Medicaid, etc.) These will assist those looking for information on this topic:

Acquiring Oral Health Data, Access to Care: School-Based Oral Health, Prevention: Sealant

Executive Summary: Complete after Section II: Detailed Activity Description. Please limit to 300 words in one or two paragraphs.

Provide a brief description of the dental public health activity. Include information on: (1) what is being done; (2) who is doing it and why; (3) associated costs; (4) outcomes achieved (5) lessons learned, both positive and negative.

In 2011, the Centers for Disease Control and Prevention (CDC) introduced the Excel-based Sealant Efficiency Assessment for Locals and States (SEALS) data reporting system for grantee states to report consistent and uniform sealant data. This system evaluates the effectiveness and efficiency of school sealant programs.(SSPs).

Through periodic evaluations since 2008, the Minnesota Department of Health (MDH) has recognized the need for a comprehensive, coordinated, and consolidated data collection and reporting system for the state's network of school sealant programs (SSPs), referred to as [SEAL Minnesota](#). A key informant interview with SSP coordinators and feedback from data stewards indicated that programs experienced significant barriers when reporting data to SEALS. MDH collaborated with one of the dental clinics to closely examine their dental practice management software. There was a need to download the data from different areas of clinic's database and adjust the format to be compatible with SEALS and then upload the data. CDC's recent efforts to revamp and relaunch SEALS and the introduction of "Batch Data Load" Excel Workbook to report SEALS measures have resulted in new tools to report data. However, SSPs may still face challenges in needing to re-enter data.

Six of eleven SEAL Minnesota partners used "Open Dental" as their dental practice management software. MDH consulted with Open Dental to explore queries to standardize data collection and reporting. MDH and Open Dental worked with partners to develop and implement custom queries to generate data reports directly from Open Dental into CDC's format of reporting SEALS Child Level Data. This automation significantly reduced administrative costs, including staff time associated with data entry and reporting. It also minimized discrepancies between requested and reported measures. The pilot project was cost-effective and successfully simplified the data reporting process. Reports that previously had to be compiled manually or could take many hours now can be generated by simply running the query.

SECTION II: DETAILED ACTIVITY DESCRIPTION

Provide detailed narrative about the dental public health activity using the headings provided and answering the questions. Include specifics to help readers understand what you are doing and how it's being done. References and links to information may be included.

****Complete using Arial 10 pt.**

Rationale and History of the Activity:

1. What were the key issues that led to the initiation of this activity?

The Minnesota Department of Health (MDH) has conducted multiple school sealant program (SSP) evaluations under the Centers for Disease Control and Prevention (CDC) cooperative agreements since 2008. These evaluations have consistently indicated the need for a coordinated, comprehensive, and consolidated data collection and reporting system for the state's network of school sealant programs (SSPs), referred to as [SEAL Minnesota](#). Standardization in data collection and reporting would help MDH to track progress and measure the overall impact of Seal Minnesota.

In 2011, the CDC introduced the Excel-based Sealant Efficiency Assessment for Locals and States (SEALS) data reporting system for grantee states to report consistent and uniform sealant data.

This system evaluates the effectiveness and efficiency of SSPs. The MDH evaluations identified that all grantees directly entered sealant data into their dental practice software such as Open Dental,

EagleSoft, Dentrix, which were not fully compatible with SEALS. Programs indicated spending considerable time extracting data from their current dental software to enter the same data into SEALS.

Recently, the CDC has provided grantees new ways to report data, including relaunching the SEALS database as a web-based application and providing an Excel Workbook called "Batch Data Upload" for grantees who do not prefer to use SEALS as a reporting tool. While all SSPs could extract sealant data from their management software, the reports varied from program to program and did not align with the Batch Data Upload format, requiring additional manual entry. Therefore, there was a need to automate this process.

At the state level, attempts to standardize data reporting, such as providing a single data collecting template, from grantees have not been fully successful. Data collection often required additional follow-ups with partners to interpret their data. Data entry became a significant barrier in reporting SSP measures. To maximize impact, reduce duplication of efforts, and increase data sharing in Minnesota, it was important for MDH to support partners in addressing these barriers.

2. What rationale/evidence (maybe anecdotal) did you use to support the implementation of this activity?

The idea for exploring Open Dental for data standardization was suggested by a community partner who used the software for their SSP. Open Dental is an open-source dental practice management software used by over half of SEAL Minnesota partners, including those who cover almost three-fourths of the data generated in the state.

The intent was to conceptualize one standard query for users of Open Dental. Initially, MDH expected one query would be sufficient for all the partners using the same software. However, it was determined that each program might need an individually customized query to fit their specific needs.

The development of custom queries was cost-effective. The possibility of reducing hours of staff time and standardizing data across SEAL Minnesota partners motivated MDH to move forward with the project.

3. What month and year did the activity begin, and what milestones have occurred along the way? (May include a timeline.)

The first pilot took about 12 months, from conceptualizing the project to implementing the query. MDH shared the concept with the CDC and received positive feedback. Once established, subsequent projects were significantly faster. The query development for the second program took four months, and the third is underway. Below are some key milestones for this project:

➤ Pilot Timeline

- ❖ July – September 2020: Internal planning, review of evaluations, needs assessment, budgetary logistics, identification of potential partners, a site visit to explore the current use of Open Dental within clinics, debriefing, formulation of an action plan
- ❖ October 2020: MDH program evaluator reached out to the CDC for a list of measures, CDC's SEALS administrator provided batch data upload Excel workbook template
- ❖ December 2020: First communication with Open Dental
- ❖ December 2020 – Feb 2021: Identifying and locating data measures of interest with Open Dental and partners, sharing progress with and obtaining continuous feedback from CDC
- ❖ March-May 2021: Query development
- ❖ June – July 2021: Query testing and report generation

➤ Timeline for 2nd Project

- ❖ July 2021 – August 2021: Discussions with a partner and Open Dental
- ❖ Sept-Oct 2021: Query specification written
- ❖ Nov 2021: Query testing and report generation

The sections below follow a logic model format. For more information on logic, models go to: [W.K. Kellogg Foundation: Logic Model Development Guide](#).

| | | | |
|---------------|--------------------|---------|----------|
| INPUTS | PROGRAM ACTIVITIES | OUTPUTS | OUTCOMES |
|---------------|--------------------|---------|----------|

1. What resources were needed to carry out the activity? (e.g., staffing, volunteers, funding, partnerships, collaborations with various organizations, etc.)

Funding

- CDC cooperative agreement

Partnerships

- Open Dental
- School sealant program partners

Technical Assistance

- CDC for SEALS measures identification and continuous feedback
- Oral health program for collaboration and communications with SEAL Minnesota partners for project implementation
- Open Dental for query development

Staff Time

- MDH SEAL Minnesota team
- SSPs staff
- Open Dental staff

| | | | |
|--------|---------------------------|---------|----------|
| INPUTS | PROGRAM ACTIVITIES | OUTPUTS | OUTCOMES |
|--------|---------------------------|---------|----------|

2. Please provide a detailed description of the key aspects of the activity, including the following aspects: administration, operations, and services.

- Internal planning for data standardization based on the needs assessment
- Discuss SEALS data measures with CDC
- Locate SEALS data measures within one of the SSPs' Open Dental configurations
- Identify interested partners to support the pilot project
- Develop query
- Pilot test query
- Resolve any challenges with the query
- Implement the query
- Obtain feedback from pilot SSPs

| | | | |
|--------|--------------------|----------------|----------|
| INPUTS | PROGRAM ACTIVITIES | OUTPUTS | OUTCOMES |
|--------|--------------------|----------------|----------|

3. What outputs or direct products resulted from program activities (e.g., number of clients served, number of services units delivered, products developed, accomplishments.)?

- Query specification completed
- Query developed
- Data collection methods standardized
- Staff trained
- Data shared

| INPUTS | PROGRAM ACTIVITIES | OUTPUTS | OUTCOMES |
|--------|--------------------|---------|----------|
|--------|--------------------|---------|----------|

4. What outcomes did the program achieve? (e.g., health statuses, knowledge, behavior, care delivery system, impact on target population, etc.) Please include the following aspects:
- How outcomes are measured
 - How often they are/were measured
 - Data sources used
 - Whether intended to be short-term (attainable within 1-3 years), intermediate (achievable within 4-6 years), or long-term (impact achieved in 7-10 years)

The SSP data stored in the Open Dental was used for the pilot project. The outcomes were measured by qualitative feedback from the SSP's staff supporting data extraction. One of them shared, *"the query is working wonderfully and I am sure this will be very useful for us and for those who are able to utilize it as well."* The project reduced staff time for administrative data management, enhanced user satisfaction, and improved collaboration between MDH and SEAL Minnesota partners. This project is anticipated to continue as an essential quality improvement effort.

Budgetary Information:

NOTE: Charts and tables may be used to provide clarity.

1. What is the annual budget for this activity?

MDH utilized approximately \$3,000 for the project. No monetary incentives were provided to the SEAL Minnesota partners.

An annual budget would depend on many factors, such as project scale and scope. Examples include, number of partners interested in standardizing data collection and reporting, hours needed to customize the query to meet the needs of each SSP, and availability of funds to implement the project.

2. What are the costs associated with the activity? (Including staffing, materials, equipment, etc.)

Interested parties can submit a [custom query request](#) using Open Dental [Query Request Form](#). Query requests are quoted before work is started based on a rate of \$110/hour. The primary expenditure for MDH averaged about \$1,000 per SSP.

There was indirect cost related to the time spent in meetings between MDH and Open Dental, Open Dental, and SSPs to understand the unique needs of each program. Additional expenses were MDH staff time needed for planning, communication, and project coordination.

3. How is the activity funded?

The activity was funded through the SEAL Minnesota initiative allowed under the CDC Cooperative Agreement (DP18-1810). MDH collaborated with Srdjan Lesaja, a CDC Statistician in the query development process. Child-level data was obtained using specific query written in Open Dental. Therefore, this project was able to initiate a data modernization effort to report into CDC SEALS using Open Dental Software.

4. What is the plan for sustainability?

The queries will be functional if the data measures and their locations in the Open Dental software remain constant. The main query can be updated as needed to accommodate additional

features for data sharing. MDH anticipates the nominal cost for technical assistance and quality assurance of these queries.

Lessons Learned and/or Plans for Addressing Challenges:

1. What important lessons were learned that would be useful for others looking to implement a similar activity? Was there anything you would do differently?

Many SSPs used Open Dental; however, each program had a unique setup for data collection and other operations. Furthermore, the utilization of software differed sometimes within the same program. For example, Auto Note is one of the available features in Open Dental. SSP staff saved information in various areas within the Auto Note. Information that one staff entered in line 4 of Auto Note was added in line 5 by another staff, resulting in intra and inter-program discrepancies in data storage. Therefore, there is no "one-size fits all" approach unless all the staff within the same SSP and across SEAL Minnesota partners enter the required measures in the same location/position in Open Dental. These logistic issues must be considered while attempting to automate data extraction.

A good team of Open Dental query developers, CDC statistician and SSP team leveraged MDH's vision and thought process exponentially. MDH realized that writing the query was actually not the problem. More often than not, learning and solving problems took time. Developers met with MDH, CDC and SSPs to understand the needs and specifications for SEALS data measures. Finally, the queries were developed, tested and implemented. Setting realistic timelines and expectations from developers helped MDH become better at dealing with ambiguity. The more experience MDH and developers got, the better and efficient we became at customizing queries.

2. What challenges did the activity encounter, and how were those addressed?

The pilot project is innovative and evolving. Bringing SEAL Minnesota and other partners to the table required a clear vision and perseverance. MDH provides mini grants to support SSPs annually. MDH covered the cost of customized query development for the pilot project. Seeking voluntary participation from these grantees to allocate additional staff time to review their existing data management practices and support the pilot was a big ask. SEAL Minnesota partners share an immense passion for serving high-needs schools and are driven by the value of the [State Oral Health Plan's mission](#), "building collaboration for collective action". The common agenda of community service and the overarching goal to streamline the data-sharing practices resulted in the successful implementation of the pilot project. MDH is fortunate to have supportive SSP partners for such a time intensive project.

Available Information Resources:

Share any models, tools, and/or guidelines developed by the program specifically for this activity that may be useful to others seeking additional information. Hyperlink resources if possible.

Open Dental: <https://www.opendental.com/>

Queries Request: <https://opendentalsoft.com:1943/ODQueryRequest/QueryRequestForm.aspx>

| TO BE COMPLETED BY ASTDD | |
|---------------------------------|---------------------------------------|
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