APPENDIX to the SEALS User Manual

Section 1: Access Rights for Different User Types

School Sealant Program User

Full Access rights (within program)
- Add Users
- Add Schools
- Program Options
- Cost Options
- Event-Level Management
  - Child Detail Data
- CSV Export (Online and PDF Summary Reports)

State User

Full Access rights (within state)
- Add Programs
- Add Users
- Online and PDF Summary Reports (**No** access to CSV export)

Read Only rights (within state)
- Add Schools
- Program Options
- Cost Options
- Event-Level Management
  - Child Detail Data

CDC User

CDC Administrator
Full Access rights (all states and programs)
- Manage School Years
- Settings
- Add Users
- Add Schools
- Program Options
- Cost Options
- Event-Level Management
  - Child Detail Data
- CSV Export
  (Online and PDF Summary Reports)

CDC Project Officer
Read Only rights (all states and programs)
- Manage School Years
- Settings
- Add Users
- Add Schools
- Program Options
- Cost Options
- Event-level Management
  - Child Detail Data
- Online and PDF Summary Reports
  (No access to CSV Export)

Section 2: Criteria for High-Need School Classification

The determination of high-need in Notice of Funding Opportunity (NOFO) – DP18-1810 for schools located in urban and rural areas is as follows:

> In an urban area, a high-need school is defined as having more than 50% of students qualify for the federal or state free and reduced meal program.

> In a rural area, a high-need school is defined as one located in a school district with a median income that is at or below 235% of the poverty line as defined by 42 U.S.C. 9902(2). Because some funded states could not determine the median income for school districts within their state, the Division of Oral Health allowed states to develop their own definition for high-need rural schools.

Section 3. Administrative Costs

Please note that your program can include other costs that currently are NOT included in this section of the SEALS Cost Calculator.

Administrative Costs per Year

Resource	Cost
Office supplies	
Printing	
Office rent	
Office equipment (computer, phone, printer etc.)	
Utilities	
(Non-clinician) Administrator salary, if applicable	
Labor costs for clinicians performing administrative activities (hours recorded per year) [Item (f) in Log A]	
Labor costs for clinicians performing administrative activities (hours recorded per school) (from Log B)[1]	
Administrative mileage [Item (d) from Log C below]	
Other (Specify)	
Other (Specify)	
Other (Specify)	
Other (Specify)	
TOTAL ADMINISTRATIVE[2]	

---

[1] Equals Log 2B, Item (f) multiplied by number of schools serviced, if one log was completed as representative of all schools; or, equals sum of (f) across all schools, if separate logs were kept for each school.
[2] This is equivalent to the value for TOTAL ADMINISTRATIVE in the example in Table 4.

Log A. Labor costs for clinicians performing administrative activities (hours recorded per year)

Staff member[1]	HOURS PER YEAR				Hourly wage	Labor Cost
	Outreach, funding, grant writing	Staff Training (OSHA compli-ance, examiner calibration, etc.)	Other (specify)	Total hours [=(a)+(b)+(c)]		
	(a)	(b)	(c)	(d)	(e)	[= (d) * (e)]
Dental Hygienist						
Dental Assistant						
Dentist						
Other						
Other						
TOTAL (f)						

---

[1] Add rows as necessary to include all clinical staff performing administrative tasks.

3 Please do not share your system access information or provide copies of these materials to anyone or any organization.

Log B. Labor costs for clinicians performing administrative activities (hours recorded per school)

Staff member[1]	HOURS PER SCHOOL				Hourly wage (e)	Labor Cost [= (d) * (e)]
	Distributing & managing consents (a)	Administrative follow-up (data entry, billing, etc.) (b)	Other (specify) (c)	Total hours [=(a)+(b)+(c)] (d)		
Dental Hygienist						
Dental Assistant						
Dentist						
Other						
Other						
TOTAL (f)						

---

[1] Add rows as necessary to include all clinical staff performing administrative tasks.

Log C. Administrative mileage log[1]

Date	Administrative activity	Miles driven (a)	Reimbursement rate (b)	Cost [= (a) * (b)] (c)
TOTAL (d)				

---

[1] Complete one line each time either (1) a program vehicle is used for an administrative task, or (2) personnel perform administrative tasks with their personal vehicles **and** their mileage is reimbursed. Examples of administrative tasks include such things as dropping off or picking up consent forms at the printer, buying supplies at a brick-and-mortar store, or taking a piece of equipment to a repair shop for maintenance. Do NOT include mileage driven to and from schools for service delivery, since these have been counted in SEALS event data.

5   Please do not share your system access information or provide copies of these materials to anyone or any organization.

Section 4. Purchase price and cost per unit for sealant material and reusable instruments

Purchase price and cost per tooth for commonly used sealant brands (2017 US$)

Sealant Material	Cost of Product (2016 US$)	Applications per Kit	Cost per Tooth Sealed
Material 1 light-cured resin	$71.50	140	$0.51
Material 2 light-cured resin	$269.51	600	$0.45
Material 3 light-cured resin	$126.50	165	$0.77
Material 4 light-cured resin	$178.21	150	$1.19
Material 5 light-cured, fluoride release resin	$143.90	200	$0.71
Material 6 autopolymerized glass-ionomer	$259.61	150	$1.73
Material 7 hydrophilic light-cured resin	$90.20	100	$0.90

Purchase price and annual cost of reusable instrument sets (2017 US$) for various manufacturers

Reusable Mirror/Explorer Set	Purchase Price (mirror & explorer)	Annualized Per-Set Cost (3% discount rate; 7 year life)
Manufacturer 1	$19.34	$3.01
Manufacturer 2	$20.98	$3.27
Manufacturer 3	$29.97	$4.67
Manufacturer 4	$39.21	$6.11
Manufacturer 5	$51.15	$7.07

If your program has different numbers of mirrors and explorers, then provide the total number of mirrors AND explorers. To estimate the annual cost, divide the price of each by 6.42 (annuity factor for 7-year useful life) and then multiply the annual cost of an explorer by the percentage of instruments that are explorers and the annual cost of a mirror by the percentage of instruments that are mirrors. For example, if your program has 20 mirrors ($29 per unit) and 10 explorers ($12 per unit), then the cost per set is 20/30 * $21/6.42 + 10/20 * $12/6.42), which equals $3.63.

Section 5. Estimating annual cost of durable goods for different estimates of useful life

Table 1: Purchase Price for Components in Sealant Station (2017 US$)

Manufacturer 1		Manufacturer 2	
Description	*Price*	*Description*	*Price*
Express portable dental system	$4,049.21	Portable sealant unit	$2,757.77
Portable patient chair with case	$1,663.24	Portable patient chair	$1,626.95
Portable stool with case	$638.57	Portable operator stool	$675.42
LED portable light with case	$1,039.53	Halogen light with floor stand	$1,186.93
Portable tray stand	$717.22	Metal tray with wheeled stand	$237.05
Metal tray	$121.00	Metal tray	$121.00
LED curing light unit	$1,020.82	Patient chair carrying case	$256.31
Instrument/supplies case	$57.20	Portable stool carrying case	$301.96
Power cord and dolly	$71.50	Carrying case for halogen light	$191.40
		Portable assistant stool	$829.42
		LED curing light unit	$1020.82
		Instrument/supplies case	$57.20
		Power cord and dolly	$71.50

Table 2. Annuity factors for different values of useful life (3% discount rate)

Useful life in years	Annuity Factor[1]
1	1
2	1.97
3	2.91
4	3.83
5	4.72
6	5.58
7	6.42
8	7.23
9	8.02
10	8.79
11	9.53
12	10.25

[1] To estimate the annual cost of a station or piece of equipment, divide the total cost of the item by the annuity factor that corresponds to the useful life of equipment.

13	10.95
14	11.63
15	12.30

Section 6. Calculations for annual supply costs

Default cost for once-per-year infection control items (2017 US$)

Items used per year	Per year cost
Eyewash station	$36.12
Blood-borne pathogen spill kit	$10.94
Chemical hazard spill kit	$74.42
First aid kit	$27.36
Sharps container	$5.75
TOTAL	$154.59

Items used once per year per station	Per year cost
Waterline quality testing (2 tests annually)	$52.80
Protective eyewear for child	$4.24
Alligator/bib clips for child	$1.94
TOTAL	$58.98

Items used once per year per operator	Per year cost
Protective eyewear for provider	$4.88

Default cost for infection control items incurred per day

Items used per day per program	Per day cost
Trash liners	$0.49[1]
Hand sanitizer	$0.67
Hand washing soap	$0.41
TOTAL	$1.57

Items used per day per station	Per day cost
Waterline treatment	$1.85[2]
Evacuation/vacuum system cleanser[3]	$3.36
TOTAL	$5.21

Items used per day per operator	Per day cost
Protective clothing	$2.84

---

[1] Assumes a program uses 2 liners per day at a cost of $0.24 per liner.
[2] Assumes a program uses 1 gallon of distilled water ($1.17) and 1 tablet where a box of 50 tablets cost $31.97.
[3] Note, if at same school for multiple days, this cost is incurred every 3 days.

Default per-child costs for screening/sealant delivery supplies per seating by 2-handed and 4-handed delivery

	Cost per child screened only, at a given seating[1]	Cost per child sealed[2]
2-handed delivery	$1.18[1]	$1.67[2]
4-handed delivery	$1.18[1]	$2.14[3]

[1] Estimate includes cost of provider gloves (2 pairs: 1 for screening & 1 for cleaning) ($0.31), mask ($0.31), tray cover ($0.03), head rest cover ($0.06), air water syringe tip ($0.19), barrier tape and clear lens wipe ($0.07) and paper towels and disinfectant ($0.19). Only one operator is wearing a mask and gloves. Add $1.59 if disposable instruments used.
[2] Estimate includes cost of supplies in footnote 1 plus patient bib ($0.07), saliva ejector ($0.06), dri-angels ($0.08), cotton ($0.04), and toothbrush ($0.23). Add $1.59 if disposable instruments used.
[3] Estimate includes cost of supplies in footnote 2, plus an extra mask ($0.31) and pair of gloves ($0.15) for second operator. Add $1.59 if disposable instruments used.

[1] For programs that screen and seal separately, this is simply the number of children screened (Log 1, question 5). For programs that screen and seal in one seating, this is the number of children screened/sealed (Log 1, question 5) *minus* the number that received (a) sealant(s) (Log 1, question 6).
[2] This value is collected in Log 1, question 6.

Section 7. Sealant Event Data Collection Form

Event Date(s) _____   School _____

Consent Forms Distributed _____

Labor

	Dentist	Hygienist	Assistant	Other
Total hours at school[1]				
Total hours travelling to and from school[2]				
Total miles travelling to and from school[2]				

Vehicles

Number owned/operated by SSP driven to event	
Total miles driven for event	

Services delivered (*Only complete if your program will not input child-level data into SEALS.*)

Number of children screened	
Number of children receiving sealants	
Number of teeth sealed	
Number of children receiving fluoride varnish	
Number of children receiving prophy[3]	

---

[1] If SSP uses reusable instruments, hours spent on sterilizing instruments offsite should be included in school hours.
[2] Only complete if your SSP reimburses workers for this item.
[3] Delivered with low-speed handpiece or power scaling.

DETAILED CHILD-LEVEL DATA COLLECTION FORM (COMPLETE ONE FORM PER CHILD)

Program Name: _____   Event (School/dates): _____

Patient Name: First: _____   Last: _____   Age: _____ (4 to 18 years)

ID[1] #: _____   Date: _____   Grade: _____

Insurance: _____

1. Screening

Chart for program use: **D** = decayed, **F** = filled, **M** = missing due to disease, **S** = sealant present,
$\qquad\qquad\qquad$ **PS** = prescribe sealant, **RS** = recommend reseal, **no mark** = no treatment recommended

1	2	3	4	5	12	13	14	15	16	Sealant Prescriber's Signature/Date
										_____
										Fluoride Prescriber's Signature/Date
32	31	30	29	28	21	20	19	18	17	_____

Comments:

Data for SEALS

Sealants Present: No/Yes	Untreated Decay: No/Yes	Treated Decay: No/Yes	Referral: None Not urgent Urgent	Number of decayed/filled 1st molars: (0–4) =_____

---

[1] Each child's ID# must be unique for that event; do not use duplicate ID#'s at any one event.

Please do not share your system access information or provide copies of these materials to anyone or any organization.

2. Preventive Services

Chart for program use (Mark with an "S" the teeth where sealants were placed.)

1	2	3	4	5	12	13	14	15	16	Provider's signature
										_____
										Date
32	31	30	29	28	21	20	19	18	17	_____

Comments:

Data for SEALS

Number of 1st molars sealed: (0–4) =_____	Number of 2nd molars sealed: (0–4) =_____	Number of other permanent teeth sealed: (0–8) =_____
Number of primary teeth sealed: (0–8) =_____	Fluoride varnish provided: No/Yes	Prophylaxes provided: No/Yes

3. Follow-Up

Chart for program use (Mark with an "R" teeth where sealants were retained.)

1	2	3	4	5	12	13	14	15	16	Evaluator's Signature
										_____
										Date
32	31	30	29	28	21	20	19	18	17	_____

Comments:

Data for SEALS

Number of teeth with a retained sealant (0–8)	

Please do not share your system access information or provide copies of these materials to anyone or any organization.

Section 8. SSP Workbook

First, copy rows 1–59 of the SSP Worksheet exported from SEALS, then paste that data into rows 1–59 of the "Import SSP" worksheet in your *SSP Measures Workbook*. The remaining worksheets will automatically populate with the data pasted into the "Import SSP" worksheet.

The *SSP Measures Workbook* can be downloaded from the SEALS website: https://www.cdc.gov/oralhealth/dental_sealant_program/seals.htm.

The remaining 4 worksheets in the *SSP Workbook* are described below.

Annual Performance Measures This worksheet provides programs with information on:
- Number of high-need rural and urban schools served over the year.
- Indicators of children's access to dental care and risk for cavities without sealants, including percentage of children with untreated decay, percentage with sealants, percentage with referral for restorative care and percentage with referral for urgent dental care need, and annual 1st molar attack rate (details in description of "Attack Rate" worksheet).
- Services delivered, including number of children screened, number of children receiving at least one program sealant (also presented by age and grade), number of children referred for dental care, and number of 1st and 2nd permanent molars receiving program sealants.

	A	B	C	D
1				
2				
3	**Number of schools served by SSP**			
4	High need urban	6		
5	High need, rural	2		
6	Rural	2		
7				
8	**Effectiveness in targeting high-risk children that lack**		Response	
9	**access to dental care**	value	rate	
10	% with untreated decay (baseline)	35.4	99.8	
11	% with treated or untreated decay (baseline)	54.0	99.8	
12	% with sealants present (baseline)	25.0	99.8	
13	% needing "Restorative Care" (baseline)	22.0	100.0	
14	% needing "Urgent Care" (baseline)	15.0	99.8	
15	One-year 1M attack rate without program/ based on # children	15.77%	784	
16				
17	**Number of services delivered**			
18	Children screened	1052		
19	Children sealed	740		
20	**By age in years**			
21	5	0		
22	6	3		
23	7	298		
24	8	108		

◄ ► ... **Annual Performance Measures** | Attack rate | Averted cavities | Retention Rate | ⊕

- Quality of service delivery and program impact indicators, including sealant retention one year after placement, percentage of children provided with consent form who were subsequently screened, percentage of children screened who were subsequently sealed, averted cavities over 9 years (details in description of "Averted Cavities" worksheet), averted 9-year treatment costs attributable to sealants placed by program (optional), and sealant prevalence among children screened by program after program delivers services.

	A	B	C	D
47				
48	**Quality of services delivered and program impact**			
49	Sealant retention rate / based on # children	0.873		
50	Percentage screened children with sealant after event	82.9		
51	Percentage of targeted children subsequently screened	0.5		
52	Percentage screened children subsequently sealed	70.3		
53	Cavities averted over 9 years undiscounted / discounted	0.00	0.00	
54	Averted 9-year treatment costs undiscounted / discounted	$0.00	$0.00	
55				
56				
57				

Attack Rate This worksheet provides the calculations used to estimate the annual attack rate, or annual probability that a sound 1st molar would develop a cavity if it were not sealed. For example, if the estimated annual attack rate was 10% and your program sealed 100 1st molars, the estimated number of cavities that would occur one year in the absence of sealants would be 10. An example of this worksheet is provided below.

	A	B	C	D	E	F	G	H	I
1	Reported age	Time 1M in mouth on average*	Number of children with no sealants at baseline screening	Sum of DF1M among children with no sealants at baseline screening	AR for years elapsed	**AR for one year**	Weighted by proportion of children in age group		
2	7	1	324	261	20.14%	**20.14%**	8.32%		
3	8	2	226	225	24.89%	**13.33%**	3.84%		
4	9	3	54	73	33.80%	**12.84%**	0.88%		
5	10	4	105	176	41.90%	**12.70%**	1.70%		
6	11	5	61	107	43.85%	**10.90%**	0.85%		
7	12	6	13	24	46.15%	**9.80%**	0.16%		
8	13	7	1	1	25.00%	**4.03%**	0.01%		
9			784		Weighted average one-year AR		**15.77%**		
10	*Assumes permanent 1M erupt at age 6.								

The SEALS methodology[1] to estimate the annual cavity attack rate makes two assumptions: 1st molars (1M) erupt at age 6, and the annual probability that a sound, unsealed 1M develops a cavity doesn't

---

[1] Griffin SO, Jones K, & Crespin M. (2014). Calculating averted caries attributable to school-based sealant programs with a minimal dataset. *Journal of Public Health Dentistry*, 74(3):202-9.

change during childhood. Columns C–G of this worksheet will automatically populate the following fields when your program inputs data into the "Import SSP" worksheet:

- Column C shows the number of screened children, sorted by age, who did not have sealants prior to the program's service delivery. Because all 4 permanent 1st molars should be erupted in children aged 7 or older, the number of 1st molars at risk for caries is the value in Column C multiplied by 4 (C * 4).
- Column D shows the total number of decayed or filled 1st molars (DF1M) among children in Column C.
- Column E shows the cumulative attack rate for each age group. The cumulative attack rate equals DF1M/(4 * C). The cumulative attack rate for 7-year-olds is the one-year attack rate, the cumulative attack rate for 8-year-olds is the 2-year attack rate, and so on.
- Column F shows the one-year attack rate for each age group, derived from the cumulative attack rate in Column E. The average one-year attack rate in cell G9 (15.77% in example above) is obtained by summing the product of the annual attack rate (Column E) and the corresponding percentage of children for each age group.

Averted Cavities This worksheet provides the calculations used to estimate non-discounted and discounted averted 1st and 2nd molar cavities over 9 years (rows 1–5). Discounted values should be used in cost-effectiveness analyses to reflect the time-value of money (people would prefer to have money now rather than wait).

	A	B	C	D	E	F	G
1	Averted cavities	Non-discounted	Discounted				
2	1st molars	1,139	1,041				
3	2nd molars	87	80				
4	All molars	1,226	1,121				
5							
6	PARAMETERS USED TO ESTIMATE AVERTED 1M CAVITIES						
7	AR	0.16	Conditional				
8	R1	0.87	retention				
9	r2	0.79	0.91				
10	r3	0.73	0.92				
11	r4	0.68	0.93				
12	r5	0.64	0.94				
13	r6	0.60	0.95				
14	r7	0.58	0.95				
15	r8	0.55	0.96				
16	r9	0.53	0.97				
17	1st molars sealed	2332					
18	2nd molars	179					

Rows 7 to 18 show the parameters used to calculate averted cavities:

- Annual cavity attack rate (row 7) estimated in the worksheet "Averted Cavities."

- Retentions rates 1–9 years after placement (rows 8–16). Note that 1-year retentions is estimated using data input by your program. Retention rates 2 years after placement and beyond are estimated using a published methodology[1].
- Number of 1st and 2nd molars sealed (rows 17, 18).

Rows 20–32 show 1st molar cavities that would occur over 9 years without the school program placing sealants.

Rows 34–46 show 1st molar cavities over 9 years that would occur with the school program placing sealants.

	A	B	C	D	E	F	G
19							
20	**1M CAVITIES WITH NO SEALANT PROGRAM**						
21	Years since		Cumulative	Cavities			
22	placed	Sound	cavities	per year			
23	0	2332	0	0			
24	1	1964	368	368			
25	2	1655	677	310			
26	3	1394	938	261			
27	4	1174	1158	220			
28	5	989	1343	185			
29	6	833	1499	156			
30	7	702	1630	131			
31	8	591	1741	111			
32	9	498	1834	93			
33							
34	**1M CAVITIES WITH SEALANT PROGRAM**						
35	Years since		Sound	Cumulative	Cavities		
36	placed	Sound Sealed	Unsealed	cvities	per year		
37	0	2332	0	0	0		
38	1	2036	250	47	47		
39	2	1848	368	116	69		
40	3	1700	435	197	81		
41	4	1581	466	284	87		
42	5	1485	474	373	89		
43	6	1407	465	460	87		
44	7	1343	446	544	83		
45	8	1289	421	622	79		
46	9	1245	392	696	73		

[1] Griffin SO, Jones K, & Crespin M. (2014). Calculating averted caries attributable to school-based sealant programs with a minimal dataset. *Journal of Public Health Dentistry*, 74(3):202-9.

Rows 48 to 60 show averted 1st molar cavities for each year after placement and summed over 9 years.

	A	B	C	D	E	F
47						
48	**AVERTED 1M CAVITIES**					
49	Year	Non-discounted	Discounted			
50	1	321	312			
51	2	241	227			
52	3	179	164			
53	4	132	118			
54	5	96	83			
55	6	69	58			
56	7	48	39			
57	8	32	25			
58	9	20	15			
59	TOTAL	1139	1041			

A detailed description of the formulae used by SEALS to calculate cavities without and with the school sealant program can be found in Griffin et al., 2014[1]. This article can be downloaded from the SEALS website. SEALS does not estimate an annual attack rate for 2nd molar cavities but instead assumes that 2nd molars are equally as likely to develop a cavity as a 1st molar and that sealants are equally effective in preventing cavities in 2nd molars as in 1st molars. To estimate averted 2nd molar cavities, SEALS takes the ratio of averted 1st molar cavities to sealed 1st molars and then multiplies number of 2nd molars sealed by this ratio.

Retention Rate: This worksheet contains estimated sealant retention for years 2–9 using the methodology described in Griffin et al., 2014. Users should not input information into this worksheet.

---

[1] Griffin SO, Jones K, & Crespin M. (2014). Calculating averted caries attributable to school-based sealant programs with a minimal dataset. *Journal of Public Health Dentistry*, 74(3):202-9.