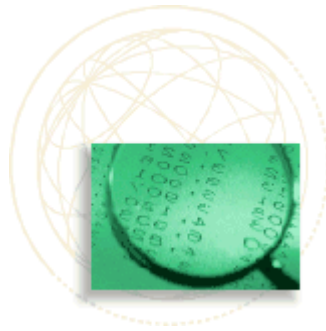


Technical Notes  
for  
**SEALS:**  
Sealant Efficiency Assessment  
for Locals and States



*An Evaluation and Benchmarking Tool for Administrators  
of Community Sealant Programs*

Program Concept by Susan Griffin & Kari Jones  
Programming by Kari Jones with Reidar Hagtvedt and Tera Bates  
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## Documentation of the calculation of the summary/performance measures on the Event-Level Report

KEY to the abbreviations and terms used below	
Abbreviation/term	Meaning
Qx	the question numbered “x”
EL	SEALS Event-Level Data Collection Form
CL	SEALS Child-Level Data Collection Form
“children at the event”	children for whom any data was entered for the event, even if all entries were 99’s or other “missing data” entries; if a record was created, the child is considered screened

### General Demographics

**Site type** - from Q4 on EL

**Grade(s) targeted** - from Q15 on EL

**Teeth targeted** - from Q16 on EL

**Mean age** = Sum of ages of all children at the event for whom Q8 on CL ≠ 99 divided by the number of children at the event for whom Q8 on CL ≠ 99

**Mean grade** = Sum of grades of all children at the event for whom Q6 on CL ≠ 99 divided by the number of children at the event for whom Q6 on CL ≠ 99

**% male** = # of children at the event for whom Q5 on CL = 0, as a percentage of those children at the event for whom Q5 on CL ≠ 99

**% reporting sex** = # of children at the event for whom Q5 on CL ≠ 99, as a percentage of those children at the event

**% Medicaid patients** = # of children at the event for whom Q11 on CL = 0, as a percentage of those children at the event for whom Q11 on CL ≠ 99

**% SCHIP patients** = # of children at the event for whom Q11 on CL = 1, as a percentage of those children at the event for whom Q11 on CL ≠ 99

**% on neither** = # of children at the event for whom Q11 on CL = 2, as a percentage of those children at the event for whom Q11 on CL ≠ 99

**% reporting Medicaid/SCHIP status** = # of children at the event for whom Q11 on CL  $\neq$  99, as a percentage of those children at the event

**% White** = # of children at the event for whom White was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% Black/African American** = # of children at the event for whom Black was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% American Indian/Alaska Native** = # of children at the event for whom American Indian/Alaska Native was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% Hawaiian/Pacific Islander** = # of children at the event for whom Native Hawaiian/Pacific Islander was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% Asian** = # of children at the event for whom Asian was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% Hispanic** = # of children at the event for whom Hispanic was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% Other** = # of children at the event for whom Other was checked on Q9 of CL, as a percentage of those children at the event for whom at least one race/ethnicity category of Q9 on CL was checked

**% reporting race** = # of children at the event for whom at least one race/ethnicity category of Q9 on CL was checked, as a percentage of all children at the event

<p><b>NOTE:</b> Since more than one racial/ethnic group may be checked per child, the sum of the percentages in all racial/ethnic groups may exceed 100%.</p>
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## Summary of effectiveness in targeting high-risk populations that lack access to care

### 1. **Participants with untreated decay (baseline)**

**#** = # of children at the event for whom Q12 of CL = 1

**% of participants** = # of children for whom Q12 on CL = 1, as a percentage of those children at the event for whom Q12 on CL  $\neq$  99

**% response** = # of children at the event for whom Q12 on CL  $\neq$  99, as a percentage of those children at the event

**rank** = the rank of this event among the events in this sealant program for which percentage of participants with untreated decay at baseline could be calculated

**Criteria (footnote)** – from Q10 on EL

### 2. **Participants with urgent dental needs (baseline)**

**#** = # of children at the event for whom Q15 of CL = 2

**% of participants** = # of children at the event for whom Q15 on CL = 2, as a percentage of those children at the event for whom Q15 on CL  $\neq$  99

**% response** = # of children at the event for whom Q15 on CL  $\neq$  99, as a percentage of those children at the event

**rank** = the rank of this event among the events in this sealant program for which percentage of participants with urgent dental needs at baseline could be calculated

**3. Participants with early dental needs (baseline)**

**#** = # of children at the event for whom Q15 of CL = 1

**% of participants** = # of children at the event for whom Q15 on CL = 1, as a percentage of those children at the event for whom Q15 on CL ≠ 99

**% response** = # of children at the event for whom Q15 on CL ≠ 99, as a percentage of those children at the event

**rank** = the rank of this event among the events in this sealant program for which percentage of participants with early dental needs at baseline could be calculated

**4. Participants with treated or untreated decay (baseline)**

**#** = # of children at the event for whom Q12 and/or Q13 of CL = 1

**% of participants** = # of children at the event for whom Q12 and/or Q13 on CL = 1, as a percentage of those children at the event, excluding those for whom either Q12 and Q13 both = 99, or else one of Q12 or Q13 = 0 while the other = 99

**% response** = # of children at the event excluding those for whom either Q12 and Q13 both = 99, or else one of Q12 or Q13 = 0 while the other = 99, as a percentage of those children at the event

**rank** = the rank of this event among the events in this sealant program for which percentage of participants with treated or untreated decay at baseline could be calculated

**5. Participants with sealants present (baseline)**

**#** = # of children at the event for whom Q14 of CL = 1

**% of participants** = # of children at the event for whom Q14 on CL = 1, as a percentage of those children at the event for whom Q14 on CL ≠ 99

**% response** = # of children at the event for whom Q14 on CL ≠ 99, as a percentage of those children at the event

**rank** = the rank of this event among the events in this sealant program for which percentage of participants with sealants present at baseline could be calculated

**6. Percentage of targeted students (those receiving consent forms) on free or reduced lunch – from Q14 on EL**

Summary of effectiveness of targeting high risk teeth

1. **Does event target 1st molars of second graders?** – from Q15 and Q16 on EL

2. **Does event target 2nd molars of sixth graders?** – from Q15 and Q16 on EL

Summary of effectiveness in reaching target population

1. **Type of consent form** – from Q18 on EL

<p><b>NOTE:</b> Summary measures #3 &amp; #9 under “Summary of services delivered” are also measures of effectiveness in reaching the target population.</p>
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Summary of services delivered

1. **Number of children screened** = # of children for which any data was entered (even if all 99's or other “missing” values) for the event

2. **Number of screened children with special health care needs** = # of children at the event for whom Q10 of CL = 1

3. **Children screened as a percentage of consent forms distributed**

**value** = # of children at the event, as a percentage of Q17 on EL

**rank** = the rank of this event among the events in this sealant program for which children screened as a percentage of consent forms distributed could be calculated

4. **Number of children sealed** = # of children at the event for whom at least one of Q18a, Q18b, or Q18c on CL is > 0 and  $\neq 99$
5. **Number of 1st molar surfaces sealed** = Sum of Q18a on CL for all children at the event for whom Q18a  $\neq 99$
6. **Number of 2nd molar surfaces sealed** = Sum of Q18b on CL for all children at the event for whom Q18b  $\neq 99$
7. **Number of other tooth surfaces sealed** = Sum of Q18c on CL for all children at the event for whom Q18c  $\neq 99$
8. **Percentage of screened children with at least one sealant after event** = # of children at the event for whom Q14 on CL = 1 and/or for whom at least one of Q18a, Q18b, or Q18c on CL is > 0 and  $\neq 99$ , as a percentage of children at the event
9. **Percentage of screened children subsequently sealed**  
**value** = # of children at the event for whom at least one of Q18a, Q18b, or Q18c on CL is > 0 and  $\neq 99$ , as a percentage of those children at the event for whom at least one of Q18a, Q18b, and Q18c is > 0 and  $\neq 99$  OR for whom Q18a, Q18b, and Q18c all = 0  
**% response** = # of children at the event for whom at least one of Q18a, Q18b, and Q18c is > 0 and  $\neq 99$  OR for whom Q18a, Q18b, and Q18c all = 0, as a percentage of all children at the event
10. **Average number of surfaces sealed per child sealed** = Sum of all values of Q18a, Q18b, and Q18c on CL  $\neq 99$  for all children at the event, divided by # of children at the event for whom at least one of Q18a, Q18b, or Q18c is > 0 and  $\neq 99$
11. **Number of children receiving fluoride varnish** = # of children at the event for whom Q19 on CL = 1
12. **Number of children receiving other fluoride treatments** = # of children at the event for whom Q19 on CL = 2
13. **Number of children referred for dental care** = # of children at the event for whom Q16 on CL = 1
14. **Percentage of children referred for dental care**  
**value** = # of children for whom Q16 on CL = 1, as a percentage of # of children for whom Q16 on CL  $\neq 99$   
**% response** = # of children at the event for whom Q16 on CL  $\neq 99$ , as a percentage of all children at the event
15. **Number of children receiving oral health education** - from Q8b on EL
16. **Average hours of oral health education received per student** = Q8a on EL, divided by Q8b on EL

#### Summary of quality of services delivered

1. **Number of referrals that resulted in a dental visit** = # of children at the event for whom both Q16 and Q21 on CL = 1

**2. Percentage of "early dental care" referrals that resulted in a dental visit**

**value** = # of children at the event for whom Q15, Q16, and Q21 on CL all = 1, as a percentage of those children at the event for whom Q15 and Q16 on CL = 1

**rank** = the rank of this event among the events in this sealant program for which percentage of "early dental care" referrals that resulted in a dental visit could be calculated

**3. Percentage of "urgent care" referrals that resulted in a dental visit**

**value** = # of children at the event for whom Q15 on CL = 2 and both Q16 and Q21 on CL = 1, as a percentage of those children at the event for whom Q15 on CL = 2 and Q16 on CL = 1

**rank** = the rank of this event among the events in this sealant program for which percentage of "urgent care" referrals that resulted in a dental visit could be calculated

**4. Number of children evaluated for sealant retention 8 to 14 months from delivery** – For events for which the number of days between Q9b and Q9c on EL is greater than 246 but less than 428, # of children at this event for whom Q20 on CL ≠ 99

**NOTE:** This value is only calculated for those events for which neither Q9b nor Q9c on EL = 12/31/1998. For those events for which either Q9b and/or Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

**5. Number of children evaluated for sealant retention <8 months from delivery** – For events for which the number of days between Q9b and Q9c on EL is less than 247, # of children at this event for whom Q20 on CL ≠ 99

**NOTE:** This value is only calculated for those events for which neither Q9b nor Q9c on EL = 12/31/1998. For those events for which either Q9b and/or Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

**Number of children evaluated for sealant retention >14 months from delivery** – For events for which the number of days between Q9b and Q9c on EL is greater than 427, # of children at this event for whom Q20 on CL ≠ 99

**NOTE:** This value is only calculated for those events for which neither Q9b nor Q9c on EL = 12/31/1998. For those events for which either Q9b and/or Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

**6. Percentage of sealed children evaluated for sealant retention** = # of children at the event for whom Q20 ≠ 99, as a percentage of children at this event for whom at least one of Q18a, Q18b, or Q18c on CL > 0 and ≠ 99

**NOTE:** This value is only calculated for those events for which Q9c on EL ≠ 12/31/1998. For those events for which Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

**7. Sealant retention rate** = Sum of Q20 on CL ≠ 99 for children at the event, divided by sum of Q18a, Q18b, and Q18c on CL ≠ 99 for children at the event

**NOTE:** This value is only calculated for those events for which Q9c on EL ≠ 12/31/1998. For those events for which Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

**# children based on** = # of children at the event for whom Q20 on CL ≠ 99

**NOTE:** This value is only calculated for those events for which Q9c on EL  $\neq$  12/31/1998. For those events for which Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

**rank** = the rank of this event among the events in this sealant program for which sealant retention rate could be calculated

### Summary of efficiency of input usage

1. **Total cost** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL
2. **Cost per child screened** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL, divided by number of children at the event
3. **Cost per child sealed** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL, divided by number of children at the event for whom at least one of Q18a, Q18b, or Q18c on CL  $> 0$  and  $\neq 99$
4. **Cost per surface sealed** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL, divided by the sum of Q18a, Q18b, or Q18c on CL  $\neq 99$  for children at the event
5. **Labor cost per child screened** = Q21 on EL, divided by number of children at the event
6. **Equipment cost per child screened** = Q22 on EL, divided by number of children at the event
7. **Instrument cost per child screened** = Q23 on EL, divided by number of children at the event
8. **Consumable goods cost per child screened** = Q25 on EL, divided by number of children at the event
9. **Administrative cost per child screened** = Q24 on EL, divided by number of children at the event
10. **Number of children screened per chair hour** = # of children at the event, divided by the product of Q5a and Q7a on EL
11. **Number of children sealed per chair hour** - # of children at the event for whom at least one of Q18a, Q18b, or Q18c on CL  $> 0$  and  $\neq 99$ , divided by the product of Q5b and Q7b on EL
12. **Number of children checked for sealant retention per chair hour** = # of children at the event for whom Q20 on CL  $\neq 99$ , divided by the product of Q5c and Q7c on EL

**NOTE:** This value is only calculated for those events for which Q9c on EL  $\neq$  12/31/1998. For those events for which Q9c on EL = 12/31/1998, the value of this measure will be reported as "0".

13. **Number of labor hours per chair hour during screening** = Sum of Q11a and Q11b on EL, divided by the product of Q5a and Q7a on EL
14. **Number of labor hours per chair hour during sealing** = Sum of Q12a and Q12b on EL, divided by the product of Q5b and Q7b on EL
15. **Number of labor hours per chair hour during retention check** = Sum of Q13a and Q13b on EL, divided by the product of Q5c and Q7c on EL
16. **Administrative time (including organization, setup, and breakdown) per child screened (in hours)** = Sum of Q6 and Q7d on EL, divided by # of children at the event

17. **Type of sealant material used** – from Q19 on EL

18. **Sealant delivery procedure** – from Q20 on EL



## Documentation of the calculation of the summary/performance measures on the Program-Level Report

KEY to the abbreviations and terms used below	
Abbreviation/term	Meaning
Qx	the question numbered “x”
EL	SEALS Event-Level Data Collection Form
CL	SEALS Child-Level Data Collection Form
“all events held”	Events for which any data was entered, even if all entries were 99’s or other “missing data” entries; if a record was created, the event is considered held
“children at all events held”	Unless otherwise specified, “children” refers to all children for whom any data was entered, even if all entries were 99’s or other “missing data” entries

NOTE: For some more complicated formulas, square brackets “[...]” are used to signal descriptive terms that go together. For example, “[the value of x as a percentage of y] multiplied by z” signifies that x is divided by y and the result multiplied by z. In contrast, “the value of x as a percentage of [y multiplied by z]” signifies that x is divided by the product of y and z.

### General Demographics

**Number of events held** = number of events for which any data was entered (even if it was all 99’s or other “missing data” values)

**% male** = # of children at all events held for whom Q5 on CL = 0, as a percentage of those children at all events held for whom Q5 on CL ≠ 99

**% reporting sex** = # of children at all events held for whom Q5 on CL ≠ 99, as a percentage of all children at all events held

**% Medicaid patients** = # of children at all events held for whom Q11 on CL = 0, as a percentage of those children at all events held for whom Q11 on CL ≠ 99

**% SCHIP patients** = # of children at all events held for whom Q11 on CL = 1, as a percentage of those children at all events held for whom Q11 on CL ≠ 99

**% on neither** = # of children at all events held for whom Q11 on CL = 2, as a percentage of those children at all events held for whom Q11 on CL  $\neq$  99

**% reporting Medicaid/SCHIP status** = # of children at all events held for whom Q11 on CL  $\neq$  99, as a percentage of children at all events held

**% White** = # of children at all events held for whom White was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% Black/African American** = # of children at all events held for whom Black was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% American Indian/Alaska Native** = # of children at all events held for whom American Indian/Alaska Native was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% Hawaiian/Pacific Islander** = # of children at all events held for whom Native Hawaiian/Pacific Islander was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% Asian** = # of children at all events held for whom Asian was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% Hispanic** = # of children at all events held for whom Hispanic was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% Other** = # of children at all events held for whom Other was checked on Q9 of CL, as a percentage of those children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked

**% reporting race** = # of children at all events held for whom at least one race/ethnicity category of Q9 on CL was checked, as a percentage of all children at all events held

<p><b>NOTE:</b> Since more than one racial/ethnic group may be checked per child, the sum of the percentages in all racial/ethnic groups may exceed 100%.</p>
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## Summary of effectiveness in targeting high-risk populations that lack access to care

### 1. **Participants with untreated decay (baseline)**

**value** = # of children at all events held for whom Q12 of CL = 1

**% of participants** = # of children at all events held for whom Q12 on CL = 1, as a percentage of those children at all events held for whom Q12 on CL  $\neq$  99

**% response** = # of children at all events held for whom Q12 on CL  $\neq$  99, as a percentage of those children at all events held

### 2. **Participants with urgent dental needs (baseline)**

**value** = # of children at all events held for whom Q15 of CL = 2

**% of participants** = # of children at all events held for whom Q15 on CL = 2, as a percentage of those children at all events held for whom Q15 on CL  $\neq$  99

**% response** = # of children at all events held for whom Q15 on CL  $\neq$  99, as a percentage of those children at all events held

**3. Participants with early dental needs (baseline)**

**value** = # of children at all events held for whom Q15 of CL = 1

**% of participants** = # of children at all events held for whom Q15 on CL = 1, as a percentage of those children at all events held for whom Q15 on CL ≠ 99

**% response** = # of children at all events held for whom Q15 on CL ≠ 99, as a percentage of those children at all events held

**4. Participants with treated or untreated decay (baseline)**

**value** = # of children at all events held for whom Q12 and/or Q13 of CL = 1

**% of participants** = # of children at all events held for whom Q12 and/or Q13 on CL = 1, as a percentage of those children at all events held, excluding those for whom either Q12 and Q13 both = 99, or else one of Q12 or Q13 = 0 while the other = 99

**% response** = # of children at all events held excluding those for whom either Q12 and Q13 both = 99, or else one of Q12 or Q13 = 0 while the other = 99, as a percentage of those children at all events held

**5. Participants with sealants present (baseline)**

**value** = # of children at all events held for whom Q14 of CL = 1

**% of participants** = # of children at all events held for whom Q14 on CL = 1, as a percentage of those children at all events held for whom Q14 on CL ≠ 99

**% response** = # of children at all events held for whom Q14 on CL ≠ 99, out of those children at all events held

**6. Percentage of events targeting children in schools with <20% of students in free or reduced lunch** – from Q14 on EL for all events held

**7. Percentage of events targeting children in schools with >=20% and <40% of students in free or reduced lunch** – from Q14 on EL for all events held

**8. Percentage of events targeting children in schools with >=40% and <50% of students in free or reduced lunch** – from Q14 on EL for all events held

**9. Percentage of events targeting children in schools with >=50% of students in free or reduced lunch** – from Q14 on EL for all events held

Summary of effectiveness of targeting high risk teeth

**1. Percentage of events targeting 1st molars** – from Q16 on EL for all events held

**2. Percentage of events targeting 1st molars of second graders** – from Q15 and Q16 on EL for all events held

**3. Percentage of events targeting 2nd molars** – from Q16 on EL for all events held

**4. Percentage of events targeting 2nd molars of sixth graders** – from Q15 and Q16 on EL for all events held

**5. 1.5-year attack rate in 1<sup>st</sup> molar surfaces (baseline)** = [sum for all children at all events held of Q17a on CL, where both Q17a on CL ≠ 99 and Q8 on CL = 7 or 8] divided by [8 multiplied by the # of children at all events held for whom Q8 on CL = 7 or 8 and Q17a on CL ≠ 99]

**based on # children** = # of children at all events held for whom Q8 on CL = 7 or 8 and Q17a on CL ≠ 99

**NOTE:** If there are no children for whom both Q8 on CL = 7 or 8 and Q17a on CL ≠ 99, then the 1.5-year attack rate in 1<sup>st</sup> molar surfaces at baseline is reported as 0.

**6. Estimated 9-year decay increment in 1<sup>st</sup> molar surfaces without program** = the sum of the # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 1.5, 3, 4.5, 6, 7.5, and 9 years after sealant date (For calculation of these individual terms, see details below.)

**Calculation of “Estimated 9-year decay increment in 1<sup>st</sup> molars without program” is based on the following intermediate values:**

**# of sound 1<sup>st</sup> molar surfaces at baseline** = Sum of Q18a on CL ≠ 99 for all children at all events held

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 1.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces at baseline multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces at baseline (See #5 above)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 1.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces at baseline less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 1.5 years after sealant date

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 3 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 1.5 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 3 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 1.5 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 3 years after sealant date

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 4.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 3 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 4.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 3 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 4.5 years after sealant date

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 6 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 4.5 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 6 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 4.5 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 6 years after sealant date

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 7.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 6 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 7.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 6 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 7.5 years after sealant date

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 9 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 7.5 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 9 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 7.5 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 9 years after sealant date

**NOTE:** If the 1.5-year attack rate in 1<sup>st</sup> molar surfaces at baseline = 0, estimated 9-year decay increment in 1<sup>st</sup> molar surfaces without program is reported as 0.

7. **Among children age 12+, percentage of decayed or filled 2<sup>nd</sup> molar surfaces** = [sum for all children at all events held of Q17b on CL, where both Q17b on CL  $\neq$  99 and Q8 on CL  $\geq$  12] as a percentage of [the # of children at all events held for whom Q17b on CL  $\neq$  99 and Q8 on CL  $\geq$  12, multiplied by 8]

**based on # children** = the # of children at all events held for whom Q17b on CL  $\neq$  99 and Q8 on CL  $\geq$  12

8. **Estimated 9-year decay increment in 2<sup>nd</sup> molar surfaces without program** = [the estimated 9-year decay increment in 1<sup>st</sup> molar surfaces without the program, as a percentage of the number of 1<sup>st</sup> molar surfaces sealed by the program] multiplied by the number of 2<sup>nd</sup> molar surfaces sealed by the program

OR

the value of #6 above divided by the sum of Q18a on CL  $\neq$  99 for all children at all events held, multiplied by the sum of Q18b on CL  $\neq$  99 for all children at all events held

### Summary of services delivered

1. **Number of children screened** = # of children at all events held for which any data was entered (even if all 99's or other "missing" values)
2. **Number of screened children with special health care needs** = # of children at all events held for which Q10 of CL = 1
3. **Number of children sealed** = # of children at all events held for whom at least one of Q18a, Q18b, or Q18c on CL is  $> 0$  and  $\neq 99$
4. **Percentage of screened children with at least one sealant after event** = # of children at all events held for whom Q14 on CL = 1 and/or for whom at least one of Q18a, Q18b, or Q18c on CL is  $> 0$  and  $\neq 99$ , as a percentage of children at all events held
5. **Percentage of screened children subsequently sealed**  
**value** = # of children at all events held for whom at least one of Q18a, Q18b, or Q18c on CL is  $> 0$  and  $\neq 99$ , as a percentage of those children at all events held for whom at least one of Q18a, Q18b, and Q18c is  $> 0$  and  $\neq 99$  OR for whom Q18a, Q18b, and Q18c all = 0  
**% response** = # of children at all events held for whom at least one of Q18a, Q18b, and Q18c is  $> 0$  and  $\neq 99$  OR for whom Q18a, Q18b, and Q18c all = 0, as a percentage of all children at all events held
6. **Average number of surfaces sealed per child sealed** = Sum of all values of Q18a, Q18b, and Q18c on CL  $\neq 99$  for all children at all events held, divided by # of children at all events held for whom at least one of Q18a, Q18b, or Q18c is  $> 0$  and  $\neq 99$
7. **Number of children receiving fluoride varnish** = # of children at all events held for whom Q19 on CL = 1
8. **Number of children receiving other fluoride treatments** = # of children at all events held for whom Q19 on CL = 2
9. **Number of children referred for dental care** = # of children all events held whom Q16 on CL = 1

10. **Number of children receiving oral health education** = Sum of Q8b on EL for all events

11. **Average hours of oral health education received per student instructed** = Sum of Q8a on EL for all events held, divided by [sum of Q8b on EL for all events held]

### Summary of quality of services delivered

1. **Number of referrals that resulted in a dental visit** = # of children for whom both Q16 and Q21 on CL = 1

2. **Percentage of "early dental care" referrals that resulted in a dental visit**  
= # of children for whom Q15, Q16, and Q21 on CL all = 1, as a percentage of children at those same events for whom both Q15 and Q16 on CL = 1

3. **Percentage of "urgent care" referrals that resulted in a dental visit**  
= # of children for whom Q15 on CL = 2 and both Q16 and Q21 on CL = 1, as a percentage of children at those same events for whom Q15 on CL = 2 and Q16 on CL = 1

4. **Number of children evaluated for sealant retention 8 to 14 months from delivery** = # of children for whom Q20 on CL  $\neq$  99, at events for which the number of days between Q9b and Q9c on EL is greater than 246 but less than 428 (and neither Q9b nor Q9c on EL = 12/31/1998)

5. **Number of children evaluated for sealant retention <8 months from delivery** = # of children for whom Q20 on CL  $\neq$  99, at events for which the number of days between Q9b and Q9c on EL is less than 247 (and neither Q9b nor Q9c on EL = 12/31/1998)

**Number of children evaluated for sealant retention >14 months from delivery** = # of children for whom Q20 on CL  $\neq$  99, at events for which the number of days between Q9b and Q9c on EL is greater than 427 (and neither Q9b nor Q9c on EL = 12/31/1998)

6. **Sealant retention rate** = Value entered by user if "Override calculated retention rate" was checked in the "Choose type of report" window  
Otherwise = Sum of Q20 on CL  $\neq$  99 for children at all events for which Q9c on EL  $\neq$  12/31/1998, divided by the sum of Q18a, Q18b, and Q18c on CL  $\neq$  99 for these same children

**# children based on** = 0 if "Override calculated retention rate" was checked in the "Choose type of report" window  
Otherwise = # of children (at events for which Q9c on EL  $\neq$  12/31/1998) for whom Q20 on CL  $\neq$  99

7. **1<sup>st</sup> molar cavities averted by program (9-year horizon)** = the sum of the # of 1<sup>st</sup> molar cavities averted 1.5 years after sealant date and the # of additional cavities averted 3, 4.5, 6, 7.5, and 9 years after sealant date (For calculation of these individual terms, see details below.)

**NOTE:** The following methodology most likely calculates an upper bound for averted decay. See the accompanying averted decay calculation software, also from CDC, for a likely lower bound of averted decay.

**Calculation of "1<sup>st</sup> molar cavities averted by program (9-year horizon)" is based on the following intermediate measures:**

**# of sound 1<sup>st</sup> molar surfaces at baseline** = Sum of Q18a on CL  $\neq$  99 for all children at all events held

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 1.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces at baseline multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces at baseline (See #5 under “Summary of effectiveness of targeting high-risk teeth”)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 1.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces at baseline less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 1.5 years after sealant date

**# of cavities averted in 1.5 years after sealant date** = # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 1.5 years after sealant date multiplied by the program’s sealant retention rate (See #6 under “Summary of quality of services delivered”)

**NOTE:** These calculations assume that the sealant retention rate calculated by the SEALS software approximates well the retention rate for the first 1.5 years. If not, the user can override the calculated retention rate with a better estimate.

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 3 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 1.5 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 3 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 1.5 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 3 years after sealant date

**# of additional cavities averted 3 years after sealant date** = # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 3 years after sealant date multiplied by the program’s sealant retention rate less 0.045

**NOTE:** We assume that the sealants are lost a rate of 3% after the first year\*\*; thus, the sealant retention rate 3 years after sealant date is the initial retention rate less 4.5% (=3% for each of the 1.5 years after the initial retention rate period).

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 4.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 3 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 4.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 3 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 4.5 years after sealant date

**# of additional cavities averted 4.5 years after sealant date** = # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 4.5 years after sealant date multiplied by the program’s sealant retention rate less 0.09

**NOTE:** We assume that the sealants are lost a rate of 3% after the first year\*\*; thus, the sealant retention rate 4.5 years after sealant date is the initial retention rate less 9% (=3% for each of the 3 years after the initial retention rate period).

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 6 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 4.5 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 6 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 4.5 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 6 years after sealant date

**# of additional cavities averted 6 years after sealant date** = # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 6 years after sealant date multiplied by the program’s sealant retention rate less 0.135

**NOTE:** We assume that the sealants are lost a rate of 3% after the first year<sup>\*\*</sup>; thus, the sealant retention rate 6 years after sealant date is the initial retention rate less 13.5% (=3% for each of the 4.5 years after the initial retention rate period).

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 7.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 6 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 7.5 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 6 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 7.5 years after sealant date

**# of additional cavities averted 7.5 years after sealant date** = # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 7.5 years after sealant date multiplied by the program's sealant retention rate less 0.18)

**NOTE:** We assume that the sealants are lost a rate of 3% after the first year<sup>\*\*</sup>; thus, the sealant retention rate 7.5 after sealant date is the initial retention rate less 18% (=3% for each of the 6 years after the initial retention rate period).

**# of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 9 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 7.5 years after sealant date multiplied by the 1.5-year attack rate in 1<sup>st</sup> molar surfaces (at baseline)

**# of sound 1<sup>st</sup> molar surfaces expected without sealants 9 years after sealant date** = # of sound 1<sup>st</sup> molar surfaces 7.5 years after sealant date less the # of decayed or filled 1<sup>st</sup> molar surfaces expected 9 years after sealant date

**# of additional cavities averted 9 years after sealant date** = # of additional decayed or filled 1<sup>st</sup> molar surfaces expected without sealants 9 years after sealant date multiplied by the program's sealant retention rate less 0.225)

**NOTE:** We assume that the sealants are lost a rate of 3% after the first year<sup>\*\*</sup>; thus, the sealant retention rate 9 years after sealant date is the initial retention rate less 22.5% (=3% for each of the 7.5 years after the initial retention rate period).

**NOTE:** If the calculated 1.5-year attack rate in 1<sup>st</sup> molar surfaces at baseline = 0 or if the calculated retention rate = 0, 1<sup>st</sup> molar cavities averted by program will be reported as 0. An estimated retention rate may be entered in the "Choose type of report" window.

<sup>\*\*</sup>Griffin SO, Griffin PM, Gooch BF, Barker LK. Comparing the costs of three sealant delivery strategies. J Dent Res 2002; 81:641-645.

8. **2<sup>nd</sup> molar cavities averted by program (9-year horizon)** = [the # of 1<sup>st</sup> molar cavities averted by the program, as a percentage of the number of 1<sup>st</sup> molar surfaces sealed by the program] multiplied by the number of 2<sup>nd</sup> molar surfaces sealed by the program

**NOTE:** If either the # of 1<sup>st</sup> molar surfaces sealed by the program or the program's sealant retention rate = 0, then "2<sup>nd</sup> molar cavities averted by program" is reported as 0. An estimated retention rate may be entered in the "Choose type of report" window.

## Summary of efficiency of input usage

### 1. Total cost

**Total outlays** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL for all events held

**Direct state funds** = amount reported as "State grants" in "Choose type of report" window

**State funds + Medicaid reimb** = sum of the amounts entered as "State grants" and "Medicaid reimbursement" in "Choose type of report" window



**2. Cost per child screened**

**Total outlays** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL for all events held, divided by the # of children at all events held

**Direct state funds** = Amount entered as "State grants", divided by the # of children at all events held

**State funds + Medicaid reimb** = Sum of amounts entered as "State grants" and "Medicaid reimbursement", divided by the # of children at all events held

**3. Cost per child sealed**

**Total outlays** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL for all events held, divided by the # of children at all events held for whom at least one of Q18a, Q18b, or Q18c on CL > 0 and ≠ 99

**Direct state funds** = Amount entered as "State grants", divided by the # of children at all events held for whom at least one of Q18a, Q18b, or Q18c on CL > 0 and ≠ 99

**State funds + Medicaid reimb** = Sum of amounts entered as "State grants" and "Medicaid reimbursement", divided by the # of children at all events held for whom at least one of Q18a, Q18b, or Q18c on CL > 0 and ≠ 99

**4. Cost per surface sealed**

**Total outlays** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL for all events held, divided by the sum of Q18a, Q18b, and Q18c on CL ≠ 99 for all children at all events held

**Direct state funds** = Amount entered as "State grants", divided by the sum of Q18a, Q18b, and Q18c on CL ≠ 99 for all children at all events held

**State funds + Medicaid reimb** = Sum of amounts entered as "State grants" and "Medicaid reimbursement", divided by the sum of Q18a, Q18b, and Q18c on CL ≠ 99 for all children at all events held

**5. Cost per cavity averted**

**Total outlays** = Sum of Q21, Q22, Q23, Q24, Q25 and Q26 on EL for all events held, divided by the sum of "1<sup>st</sup> molar cavities averted by program" and "2<sup>nd</sup> molar cavities averted by program"

**Direct state funds** = Amount entered as "State grants", divided by the sum of "1<sup>st</sup> molar cavities averted by program" and "2<sup>nd</sup> molar cavities averted by program"

**State funds + Medicaid reimb** = Sum of amounts entered as "State grants" and "Medicaid reimbursement", divided by the sum of "1<sup>st</sup> molar cavities averted by program" and "2<sup>nd</sup> molar cavities averted by program"

**NOTE:** If the sum of "1<sup>st</sup> molar cavities averted by program" and "2<sup>nd</sup> molar cavities averted by program" = 0, then "Cost per cavity averted" is reported as "0".

**6. Number of children screened per chair hour** = # of children at all events held, divided by the product of Q5a and Q7a on EL summed over all events held

**7. Number of children sealed per chair hour** = # of children at all events held for whom at least one of Q18a, Q18b, or Q18c on CL > 0 and ≠ 99, divided by the product of Q5b and Q7b on EL summed over all events held

**8. Number of children checked for sealant retention per chair hour** = # of children (at events for which Q9c on EL ≠ 12/31/1998) for whom Q20 on CL ≠ 99, divided by the product of Q5c and Q7c on EL summed over all events held

**9. Number of labor hours per chair hour during screening** = Sum of Q11a and Q11b on EL for all events held, divided by the product of Q5a and Q7a on EL summed over all events held

10. **Number of labor hours per chair hour during sealing** = Sum of Q12a and Q12b on EL for all events held, divided by the product of Q5b and Q7b on EL summed over all events held
11. **Number of labor hours per chair hour during retention check** = Sum of Q13a and Q13b on EL for all events held, divided by the product of Q5c and Q7c on EL summed over all events held
12. **Administrative time (including organization, setup, and breakdown) per child screened (in hours)** = Sum of Q6 and Q7d on EL for all events held, divided by # of children at all events held