DENTAL QUALITY ALLIANCE®

Improving Oral Health Through Measurement

DENTAL QUALITY ALLIANCE: Practice- and Clinician-Level Quality Measure Development Reports

Report 6: Claims-Based Starter Set Measure *Topical Fluoride for Children*
Interim Report for Public Comment

FEBRUARY 2025

FEEDBACK REQUESTED:
The purpose of this report is to inform and seek feedback. **The DQA urges all interested parties to carefully review this report and provide feedback.** Please send comments to dqa@ada.org **by April 11, 2025**.

Table of Contents

Background

The Dental Quality Alliance (DQA) approved a resolution that a workgroup be formed to explore the development of practice- and clinician-level dental quality measures. This workgroup reports to the DQA's Measure Development and Maintenance Committee (MDMC). This report is the sixth in a series of reports providing updates on measure development activities and findings. Previous reports are published on the DQA website.

Report Purpose

The purpose of this report is to **present the results of testing the measure *Topical Fluoride for Children* at the practice and clinician levels and recommendations for inclusion of this measure in a starter set of claims-based measures for reporting at the practice and clinician levels.**

Measuring Entities and Data Sources for Practice and Clinician Level Measures

The practice/clinician level measure specifications for *Topical Fluoride for Children* were derived from and designed to align with the DQA's program- and plan-level *Topical Fluoride for Children* measure specifications. Because practice-level measurement is often driven vertically (from program to plan to practice), practice-level measures are most effective when aligned with program- and plan-level measurement. Program- and plan-level measures are most commonly reported by the program (e.g., Medicaid or CHIP) or plan (e.g., managed care organization or dental benefits administrator) using enrollment and claims data, which are the most readily available aggregated data at the population level.

Measurement at the practice and clinician levels may be reported by different entities using different data sources. Table 1 illustrates the different entities that may report practice and clinician level quality measures, the data sources used, and implementation examples.

The workgroup determined that it would **first identify a starter set of measures calculated using claims data**, because they have the highest feasibility for near-term implementation. Broadly, "claims data" are available (1) directly from the payer database, (2) from a third-party claims aggregator, and (3) from local practice management system billing data. Typically, the first two data sources are used when a payer or third-party entity measures performance of a practice or clinician either for external reporting such as rating systems or for payment programs. A practice would use the billing data within the local practice management system to understand its own performance from the perspective of the payer and for quality improvement projects.

This analysis focused on validating *Topical Fluoride for Children* using only claims data directly from payer databases and claims data from third-party claims data aggregators.

Table 1: Data Sources and Implementation Applications for Practice and Clinician Level Quality Measurement

Measuring Entity	Program/ Plan	Third-Party Claims Aggregator	Billing Data from Local Practice Management System	EDR Data
Data source	Claims and enrollment data directly from administrative database	Aggregated claims submitted by multiple payers	Practice management billing data typically included on a dental clam form	All patient record data including history, findings and diagnoses
Implementation example	State Medicaid program or plan (e.g., MCO, DBA) reports scores (as ratings or in payment models) for specific dental practices/clinicians in their network. Commercial carriers report scores (as ratings or in payment models) for specific dental practices/clinicians in their network.	Third-party claims aggregator reports scores (as ratings or in payment models) for practices/clinicians within a client's (e.g., payer's) network.	Practice computes practice/clinician scores to understand performance as viewed by the payer and for quality improvement.	Practice computes its own scores for quality improvement.

Measure Specifications and Testing Overview

This section provides the specifications and testing overview of the measure specifications that passed testing criteria and were approved by the Workgroup. Other approaches to specifying this measure were tested and deemed less feasible, reliable, and valid. These approaches and associated testing are summarized in **Appendix 3**.

Population. Children aged 1 through 18 years.[i]

Data Type. Enrollment and claims data for use by payers or other entities that have access to enrollment and dental claims data to assess dental care quality at the practice/clinician levels.

Data Sources. Testing with commercial claims data included practice and clinician-level claims data from two data partners: (1) a large payer's commercial database (multiple states) and (2) a claims aggregator's large commercial database (multiple states). Testing with Medicaid claims data relied on Medicaid and CHIP enrollment and claims data contained within the Transformed Medicaid Statistical Information System (T MSIS) Analytic Files (TAFs) from the

[i] The upper bound of the age range used for testing was 18 years to reflect pediatric benefits coverage among commercial payer claims databases, which were the primary data sources used for testing. Applications using Medicaid claims data may elect to use through age 20 years consistent with Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefits.

Centers for Medicare and Medicaid Services (CMS).[ii] Three states, selected based on data quality, were included in testing.

Time Frame. Data from 2019 (reporting year) were used to calculate the measure scores. Data from 2018 also were required for the purpose of attributing patients to practices and clinicians. Because the starter set of measures collectively require multiple years of data, 2019 was selected as the most recent reporting year to include in testing to avoid confounding by COVID-19 related impacts on service use.

Level of Analysis. Separate analyses were conducted at the **practice** level and at the **clinician** level within the commercial claims databases. Identification of practices is more challenging within the T-MSIS Medicaid claims data. Thus, analyses were run using rendering provider identifiers, which align with the "clinician" approach using commercial claims data. The Medicaid analyses were run twice to compare use of the state-assigned provider identifier and the National Provider Identifier.

Sample Size. The commercial data partners were requested to provide data for **practices and clinicians that had at least 100 patients in the denominator**. Inclusion of at least 100 patients in the denominator was based on prior reliability assessments of practice-level measurement.[1] Similarly, the scores reported in the Medicaid analyses included only those providers that had at least 100 patients in the denominator.

Specifications. Detailed practice- and clinician-level specifications were developed, guided by and aligned with the DQA's program- and plan-level Topical Fluoride for Children measure specifications. The measure description is in Figure 1 below and the detailed specifications are in **Appendix 1**.

Figure 1: Topical Fluoride for Children Measure Description

Description: Percentage of enrolled children aged 1 through 18 years who received at least 2 topical fluoride applications during the reporting year

Numerator: Unduplicated number of children in the denominator who received at least 2 topical fluoride applications during the reporting year

Denominator: Unduplicated number of enrolled children aged 1 through 18 years

Rate: NUM/DEN

[ii] This work was conducted as part of a larger project titled, *titled 'The State of Oral Healthcare Use, Quality and Spending: Findings from Medicaid and CHIP Programs," made possible through a* Data Use Agreement (RSCH-2020-55639) with the Centers for Medicare and Medicaid Services and approved by the American Dental Association IRB.

Denominator considerations

Figure 2 summarizes the key elements in identifying the denominator for an individual practice or clinician. There are three main steps to identify the denominator for this measure.

1. **Identify age eligible population in claims database.** The first step is to identify all individuals within the claims database who meet the age eligibility criteria.

2. **Among age eligible population, identify those who meet enrollment criteria.** Enrollment criteria are incorporated into the measure logic to ensure that children are present in the database for a sufficient period of time to get at least two topical fluoride applications. For example, if the child is enrolled in a payer's plan for only two months during the year, the payer will not have access to any claims for that child for the other 10 months of the year; therefore, it will not be possible to know whether lack of topical fluoride application represents not receiving care versus receiving care but through another payer, and consequently, is not in the database being used for measurement. Thus, children were required to be enrolled for the full reporting year, allowing a single one-month gap in coverage. One data partner did not have enrollment information to assess this requirement.

3. **Among the age and enrollment eligible population, attribute children to practices and clinicians.** Attribution refers to the assignment of the individuals in the overall denominator population to a specific practice's or specific clinician's denominator. Figure 2 illustrates the role of attribution in the measure logic.

This measure attributes children who meet the age and enrollment requirements to a practice's (or clinician's) denominator based on having a comprehensive or periodic oral evaluation in both the reporting year and the prior year. The requirement to have a periodic or comprehensive oral evaluation in the reporting year ensures that the child is an active patient in the reporting year. The requirement to have a periodic or comprehensive oral evaluation in the year prior to the reporting year ensures that the child is an established patient to allow sufficient time for care delivery (Figure 3). A limitation of this approach is that patients new to the practice in the reporting year will not be included in the measurement. Testing data indicated that approximately 80% or more of commercially insured pediatric patients have 2-year care continuity with the same practice. In health care settings that have more significant patient churn, more patients will be excluded from measurement. However, new patients in one reporting year will be in the practice's denominator in the subsequent year.

Consequently, to assign children to a specific practice's denominator, each child was assigned to **all practices** (identified by Taxpayer Identification Number (TIN)) that provided a periodic or comprehensive oral evaluation in the reporting year **and** a periodic or comprehensive oral evaluation in the year prior to the reporting year. Similarly, each child was assigned to **all clinicians** (identified by rendering National Provider Identifier (NPI)) that

provided a periodic or comprehensive oral evaluation in the reporting year **and** a periodic or comprehensive oral evaluation in the year prior to the reporting year. The same child could be present in more than one practice's denominator and more than one clinician's denominator. Figure 4 provides examples of attribution at the practice and clinician levels. Within the T-MSIS Medicaid claims database, each child was assigned to all providers identified by rendering National Provider Identifier (NPI). The analysis was repeated using the state-assigned provider identifier to compare the two approaches.

Numerator considerations

- To qualify for numerator inclusion, at least two visits on separate dates of service with topical fluoride application are required. **These services are counted regardless of the practice or clinician that provided the service.**

Figure 2: Role of Attribution of Patients to Practices and Clinicians in Measure Logic

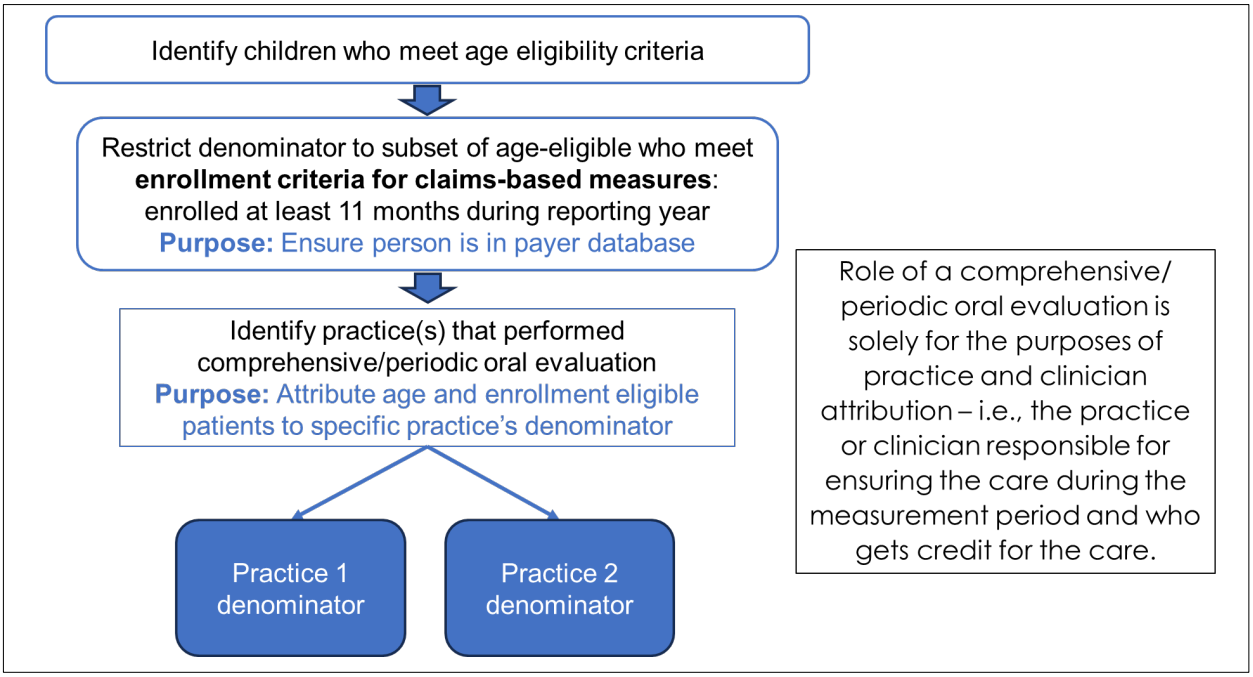


Figure 3: Timing of Oral Evaluation for Attribution of Patients to Practices and Clinicians

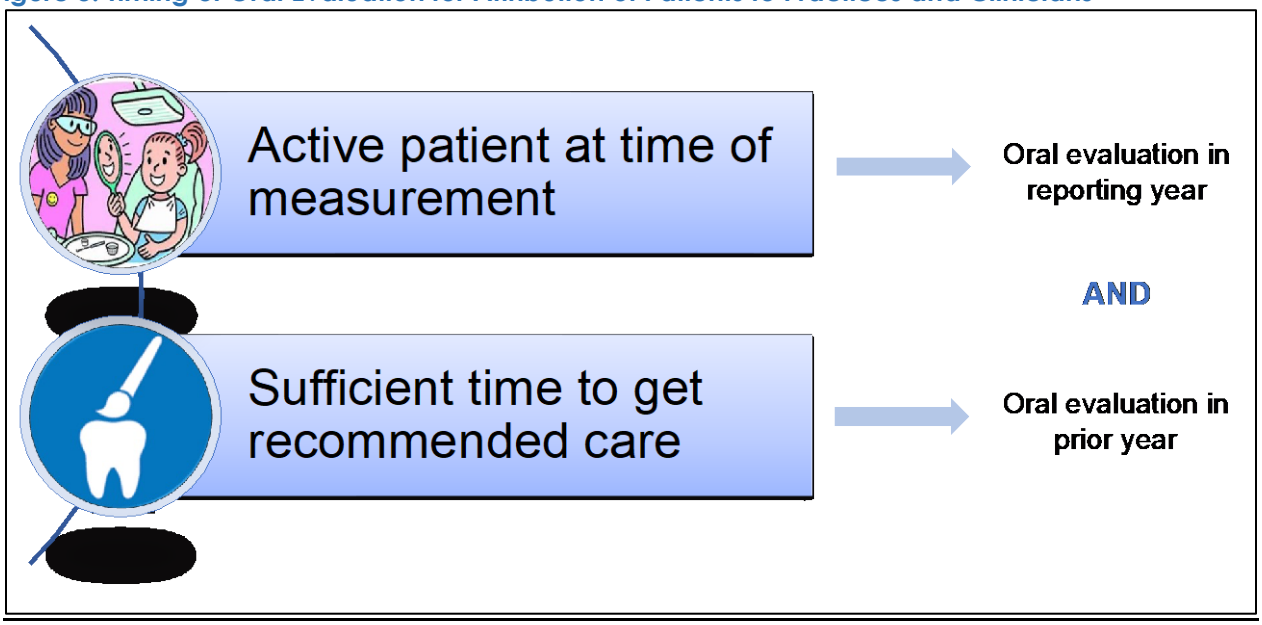
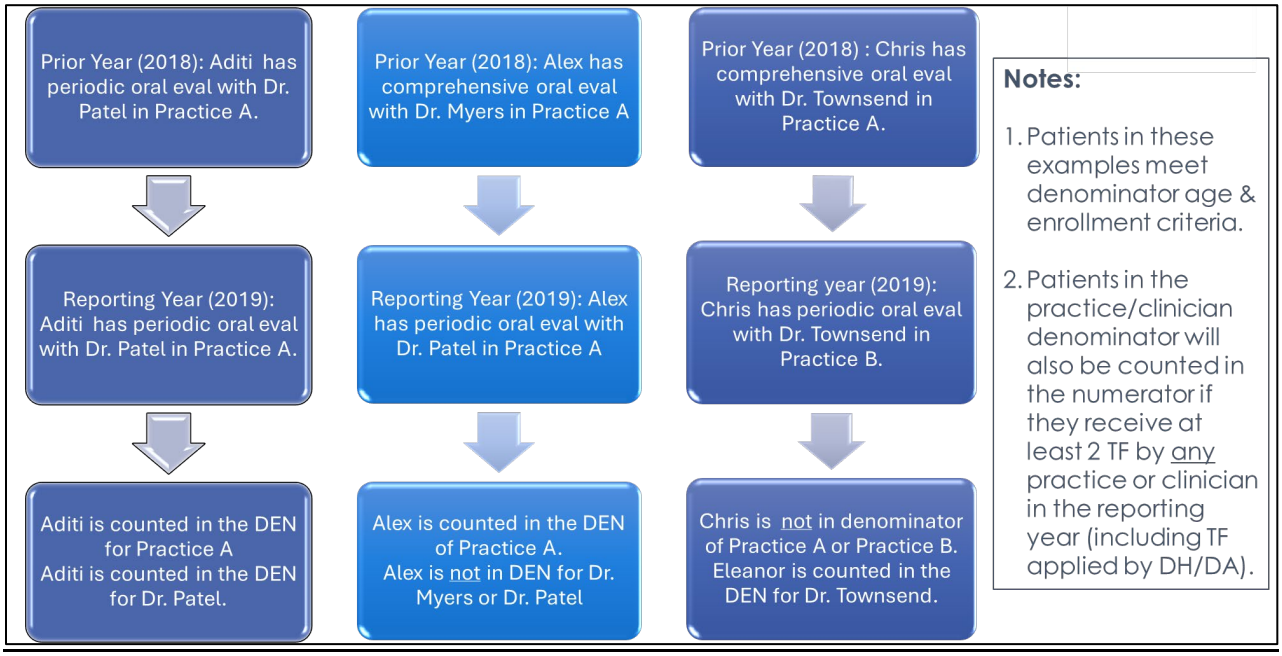


Figure 4: Examples of Attribution of Patients to Practice/Clinician Denominator if Reporting Year is 2019



Testing Feasibility, Reliability and Validity

Feasibility, reliability and validity using claims data were evaluated in depth during the development of the program- and plan-level measure. The measure relies on standard data elements captured within enrollment and claims databases, and evaluations of these data elements within program- and plan-level databases demonstrated low rates of missing or invalid critical data elements. Measure reliability and validity at the program and plan level were established through validation of the critical data elements through patient record reviews.[2]

Current testing focused on the feasibility of calculating the measure at the practice and clinician levels within the different types of claims databases available, the ability to detect variations in performance, and identification of opportunities for improvement at the practice and clinician levels. The data partners implemented the measure within their systems using detailed specifications developed by the Dental Quality Alliance. They submitted the measure denominators and numerators. The data partners also provided feedback on the specifications, which were refined during testing to improve accuracy and clarity.

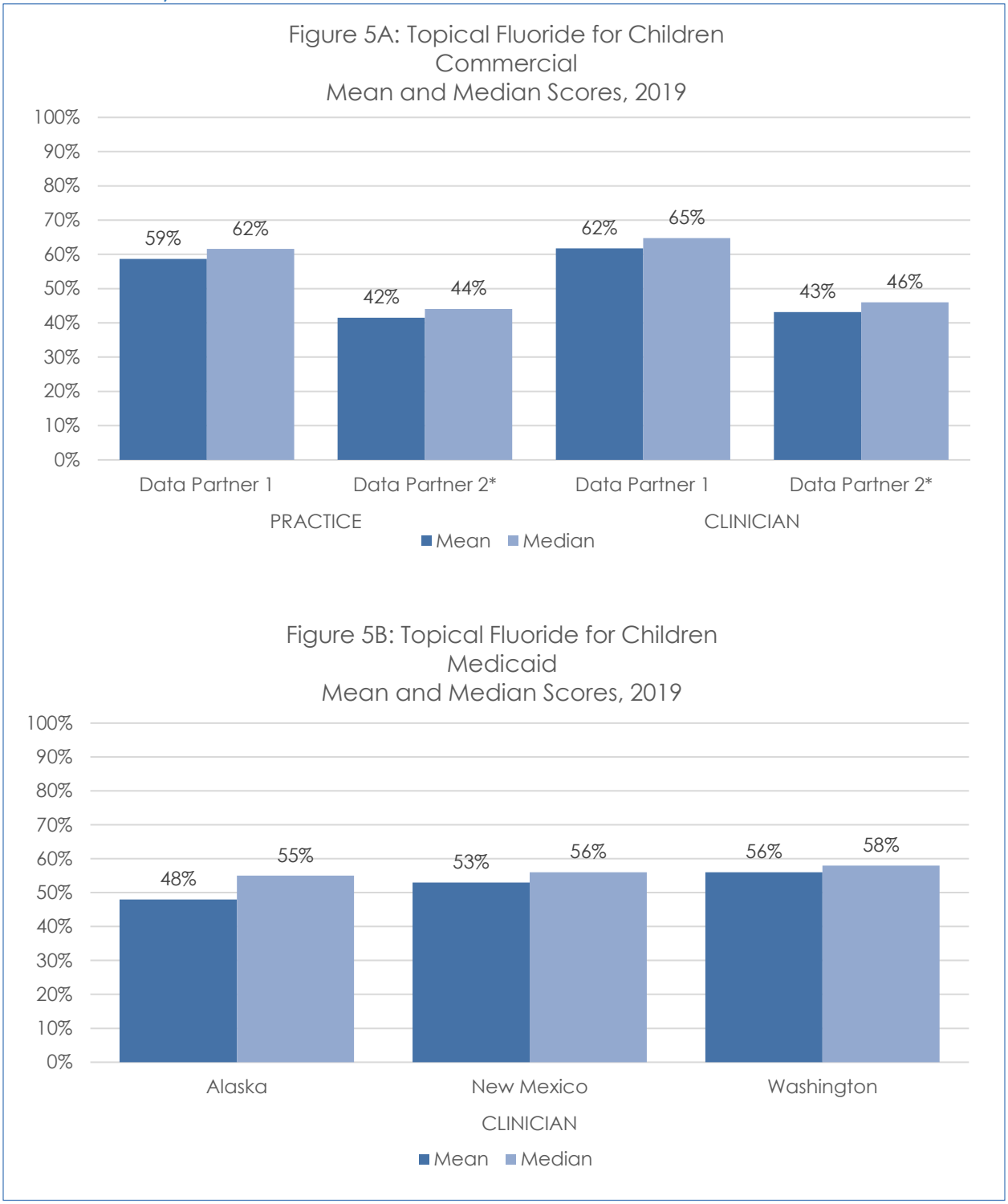
A key consideration when implementing claims-based measures at the practice and clinician levels is whether there is sufficient denominator size for reliable measurement. Prior practice level measurement assessment by the DQA identified at least 100 patients in the denominator to have reliable practice-level measurement when using claims data for dental quality measures.[1] Reliability at a denominator of 100 patients was re-confirmed during the current testing project. Reliability estimates were calculated as the ratio of the practice-to-practice variance divided by the sum of the practice-to-practice variance plus the measurement variance using the statistical methodology described in Adams (2009) and Scholle (2008).[3,4]

Results

Measure scores

Figure 5 shows the mean and median scores for each data source across practices and clinicians. Table 2 provides more detailed measure score statistics for each data source at the practice and clinician levels. Histograms that depict the distribution of scores and the extent of variation in performance are contained in **Appendix 2**.

Figure 5. Topical Fluoride for Children, Mean and Median Measure Scores at the Practice and Clinician Levels, 2019



***Note:** Data Partner 2 did not have enrollment information available.

Table 2A. Practice and Clinician Measure Score Statistics, Commercial

	PRACTICE		CLINICIAN	
	Data Partner 1, Commercial (n=3,012 practices)	Data Partner 2, Commercial* (n=8,831 practices)	Data Partner 1, Commercial (n=2,673 clinicians)	Data Partner 2, Commercial* (n=8,603 clinicians)
Mean	0.59	0.42	0.62	0.43
Standard deviation	0.15	0.17	0.15	0.18
Median	0.62	0.44	0.65	0.46
Minimum	0.00	0.00	0.00	0.00
Maximum	0.92	0.86	0.92	0.86
10th percentile	0.40	0.17	0.43	0.18
25th percentile	0.51	0.31	0.55	0.33
75th percentile	0.69	0.55	0.72	0.56
90th percentile	0.75	0.62	0.77	0.64
Interquartile range	0.18	0.23	0.17	0.24

*__Note:__ Data Partner 2 did not have enrollment information available.

Table 2B. Clinician Measure Score Statistics, Medicaid

	CLINICIAN		
	Alaska Medicaid (n=19 providers)	New Mexico Medicaid (n=129 providers)	Washington Medicaid (n=360 providers)
Mean	0.48	0.53	0.56
Standard deviation	0.19	0.15	0.14
Median	0.55	0.56	0.58
Minimum	0.02	0.12	0.12
Maximum	0.72	0.84	0.90
10th percentile	0.07	0.33	0.37
25th percentile	0.35	0.44	0.48
75th percentile	0.61	0.65	0.66
90th percentile	0.72	0.70	0.73
Interquartile range	0.25	0.21	0.18

*Practices and Clinicians Represented in **Commercial** Claims Data*

The mean and median measures scores for Data Partner 1 practices were 59% and 62%, respectively (Figure 5A). The interquartile range (difference between the 25th and 75th percentiles) was 18 percentage points (Table 2), indicating measure dispersion, or variation in performance, between practices. The mean and median scores for Data Partner 2 were lower at 42% and 44%, respectively. The interquartile range was somewhat higher at 23 percentage points. For both data partners, the clinician-level scores and interquartile ranges were very similar to those at the practice level. Differences in the measure scores may be attributable, in part, to Data Partner 2 not having all the data required to calculate the measure. Specifically, Data Partner 2 was unable to incorporate the enrollment criteria for inclusion in the denominator.

*Practices and Clinicians Represented in **Medicaid** Claims*

The mean measure scores for clinicians ranged from 48% to 56% across the three Medicaid programs (Figure 5B) compared with 62% for commercial Data Partner 1 (Figure 5A); the median scores ranged from 55% to 58% (Figure 5B) compared with 65% for commercial Data Partner 1 (Figure 5A). The interquartile range varied from 18 percentage points to 25 percentage points between clinicians across the three Medicaid programs, which was similar to the interquartile ranges reported by the commercial data partners of 17 percentage points (Data Partner 1) to 24 percentage points (Data Partner 2). Results were consistent between the two different provider identifiers (state-assigned and NPI) in the Medicaid claims data.

Reliability assessments

Reliability estimates range from 0 to 1 where 0 indicates that all variability is due to measurement error and 1 indicates that all variability reflects real differences in performance. Reliability for Data Partner 1 practices with at least 100 patients in the denominator was 0.95. Reliability for Data Partner 1 clinicians with at least 100 patients in the denominator also was 0.95. Reliability for clinicians within each of the three Medicaid programs ranged from 0.92 to 0.94. A reliability of 0.70 or greater is considered acceptable for drawing conclusions about groups, and reliability of 0.90 or greater is recommended for drawing conclusions about individuals.[3] Thus, reliability of the measure scores with at least 100 patients in the denominator was confirmed.

Workgroup Determinations

Performance gap and opportunity for improvement

The workgroup found the measure scores to be consistent with expectations based on the collective expert opinion. The measure scores demonstrated variation in performance and opportunities for improvement across both practices and clinicians. Thus, there are opportunities both for improving performance overall as well as for identifying and focusing improvement efforts on lower-performing practices and clinicians.

Practice- and clinician- level reporting

The measure is designed such that those providers with whom patients are active and established, as indicated by having a comprehensive or periodic oral evaluation in both the reporting year and the prior year, are responsible for ensuring the patient receives at least two topical fluoride applications. Recognizing that different providers may contribute to the delivery of topical fluoride, the patient is counted in the numerator for having received at least two topical fluoride applications **regardless of which practice or clinician provided the service**.

The workgroup reviewed measure scores calculated at both the practice and clinician levels. The measure score data demonstrated similar performance at both levels and similar variation in performance. **Based on both the measure intent and the evaluation of data, the workgroup determined that the measure *Topical Fluoride for Children* is appropriate for reporting at both the practice and clinician levels.**

Limitations of claims-based practice and clinician level reporting

Practice and clinician level measurement using claims data within a payer's or third-party claims aggregator's database often represents a subset of a practice's or clinician's patients. Consequently**, when reporting measure scores using such claims data, it should be recognized that the payer subset of the practice's or clinician's patients may not reflect the overall performance of the practice or clinician, particularly when the payer covers a small percentage of the practice's or clinician's patients**.

Workgroup Conclusions

The workgroup determined that the measure *Topical Fluoride for Children* is a feasible, reliable and valid measure that can be used to identify performance gaps, detect variations in performance between practices and clinicians, and guide improvement efforts. The workgroup emphasizes **that it is essential to have all critical data elements required for the measure and to follow the measure specifications as written to have reliable and valid measurement that can be used for comparisons between entities and over time**.

References

1. Dental Quality Alliance. Guidance on Practice-Based Measures Implementation. Accessed May 2, 2024, https://www.ada.org/-/media/project/ada-organization/ada/ada-org/files/resources/research/dqa/educational-resources/2018_pbm_guidance_implementation_final20181108t102945.pdf?rev=289b0ec96aaf4e6184b068cdbdbf59f5&hash=4555254C42EAA4FDABBD94D6B87B58AC

2. Herndon JB, Crall JJ, Aravamudhan K, et al. Developing and testing pediatric oral healthcare quality measures. *J Public Health Dent*. 2015;75(3):191-201. doi:10.1111/jphd.12087

3. Adams J. The Reliability of Provider Profiling: A Tutorial. RAND Corporation. Accessed April 29, 2016, http://www.rand.org/pubs/technical_reports?TR653.html

4. Scholle SH, Roski J, Adams JL, et al. Benchmarking physician performance: reliability of individual and composite measures. *Am J Manag Care*. Dec 2008;14(12):833-8.

Appendix 1: Measure Specifications

DQA Practice/Clinician Level Measure Specifications: Claims-Based Measures

TOPICAL FLUORIDE FOR CHILDREN

*****DRAFT DQA Measure Specification Sheet*****

Description: Percentage of enrolled children aged 1 through 18 years who received at least 2 topical fluoride applications during the reporting year

Numerator: Unduplicated number of children in the denominator who received at least 2 topical fluoride applications during the reporting year

Denominator: Unduplicated number of enrolled children aged 1 through 18 years

Rate: NUM/DEN

Applicable reporting levels: Practice and clinician

Guiding program-plan level measure specification: Topical Fluoride for Children measure specifications

Age: Children ages 1 through 18 years.[1]

Measuring Entity: Payer or third party with payer claims data

Data sources: Enrollment and claims data; two years. When using claims data to determine service receipt, include both paid and unpaid claims (including pending, suspended, and denied claims).

Months to Days Conversion: To accommodate months ranging from 28 to 31 days, the following standards apply:

Years	Months	Days
	1 month	30 days
	2 months	61 days
	3 months	91 days
	4 months	122 days
	5 months	152 days
	6 months	183 days
	7 months	213 days
	11 months	334 days
1 year	**12 months**	365 days
	13 months	395 days
3 years	**36 months**	1095 days
5 years	**60 months**	1826 days

[1] The upper bound of the age range of 18 years reflects pediatric benefits coverage among commercial payer claims databases. Applications using Medicaid claims data may elect to use through age 20 years consistent with Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefits.

Level of Reporting:

- **Practice** (identified by TIN)

  Note: When a single TIN is used across multiple locations within a group practice, the resulting measure score will reflect a single weighted average score across locations. Conversely, if one group practice uses individual TINs for each of its locations, then the measure will result in a score specific to each location. When reporting measure scores, it is helpful to note whether TINS reflect multiple locations or single locations. Such contextual information will be useful in interpreting scores when used for comparisons.

- **Clinician** (identified by Rendering Provider NPI)

Measure Limitations:

- *This measure attributes patients to a practice's (or clinician's) denominator based on having a comprehensive or periodic oral evaluation in both the reporting year and the prior year. This attribution ensures that the patient (1) is an active patient in the reporting year and (2) is an established patient to ensure sufficient time for care delivery. A limitation of this approach is that patients new to the practice in the reporting year will not be included in the measurement. Testing data indicated that approximately 80% or more of commercially insured pediatric patients have 2-year care continuity with the same practice. In health care settings that have more significant patient churn, more patients will be excluded from measurement.*
- *This measure assumes that all modes of topical fluoride application are equally effective. This measure calls for the documentation of at least two instances (on different dates of service) of any combination of two fluoride specific CDT codes, D1206 and D1208 (or equivalent CPT codes when billed by non-dental providers). D1206 refers to professionally applied fluoride varnish and D1208 is any topical application of fluoride including fluoride gels or fluoride foams (excluding fluoride varnish). This measure does not take into account alternate home-use fluoride products including supplements.*

MEASURE CALCULATION

DENOMINATOR

1. Check if the subject meets age criteria at the last day of the reporting year:
   a. If child is >=1 and <19, then proceed to next step.[2]
   b. If age criteria are not met or there are missing or invalid field codes (e.g., date of birth), then STOP processing. This subject is not included in the denominator.
2. Check if subject is continuously enrolled for the reporting year (12 months) with a single gap of no more than 31 days.
   a. If subject meets continuous enrollment criterion, then proceed to next step.

[2] The upper bound of the age range of 18 years reflects pediatric benefits coverage among commercial payer claims databases. Applications using Medicaid claims data may elect to use through age 20 years consistent with Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefits.

b. If subject does not meet enrollment criterion, then STOP processing. This subject is not included in the denominator.

YOU NOW HAVE THE AGE AND ENROLLMENT DENOMINATOR-ELIGIBLE POPULATION

ATTRIBUTE PATIENTS TO PRACTICES AND CLINICIANS

*** **Note:** Oral evaluation codes (D0120, D0150, D0145) are used only for attribution to the practice-specific and clinician-specific denominators. ***

3. Attribute subjects to **all practices** that provided a comprehensive or periodic oral evaluation in the reporting year **AND** in the year prior to the reporting year (to be included in a practice's denominator, the patient should have had a comprehensive or periodic oral evaluation in both years with that same practice):
   a. Attribute subject to the *unique TIN* associated with each practice that
      i. performed any of [CDT CODE] = [D0120 OR D0145 OR D0150] in the reporting year

      AND

      ii. performed any of [CDT CODE] = [D0120 OR D0145 OR D0150] in the year prior to the reporting year

   b. Include in **Denominator for the practice**.

   Notes:
   - In this step, all **claims** with missing or invalid CDT CODE, missing or invalid billing provider TIN should not be included in the denominator.
   - A patient may be present in more than one practice's denominator.

4. Attribute subjects to **all clinicians** that provided a comprehensive or periodic oral evaluation in the reporting year **AND** in the year prior to the reporting year (to be included in a clinician's denominator, the patient should have had a comprehensive or periodic oral evaluation in both years with that same clinician):
   c. Attribute subject to the *unique RENDERING PROVIDER NPI* associated with each clinician that
      i. performed any of [CDT CODE] = [D0120 OR D0145 OR D0150] in the reporting year

      AND

      ii. performed any of [CDT CODE] = [D0120 OR D0145 OR D0150] in the year prior to the reporting year

   d. Include in **Denominator for the clinician**.

   Notes:
   - In this step, all **claims** with missing or invalid CDT CODE, missing or invalid rendering provider NPI should not be included in the denominator.
   - A patient may be present in more than one clinician's denominator.

YOU NOW HAVE THE PRACTICE-SPECIFIC AND CLINICIAN-SPECIFIC DENOMINATORS (DEN)

NUMERATOR

5. Among the subjects in the practice and in the clinician denominators, respectively: check if subject received at least 2 topical fluoride applications during the reporting year on different dates of service regardless of the practice or clinician that provided the service.
   a. If [SERVICE CODE] = [D1206 or D1208] **AND**
   b. If [FLUORIDE DATE OF SERVICE 1] <12 months prior to end of reporting year AND
   c. If [FLUORIDE DATE OF SERVICE 2] <12 months prior to end of reporting year AND
   d. [FLUORIDE DATE OF SERVICE 1] ≠ [FLUORIDE DATE OF SERVICE 2], then **include in Numerator**; proceed to next step.
   e. If all the criteria in (a) – (d) above are not met, then STOP processing. This subject is already included in the denominator but will not be included in the numerator.

NOTES:

- Fluoride applications included in the numerator should be counted regardless of the practice or clinician that actually provided the service [i.e., the two fluoride applications do not have to be provided by the same practice or clinician].

YOU NOW HAVE ALL SUBJECTS WHO QUALIFY FOR THE NUMERATOR

6. Report:
   a. Number of patients in practice-specific and clinician-specific denominators (DEN)
   b. Subset of patients in practice-specific and clinician-specific denominators who meet the numerator requirements (NUM)
   c. Measure rate specific to each practice and to each clinician (NUM/DEN)

Reliability of the measure score depends on the quality of the data elements that are used to calculate the measure. The percentages of missing or invalid data for each data element used to calculate the measure must be investigated prior to measurement. Data elements with high rates of missing or invalid data will adversely affect the subsequent counts that are recorded. A low-quality data set may result in measure scores that are not reliable.

GUIDANCE FOR OPTIONAL DENOMINATOR STRATIFICATION BY RISK FOR DENTAL CARIES

1. Classify children as:
   a. At elevated risk for dental caries
   b. Not at elevated risk for dental caries.

   Note: Every child should be classified into one of the two categories. The sum of the two categories should total the total denominator-eligible children.

2. Methodology to classify elevated risk:
    a. If subject meets **any of the following** then classify the individual as being **at elevated risk** for dental caries:
        i. the subject has a CDT Code among those in Table 1 in the reporting year **OR**
        ii. the subject has a CDT Code among those in Table 1 below in any of the three years prior to the reporting year (**NOTE:** When using claims data, the subject does not need to be enrolled in any of the prior three years in order to implement this stratification; this is a "look back" for enrollees who do have claims experience in any of the prior three years.)
        OR
        iii. the subject has a visit with a CDT code indicating elevated risk (D0602 or D0603) in the reporting year.
    b. If the subject **does not meet any of the above** criteria for elevated risk, then these enrollees should be classified as **not identified as being at elevated risk**.

Table 1: CDT Codes to identify "elevated caries risk"

D1352	D2392	D2610	D2710	D2782	D2933	D3222
D1354	D2393	D2620	D2712	D2783	D2934	D3230
D2140	D2394	D2630	D2720	D2790	D2940	D3240
D2150	D2410	D2642	D2721	D2791	D2941	D3310
D2160	D2420	D2643	D2722	D2792	D2950	D3320
D2161	D2430	D2644	D2740	D2794	D2976	D3330
D2330	D2510	D2650	D2750	D2799	D2989	
D2331	D2520	D2651	D2751	D2928	D2991	
D2332	D2530	D2652	D2752	D2929	D3110	
D2335	D2542	D2662	D2753	D2930	D3120	
D2390	D2543	D2663	D2780	D2931	D3220	
D2391	D2544	D2664	D2781	D2932	D3221	

Appendix 2: Practice and Clinician Level Measure Score Histograms

This appendix visually represents the distribution of the measure scores for each data source at the practice and clinician levels using histograms. The horizontal axis is the same in the figures and represents the measure score ranges in 10% increments. The vertical axis is the same in the figures and represents the number of practices (or clinicians) falling within each measure score range. Thus, the first column in each chart shows the number and percent of practices with rates of 10% or less, the second column shows the number and percent of practices with rates in the range 10%-20%, and so forth. To illustrate the interpretation, 32% of Data Partner 1 practices had measure scores in the range of 60% to 70% (Figure A2-1).

Practice-Level Histograms

Figure A2-1. Practice-Level Measure Score Histogram for Data Partner 1, Commercial (n=3,012 practices with denominator>=100)

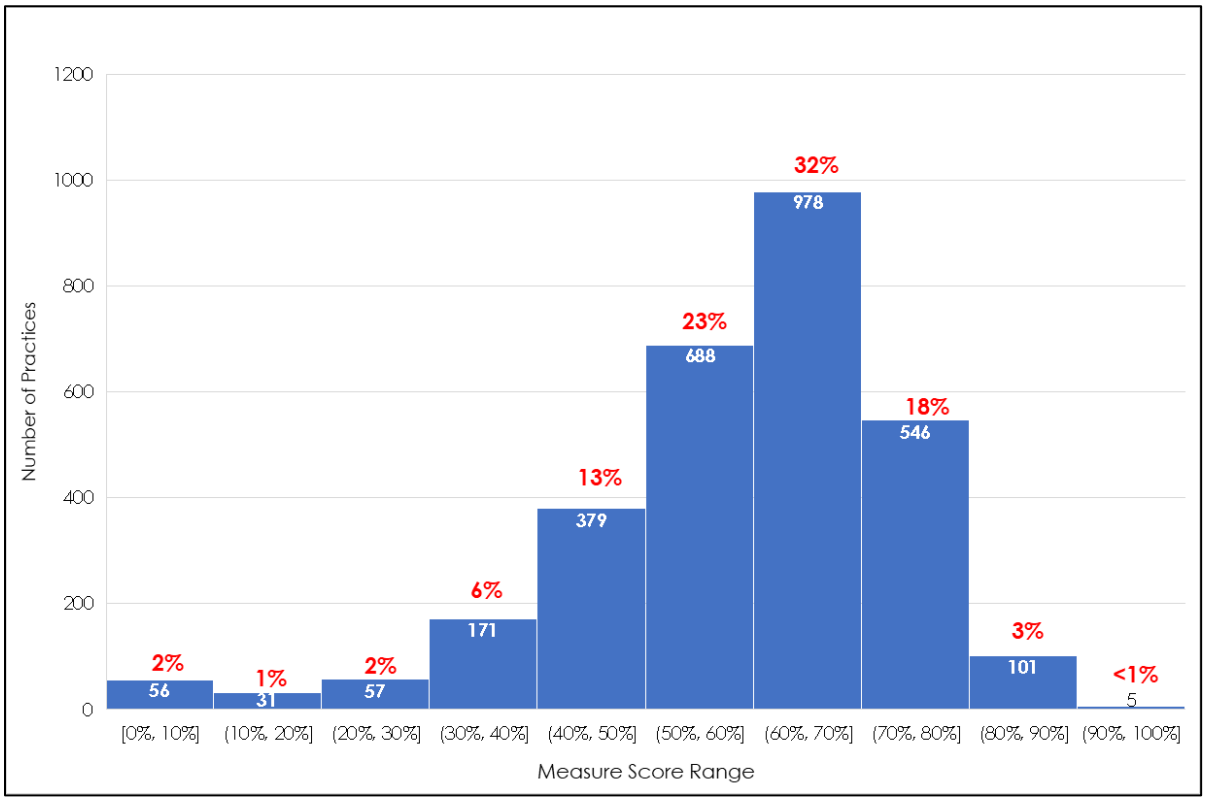
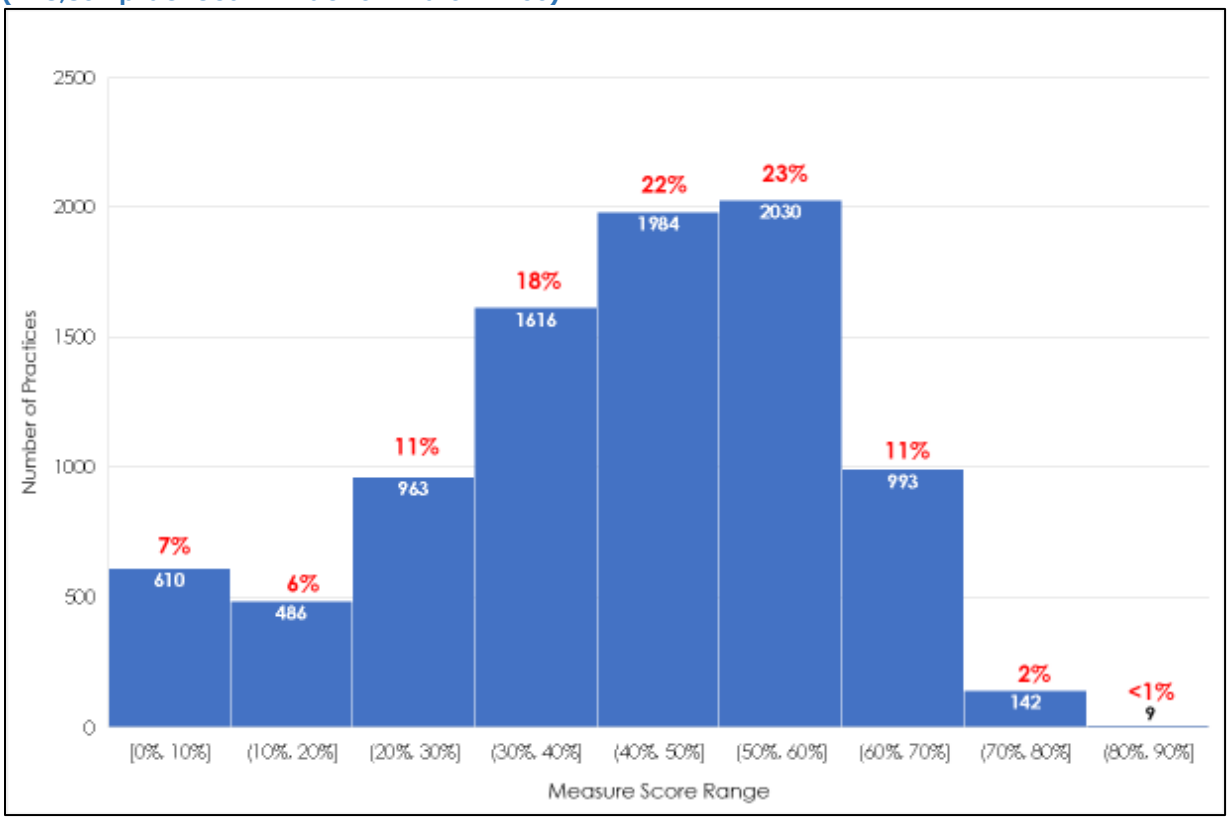


Figure A2-2. Practice-Level Measure Score Histogram for Data Partner 2, Commercial (n=8,831 practices with denominator>=100)



Note: Data Partner 2 did not have enrollment information available.

Clinician-Level Histograms

Figure A2-3. Clinician-Level Measure Score Histogram for Data Partner 1, Commercial (n=2,673 clinicians with denominator>=100)

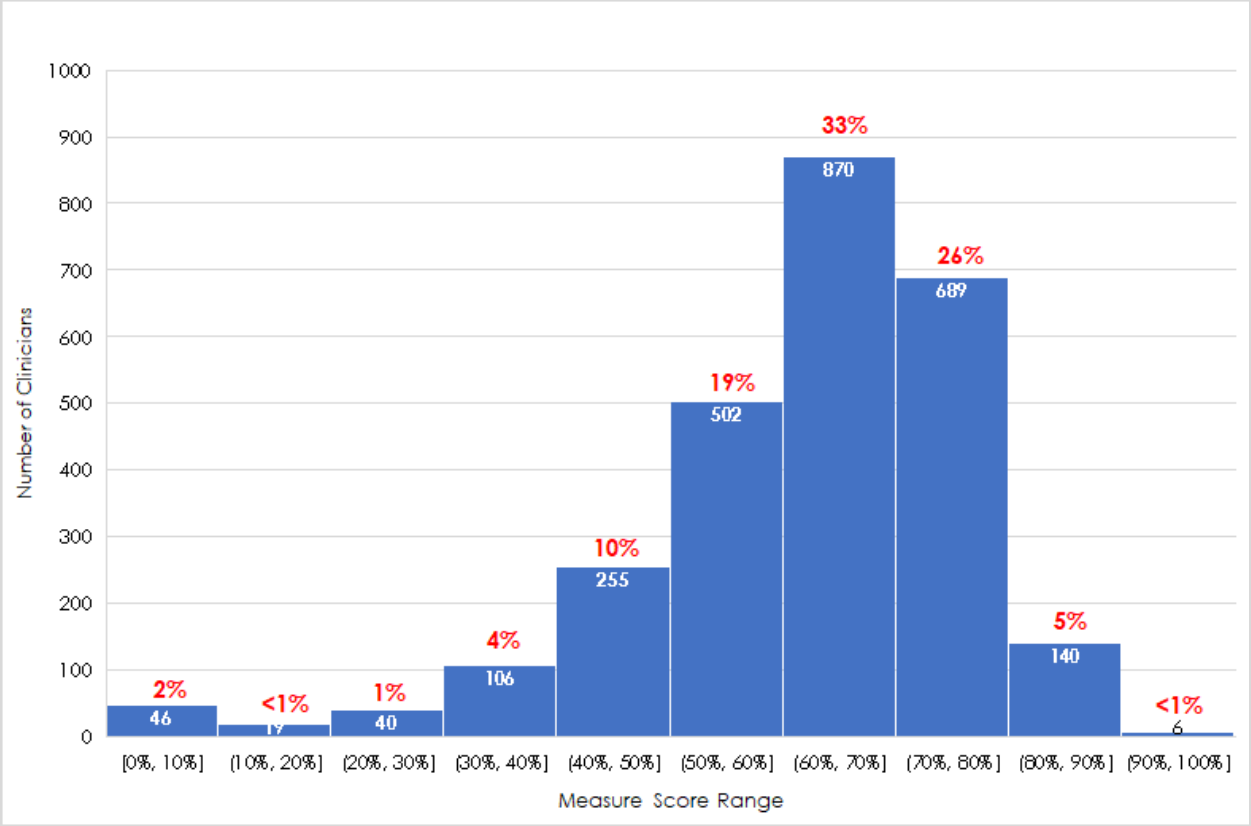
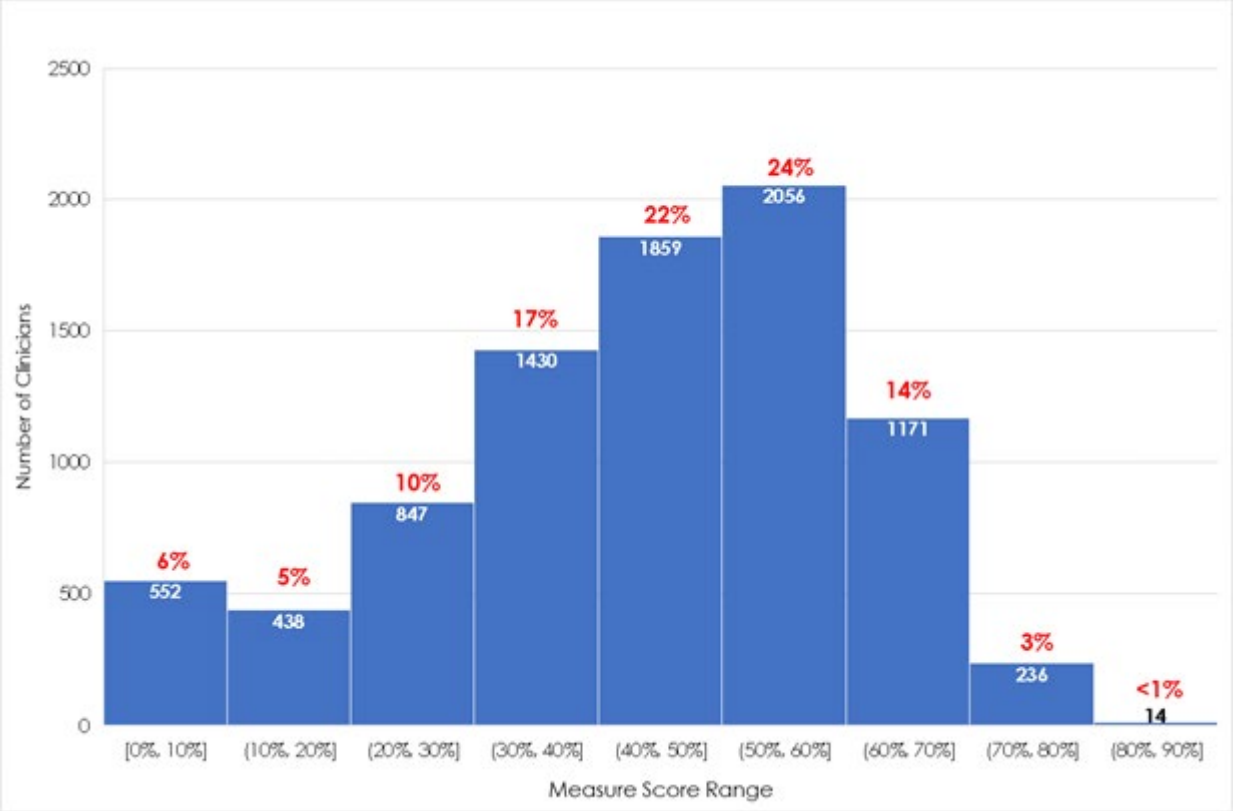


Figure A2-4. Clinician-Level Measure Score Histogram for Data Partner 2, Commercial (n=8,603 clinicians with denominator>=100)



Note: Data Partner 2 did not have enrollment information available.

Figure A2-5. Clinician-Level Measure Score Histogram for Alaska Medicaid (n=19 clinicians with denominator>=100)

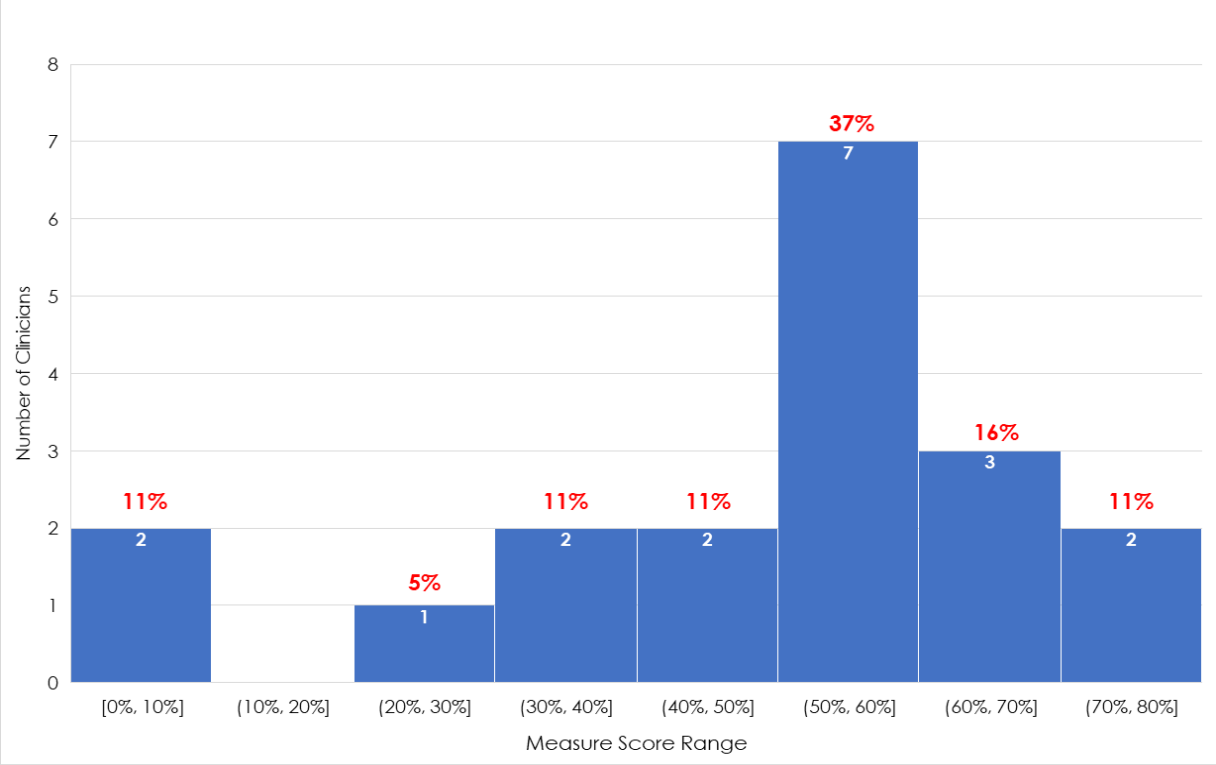


Figure A2-6. Clinician-Level Measure Score Histogram for New Mexico Medicaid (n=129 clinicians with denominator>=100)

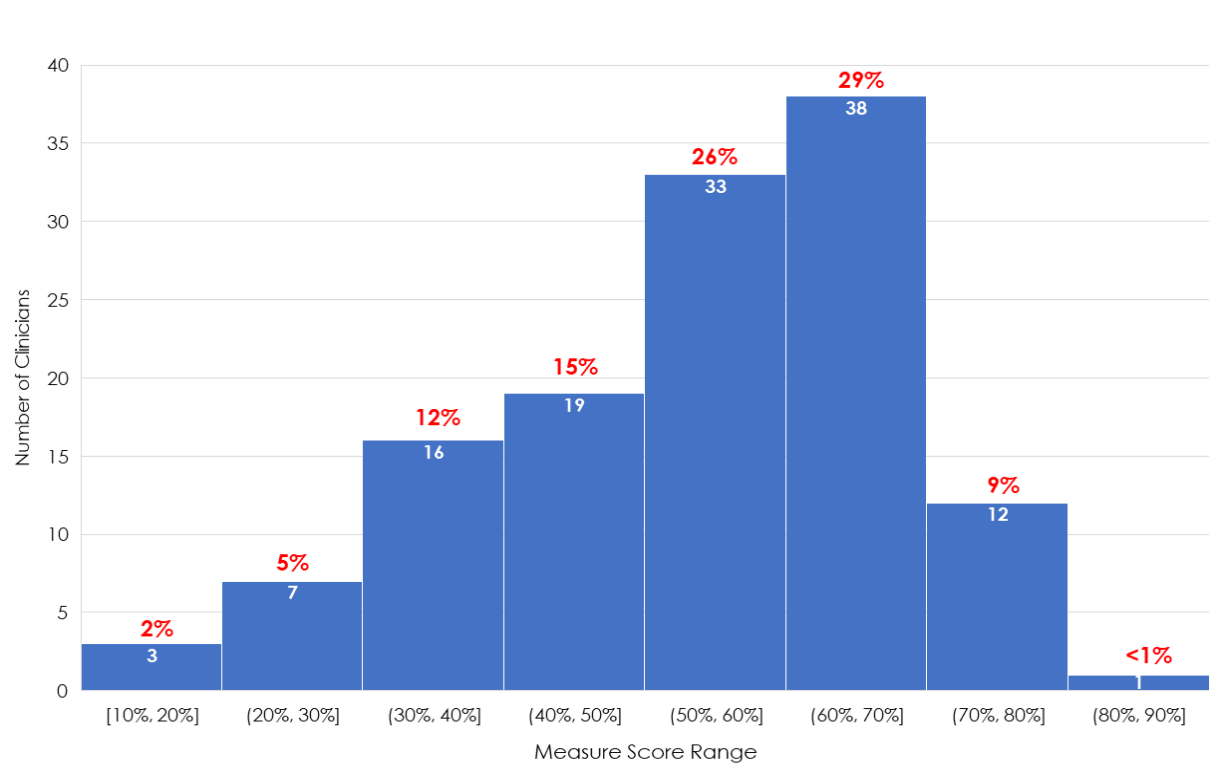
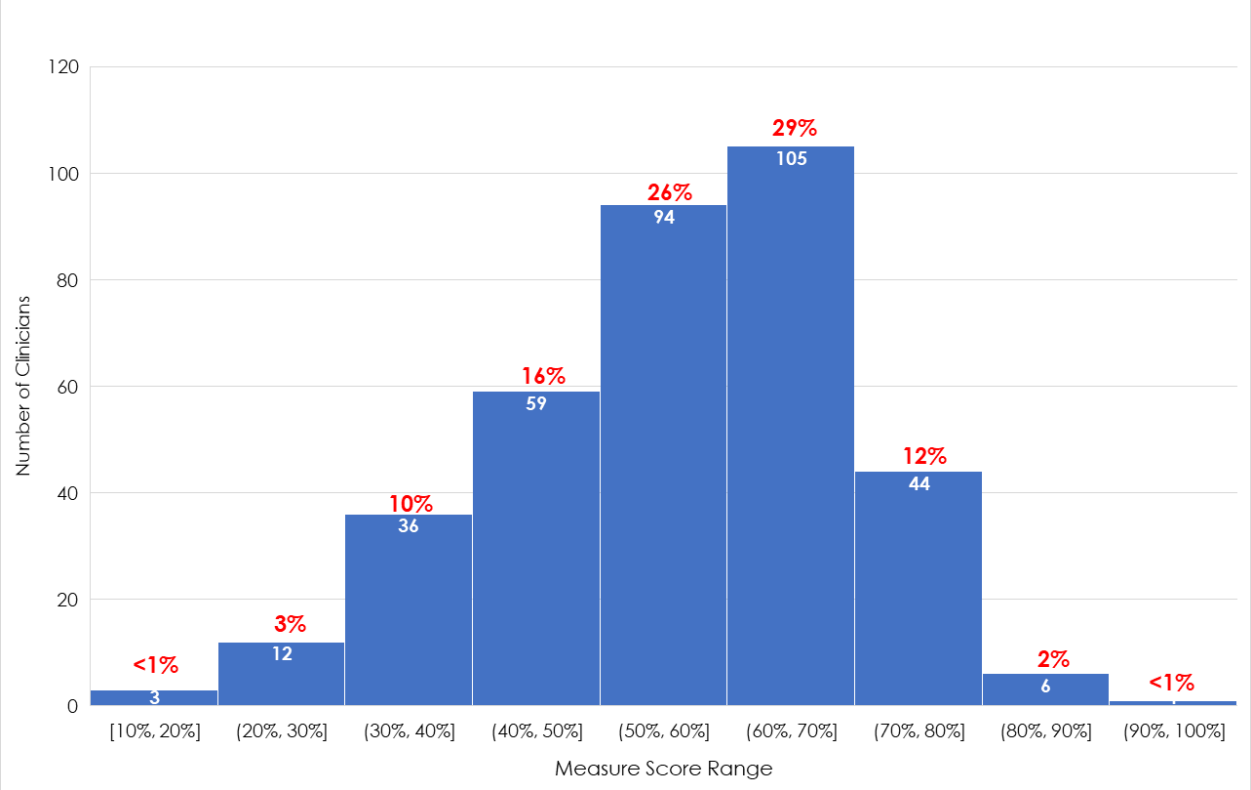


Figure A2-7. Clinician-Level Measure Score Histogram for Washington Medicaid (n=360 clinicians with denominator>=100)



Appendix 3: Alternative Specifications Evaluated

Initial testing evaluated two different approaches to specifying *Topical Fluoride for Children*.

1. "Calendar year":
    a. Denominator criteria included age eligibility of 1 through 18 years, enrollment of 11 of 12 months during the reporting year, and comprehensive or periodic oral evaluation for attribution to practices and clinicians.
    b. The numerator criterion was receipt of at least two topical fluoride applications on different dates of service during the reporting year.
2. "Floating/indexed":
    a. Denominator criteria included age eligibility of 1 through 18 years, the most recent periodic or comprehensive oral evaluation in the year prior to the start of the reporting year identified as the "index" oral evaluation, and enrollment of at least 11 months from the index oral evaluation.
    b. The numerator criterion was receipt of at least two topical fluoride applications within a 12-month period beginning on the date of the index oral evaluation. Topical fluoride applications that occurred on the same date as the index oral evaluation were included as one of the two applications.

Floating/Indexed Version Testing

The initial data runs of the floating/indexed version ranged from 11% (Data Partner 2) to 72% (Data Partner 1). Because of the extreme variation, additional data partners were requested to run the measure to lend additional insight. A total of five data partners ran the floating/indexed version of the measures: 3 data partners ran the measure using commercial claims data (Data Partners 1, 2, and 4), 1 data partner ran the measure using Medicaid claims data (Data Partner 5), and 1 data partner ran the measure using both a commercial claims database and a Medicaid claims database (Data Partner 3).

Figure A3-1 shows the measure scores results at the practice level and Figure A3-2 shows the measure score results at the clinician level. There remained significant variation across the different entities that was greater than expected, resulting in face validity concerns. In addition, data partners noted implementation burden challenges with indexing the enrollment criteria for denominator inclusion and indexing topical fluoride receipt for numerator inclusion to a specific oral evaluation visit.

Figure A3-1. Practice-Level Measure Score Results for Topical Fluoride for Children – Floating/Indexed Version

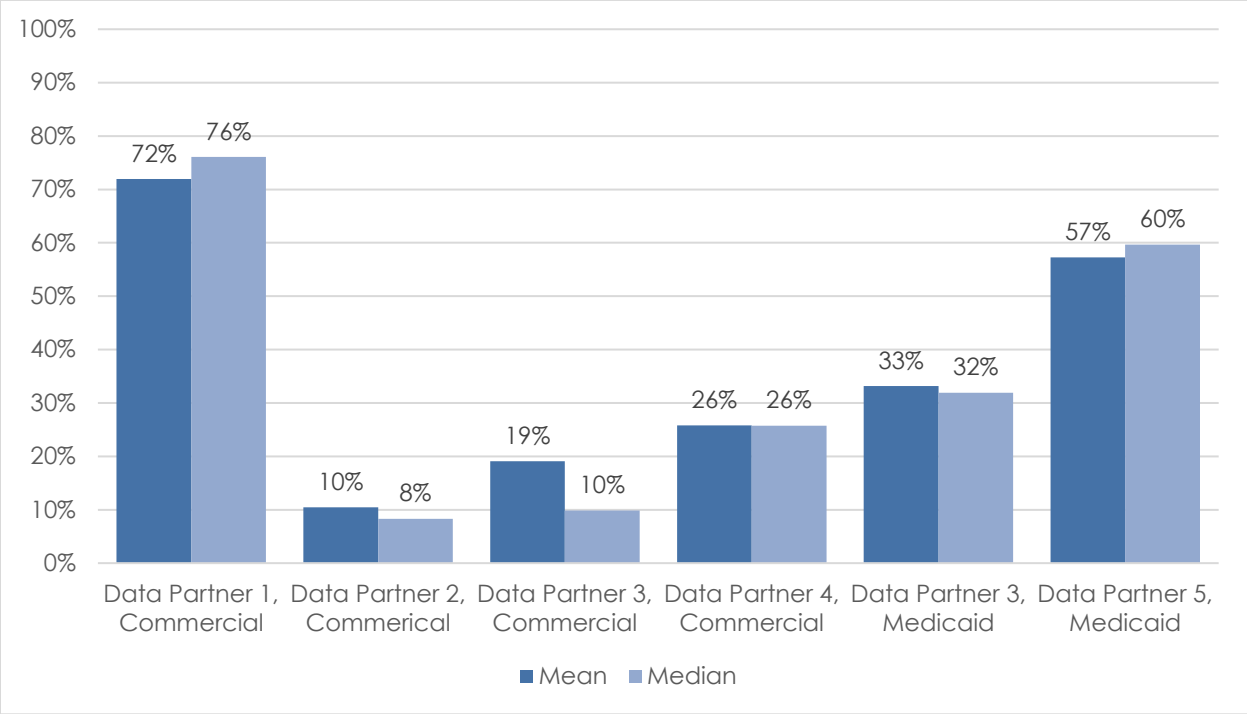
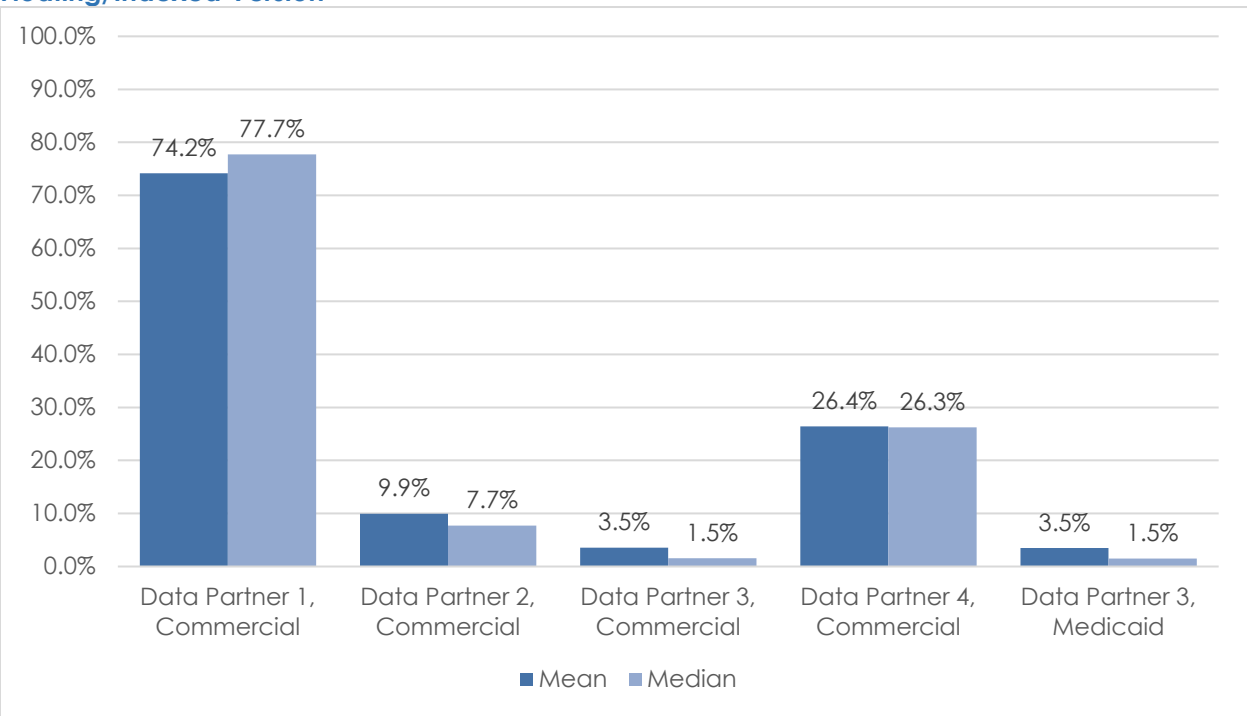


Figure A3-2. Clinician-Level Measure Score Results for Topical Fluoride for Children – Floating/Indexed Version



Data Notes:

- Data Partner 2 did not have enrollment information available. As a proxy, it required at least one dental service.
- Data Partner 3 data sources for practices and clinicians are different (should not expect a relationship).
- Data Partner 4 did not apply any enrollment criteria and used paid claims only.
- Data Partner 5 did not apply indexed enrollment (12 months form date of index oral evaluation); instead it required 24 months continuous enrollment in the reporting year and prior year. Data Partner 5 did not provide clinician-level data.

Workgroup determination: The extreme variation in measure scores, combined with implementation burden challenges, led the Workgroup to conclude that there are significant feasibility, reliability, and validity concerns with the floating/indexed version of the measure. Consequently, it determined to move forward with the calendar year version of the measure.

Calendar Year Version Testing

Attribution. Consideration was given to assigning patients to practices and clinicians based on a periodic or comprehensive oral evaluation in the six months prior to the reporting year. However, there were concerns that the patient may no longer be an active patient with the practice or clinician in the reporting year. Thus, the Workgroup determined that attribution should be based on having a comprehensive or periodic oral evaluation in the reporting year (to ensure the patient active with the practice/clinician) and having a comprehensive or periodic oral evaluation in the prior year (to ensure the patient is sufficiently established with the practice/clinician to receive the recommended care).

Grace periods. The Workgroup also evaluated incorporating a 30-day or 60-day grace period for identifying topical fluoride applications. As expected, including a grace period increased the measure scores (by approximately 10 percentage points with a 30-day grace period and 14 percentage points with a 60-day grace period). However, adding a grace period adds complexity to the measure specifications without a clear offsetting benefit. Although the measure scores increased, relative performance did not change. The ability to assess trends over time and comparisons between reporting entities is not affected by a grace period; only the absolute scores are affected. The Workgroup determined that it was appropriate to restrict the measure to a 12-month period to identify at least two topical fluoride applications in alignment with the program and plan level measure and not incorporate grace periods.