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

## **Report 5: Claims-Based Starter Set Measure *Periodontal Maintenance for Adults with Periodontitis* Interim Report for Public Comment**

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JUNE 2024

**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](mailto:dqa@ada.org) **by September 20, 2024.**

**FOR COMMENT: DO NOT REFERENCE OR CITE IN ANY MANNER  
Dental Quality Alliance®**

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## 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 fifth 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 *Periodontal Maintenance for Adults with Periodontitis* 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 *Periodontal Maintenance for Adults with Periodontitis* was derived from and designed to align with the [DQA's program- and plan-level Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis 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 the periodontal maintenance measure 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
<b>Data source</b>	Claims and enrollment data directly from administrative database	Aggregated claims submitted by multiple payers	Practice management billing data typically included on a dental claim form	All patient record data including history, findings and diagnoses
<b>Implementation example</b>	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

**Population.** Adults >=30 years

**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.** Data partners for testing included practice and clinician-level claims data from: (1) a large payer's commercial database (multiple states) and (2) a claims aggregator's large commercial database (multiple states). Testing with Medicaid claims is challenging due to significant variations in coverage for adult dental benefits with limitations in coverage for periodontal benefits.

**Time Frame.** Data from 2019 (reporting year) and 2016 through 2018 (years prior to the reporting year used to identify a history of periodontitis) were used to calculate the measure scores. Because this measure requires multiple years of data, 2019 was selected as the most recent reporting year to include in the analyses 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.

**Sample Size.** 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.<sup>1</sup> Data partners also were asked to provide data for at least 100 practices and 100 clinicians, respectively.

**Specifications.** Detailed practice- and clinician-level specifications were developed, guided by and aligned with the [DQA's program- and plan-level Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis measure specifications](#). The measure description is in Figure 1 below and the detailed specifications are in [Appendix 1](#).

**Figure 1: Periodontal Maintenance for Adults with Periodontitis Measure Description**

<p><b>Description:</b> Percentage of enrolled adults aged 30 years and older with a history of periodontitis who received a periodontal maintenance OR oral prophylaxis visit at least 2 times during the reporting year</p> <p><b>Numerator:</b> Unduplicated number of enrolled adults with a history of periodontitis who received a periodontal maintenance OR oral prophylaxis visit at least 2 times during the reporting year</p> <p><b>Denominator:</b> Unduplicated number of enrolled adults with a history of periodontitis</p> <p><b>Exclusions:</b> Adults who are completely edentulous</p> <p><b>Rate:</b> NUM/DEN</p>
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**Denominator considerations**

- **Enrollment.** Adults were required to be enrolled at least 11 of 12 months during the reporting year. One data partner did not have enrollment information to assess this requirement. As a proxy, at least one dental visit was required in the reporting year to ensure the patient was still active in the database.
- **History of periodontitis and complete edentulism.** Adults with a history of periodontitis (for inclusion in the denominator) and those who were completely edentulous (excluded from measurement) were identified using CDT procedure codes due to lack of diagnosis codes in dental claims data.
- **Attribution to practice/clinician.** Patients with periodontal disease typically see a general practitioner who conducts a comprehensive or periodic exam, which is inclusive of evaluating oral health beyond periodontal health. The general practitioner may refer the patient to a periodontist, the specialist who would specifically evaluate and document condition of the periodontium. Both the general practitioner and the specialist manage ongoing care for such a patient. The general practitioner as well as the specialist may provide dental services such as a prophylaxis, scaling and root planing or periodontal maintenance services at different periodicity schedules determined by the needs of the

## PRACTICE- AND CLINICIAN-LEVEL DENTAL QUALITY MEASURE DEVELOPMENT REPORTS

patient. Given these circumstances, it is important that all providers interacting with the patient be credited and accountable for the provision of ongoing care.

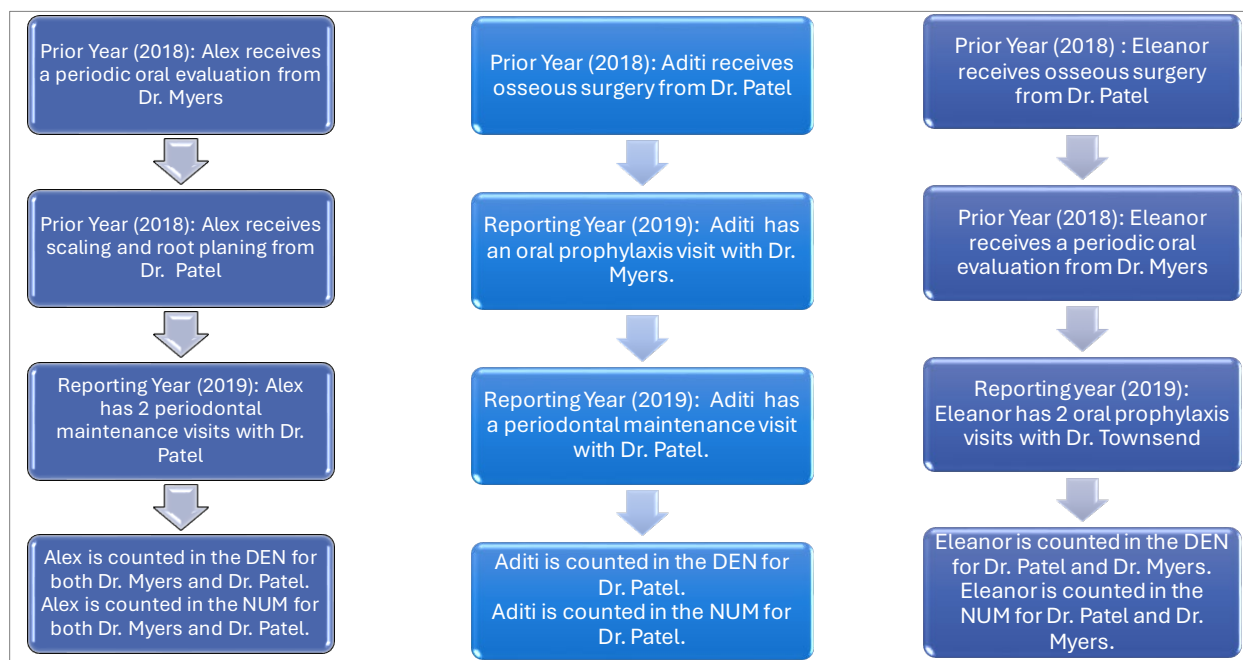
Consequently, to assign adults to a specific practice's denominator, each adult was assigned to **all practices** (identified by Taxpayer Identification Number (TIN)) that provided any "history of periodontitis" code or any periodic, comprehensive, or periodontal oral evaluation code in the year prior to the reporting year. The oral evaluation codes were used only for attribution to a practice or clinician and were not a requirement for denominator inclusion. Similarly, each adult was assigned to **all clinicians** (identified by rendering National Provider Identifier (NPI)) that provided any "history of periodontitis" code or any periodic, comprehensive, or periodontal oral evaluation code in the year prior to the reporting year. Consequently, the same adult could be present in more than one practice's denominator and more than one clinician's denominator.

### **Numerator considerations**

- To qualify for numerator inclusion, at least two visits on separate dates of service with a periodontal maintenance or an oral prophylaxis are required. **These services are counted regardless of the practice or clinician that provided the service.**

Figure 2 illustrates how patients are attributed to a practice's or clinician's denominator and numerator.

**Figure 2: Examples of Attribution of Patients to Providers**



## 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.<sup>2</sup>

Current testing focused on the feasibility of calculating the measures 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 measures 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.<sup>1</sup> 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).<sup>3,4</sup>

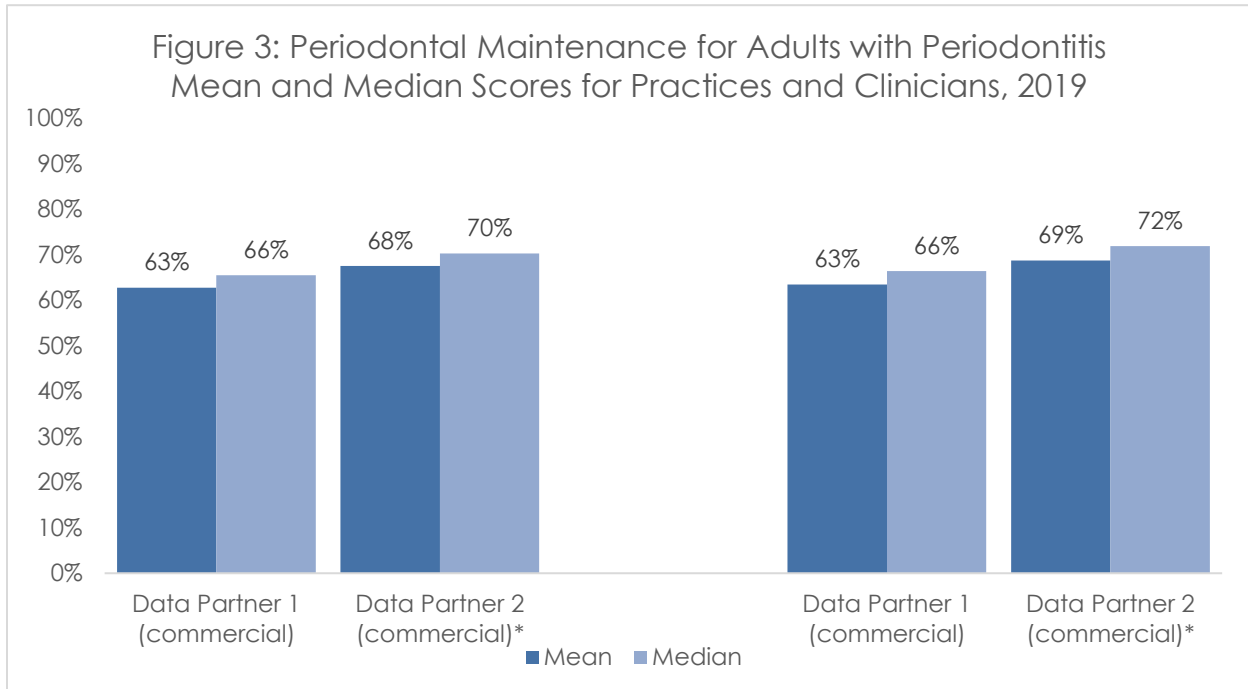
## Results

### Measure scores

Figure 3 shows the mean and median scores for each data partner across practices and clinicians. Table 2 provides more detailed measure score statistics for each of the data partners 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](#).

The mean and median measures scores for Data Partner 1 practices were 63% and 66%, respectively (Figure 2). The interquartile range (difference between the 25<sup>th</sup> and 75<sup>th</sup> percentiles) was 24 percentage points (Table 2), indicating measure dispersion, or variation in performance, between practices. The mean and median scores for Data Partner 2 were similar at 68% and 70%, respectively. The interquartile range was somewhat lower at 17 percentage points. For both data partners, the clinician-level scores and interquartile ranges were almost identical to those at the practice level.

**Figure 3. Mean and Median Measure Scores at the Practice and Clinician Levels**



**\*Note:** Data Partner 2 did not have enrollment information available. As a proxy, at least one dental visit was required in the reporting year to ensure the patient was still active in the database.

**Table 2. Practice and Clinician Measure Score Statistics**

	PRACTICE		CLINICIAN	
	Data Partner 1, Commercial (n=2,543 practices)	Data Partner 2, Commercial* (n=7,729 practices)	Data Partner 1, Commercial (n=2,402 clinicians)	Data Partner 2, Commercial* (n=7,037 clinicians)
<b>Mean</b>	0.63	0.68	0.63	0.69
<b>Standard deviation</b>	0.18	0.14	0.18	0.15
<b>Median</b>	0.66	0.70	0.66	0.72
<b>Minimum</b>	0.05	0.06	0.05	0.06
<b>Maximum</b>	0.94	0.97	0.94	0.97
<b>10th percentile</b>	0.37	0.48	0.37	0.48
<b>25th percentile</b>	0.52	0.61	0.53	0.62
<b>75th percentile</b>	0.77	0.78	0.77	0.79
<b>90th percentile</b>	0.83	0.83	0.84	0.85
<b>Interquartile range</b>	0.24	0.17	0.24	0.18

**\*Note:** Data Partner 2 did not have enrollment information available. As a proxy, at least one dental visit was required in the reporting year to ensure the patient was still active in the database.



## Additional numerator evaluation

### Number of visits required for inclusion in the numerator

An evidence review by the ADA Science and Research Institute concluded that individualized maintenance recall intervals should range between 3 and 6 months ([Appendix 3](#)). Based on the evidence, the workgroup determined that “at least 2 visits” would be an appropriate measure of performance. The workgroup additionally reviewed data on the number of visits with either an oral prophylaxis or periodontal maintenance service (Table 3). To illustrate interpretation, the sum of the percentage of patients with “exactly 2 visits” and “exactly 3 visits” and “4 or more visits” is equal to the percentage of patients who had “at least 2” visits. One-third of patients did not have at least two visits. Thus, the workgroup considered there to be a significant performance gap and opportunity for improvement with a measure of “at least 2 visits.” The workgroup also noted the similarity in results between the two data sources, as well as between the practice and clinician levels. The workgroup further noted the opportunity of not only getting patients into care that had no ongoing care services, but also moving those with just one service to at least a second visit during the year. These data reaffirmed the workgroup’s initial determination to specify the numerator to require at least 2 visits.

**Table 3. Percentage of Patients with a History of Periodontitis with D4910 or D1110 Visits in the Reporting Year, by Visit Frequency**

Periodontal Maintenance for Adults with Periodontitis, Reporting Year = CY 2019						
Measure Score (>=2 Visits)		Numerator Sensitivity Testing:				
	Rate	No visits with D4910 or D1110	Exactly 1 visit with D4910 or D1110	Exactly 2 visits with D4910 or D1110	Exactly 3 visits with D4910 or D1110	4 or more visits with D4910 or D1110
<b>PRACTICE</b>						
<b>Data Partner 1 (n=2,543)</b>						
Mean	62.7%	16.9%	20.3%	38.6%	18.3%	5.8%
Median	65.5%	14.3%	18.8%	37.7%	17.5%	2.8%
<b>Data Partner 2 (n=7,729)</b>						
Mean	67.5%	7.1%	25.3%	37.6%	22.0%	7.9%
Median	70.3%	5.3%	23.8%	37.1%	23.3%	5.8%
<b>CLINICIAN</b>						
<b>Data Partner 1 (n=8,905)</b>						
Mean	63.4%	16.2%	20.4%	39.0%	18.5%	6.0%
Median	66.4%	13.7%	18.9%	38.3%	17.7%	2.8%
<b>Data Partner 2 (n=6,925)</b>						
Mean	68.7%	6.6%	24.6%	37.9%	22.6%	8.3%
Median	71.9%	4.9%	22.8%	37.5%	24.0%	5.8%

### Service type mix

The workgroup determined that both periodontal maintenance and oral prophylaxis were appropriate procedures to be counted as part of ongoing periodontal maintenance care.<sup>5</sup> The workgroup additionally reviewed data on the service mix of patients who qualified for the numerator (Table 4). On average, 56% of patients (median=67%) had only periodontal maintenance (D4910) visits, 31% (median=16%) had only oral prophylaxis (D1110) visits, and 14% (median=9%) had a combination of both visit types. These data affirmed to the workgroup the relevance of capturing receipt of oral prophylaxis in the measure's numerator.

**Table 4. Percentage of Patients with a History of Periodontitis with D4910 or D1110 Visits in the Reporting Year, by Service Mix**

Periodontal Maintenance for Adults with Periodontitis, Reporting Year = CY 2019			
	Numerator Sensitivity Testing: Procedure Type		
	% Patients who ONLY have visits with D1110 (no visits with D4910)	% Patients who have ONLY visits with D4910 (no visits with D1110)	% Patients who have visits with both D1110 AND D4910 during the year
<b>PRACTICE</b>			
<b>Data Partner 1 (n=2,544 practices)</b>			
<b>Min</b>	0.0%	0.0%	0.0%
<b>Max</b>	100.0%	100.0%	90.1%
<b>Mean</b>	30.7%	55.5%	13.8%
<b>Median</b>	16.0%	66.7%	8.7%

### Reliability assessments

Reliability for Data Partner 1 practices with at least 100 patients in the denominator was 0.93. Reliability for Data Partner 1 clinicians with at least 100 patients in the denominator also was 0.93. 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. 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.<sup>3</sup> 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 both general practitioners and specialists (i.e., periodontists) who are caring for patients with a history of periodontitis are responsible for managing ongoing care; thus, patients with a history of periodontitis are assigned to the denominator of each practice or clinician that recently provided a periodic or comprehensive oral exam or a periodontal service. Recognizing that different providers may contribute to provision of ongoing care, the patient is counted in the numerator for having received at least two visits with an oral prophylaxis or periodontal maintenance service **regardless of which practice or clinician provided the service** (Figure 2).

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 *Periodontal Maintenance for Adults with Periodontitis* 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 *Periodontal Maintenance for Adults with Periodontitis* 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 **the importance of having all critical data elements required for the measure and following the measure specifications as written to have reliable and valid measurement that can be used for comparisons between entities and over time.**

## References

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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.
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## Appendix 1: Measure Specifications

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

#### PERIODONTAL MAINTENANCE FOR ADULTS WITH PERIODONTITIS

#### \*\*\*DRAFT DQA Measure Specification Sheet\*\*\*

<p><b>Description:</b> Percentage of enrolled adults aged 30 years and older with a history of periodontitis who received a periodontal maintenance OR oral prophylaxis visit at least 2 times during the reporting year</p> <p><b>Numerator:</b> Unduplicated number of enrolled adults with a history of periodontitis who received a periodontal maintenance OR oral prophylaxis visit at least 2 times during the reporting year</p> <p><b>Denominator:</b> Unduplicated number of enrolled adults with a history of periodontitis</p> <p><b>Exclusions:</b> Adults who are completely edentulous</p> <p><b>Rate:</b> NUM/DEN (after exclusions)</p> <p><b>Applicable reporting levels:</b> Practice and clinician</p>
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**Guiding program-plan level measure specification:** [2024 DQA Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis](#)

**Age:** Adults >=30 years

**Measuring Entity:** Payer or third party with payer claims data.

**Data Sources:** Enrollment and claims data; single year (prior 3 years needed for determination of history of periodontitis). 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

**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 due to Limitations of Claims Data:**

- Due to lack of diagnostic codes reported in dental claims, “history of periodontitis” is determined based on CDT codes.
- Since the “history of periodontitis” determination requires a periodontal treatment or maintenance visit recorded with dental procedure codes, adults who are enrolled but do not have a claim in any of the prior three years will not have sufficient information to be included in the measure.
- Identification of edentulous adults is determined based on CDT codes indicating complete dentures. Completely edentulous adults with incomplete claims data will not have sufficient information to be excluded from the measure.

While the above are limitations, the intent of this PROCESS measure is to seek to understand whether adults who can be positively identified as having a history of periodontitis receive periodontal maintenance. The denominator population is not intended to identify the universe of patients with periodontitis; rather, it is designed to identify a reliable sample for quality measurement.

**Measure Implementation Limitations using Medicaid Claims Data:**

Implementation of this measure using Medicaid claims data is challenging due to variations in adult benefits coverage generally and limited periodontal benefits specifically. Measure users should understand the extent of benefits coverage and implications for measurement in the specific Medicaid program(s) before implementing this measure. Any reporting of this measure for Medicaid programs should be accompanied by a description of adult dental benefits coverage.

**MEASURE CALCULATION**

**DENOMINATOR**

1. Check if the subject meets age criterion at the last day of the reporting year:
  - a. If subject is  $\geq 30$  years at the last day of the reporting year, then proceed to next step.
  - b. If age criterion is 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.
  - b. If subject does not meet enrollment criterion, then STOP processing. This subject is not included in the denominator.
  
3. Check if subject is eligible for exclusion from the denominator because the subject is completely edentulous based on meeting criteria in (a) below in the **reporting year or in the three years prior to the reporting year**:
  - a. Subject has complete dentures:
    - i. [CDT code] = [D5110 or D5130 or D5810 or D5410 or D5512 or D5710 or D5730 or D5750]
    - AND**
    - ii. [CDT code] = [D5120 or D5140 or D5811 or D5411 or D5511 or D5711 or D5731 or D5751]
  - b. If (a)i AND (a)ii are met, then the subject is completely edentulous; **remove** this subject from the denominator; STOP processing.
  - c. If EITHER (a)(i) OR (a)(ii) is NOT met, then proceed to the next step.
  
4. Check if subject has a history of periodontitis:
  - a. If subject has a [CDT Code] = D4240 or D4241 or D4260 or D4261 or D4341 or D4342 or D4910 in any of the three years prior to the reporting year, then include in **denominator**.
  - b. If not, then STOP processing. This subject is not included in the denominator.

**Note:** There is **no minimum enrollment criterion during the 3 years prior to the reporting year**. The identification of complete edentulism and past history of periodontitis includes a 3-year “look back” period for *available* claims. The reporting year remains a single year and is the only year during which minimum enrollment length must be verified.

## YOU NOW HAVE THE POPULATION ELIGIBLE FOR INCLUSION IN THE DENOMINATOR (DEN)

### ATTRIBUTION OF DENOMINATOR-ELIGIBLE PATIENTS TO PRACTICES & CLINICIANS

**\*\*\* Note:** Oral evaluation codes (D0120, D0150, D0180) are used only for attribution. The denominator population includes those patients with a history of periodontitis who meet the age and enrollment criteria. Only after this population is identified are oral evaluation codes used as part of the attribution logic to assign patients to practices or clinicians for measurement purposes. If a patient does NOT have an oral evaluation code, that person should be retained in the denominator-eligible population and will be attributed to practices/clinicians based on “history of periodontitis” codes.\*\*\*

5. Attribute subject to **all practices** that provided any “history of periodontitis” code or any periodic/comprehensive/periodontal oral evaluation code in the year prior to the reporting year:
  - a. Assign subject to the \*unique TIN\* associated with each practice that performed any of [CDT CODE] = [D4240 or D4241 or D4260 or D4261 or D4341 or D4342 or D4910 or D0120 OR D0150 OR D0180] during the year prior to the reporting year (>12 months AND <=24 months prior to end of reporting year).
  - b. Include in **Denominator for the practice**.
6. Attribute subject to **all clinicians** that provided any “history of periodontitis” code or any periodic/comprehensive/periodontal oral evaluation code in the year prior to the reporting year:
  - a. Assign subject to the \* unique RENDERING PROVIDER NPI\* associated with each clinician that performed any of [CDT CODE] = [D4240 or D4241 or D4260 or D4261 or D4341 or D4342 or D4910 or D0120 OR D0150 OR D0180] during the year prior to the reporting year (>12 months AND <=24 months prior to end of reporting year).
  - b. Include in **Denominator for the clinician**.

**Note:** In Steps 5 and 6, all **claims** with missing or invalid CDT CODE, missing or invalid billing provider TIN should not be included in the denominator.

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

7. Among the subjects in the practice and in the clinician denominators, respectively: check if subject received **at least 2** periodontal maintenance/oral prophylaxis visits **with any clinician or any practice during the reporting year**. There should be at least two unique dates of service when periodontal maintenance or oral prophylaxis service was provided:
  - a. If [SERVICE CODE] = D1110 OR D4910; **AND**
  - b. If [DATE OF SERVICE 1] during reporting year (<=12 months prior to end of reporting year); **AND**
  - c. If [DATE OF SERVICE 2] during reporting year (<=12 months prior to end of reporting year); **AND**
  - d. [DATE OF SERVICE 1] ≠ [DATE OF SERVICE 2], then **include in Numerator**; proceed to next step.
  - e. If the criteria in all (a) – (d) are not met, then STOP processing. This subject is already included in the denominator but is not be included in the numerator.

**Notes:**

- Visits with D4910 and D1110 services should be counted in the numerator regardless of the clinician or practice that actually provided the service.



- No more than one periodontal maintenance or oral prophylaxis service can be counted for the same member on the same date of service.

**YOU NOW HAVE THE PRACTICE-SPECIFIC AND CLINICIAN-SPECIFIC NUMERATOR (NUM)**

8. Report:

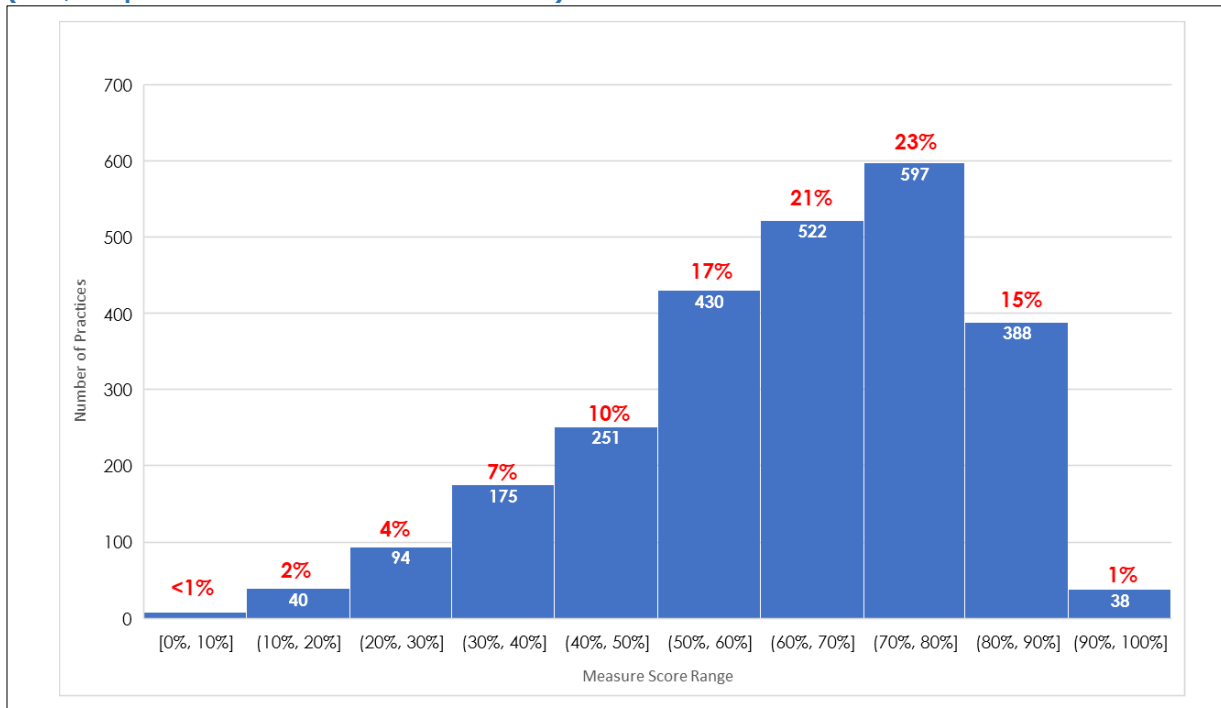
- a. Number and percent of age-eligible and enrollment-eligible patients excluded
- b. Number of patients in practice-specific and clinician-specific denominators after exclusions
- c. Number of patients in practice-specific and clinician-specific numerators
- d. Measure rate specific to each practice and to each clinician (NUM/DEN)

## Appendix 2: Practice and Clinician Level Measure Score Histograms

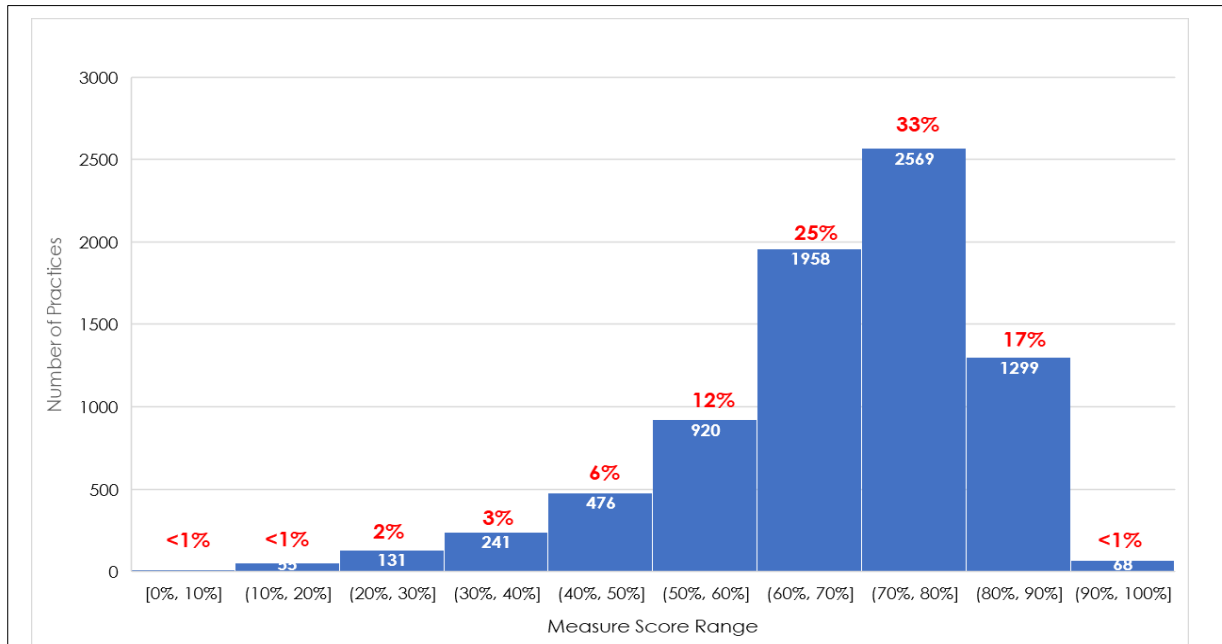
This appendix visually represents the distribution of the measure scores for each data partner at the practice and clinician levels using histograms. The horizontal axis is the same in the figures and represents the measure score ranges in 10% increments. The vertical axis is the same in the figures 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, 25% of Data Partner 1 practices had measure scores in the range of 70% to 80% (Figure A2-1).

### Practice-Level Histograms

**Figure A2-1. Practice-Level Measure Score Histogram for Data Partner 1, Commercial (n=2,543 practices with denominator >=100)**



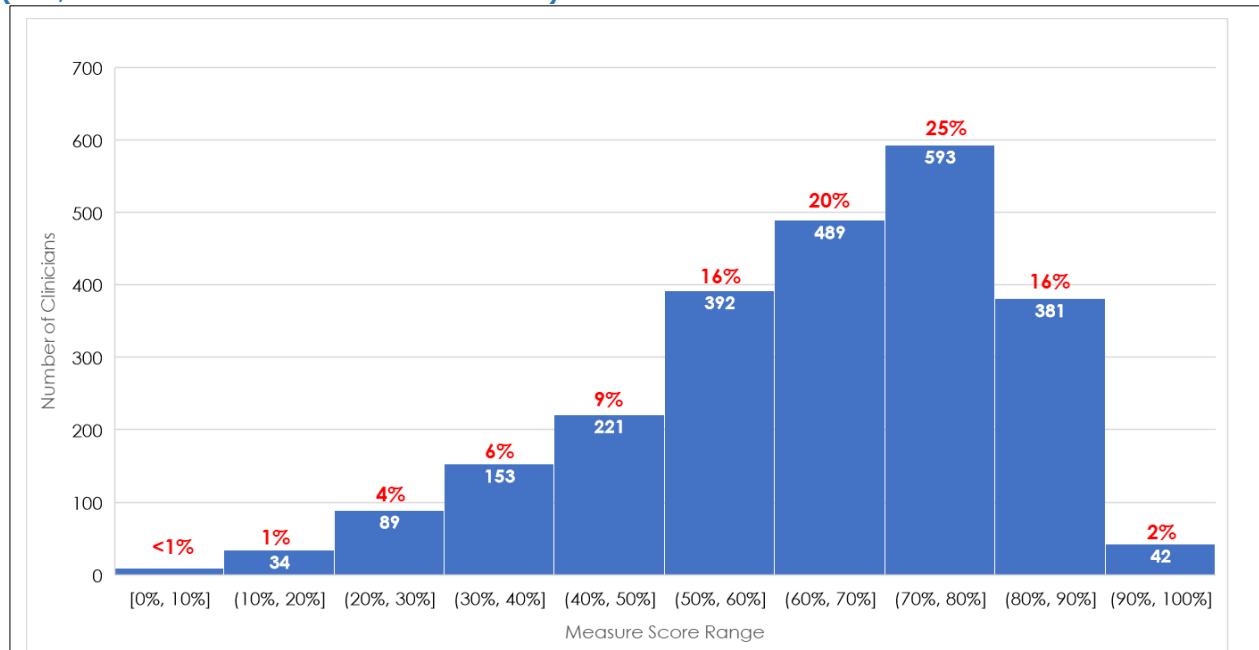
**Figure A2-2. Practice-Level Measure Score Histogram for Data Partner 2, Commercial (n=7,729 practices with denominator>=100)**



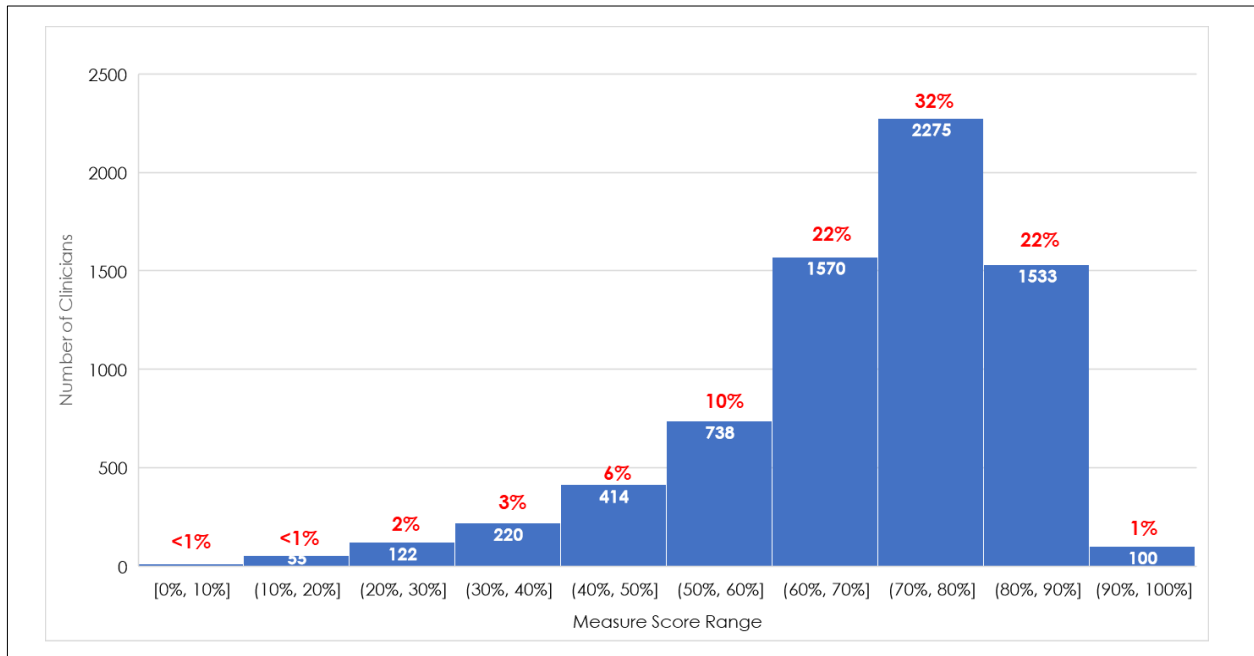
**Note:** Data Partner 2 did not have enrollment information available. As a proxy, at least one dental visit was required in the reporting year to ensure the patient was still active in the database.

## Clinician-Level Histograms

**Figure A2-3. Clinician-Level Measure Score Histogram for Data Partner 1, Commercial (n=2,402 clinicians with denominator>=100)**



**Figure A2-4. Clinician-Level Measure Score Histogram for Data Partner 2, Commercial (n=7,037 clinicians with denominator ≥ 100)**



**Note:** Data Partner 2 did not have enrollment information available. As a proxy, at least one dental visit was required in the reporting year to ensure the patient was still active in the database.

## Appendix 3: Evidence Review by ADA Science and Research Institute

### Periodontal Maintenance Recall

A systematic review of existing literature to determine the ideal time gap between visits for periodontal maintenance <sup>6</sup> indicates that the interval between 3 to 6 months is the primary outcome. Shorter periodontal maintenance intervals (3-6 months) favored more teeth retention <sup>7,8</sup>. Although the data on an ideal interval for maintaining periodontal health is inconclusive <sup>6,9</sup>, it seems reasonable to suggest that individualized maintenance intervals (ranging from 3-6 months) should be established based on the stage (I, II, III, or IV)\* and grade (A, B, or C)\*\* of the disease and the patient's systemic condition. Patients with stage I and II periodontitis who exhibit a slow to moderate rate of progression (grades A and B) may follow maintenance appointments every 6 months. However, stage III and IV periodontitis patients, smokers, diabetic patients, and those with a rapid rate of progression (grade C) should follow a shorter maintenance interval of 3-4 months. It is also vital to note that diabetic patients must maintain controlled glycemic levels, and active smokers should be encouraged to quit smoking. These steps may improve tooth survival over time, although they cannot immediately reverse the consequences of smoking <sup>9</sup>.

\* Periodontitis Stage I: Initial. Periodontitis Stage II: Moderate. Periodontitis Stage III: Severe with potential for tooth loss. Periodontitis Stage IV: Severe with potential for loss of all the teeth.

\*\* If Bone Loss/Age is between 0.25 and 1.0, the diagnosis is Grade B periodontitis. If less than 0.25, the diagnosis is Grade A periodontitis; if higher than 1.0, the diagnosis is Grade C periodontitis.

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2. Costa FO, Lages EJ, Cota LO, Lorentz TC, Soares RV, Cortelli JR. Tooth loss in individuals under periodontal maintenance therapy: 5-year prospective study. *J Periodontol Res*. Feb 2014;49(1):121-8. doi:10.1111/jre.12087
3. Checchi L, Montevicchi M, Gatto MR, Trombelli L. Retrospective study of tooth loss in 92 treated periodontal patients. *J Clin Periodontol*. Jul 2002;29(7):651-6. doi:10.1034/j.1600-051x.2002.290710.x
4. Carvalho R, Botelho J, Machado V, et al. Predictors of tooth loss during long-term periodontal maintenance: An updated systematic review. *J Clin Periodontol*. Aug 2021;48(8):1019-1036. doi:10.1111/jcpe.13488