



Improving Oral Health Through Measurement

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

Report 3: Evaluation of Redos, Retreatments, and Recementations

MARCH 2024

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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 **third** in a series of reports providing updates on measure development activities and findings. All workgroup data, findings, and conclusions were reviewed by the MDMC. The final report reflects MDMC agreement with the findings and conclusions.

Workgroup Charge

- **Resolved**, that a Workgroup reporting to MDMC be convened by the DQA Chair to explore the development of validated practice- and clinician-level quality measures using both clinical and patient-reported data; and be it further,
- **Resolved**, that the Workgroup include partners with access to data that could be used to validate any potential measures developed by the Workgroup.

Report Purpose

The purpose of this report is to **present the results of evaluating various measures under the broad provisional concept category of redos, retreatments or recementations**. The workgroup evaluated the following specific concepts:

- Percentage of Fillings/Prefabricated Crowns requiring replacement;
- Percentage of Root Canals performed requiring retreatment;
- Percentage of Inlays/Onlays requiring recementation;
- Percentage of Posts & Cores requiring recementation; and
- Percentage of Implant/Abutment Supported Crowns requiring recementation.
- Percentage of Periodontal surgeries requiring revision.

Prior Work

The first report in this series, [Report 1: Project Introduction, Delphi & Excluded Measure Concepts](#) describes the environmental scan of existing measure concepts and measures, the consensus process used to evaluate concepts, and concept classification. During this process, 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. Through

the environmental scan, measures identified as potentially implementable with claims data. Measures were classified into one of four categories:

- 1) **Excluded** concepts – no further consideration for practice/clinician based measurement;
- 2) **Roadmap** concepts – important but feasibility challenges;
- 3) **Provisional** concepts – undergoing further evaluation to better understand the evidence base and extent of performance gaps; and
- 4) **Included** concepts – will be specified and tested for a Starter Set of claims-based measures.

Provisional concepts reflected areas where the workgroup determined it needed more information to reach consensus. The second report, [Report 2: Subsequent/Advanced Procedure Following Initial Procedure](#), focused on a category of provisional concepts where a subsequent, more advanced procedure was performed after an initial procedure. Examples include: i) a crown, endodontic, or extraction procedure on a tooth that was previously restored. In its evaluation, the workgroup considered the state of existing evidence, interpretability of the measures, whether there is a performance gap, the extent to which providers versus other factors influence the outcome, measurement burden, and the risk of adverse consequences.

For the concepts related to *Advanced Procedure Following Initial Procedure*, the workgroup's overall conclusion was that the various measure concepts under the category of advanced procedures should not advance to reliability testing for development as standardized quality improvement measures that can be used to enable comparisons between entities and over time. The workgroup determined that such measures best fit in the category of measures that can be used for internal use to identify practices or providers to identify levels of practice or clinician performance that might be deemed to be statistical outliers in order to spur further investigation to understand the reasons that a practice or clinician is a statistical outlier and whether practice or clinician modifications are warranted.

Current Report Focus: Evaluation of Redos, Retreatments, and Recementations

Methods

The workgroup began by evaluating existing data. One of the data partners, which has a large database of practice- and clinician-level dental claims data, provided data from existing reports for five specific metrics related to redos, retreatments, and recementations:

- Percentage of Fillings/Prefabricated Crowns requiring replacement;
- Percentage of Root Canals performed requiring retreatment;
- Percentage of Inlays/Onlays requiring recementation;

- Percentage of Posts & Cores requiring recementation; and
- Percentage of Implant/Abutment Supported Crowns requiring recementation.

Results

The data reviewed are contained in Appendix 1. All of the related measure concepts were evaluated for a 36-month follow-up time frame. The median rates ranged from 0% to 1.63%. The measure with the highest median rate of 1.63% was Percentage of Fillings/Prefabricated Crowns Requiring Replacement, indicating that 50% of providers had rates less than 1.63%. Moreover, for this same measure, 90% of providers had rates of less than 5%. For the other four measures, 90% of providers fell below the 90th percentile threshold rates that ranged from 0% to 1.83%. The patterns observed were similar to those observed for the *Advanced Procedures* concepts described in Report 2. Although no data were provided for the specific concept of “percentage of periodontal surgeries requiring revision,” the workgroup, based on expert opinion, determined such a measure would have similar results.

Based on the low frequency of occurrence for the redo, retreatment, and recementation metrics evaluated, the workgroup determined that it was not necessary to develop detailed specifications and run additional data analyses to further evaluate these concepts.

Workgroup Conclusions

The workgroup determined that, similar to the *Advanced Procedures* concepts, the concepts of redos, retreatments, and recementations best fit in the category of measures that can be used in the identification of practices or providers with “statistical outlier” performance.

Consequently, the workgroup reached the same overall conclusions:

Identification of statistical outliers, by itself, does not provide a clear indication of performance quality without further investigation; rather, statistical outlier status warrants additional study or analysis. Causation may be related to unique variation in practitioner performance, but it may also be related to unique variation in one or more input factors, resource factors, or external factors affecting clinical processes of care.

The various measure concepts under the category of redos, retreatments and recementations should not advance to reliability testing, at this time. The DQA prioritizes development of standardized measures to enable comparison between entities and over time, for the greatest public health impact. The Workgroup believes that all of the measure concepts reviewed in this report will increase measurement burden without concomitant public health impact.

Because the workgroup recognized the value of these concepts for internal use by organizations in assuring quality, it also determined that further consideration of how measures related to statistical outlier identification could be considered within an overall quality framework.

Public Comment

A draft report was posted on the DQA website for a three-month public comment period (November 29, 2023 through February 29, 2024), with additional dissemination through email mailing lists and periodic reminders of the opportunity to comment. The DQA would like to thank all interested parties who submitted comments. Two comments were received (Appendix 2). Both agreed with the conclusions of the report. One commenter emphasized the importance of developing and implementing measures that are clearly tied to evidence and evidence-based guidelines, noted the limitations of measures that are based on claims data and limited to CDT procedure codes, and supported improved capture of diagnosis codes to advance quality measurement and improvement in dentistry. The DQA's practice- and clinician-based measurement activities are currently focused on measures that can be calculated using claims data due to their greater near-term feasibility of implementation. The next phase of work will focus on measures calculated using digital/electronic patient record data.

Appendix 1: Redos, Retreatments, and Recementations Concepts Data

Data were provided by a data partner with a large database of practice- and clinician-level dental claims data.

Measure: Percentage of Fillings/Prefabricated Crowns requiring replacement (within 36 months of initial placement)

Numerator:

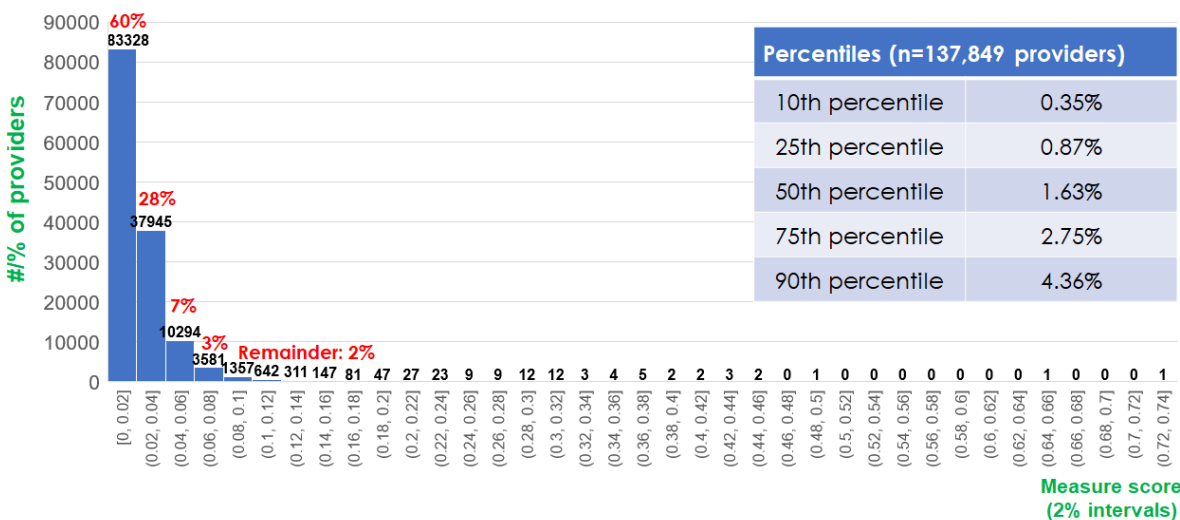
Count of unique patient/tooth/surface combinations with D21xx, D23xx, or D2929-D2934 with subsequent D21xx, D23xx, or D2929-D2934

Denominator:

Count of unique patient/tooth/surface combinations with D21xx, D23xx, od D2929-D2934

% fillings/prefabricated crowns requiring replacement (within 36 mnths)

Histogram: #/% of Providers in Measure Score Range



Measure: Percentage of Root Canals performed requiring retreatment or apicoectomies

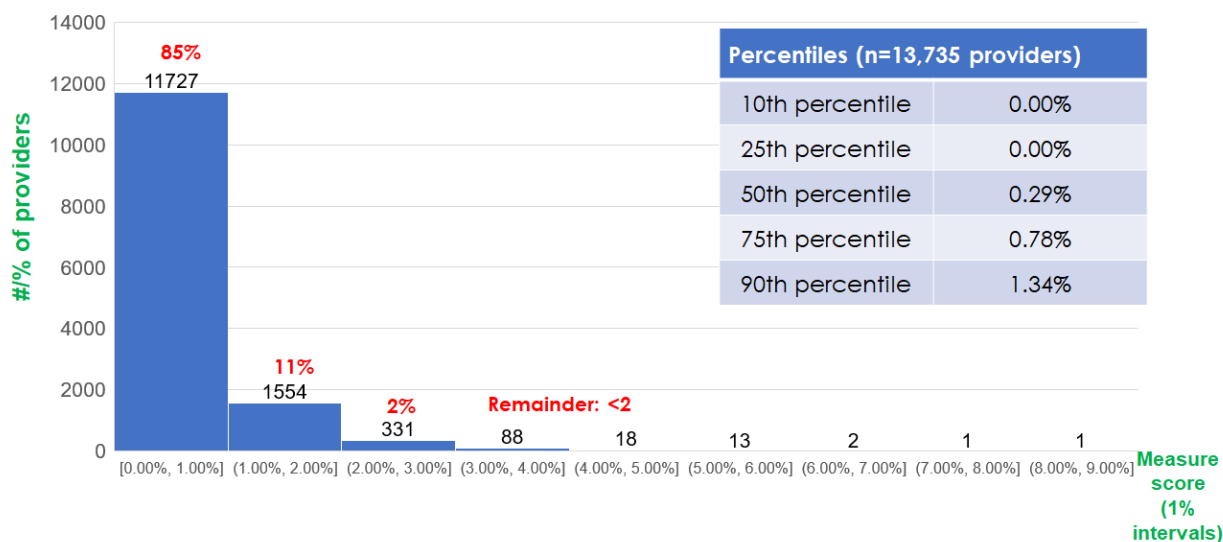
Numerator:

Count of unique patient/tooth combinations with D3310, D3320, or D3330 with subsequent D3346, D3347, D3348

Denominator:

Count of unique patient/tooth combinations with D3310, D3320, or D3330

**% of Root Canals performed requiring retreatment/apicoectomies
Histogram: #/% of Providers in Measure Score Range**



Measure: Percentage of Inlays/ Onlays requiring recementation

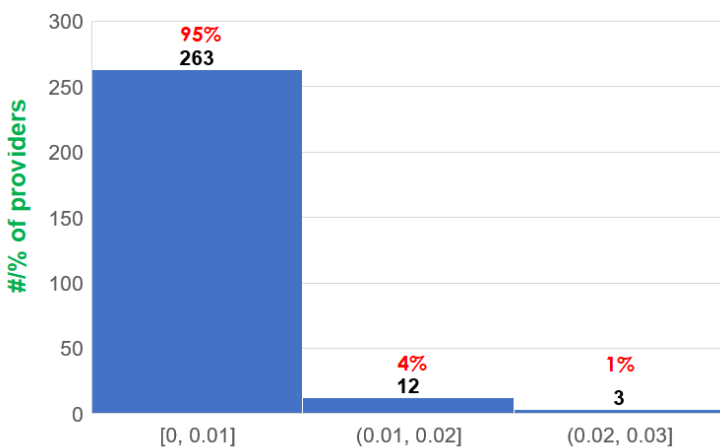
Numerator:

Count of unique patient/tooth combinations with D25xx or D26xx with subsequent D2910

Denominator:

Count of unique patient/tooth combinations with D25xx or D26xx

**% of Inlays/ Onlays requiring recementation
Histogram: #/% of Providers in Measure Score Range**



Percentiles (n=278 providers)	
10th percentile	0.00%
25th percentile	0.00%
50th percentile	0.00%
75th percentile	0.00%
90th percentile	1.83%

Measure score (1% intervals)

Measure: Percentage of Post & Cores requiring recementations

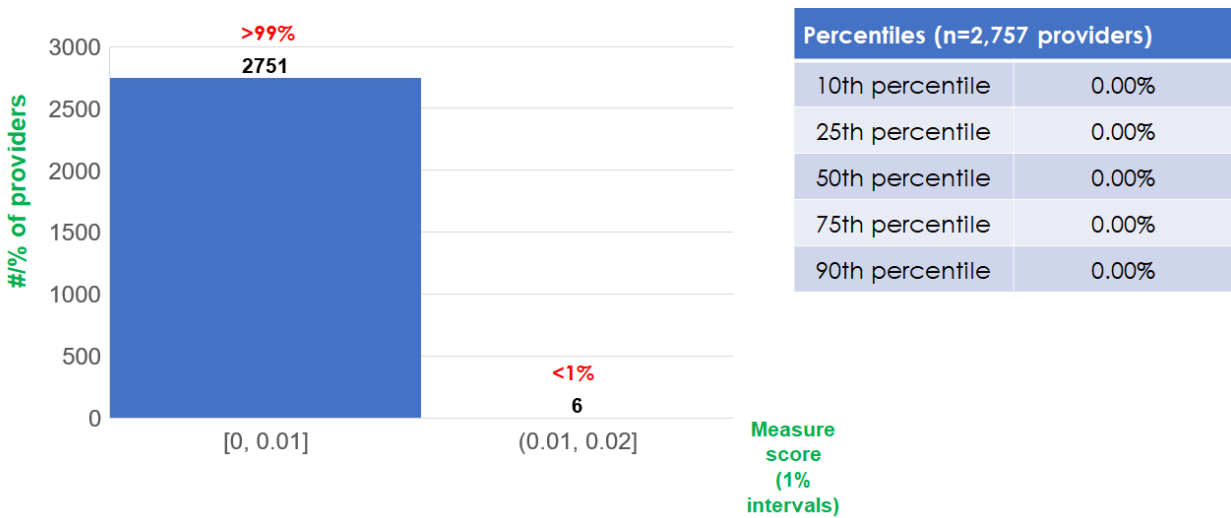
Numerator:

Count of unique patient/tooth combinations with D2952, D2953, D2954, or D2957 and subsequent D2915

Denominator:

Count of unique patient/tooth combinations with D2952, D2953, D2954, or D2957

**% of Post & Cores requiring recementations
Histogram: #/% of Providers in Measure Score Range**



Measure: Percentage of Implant/Abutment Supported Crowns requiring recementations

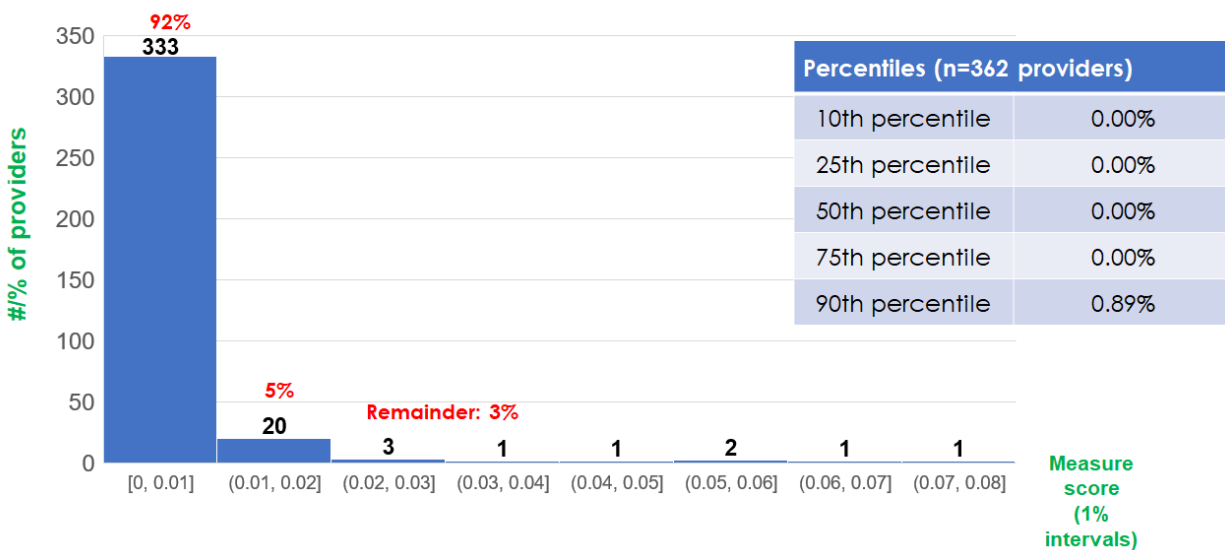
Numerator:

Count of unique patient/tooth combinations with D6058, D6059, D6060, D6061, D6062, D6063, D6064, D6065, D6066, D6067, or D6094 with subsequent D6092 or D6197

Denominator:

Count of unique patient/tooth combinations with D6058, D6059, D6060, D6061, D6062, D6063, D6064, D6065, D6066, D6067, or D6094

% of Implant/Abutment Supported Crowns requiring recementations Histogram: #/% of Providers in Measure Score Range



Appendix 2: Public Comments

COMMENT	SUBMITTED BY
<p>I agree with the conclusions of the committee.</p> <p>I would add that, depending on the data sources and assuming they are Payors, it might be statistically relevant to suggest that the original (not advanced) treatment for the tooth may not have met criteria for such a benefit if the claim was auto adjudicated and not human reviewed. This can create confounding without the use of appropriate and validated AI models.</p> <p>Another confounder might be the choice taken by the patient (advanced care) for any number of reasons...including financial etc....</p> <p>Internally, though, all of this data can be useful.</p>	<p>Stephen J. Canis DMD, CDC Chief Dental Officer Progressive Dental Concepts</p>
<p>First, NNOHA would like to thank the DQA for the scientific, thoughtful, and rigorous approach taken to evaluate these measurement concepts and their commitment to develop practice- and clinician-level dental quality measures and we are generally in support of the conclusions of the workgroup. o NNOHA agrees with the DQA's prioritization of the development of standard measures that enable comparison between entities and offer the greatest public health impact.</p> <ul style="list-style-type: none"> • NNOHA commends and supports the DQA in recognizing the differences in quality assurance and quality improvement and the need for both when discussing overall "Quality" in dentistry. • NNOHA agrees with the conclusion that while these measures may have utility for organizations engaged in internal quality assurance programs, they are not ideal for comparing an organization's performance against the results of other organizations. • NNOHA agrees that while these measures could be used to identify "statistical outliers" in performance, the measures do not provide a clear indication of performance quality. There could be several factors that influence performance, such as working with a higher risk patient population or providing a broader scope of services. These factors would need to be accounted for in the performance evaluation. • NNOHA commends the DQA in recognizing that these measures could be influenced by social determinants of health or overall risk stratification of the patient population. 	<p>National Network for Oral Health Access (NNOHA)</p> <p>- Ramona English, DMD, MPH, NNOHA Quality Committee Chair</p> <p>- Lindsay Sailor, MPH, NNOHA Quality Committee Co-Chair</p> <p>- Phillip Thompson, MS, NNOHA Executive Director</p>

NNOHA would like to make the following suggestions to the DQA in response to these reports:

- The data collection for these measures all occurred before the COVID-19 pandemic. NNOHA is curious to see if results would be different on data collected after 2021, since many patients may have been unable to receive dental care during 2020-21.
- The data for these measures is completely based on CDT codes and claims data for health centers in some states (such as California) do not contain CDT codes. Those states would not be represented in any claims data when utilizing CDT codes, which supports the adoption of diagnostic codes as an alternate methodology for tracking outcomes-based data.
- NNOHA recognizes that there is a need for an increased focus on the creation, implementation, and adoption of measures clearly tied to evidence and evidence-based practice guidelines, which more overtly drive improvements in oral health outcomes.
- Additionally, NNOHA supports the adoption and implementation of diagnostic codes as a mechanism to drive higher levels of transparency, quality, and evidence-based standardization in dentistry and within a larger healthcare context. Widespread adoption of standardized diagnostic codes could enable the field of dental quality to move beyond plan-level and delivery-based procedurally-focused measures to one that can speak more robustly of population health and quality improvement at both system and practice levels. This is an area of work for which there is significant opportunity for partnership between NNOHA and DQA.