



Improving Oral Health Through Measurement

DENTAL QUALITY ALLIANCE: STARTER SET MEASURE ANNUAL REVIEW

FINAL REPORT FROM THE MEASURE
MAINTENANCE AND DEVELOPMENT COMMITTEE
FOR PUBLIC COMMENTING

JULY 2015

Contents

Introduction and Purpose	3
Process	3
Elevated Risk:	3
Look back period	4
Inclusion of extraction codes	4
Data Quality Concerns:	4
Continuous Enrollment:	5
Dental Sealant Age 6-9 year old	8
Issues pertaining to miscoding:	9
CDT Code Update:	9
References	11
Appendix A	12
Appendix B	13
Appendix C	14
Appendix D	15
Comments Received on Starter Set	15
Appendix E	17
Comments to the Draft Report	17

Introduction and Purpose

The purpose of this report is to summarize the outcomes of the annual review of the DQA's Pediatric Dental Quality Measures Set. The measure set targets the goal of addressing Prevention and Disease Management for Dental Caries in Children ([Appendix A](#)) and addresses utilization, cost, and quality of dental services for children enrolled in public (Medicaid, CHIP) and private (commercial) insurance programs. Five measures from this set have been endorsed by the National Quality Forum (NQF) ([Appendix B](#)).

Process

In order to ensure transparency and establish proper protocols for timely assessment of the evidence and the properties of the measures, as well as, to comply with the NQF's endorsement agreement, the DQA has established an annual measure maintenance process. This measure review process is overseen by the DQA's Measure Development and Maintenance Committee (MDMC) which is comprised of six subject matter experts ([Appendix C](#)).

The process of the annual measure review entailed a call for input to consider the interests of stakeholder groups from across the healthcare industry. DQA released a call for comment to the dental community as well as to its stakeholders at large in February 2015. Following a 30 days comment period, MDMC conducted review of the comments received in March and April 2015 through conference calls. All the comments received are listed on [Appendix D](#).

Following review, the MDMC released a draft report in May that summarized its assessments of the comments. The goal of the draft report was to solicit any appeals to decisions made by the MDMC. Comment received in response to the draft report is listed in [Appendix E](#). At its last meeting on June 19th, 2015, the DQA reviewed the draft report and approved MDMC's recommendations. The DQA's MDMC would like to thank all the stakeholders that submitted comments to the measures.

Elevated Risk:

Application of “elevated risk”: There were several comments questioning the feasibility of identifying children at “elevated risk” using claims data. The MDMC notes that the evidence for topical fluoride and sealants is strongest for children at moderate to high risk for caries (1). Within the measure specifications categorization of “risk” status is possible through either the existing CDT codes (preferred primary approach) or using past history of restorations or other caries-related procedures (secondary approach). The purpose of this approach is not to precisely identify all children at elevated risk, but to identify a subset of children who can be positively identified as being at elevated risk using claims data.

Look back period: Some commenters raised concerns regarding the “look back” period (secondary approach to identify “elevated risk” by using past history of restorations) While the MDMC acknowledges the data burden this places on programs and plans, our testing confirmed the feasibility and validity of this approach. As noted, the Committee considers this a secondary approach and stresses the need to capture caries risk codes using the CDT codes going forward.

Inclusion of extraction codes: Commenters advocated the inclusion of 7000 series (extraction) codes to be an indicator of elevated risk for all DQA measures that use “elevated risk”. The MDMC requested its members from the North Carolina Medicaid Programs and Health Partners, Minnesota to look at their experiences in their datasets with the frequency of extraction codes. Based on this analysis, the MDMC noted that the majority of extractions were not related to diagnoses that are consistent with caries related lesions. For example, extractions can be prompted by trauma and orthodontic reasons in this age cohort leading to concerns about validity of including extraction codes given the lack of diagnostic codes in the claims system. Chart audits also indicated that children with extractions due to disease often have at least one additional restoration which would increase the likelihood that a child is included within the risk pool. The MDMC noted the need to formally document this result through sensitivity testing in the future.

Data Quality Concerns:

Encounter data by FQHC's: The MDMC considered upon the concerns raised by some commenters regarding data quality issues that could arise from under-reporting of dental services by facilities that are paid based on “encounters” (e.g. FQHC's) The MDMC noted that this is an issue for all measurement based on claims data and is not unique to DQA measures. Users should assure accuracy and quality of data before calculating and reporting measure scores. Although reliability of the DQA measures has been established, ultimately reliability of the measure score depends on the quality of the data that are used to calculate the measures. Flow rates (% of missing or invalid data) for these data elements must be investigated prior to measurement. Particularly for critical data elements, programs and plans should prospectively identify error thresholds – the maximum percentage of missing or invalid values that will be accepted. Following guidance from the Centers for Medicare and Medicaid services, it is recommended that data element error thresholds be set below 5%. Plans and programs should have detailed protocols in place for assessing data completeness, accuracy, and quality.

For more information on data quality concerns, please access the [DQA User Guide](#).

Continuous Enrollment:

One commenter expressed the need to align the period of eligibility used in DQA measures to be consistent with HEDIS or HEDIS-like eligibility periods. The MDMC included the HEDIS eligibility period during the testing process in addition to three other commonly used eligibility periods: a) >30 days; b) >90 days; c) >180 days; d) 365 days, allowing a single 1-month gap; and e) person-time equivalent (weighting members in the denominator by enrollment length). The research team calculated for each denominator: a) number and percentage of children eligible for inclusion; and b) measure rate (2).

Through a face validity consensus process, the MDMC elected to use a six-month continuous enrollment requirement for most measures in order to balance sufficient enrollment duration to allow children adequate time to access care with the number of children who drop out of the denominator due to stricter enrollment requirements such as HEDIS(2). The two measures with enrollment requirements different than six months are topical fluoride and per-enrollee cost. Because as many as four topical fluoride applications are indicated per year for children at elevated risk, a full-year enrollment was required combined with the number of applications per year in order to assess not only access but also intensity. The MDMC also determined that specifying the per-enrollee cost measure as a per-member-per-month (PMPM) measure would be consistent with existing cost measurement methodologies; therefore, only a single month of enrollment was required for this measure. In addition, the final measure specifications also include a 90-day continuous enrollment requirement for three measures (Utilization of Services, Oral Evaluation, and Treatment Services) to allow for historical comparisons to the CMS-416 measures.

Results from the testing process are included below:

Program 1, CY 2011

Measure Name Dental services only	Measure Number	Members enrolled "anytime" during the year (at least one month),			Members continuously enrolled for at least 90 continuous days			Members enrolled at least 6 months continuously during the year			Members continuously enrolled during the measurement year, but having a single break in enrollment of no more than 45 days			The "average period of enrollment/person-time" method		
		Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate
Utilization of services	1a	331,285	131,792	39.78%	279,909	127,727	45.63%	214,381	111,559	52.04%	139,574	80,032	57.34%	218,813	131,792	60.23%
Oral Evaluation	2a	331,285	115,170	34.76%	279,909	112,026	40.02%	214,381	98,509	45.95%	139,574	70,830	50.75%	218,813	115,170	52.63%
Prevention: Fluoride or sealants	3a	331,285	109,818	33.15%	279,909	106,961	38.21%	214,381	94,377	44.02%	139,574	68,492	49.07%	218,813	109,818	50.19%
Prevention: sealants for 6 - 9 years	4a	88,943	11,204	12.60%	74,555	10,942	14.68%	56,565	9,598	16.97%	36,147	6,859	18.98%	57,815	11,204	19.38%
Prevention: sealants for 10 - 14 years	5a	125,094	6,666	5.33%	107,542	6,531	6.07%	84,576	5,815	6.88%	57,824	4,388	7.59%	86,067	6,666	7.75%
Prevention: Topical Fluoride	6a	331,285	107,009	32.30%	279,909	104,291	37.26%	214,381	92,150	42.98%	139,574	66,998	48.00%	218,813	107,009	48.90%
Treatment	7a	331,285	52,199	15.76%	279,909	50,887	18.18%	214,381	44,934	20.96%	139,574	32,410	23.22%	218,813	52,199	23.86%
Per enrollee/user cost of clinical services	10a	331,285	25,742,541	77.705122	279,909	25,164,370	89.90197	214,381	22,389,628	104.438	139,574	16,255,256	116.4634	218,813	25,742,541	117.6465

Program 2, CY 2011

Measure Name Dental services only	Measure Number	Members enrolled "anytime" during the year (at least one month),			Members continuously enrolled for at least 90 continuous days			Members enrolled at least 6 months continuously during the year			Members continuously enrolled during the measurement year, but having a single break in enrollment of no more than 45 days			The "average period of enrollment/person-time" method		
		Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate
Utilization of services	1a	871,892	375,175	43.03%	742,770	361,755	48.70%	550,265	307,509	55.88%	288,710	186,103	64.46%	543,637	375,175	69.01%
Oral Evaluation	2a	871,892	358,027	41.06%	742,770	345,871	46.57%	550,265	295,524	53.71%	288,710	179,966	62.33%	543,637	358,027	65.86%
Prevention: Fluoride or sealants	3a	871,892	84,022	9.64%	742,770	81,674	11.00%	550,265	71,468	12.99%	288,710	46,263	16.02%	543,637	84,022	15.46%

Prevention: sealants for 6 – 9 years	4a	224,908	26,198	11.65%	190,966	25,529	13.37%	139,529	22,054	15.81%	72,563	13,565	18.69%	138,807	26,198	18.87%
Prevention: sealants for 10 – 14 years	5a	283,104	15,510	5.48%	245,901	15,196	6.18%	187,447	13,586	7.25%	105,413	9,138	8.67%	184,786	15,510	8.39%
Prevention: Topical Fluoride	6a	871,892	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Treatment	7a	871,892	170,229	19.52%	742,770	165,188	22.24%	550,265	144,121	26.19%	288,710	91,520	31.70%	543,637	170,229	31.31%
Per enrollee/user cost of clinical services	10a	871,892	100,004,638	114.698	742,770	97,238,623	130.914	550,265	85,558,833	155.486599	288,710	56,019,445	194.03362	543,637	100,004,638	183.9547762

Program 3, CY 2011

Measure Name Dental services only	Measure Number	Members enrolled "anytime" during the year (at least one month),			Members continuously enrolled for at least 90 continuous days			Members enrolled at least 6 months continuously during the year			Members continuously enrolled during the measurement year, but having a single break in enrollment of no more than 45 days.			The "average period of enrollment/person-time" method		
		Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate	Den1	Num	Rate
Utilization of services	1a	3,556,184	2,144,990	60.32%	3,325,279	2,119,834	63.75%	2,880,568	1,976,630	68.62%	2,112,189	1,581,280	74.86%	2,807,667	2,144,990	76.40%
Oral Evaluation	2a	3,556,184	2,032,828	57.16%	3,325,279	2,016,848	60.65%	2,880,568	1,891,467	65.66%	2,112,189	1,521,539	72.04%	2,807,667	2,032,828	72.40%
Prevention: Fluoride or sealants	3a	3,556,184	1,962,017	55.17%	3,325,279	1,946,700	58.54%	2,880,568	1,827,240	63.43%	2,112,189	1,473,738	69.77%	2,807,667	1,962,017	69.88%
Prevention: sealants for 6 – 9	4a	747,200	136,640	18.29%	710,635	135,722	19.10%	631,180	127,268	20.16%	485,801	103,474	21.30%	615,621	136,640	22.20%
Prevention: sealants for 10 – 14	5a	733,688	65,395	8.91%	693,709	64,876	9.35%	612,960	60,830	9.92%	471,770	49,527	10.50%	598,482	65,395	10.93%
Prevention: Topical	6a	3,556,184	1,925,072	54.13%	3,325,279	1,910,857	57.46%	2,880,568	1,796,240	62.36%	2,112,189	1,452,774	68.78%	2,807,667	1,925,072	68.56%
Treatment	7a	3,556,184	1,168,268	32.85%	3,325,279	1,152,218	34.65%	2,880,568	1,069,198	37.12%	2,112,189	849,987	40.24%	2,807,667	1,168,268	41.61%
Per enrollee/user cost of clinical services	10a	3,556,184	1,405,876,614	395.332923	3,325,279	1,391,232,692	418.3807409	2,880,568	1,300,308,895	451.407117	2,112,189	1,035,381,469	490.19357	2,807,667	1,405,876,614	500.72778

Dental Sealant Age 6-9 year old

Some commenters expressed concern regarding the age range of the dental sealant measure. Specifically they raised a concern about the broad age range with multiple years (e.g. 10 – 14 years). For example, a child in the age range of 10-14 years may receive sealants in only one or two of those years. So children who receive sealants at age 10 or 11 continue to be counted in the denominator till they are age 14, potentially lowering the measure score for the program/plan.

The MDMC noted that this issue had been addressed through several rounds of data analysis during the initial testing of the measures. To evaluate the implications of this for performance measurement, testing was conducted by identifying a sample of children who were enrolled throughout the ages of 6-9 years or 10-14 years to analyze (1) the percentage who received sealants in any of those years; and (2) among those receiving sealants, (a) the frequency distribution by age (i.e., the percentage who received sealants at 10 years, 11 years, etc.) and (b) the percentage who received sealants in only one of the years, 2 of the years, and so forth while they were within the specified age range (3). The testing results reaffirmed that the appropriate age ranges of 6-9 and 10-14 were being included (3). They also confirmed that children may receive sealants outside of the observation period. The table below depicts the data from one of the programs used to develop the age specifications for the sealant measure. To seek alignment with existing measures; guidelines to apply sealant as soon as tooth eruption and the eruption timeline/ pattern, the MDMC has recommended the two age bands of 6-9 years and 10-14 years.

Age	Total Enrolled	First Perm Molar	Second Perm Molar	Rate First Molar	Rate Second Molar
all	297257	23844	10369	8.02%	3.49%
5	12097	76	1	0.63%	0.01%
6	18538	1171	7	6.32%	0.04%
7	22846	3416	21	14.95%	0.09%
8	23899	3702	35	15.49%	0.15%
9	23664	2921	43	12.34%	0.18%
10	24696	2446	218	9.90%	0.88%
11	25140	2207	771	8.78%	3.07%
12	25001	1917	1572	7.67%	6.29%
13	25275	1742	2091	6.89%	8.27%
14	24989	1483	2018	5.93%	8.08%
15	24475	1182	1572	4.83%	6.42%
16	23597	870	1127	3.69%	4.78%
17	23040	711	893	3.09%	3.88%

In order to effectively address the concern about the broad age range for reporting the MDMC has elected to add guidance within the user guide and the following reporting guidance to the sealant specifications [Note: Similar guidance will appear in the sealant 10-14 measure]:

“Reporting Guidance for Sealant Measure”:

Programs adopting the sealant measure should note the measure purpose and limitations mentioned in the specification. To assist with interpretation and for the purposes of defining accountability standards, a more detailed review of the measure score based on the table below may be helpful to program administrators.

Age*	Enrolled at elevated risk	Enrolled at elevated risk receiving sealants in permanent first molar	Rate (%)
6			
7			
8			
9			

* Age should be calculated as following:

- 6 years= >=6 and <7
- 7 years= >=7 and <8
- 8 years= >=8 and <9
- 9 years= >=9 and <10

Issues pertaining to miscoding:

Some state programs may reimburse a single amount for a bundled set of services – e.g., D0145 used as a single code for oral evaluation, topical fluoride, and prophylaxis. The MDM Committee notes that this is an incorrect use of the CDT code and a data quality issue. For computing the measure, the code should be interpreted in line with the descriptions in the CDT manual

CDT Code Update:

The MDMC has elected to include CDT code D2941 – a new code included in the 2014 CDT in the elevated risk category.

D2941: Interim Therapeutic Restoration- primary dentition

Placement of an adhesive restorative material following caries debridement by hand or other method for the management of early childhood caries. Not considered a definitive restoration

This addition will be made to the code tables for the following measures:

1. Topical Fluoride
2. Sealants 6 – 9 years
3. Sealants 10 – 14 years
4. Preventive Services

There are no additional CDT code updates at this point.

References

1. Beauchamp J, Caufield PW, Crall JJ, et al. Evidence-based clinical recommendations for the use of pit-and-fissure sealants: a report of the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc.* Mar 2008;139(3):257-268.
2. Herndon, JB., Crall, J.J., Aravamudhan, K., Catalanotto, F. A., Hunag, I., Rudner, N., Tomar, S.L., Shenkman, E.A. Developing and testing pediatric oral healthcare quality measures. *Journal of Public Health Dentistry* . ISSN 0022-4006
3. Herndon, J. Testing Pediatric Oral Health Performance Measures in the Florida and Texas Medicaid and CHIP Programs. Final Report Submitted to the DQA. 2013
4. DQA User Guide, 2013. Access here: <http://www.ada.org/en/science-research/dental-quality-alliance/dqa-measure-activities/measure-sets>

Appendix A

Purpose	Measure	AHRQ Domain
<i>Evaluating Utilization</i>	Use of Services*	Use of Services
	Preventive Services	Use of Services
	Treatment Services	Use of Services
<i>Evaluating Quality of Care</i>	Oral Evaluation*	Access/Process
	Topical Fluoride Intensity*	Access/Process
	Sealant use in 6-9 years*	Access/Process
	Sealant use in 10-14 years*	Access/Process
	Care Continuity	Access/Process
	Usual Source of Services	Access/Process
<i>Evaluating Cost</i>	Per-Member Per-Month Cost	Cost

*NQF Endorsed

Appendix B

Utilization of Services	Description: Percentage of all enrolled children under age 21 who received at least one dental service within the reporting. Utilization of Services Specifications (PDF)
Oral Evaluation	Description: Percentage of enrolled children under age 21 who received a comprehensive or periodic oral evaluation within the reporting year. Oral Evaluation Specifications (PDF)
Sealants in 6 – 9 years	Description: Percentage of enrolled children in the age category of 6-9 years at "elevated" risk (i.e., "moderate" or "high") who received a sealant on a permanent first molar tooth within the reporting year. Sealants in 6-9 years Specifications (PDF)
Sealants in 10 – 14 years	Description: Percentage of enrolled children in the age category of 10-14 years at "elevated" risk (i.e., "moderate" or "high") who received a sealant on a permanent second molar tooth within the reporting year. Sealants in 10-14 years Specifications (PDF)
Topical Fluoride	Description: Percentage of enrolled children aged 1-21 years who are at "elevated" risk (i.e. "moderate" or "high") who received at least 2 topical fluoride applications within the reporting year. Topical Fluoride Specifications (PDF)

Appendix C

Measure Development and Maintenance Committee:

James J. Crall, DDS, ScD, American Academy of Pediatric Dentistry; Professor & Chair, Division of Public Health & Community Dentistry and Director, National Oral Health Policy Center at UCLA. Dr. Crall serves as chair for the Committee.

Craig W. Amundson, DDS, General Dentist, HealthPartners, National Association of Dental Plans

Chris Farrell, RDH, BSDH, MPA, Oral Health Program Director, Michigan Department of Community Health

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Appendix D

Comments Received on Starter Set

1. Fred Eichmiller; Delta Dental of Wisconsin. The only change I can see would be an update of the elevated risk code set for Table 1 to include the new 2014 code: D2941 interim therapeutic restoration-primary tooth.
2. Mike Shirtcliff; Advantage Dental; Oregon. I agree with each of them, and feel that there needs to be a standalone measure that measures the patient risk; low, moderate or high. Part of the reason for this is for it to be included in other disciplines health histories which could be used as an emphasis for referrals. The measure is actually for moderate to high risk that received at least 2 fluoride varnish so one is measuring the fluoride use rather than the risk which drives the treatment needed. It is interesting to note that fluoride in children who are moderate to high risk still get way too much decay and need other anti-microbial interventions to reduce the decay rate even further and there needs to be additional anti-microbial interventions to be used if brown lesions appear.
3. MCNA . The DQA measures are very new. In terms of using the measures at the state level, we would recommend that verbiage be added to allow for state specific scenarios to be taken into account. For example, in Texas Medicaid children age 6 months through 35 months receive their fluoride, prophylaxis, and oral health instructions in conjunction with their examination. This is a state supported program known as the First Dental Home Initiative. The code billed is D0145, and it is "all inclusive," meaning the reimbursement covers the prior listed services without them being billed separately or identified separately on the claim form. The Topical Fluoride Intensity measure as it is written does not allow for the D0145 code to be counted and this inadvertently creates a lower numerator in the Texas population due to the First Dental Home initiative program using the D0145 as described above. MCNA would suggest allowing additional codes to be added to the measure by state programs using the measure to account for state specific initiatives. The Topical Fluoride Intensity measure as it is written does not have to change, however, language would just be added to clarify that should a state have an alternate code that also denotes fluoride application, the measure would allow for that code to be used in addition to the codes in the measure for the purpose of utilizing the measure for that particular state.
4. MCNA. MCNA also advocates the inclusion of 7000 series codes as an indicator of elevated risk for all DQA measures that use "elevated risk" to determine the individuals who, if all other criteria are met, will comprise the denominator for the

measure. By not including a child who has had decay so severe that an extraction was warranted, we are potentially excluding some of the highest risk children from the denominator. We recognize that this may not be frequent occurrence, but to be more inclusive when reviewing the data for prior codes in history and include the addition of the 7000 series would eliminate the potential for missing a child who has only had extractions.

5. MCNA. Last, the sealant measure is also concerning in that we have a denominator based on age cohort that does not account for: children without teeth available to be sealed (they could have other restorations, crowns, or extractions); and children who have already had sealants and are not due based on appropriate periodicity (every 3 years). MCNA recognizes that not all programs capture this data, however, for plans who have member's specific data available, language should be added to allow these situations to be excluded from the denominator count for the sealant measures.
6. AAPHD. The shift from FFS to managed care models in many state Medicaid programs brings with it data quality issues, particularly the underreporting of dental services. This will likely make meaningful comparisons between FFS and managed care systems problematic.
7. AAPHD. Another data quality issues is the fact that a number of states (CA included) do not collect procedure-specific (CDT) information from FQHCs and other federally funded clinics. Thus, for those measure requiring these data, there will be underreporting. This will make it difficult to make comparisons between states on those measures, or between Medicaid and commercial plans.
8. AAPHD. Data analysis and retrieval capabilities of states are quite varied. Some of the DQA measures required analysis of several years' worth of data at the same time, which may be difficult for some state to do.
9. AAPHD. The lack of consistent period of eligibility remains problematic. Many health care quality measures in use today us HEDIS or HEDIS-like eligibility periods, most often those continuously enrolled for 12 months with no more than a one-month gap in eligibility during the year. The fact that most of the DQA measures use different eligibility periods means they are inconsistent with most other health care quality measures. We respectfully request that the DQA consider implementing consistent eligibility periods.

Appendix E

Comments to the Draft Report

The American Academy of Pediatric Dentistry (AAPD) endorses the Dental Quality Alliance's *Starter Set Measure Annual Review* report. The annual review process and report is an essential part of the maintenance of quality measures. To establish proper protocols, ensure transparency and timely assessment of the evidence and the properties of the measures- the annual measure maintenance process is required. The comment period allows all interested parties to weigh in on issues thereby refining the process and measures themselves. The review of comments by the DQA's Measure Development and Maintenance Committee, including AAPD member James Crall, supports the continuous quality improvement of the measures.