MEASURING ORAL HEALTHCARE QUALITY FOR OLDER ADULTS

DQA MEASURES DEVELOPMENT & MAINTENANCE COMMITTEE

AUGUST 2021

FOR COMMENT: DO NOT REFERENCE OR CITE IN ANY MANNER
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Purpose

The purpose of this report is to seek stakeholder feedback on an initial assessment of the current state of oral healthcare quality measures focused on adults aged 65 years or older, and to propose a potential starter set of claims-based program/plan level quality measures for this population. This effort is pursuant to a goal identified in the 2021 Dental Quality Alliance (DQA) Operating Plan:

Explore measures related to the oral health of the geriatric population

This goal supports the DQA’s stated objective to develop, maintain, and promote a core set of DQA recognized oral healthcare quality measures that address domains of quality that are consistent with the aims of the Institute of Medicine (IOM) framework – safe, effective, patient-centered, timely, efficient, and equitable.

Stakeholder feedback is critical to building a comprehensive knowledgebase on this subject. Please send your feedback to dqa@ada.org by September 8, 2021.

The DQA acknowledges the members of its Measures Development & Maintenance Committee (MDMC) that led this work.
Background

The number of retiring baby boomers is expanding. In 2018, there were approximately 59.7 million Medicare beneficiaries. The United States (U.S.) Census Bureau projects that the U.S. population, aged 65 years or older (seniors), will grow by 9 percentage points from 2016 to 2060, making it the fastest growing age group. By 2035, the number of adults over 65 years will be greater than the number of people under 18 years.

Prevalent Dental Conditions in Older Adults

According to the Centers for Disease Control and Prevention (CDC), the most prevalent oral health concerns for adults older than 65 years of age include:

- **Untreated tooth decay.** Nearly all adults (96%) aged 65 years or older have had a cavity; 1 in 5 have untreated tooth decay.

- **Gum disease.** A high percentage of older adults have gum disease. About 2 in 3 (68%) adults aged 65 years or older have gum disease.

- **Tooth loss.** Nearly 1 in 5 of adults aged 65 or older have lost all of their teeth. Complete tooth loss is twice as prevalent among adults aged 75 and older (26%) compared with adults aged 65-74 (13%).

- **Oral cancer.** Cancers of the mouth (oral and pharyngeal cancers) are primarily diagnosed in older adults; median age at diagnosis is 62 years.

**Chronic disease:** Most older adults take both prescription and over-the-counter drugs; many of these medications can cause dry mouth. Reduced saliva flow increases the risk of cavities. Further, low-income and minority seniors are more likely to have untreated caries than high-income and white seniors. During the period 2011-2014, 33.5 percent of seniors living below the poverty line had untreated caries compared to 7.0 percent of high-income seniors.

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Additionally, 39.0 percent of Mexican American and 31.1 percent of non-Hispanic Black seniors had untreated caries compared to 14.1 percent of non-Hispanic white seniors.5

Dental Coverage and Utilization of Dental Services

Approximately 37 percent of seniors have some source of dental coverage.6 About 26 percent have private dental benefits, and the remaining 11 percent have some form of public dental coverage (e.g. Medicaid, Veterans Affairs, or Tricare). Of those with private dental benefits, approximately 86 percent obtain their dental benefits via a Medicare Advantage (Medicare Part C) plan.7 The remaining 63 percent of seniors do not have dental benefits coverage, representing almost two-thirds of the older adult population.

Approximately 43.3 percent of seniors visited the dentist at least once in 2016.8 Among seniors with private dental benefits, 68.7 percent had at least one dental visit. Among those with public dental benefits, 16.1 percent visited the dentist at least once. Thirty-seven percent of seniors that do not have dental coverage, or cash-pay patients, visited the dentist at least once in 2016.

Utilization also varies by income, with high-income seniors much more likely to visit the dentist than low-income seniors. In 2016, 61.3 percent of high-income seniors9 visited the dentist compared with 24.4 percent of low-income seniors.10,11 This gap in utilization has widened over the past decade, with utilization among high-income seniors slowly increasing while low-income senior utilization remains stagnant. This disparity in utilization is reinforced when seniors are asked why they do not visit the dentist more often. Among seniors who have not visited a dentist in the past year, 69 percent of low-income seniors12 report cost as a barrier to dental care utilization, compared with 24 percent of high-income seniors.13

9 In this analysis, high-income was defined as household incomes at or above 400 percent of the federal poverty line.
10 In this analysis, low-income was defined as household incomes below the federal poverty level.
12 In this analysis, low-income was defined as household incomes below 133 percent of the federal poverty level.
Current State of Oral Healthcare Measures Focused on Older Adults

Several environmental scans of oral healthcare quality measurement have been conducted in recent years. Many of the oral healthcare quality measures identified in these scans have focused on the pediatric population, some on the adult population, and a few focused specifically on the geriatric population. The MDMC relied on these scans as a starting point in conducting its review of the current state of oral healthcare measures specified for older adults. The objectives of this effort were to:

1. Identify existing oral healthcare performance and quality measure concepts for older adults;
2. Identify a potential starter set of geriatric oral healthcare performance measures; and
3. Conduct a preliminary assessment of the current measurement infrastructure to support reporting oral healthcare quality measures for older adults.

The MDMC began its work by identifying existing oral healthcare performance and quality measure concepts (description, numerator, and denominator) on adult populations age 65 and older. Staff conducted an online search for publicly available measure concepts appropriate for this population in March 2021. This search included items within national population surveys and oral health related quality of life questionnaires, including the 2018 Health and Retirement Survey, NQF Nursing Home Performance Measures, National Oral Health Surveillance System, The Illness Perception Questionnaire Revised for Dental Use in Older/Elder Adults, and the McGill Denture Satisfaction Questionnaire.

A total of 133 oral healthcare measures that were defined for adults and older adults were included in the review during this phase of discovery. The included measures related to access to care (N=24), processes of care (N=5), and oral health status and oral health related quality of life (N=102). Many of these measures were survey and surveillance-based (N=110), administrative data based (N=4), or required electronic health records for calculation (N=3). The remaining measures (N=16) did not have a data source specified. Of the existing oral healthcare quality measures for the older adult population, several concepts were focused on long term care or nursing home residents (N=19) which in the U.S. encompasses approximately five percent of the population over the age of 65.

Information was insufficient to assess if any of these measures had been validated through appropriate testing, and information was generally lacking with respect to detailed measure specifications with numerator and denominator descriptions.

**Potential Claims-Based Program/Plan Level Core Set**

To fulfill its objective to propose a core set of measures for program and plan level assessment as a starting point, the MDMC reviewed the current DQA measures (N=19) (Appendix B) to be considered conceptually for older adults. Of these, 13 are pediatric measures and 6 are adult measures. Of the 13 pediatric measures, 3 measures address sealant receipt and are specific to pediatric populations, and 3 already have parallel adult measures (1 related to topical fluoride application and 2 related to emergency department visits). The remaining 7 measures were identified to be conceptually considered for adults and older adults. All 6 adult measures are currently specified to be reported for adults, including adults aged 65 years or older. Given this, there were a total of 13 existing DQA measures that the MDMC reviewed in terms of measure importance and feasibility for measuring quality of oral healthcare specifically for older adults. In addition, the MDMC also reviewed concepts for older adults that would keep the focus on the primary diseases of the mouth, including caries, chronic periodontitis, tooth loss, and oral cancer. These concepts were previously identified by DQA’s Adult Measures Work Group in 2013.

As a result of its review, the MDMC proposes 9 oral healthcare claims-based quality measures as a starter core set of oral healthcare quality measures for older adults. Six of these measures have validated specifications available for adults and are ready to implement for program and plan

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20 The complete set of compiled measures is available from the DQA upon request.
level assessments. The remaining three measures (Utilization of Services, Caries Risk Documentation, and Per Member Per Month Cost of Clinical Services) are currently specified and validated for the pediatric population and may be adapted for adult population with DQA’s guidance. These measures may also be stratified by age to reflect changes in oral health status and needs with advancing age.

Table 1: Potential Claims-Based Program/Plan Level Core Set

<table>
<thead>
<tr>
<th>Domain of Quality</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilization</td>
<td>Utilization of Services</td>
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<tr>
<td></td>
<td>Caries Risk Documentation</td>
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<tr>
<td></td>
<td>Periodontal Evaluation in Adults with Periodontitis</td>
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<tr>
<td>Evaluating quality of care</td>
<td>Adults with Diabetes – Oral Evaluation</td>
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<td></td>
<td>Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis</td>
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<td>Topical Fluoride for Adults at Elevated Caries Risk</td>
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<tr>
<td></td>
<td>Follow-up after Emergency Department Visits for Non-Traumatic Dental Conditions in Adults</td>
</tr>
<tr>
<td>Evaluating cost of care</td>
<td>Per Member Per Month Cost of Clinical Services</td>
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</tbody>
</table>

These validated measures would enable standardized assessment, which currently does not exist. Currently, entities that deliver oral health care or are accountable to provide oral health care may conduct their own independent assessments using different measures. The same concepts may be measured across entities, but the measures used are not specified in the same way and may not have undergone rigorous validation. These variations in measures and methodologies make it difficult to get a comprehensive and cohesive perspective of oral healthcare quality across programs and plans.

Although this proposed measure set represent a starting point to measure oral healthcare quality for older adults, the MDMC notes that more work is needed to comprehensively identify
and define concepts for measuring true population health outcomes. For example, additional concepts addressing dental caries prevention and management (e.g., root caries management and improved caries risk status), prevention and disease management of chronic periodontitis (e.g., periodontal status), oral cancer screening, oral health education/review of self-management goals, and tobacco cessation counseling, all of which are more prevalent in this age group, need further review. MDMC also notes that more information and effort is needed to understand older adults’ experience with care, their report of symptom and symptom burden, health-related quality of life, functional status, and health behaviors. Furthermore, MDMC notes, in addition to age stratification, identification of other sub-populations including those with co-morbidities may need to be further evaluated to understand their impact on the elderly’s oral healthcare needs.

Measurement Infrastructure

Quality measures that are uniformly and reliably reported are essential to establishing baseline performance, setting oral healthcare quality improvement goals, and monitoring progress toward those goals. Advancing improvements in oral healthcare quality requires measures that are important (grounded in evidence), valid, reliable, and feasible to implement. Moreover, a set of complementary measures is required in order to achieve a balanced approach that evaluates multiple aspects of care. In addition, measures should be stratified by sub-populations to identify disparities in oral healthcare quality and oral health outcomes. From a population-based perspective, better standardization and alignment of measures is needed between public and private sectors and across the community, state, and national levels. However, there are considerable challenges to achieving meaningful oral healthcare measurement, especially among older adults. These challenges include: (a) lack of data sources that are representative of the populations of interest; (b) lack of diagnostic codes and electronic data systems; (c) an insufficient evidence base to support measure importance and validity; and (c) variations in federal and state policies, benefits coverage, and payment structures.

Data Sources

Data for oral healthcare measurement is mainly obtained from administrative sources (claims and encounters), patient records/EHR systems, and surveys. The construct of measures is then dictated by the data available from each of these sources. Existing data sources are not representative of the older adult population because they are highly dependent upon benefit coverage, which is lacking and highly variable. Fewer than 40 percent of adults aged 65 years or older are covered by a dental benefit; consequently, administrative claims and enrollment data represent limited options to support this core set.
Another limited source of data includes the Minimum Data Set (MDS) for nursing home residents published by CMS. Although the MDS is a uniform instrument used to assess nursing home residents, the oral health assessments are completed by staff and are not clinical assessments by dental professionals. The primary purpose is patient assessment and care planning; there is a recognized lack of standardized assessment protocols and a need to improve clinical assessment to mitigate the under-reporting of oral health conditions. Therefore, the oral health assessment included in the MDS has validity concerns because it “does not capture information on the oral hygiene status of residents, nor data on provision of needed care following initial screening and assessment (referral/ preventive/ restorative/ surgical), which are key to performance measurement.”

Although measuring the health status of a patient based on clinical records is best predictive of quality, given the lack of standardized dental information systems to document clinical records, administrative and claims data remain the only data that can be aggregated in dentistry today.

**Current Coding and Data Infrastructure**

While measuring and reporting outcomes of care is critical, it is equally important to link outcome measures with care delivery inputs and processes that provide information to assist providers and healthcare systems to improve performance. In dentistry, a slow move towards a universally accepted diagnostic code set, reporting infrastructure, and interoperability limits the ability to assess the impact of care delivered. This is true for all populations and more specifically so for older adults. While a vast majority of dental offices are using electronic patient management systems, these are largely used for recording completed procedures and submission of electronic claims. Furthermore, lack of functional requirements on dental electronic health records that institute interoperability make data exchange between medical and dental systems challenging. As noted previously, older adults often present with co-morbidities that impact oral health. Access to medical data from an interoperable system would enable effective management of oral healthcare needs of older adults. Identification and
adjustment for the influence of these factors when measuring outcomes or results of care is crucial.\textsuperscript{25}

**Evidence**
The evidence base and clinical guideline development for oral healthcare prevention, disease management, and treatment for older adults are limited. As the demand for measures that address unique healthcare needs of this population increases, the evidence base needs to be strengthened with more well-designed, high quality studies and peer-reviewed publication on the impacts of prevention, disease management, and treatment protocols on improving health outcomes, taking into account the medical complexity of this population.

**Policies impacting benefit coverage**
Benefit coverage provides a clear path in defining a population of interest. Even though most older adults have healthcare benefits through Medicare, traditional Medicare does not cover most dental care, dental procedures, or supplies. Consequently, many older adults do not have access to basic services and supplies needed to support oral health such as cleanings, fillings, tooth extractions, dentures, and other dental devices. Limited coverage of services poses significant challenges in reliably assessing quality of oral healthcare, oral health status, and oral health outcomes for older adults.

**Future Considerations**
While this initial effort resulted in identification of many oral healthcare quality measures, there were critical gaps that challenge effective measurement of the quality of oral healthcare of older adults. MDMC notes some of these critical gaps in measurement infrastructure that are needed to comprehensively measure oral healthcare related outcomes for older adults. MDMC seeks stakeholder feedback to weigh in on measures and measurement infrastructure.
Appendix A: Measures Development and Maintenance Committee

**Measures Development and Maintenance Committee:**

Craig W. Amundson, DDS, General Dentist, HealthPartners. Dr. Amundson serves as chair for the Committee.
Frederick Eichmiller, DDS, Vice President & Science Officer, Delta Dental of Wisconsin
Chris Farrell, RDH, BSDH, MPA, Oral Health Program Director, Michigan Department of Health and Human Services
An Nguyen, DDS, MPH, Chief Dental Officer, Clinica Family Health
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Bob Russell, DDS, MPH, MPA, CPM, FACP, FICD, State Public Health Dental Director, Chief, Bureau of Oral and Health Delivery Systems, Iowa
Tim Wright, DDS, MS, Distinguished Professor, University of North Carolina School of Dentistry

**DQA Executive Committee Liaison to the MDMC:**

Cary Limberakis, DMD, ADA/ Council on Dental Practice

**DQA Leadership:**

Tom Meyers, Chair, Dental Quality Alliance
Paul Casamassimo, Chair-Elect, Dental Quality Alliance

**The Committee was supported by:**

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Jill Boylston Herndon, PhD, Methodology Consultant to the DQA; Managing Member and Principal Consultant, Key Analytics and Consulting, LLC
Diptee Ojha, BDS, PhD, Director, Dental Quality Alliance & Clinical Data Registry, American Dental Association
Erica Colangelo, Manager, Dental Quality Alliance, American Dental Association.
### Appendix B: Current DQA Program/ Plan Level Claims
#### Administrative Data-Based Quality Measures

<table>
<thead>
<tr>
<th>Population</th>
<th>Measure Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric</td>
<td>Utilization of Services</td>
<td>Percentage of all children under age 21 who received at least one dental service within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Preventive Services for Children at Elevated Caries Risk</td>
<td>Percentage of all children who are at “elevated” risk (i.e., “moderate” or “high”) who received a topical fluoride application and/or sealants within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Treatment Services</td>
<td>Percentage of all children who received a treatment service within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Caries Risk Documentation</td>
<td>Percentage of children under age 21 years who have caries risk documented in the reporting year</td>
</tr>
<tr>
<td></td>
<td>Oral Evaluation</td>
<td>Percentage of children under age 21 who received a comprehensive or periodic oral evaluation within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Topical Fluoride for Children at Elevated Caries Risk</td>
<td>Percentage of 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</td>
</tr>
<tr>
<td></td>
<td>Sealant Receipt on Permanent 1st Molar</td>
<td>Percentage of enrolled children who have ever received sealants on a permanent first molar tooth: (1) at least one sealant and (2) all four molars sealed by 10th birthdate</td>
</tr>
<tr>
<td></td>
<td>Sealant Receipt on Permanent 2nd Molar</td>
<td>Percentage of enrolled children who have ever received sealants on a permanent second molar tooth: (1) at least one sealant and (2) all four molars sealed by the 15th birthdate</td>
</tr>
<tr>
<td></td>
<td>Care Continuity</td>
<td>Percentage of all children enrolled in two consecutive years who received a comprehensive or periodic oral evaluation in both years</td>
</tr>
<tr>
<td></td>
<td>Usual Source of Services</td>
<td>Percentage of all children enrolled in two consecutive years who visited the same practice or clinical entity in both years</td>
</tr>
<tr>
<td></td>
<td>Ambulatory Care Sensitive Emergency Department Visits for Dental Caries in Children</td>
<td>Number of emergency department visits for caries-related reasons per 100,000 member months for all children</td>
</tr>
<tr>
<td></td>
<td>Follow-Up after Emergency Department Visits for Dental Caries in Children</td>
<td>Percentage of ambulatory care sensitive Emergency Department (ED) visits for dental caries among children 0–20 years in the reporting period for which the member visited a dentist within (a) 7 days and (b) 30 days of the ED visit</td>
</tr>
<tr>
<td></td>
<td>Per Member Per Month Cost of Clinical Services</td>
<td>Total amount that is paid on direct provision of care (reimbursed for clinical services) per member per month for all children during the reporting year</td>
</tr>
<tr>
<td>Adults</td>
<td>Periodontal Evaluation in Adults with Periodontitis</td>
<td>Percentage of enrolled adults aged 30 years and older with history of periodontitis who received a comprehensive or periodic oral evaluation or a comprehensive periodontal evaluation within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis</td>
<td>Percentage of enrolled adults aged 30 years and older with a history of periodontitis who received an oral prophylaxis OR scaling/root planing OR periodontal maintenance visit at least 2 times within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Topical Fluoride for Adults at Elevated Caries Risk</td>
<td>Percentage of enrolled adults aged 18 years and older who are at “elevated” risk (i.e., “moderate” or “high”) who received at least 2 topical fluoride applications within the reporting year</td>
</tr>
<tr>
<td></td>
<td>Ambulatory Care Sensitive Emergency Department Visits for Non-Traumatic Dental Conditions in Adults</td>
<td>Number of emergency department (ED) visits for ambulatory care sensitive dental conditions per 100,000 member months for enrolled adults</td>
</tr>
<tr>
<td>Follow-up after Emergency Department Visits for Non-Traumatic Dental Conditions in Adults</td>
<td>The percentage of ambulatory care sensitive dental condition emergency department visits among adults aged 18 years and older in the reporting period for which the member visited a dentist within (a) 7 days and (b) 30 days of the ED visit</td>
<td></td>
</tr>
<tr>
<td>Adults with Diabetes – Oral Evaluation</td>
<td>Percentage of enrolled adults with diabetes who received a comprehensive or periodic oral evaluation or a comprehensive periodontal evaluation within the reporting year</td>
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