MEASURING ORAL HEALTHCARE QUALITY FOR OLDER ADULTS

FINAL REPORT

NOVEMBER 2021

Contents

Purpose

The purpose of this report is to present 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- or 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 six aims for the health care system, proposed by the Institute of Medicine (IOM). The six aims are that the health care system should be: safe, effective, patient-centered, timely, efficient, and equitable.[1]

A draft report summarizing an initial assessment on this topic was published for public comment. Stakeholder feedback has been critical to DQA's processes. This report incorporates that feedback. **The DQA appreciates each and every piece of stakeholder feedback it received in response to the call for public comment to its draft report.**

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

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[1] The Institute of Medicine Committee on Quality of Health Care in America. Crossing the quality chasm: A new health system for the 21st century. Washington, DC: National Academies Press (US); 2001.

Background

The number of retiring baby boomers is expanding. In 2021, there were approximately 63.6 million Medicare beneficiaries, up from approximately 61.5 million in 2019.[2] 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. This makes 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.[3]

Prevalent Dental Conditions in Older Adults

Poor oral health during old age mostly manifests in high caries experience, high prevalence rates of advanced periodontal disease, severe tooth loss, dry mouth, and oral pre-cancer or cancer.[4] 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 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.[5]

Older adults are more likely to take both prescription and over-the-counter drugs. Many of these medications can cause dry mouth. Reduced saliva flow increases the risk of cavities. The interrelationship between oral health and general health is particularly pronounced among

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[2] Centers for Medicare & Medicaid Services. CMS Fast Facts. November 2021. Office of Enterprise Data & Analytics, Office of the Actuary. Available from: https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/cms-fast-facts/index.html. Accessed December 6, 2021.

[3] United States Census. An Aging Nation: Projected Number of Children and Older Adults. March 13, 2018. Available from: https://www.census.gov/library/visualizations/2018/comm/historic-first.html. Accessed August 3, 2021.

[4] Petersen PE, Ogawa H. Promoting Oral Health and Quality of Life of Older People - The Need for Public Health Action. Oral Health Prev Dent. 2018;16(2):113-124. doi: 10.3290/j.ohpd.a40309. PMID: 29736489.

[5] Centers for Disease Control and Prevention. Older Adult Oral Health. Available from: https://www.cdc.gov/oralhealth/basics/adult-oral-health/adult_older.htm. Accessed August 3, 2021.

older people. [6],[7] Further, research indicates that oral health status is associated with frailty in older adults,[8] which should be an important consideration in clinical care for this population.[9]

Poor oral health is also correlated with socio-economic factors. Low-income and minority seniors are more likely to have untreated caries-related lesions than high-income and white seniors. During the period 2011-2014, 33.5 percent of seniors living below the poverty line had untreated caries-related lesions, compared to 7.0 percent of high-income seniors.[10] Additionally, 39.0 percent of Mexican American and 31.1 percent of non-Hispanic Black seniors had untreated caries-related lesions compared to 14.1 percent of non-Hispanic white seniors.[11]

Dental Coverage and Utilization of Dental Services

Approximately 37 percent of seniors have some source of dental coverage.[12] About 26 percent have private dental coverage. 11 percent have some form of public dental coverage (e.g., Medicaid, Veterans Affairs, or Tricare). The remaining 63 percent of seniors do not have dental coverage, representing almost two-thirds of the older adult population. Of those with private dental benefits, approximately 86 percent obtain their dental benefits via a Medicare Advantage (Medicare Part C) plan.[13]

According to the American Dental Association Health Policy Institute, 3.3 percent of seniors visited the dentist at least once in 2016.[14] Among seniors with private dental coverage, 68.7 percent had at least one dental visit. Among those with public dental coverage, 16.1 percent

[6] Rohr-Inglehart M, Bagramian RA. Oral HealthRelated Quality of Life. Chicago, IL, USA: Quintessence; 2002.

[7] Petersen PE, No¨rtov B. General and dental health in relation to lifestyle and social network activity among 67-year-old Danes. Scand J Prim Health Care 1989;7:225–30

[8] Hakeem FF, Bernabe E, Sabbah W: Association between oral health and frailty: A systematic review of longitudinal studies. Gerodontology 2019, 36(3):205–215.

[9] Ramsay SE, Papachristou E, Watt RG, Tsakos G, Lennon LT, Papacosta AO, Moynihan P, Sayer AA, Whincup PH, Wannamethee SG: Influence of Poor Oral Health on Physical Frailty: A Population-Based Cohort Study of Older British Men. J Am Geriatr Soc 2018, 66(3):473–479

[10] ADA Health Policy Institute. Available from: ADA.org: HPI Oral Health and Well-being Among Seniors in the United States. Accessed December 6, 2021.

[11] ADA Health Policy Institute. June 2017. Available from: ADA.org: HPI Infographic – Racial Disparities in Untreated Caries Narrowing for Children. Accessed December 6, 2021.

[12] ADA Health Policy Institute analysis of Medical Expenditure Panel Survey, 2016. Available from: Microsoft Word - HPI Research Brief - Dental Care Utilization Steady Among Working-Age Adults and Children, Up Slightly Among t (ada.org). Accessed December 6, 2021

[13] ADA Health Policy Institute analysis of Medical Expenditure Panel Survey, 2016 and Kaiser Family Foundation data, 2019. Available from: https://www.kff.org/medicare/issue-brief/the-facts-on-medicare-spending-and-financing/. Accessed August 3, 2021.

[14] ADA Health Policy Institute. Annual Dental Industry Report 2019. American Dental Association. February 2019.

visited the dentist at least once. Thirty-seven percent of seniors that do not have dental coverage 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 seniors[15] visited the dentist compared with 24.4 percent of low-income seniors.[16,17] This gap in utilization has widened over the past decade, with utilization among high-income seniors slowly increasing while low-income senior utilization remains constant. The contribution of economics to 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 seniors[18] report cost as a barrier to dental care utilization, compared with 24 percent of high-income seniors.[19]

Current State of Oral Healthcare Measures Focused on Older Adults

Several environmental scans of oral healthcare quality measurement have been conducted in recent years.[20,21,22,23,24] Many of the oral healthcare quality measures identified in these scans have focused on the pediatric population, some on adults, and a few focused specifically on older adults. The MDMC used these scans, as a starting point, to conduct 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 oral healthcare performance measures specified for older adults.

3. Conduct a preliminary assessment of the current measurement infrastructure, which is necessary to support reporting oral healthcare quality measures for older adults.

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[15] In this analysis, high-income was defined as household incomes at or above 400 percent of the federal poverty line.

[16] In this analysis, low-income was defined as household incomes below the federal poverty level.

[17] ADA Health Policy Institute. Annual Dental Industry Report 2019. American Dental Association. February 2019.

[18] In this analysis, low-income was defined as household incomes below 133 percent of the federal poverty level.

[19] ADA Health Policy Institute. Oral Health and Well-Being in the United States. September 2016. Available from: us-oral-health-well-being.pdf (ada.org). Accessed December 6, 2021.

[20] Dental Quality Alliance. Pediatric Oral Health Quality and Performance Measures: Environmental Scan. 2012; Accessed December 6, 2021.

[21] Dental Quality Alliance. Practice Based Measures: Environmental Scan. 2015; Accessed December 6, 2021.

[22] Center for Oral Health Systems Integration and Improvement. Environmental Scan of Oral Healthcare Quality Indicators for Maternal and Child Health Population. 2018; https://www.mchoralhealth.org/cohsii/indicators/environmental-scan.php. Accessed August 3, 2021.

[23] Patient-Centered Dental Home: Clearinghouse of Existing Oral Health Quality Indicators. 2021. https://ppc.uiowa.edu/pcdh/indicators/clearinghouse

[24] Dental Quality Alliance Environmental Scan of Patient Reported Oral Healthcare Measurement. 2020. Accessed December 6, 2021.

In addition to these environmental scans, an online search was conducted to identify publicly available measure concepts appropriate for the older adult population that were not included in the referenced scans.

The MDMC began its work by identifying existing oral healthcare performance and quality measure concepts (description, numerator, and denominator) for adults aged 65 and older. A total of 133 oral healthcare related measures that were defined for adults and older adults were included in the review during this phase of information gathering.[25] 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). The 133 measures included survey and surveillance-based measures (N=110), administrative data-based measures (N= 4), and measures requiring 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 represent approximately five percent of the population over the age of 65 in the U.S.

For most measures, information was insufficient to assess if the measures had been validated through appropriate testing. Information was generally lacking with respect to detailed measure specifications, including numerator and denominator descriptions.

Potential Claims-Based Program/Plan Level Core Set

Assessment of programs and plans that provide oral health care for older adults, using standardized, validated oral healthcare quality measures, currently does not exist. Entities that deliver oral health care, or are accountable to provide oral health care, to older adults may conduct their own independent assessments using a variety of measures. Similar concepts may be used for these independent assessments, but the measures used are not specified in the same way and may not have undergone rigorous validation. These variations in measure calculation and measurement methodology make it difficult to gain a comprehensive and cohesive perspective of oral healthcare quality across programs and plans.

As a starting point, to fulfill its objective of proposing a core set of measures for program- and plan-level assessment, the MDMC reviewed the current DQA measures (N=19) (Appendix B). The initial intent was to determine if existing DQA measures could be considered conceptually as

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[25] The complete set of compiled measures is available from the DQA upon request.

measures for older adults. Of these nineteen measures, thirteen are pediatric measures and six are adult measures. The MDMC concluded that the six measures currently specified to be reported for adults, including adults aged 65 years or older, were appropriate to include in a core set for older adults. Of the thirteen pediatric measures, three measures address sealant receipt and are specific to pediatric populations. Three pediatric measures have equivalent adult measures. These include one related to topical fluoride application and two measures related to emergency department visits. The MDMC concluded that the measurement concepts represented by the remaining seven pediatric measures were appropriate to consider for adults and older adults.

Given this, there were a total of thirteen existing DQA measures that the MDMC reviewed to determine 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, periodontitis and oral cancer. These concepts were previously identified by DQA's Adult Measures Work Group in 2013.[26]

Proposed Core Set

Based on its review, the MDMC proposes nine oral healthcare quality measures, calculated using administrative and claims data, 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 level assessment and reporting. 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. All measures include stratifications by age, enabling identification of changes in oral health status and needs with advancing age.

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[26] DQA Adult Measures Work Group. Research Agenda Recommendations. 2013. Available from the DQA upon request.

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

POTENTIAL CLAIMS-BASED PROGRAM/ PLAN LEVEL CORE SET IDENTIFIED BY THE MDMC	
Domain of Quality	**Measures**
Utilization	Utilization of Services
	Caries Risk Documentation
	Periodontal Evaluation in Adults with Periodontitis
Evaluating quality of care	Adults with Diabetes – Oral Evaluation
	Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis
	Topical Fluoride for Adults at Elevated Caries Risk
	Ambulatory Care Sensitive Emergency Department Visits for Non-Traumatic Dental Conditions in Adults
	Follow-up after Emergency Department Visits for Non-Traumatic Dental Conditions in Adults
Evaluating cost of care	Per Member Per Month Cost of Clinical Services

There was some feedback received in response to the call for public comment on measures included in the proposed core set. The comments were variable in nature. Some questioned the need for inclusion of specific proposed measures (e.g., Per Member Per Month Cost). Revisions were suggested for the existing specifications for measures in the proposed core set (e.g., Non-Surgical Ongoing Care for Periodontitis).

The MDMC appreciates the thoughtful feedback from stakeholders supporting this activity. The MDMC discussed these comments in detail and notes that, unless required to specifically address measurement issues with the older adult population, revisions to existing, validated measure specifications are beyond the scope of this activity and report. The MDMC also notes that given the dearth of validated measures, and the need to measure oral healthcare quality for older adults, the proposed core set should be considered as a starting point. It will provide an initial set of valid, reliable and feasible measures. The core set is not intended to be a comprehensive indicator of oral healthcare quality for older adults. The committee emphasizes that more work is needed to comprehensively identify and define concepts for measuring true population health outcomes.

Additional Concepts Under Consideration

A commenter suggested that it is critical we measure "access (utilization), prevention (prophylaxis, exams), and stability (avoidance and resolution of acute conditions of pain/infection)." While some of these domains have been addressed through the proposed core set, the MDMC notes that concepts addressing maintenance of health, disease and risk status (e.g., caries management and improved caries risk status, periodontal status), treatment outcomes (failing restorations), and additional preventive services, such as oral cancer screening, need further review. A significant number of comments received confirmed the MDMC's conclusion that in addition to age stratification, identification of other sub-populations, including those with co-morbidities, need to be further evaluated to truly address the oral health status and healthcare needs of older adults.

1. Oral-Systemic health linkages:

    As noted by one commenter, "older adults are at a higher risk for chronic systemic diseases that are not as prevalent in younger adults and thus are not frequently measured in younger counterparts". Co-morbidities and chronic conditions (e.g., cerebrovascular disease (CVD), chronic obstructive pulmonary disease (COPD), cancer, cognitive decline, physical and sensory limitations, obstructive sleep apnea, frailty, hypertension) not only have a direct relationship with oral health status but also "affect a person's functional abilities, cognitive abilities or quality of life, which increase the risk of oral disease", and influence the "ability to perform self-care and to access dental care". Similarly, polypharmacy is common for older adults and is associated with poor oral health status.[27] Although there is one measure addressing diabetes in the proposed core set, it is critical to define measures, or refine measure specifications, that are attentive to other common chronic conditions.

2. Outcomes focused:

    As noted above, many of the measures (and concepts) that have been defined and specified for assessing oral healthcare quality of older adults focus on utilization of services, access to care, and processes of care. Measuring outcomes of oral health care using currently available clinical record data, or administrative and claims data, is

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[27] Nakamura J, Kitagaki K, Ueda Y, Nishio E, Shibatsuji T, Uchihashi Y, Adachi R, Ono R. Impact of polypharmacy on oral health status in elderly patients admitted to the recovery and rehabilitation ward. Geriatr Gerontol Int. 2021 Jan;21(1):66-70. doi: 10.1111/ggi.14104. Epub 2020 Dec 6. PMID: 33280240.

challenging. The MDMC notes that more information and effort is needed to understand older adults' experience with care, their report of symptoms and symptom burden, and their health-related quality of life, functional status, and health behaviors.

3. Education:

The MDMC notes that oral health education, review of self-management goals, tobacco cessation counseling, and oral health management in relation to overall health are critical components to ensuring better health outcomes. Currently, the MDMC found very little reference to these concepts and emphasizes the need for more thorough evidence to guide the development of measures addressing these areas.

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 and significant for making gains in healthcare quality), 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 as well as across the community, state, and nation. However, there are considerable challenges to achieving meaningful oral healthcare quality measurement, especially among older adults. These challenges include: (a) a lack of data sources that are representative of the populations of interest; (b) a lack of diagnostic codes and electronic data systems; (c) an insufficient evidence base to support measure importance and validity; and (d) variations in federal and state policies, benefits coverage, and payment structures. Comments received in response to the draft report affirmed these challenges and the need for system-level improvement to address the infrastructure required to build a comprehensive core set of measures focused on older adults.

Data Sources

Data for oral healthcare measurement are mainly obtained from administrative, claims and encounter sources, 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 highly dependent upon benefit coverage. Coverage for older adults is lacking or highly variable,

resulting in data sources that are likely not representative of the older adult population. Fewer than 40 percent of adults aged 65 years or older are covered by a dental benefit plan. Consequently, measures that rely on administrative claims data will not capture data related to a large percentage of the older adult population. Thus, additional data sources need to be explored.

Another limited source of data includes the Minimum Data Set (MDS) for nursing home residents published by the Centers for Medicare and Medicaid Services (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.[28] 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."[29] Although electronic health records present unique opportunities to identify gaps in quality of care in as close to real time as possible, the ability to use patient record data for oral healthcare quality measurement is currently limited by lack of standardized documentation and lack of integration and interoperability between systems.   Consequently, administrative and claims data remain the primary data that can currently be aggregated for measurement purposes.

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 in order to provide information to assist providers and healthcare systems to improve performance.**Error! Bookmark not defined.** 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.[30] This is true for all populations and more specifically so for older adults.

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[28] Key Issues in Long-Term Services and Supports Quality. Kaiser Family Foundation. Available at: https://www.kff.org/medicaid/issue-brief/key-issues-in-long-term-services-and-supports-quality/. Accessed July 23, 2021.
[29] Hoben M, Poss JW, Norton PG, Estabrooks CA. Oral/dental items in the resident assessment instrument - Minimum Data Set 2.0 lack validity: results of a retrospective, longitudinal validation study. *Popul Health Metr*. 2016;14:36. Published 2016 Oct 21. doi:10.1186/s12963-016-0108-y
[30] DQA Environmental Scan on Pediatric Quality Measures. 2012. Accessed December 6, 2021.

Furthermore, the lack of standardized functional requirements for interoperability in dental electronic health record systems make data exchange between medical and dental systems challenging. As noted previously, older adults often present with co-morbidities and are on poly-pharmacy formulations that impact oral health. Access to medical data in an interoperable system would enable effective management of oral healthcare needs of older adults. Identification, understanding and adjustment for the influence of these factors when measuring outcomes or results of care is important.**Error! Bookmark not defined.**

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, taking into account the medical complexity of this population.

Policies impacting benefit coverage

Benefit coverage provides a clear path to define a population of interest. Even though some older adults have oral 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, including 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.

Concluding Remarks

The intent of this report is to present the current state of measurement specifically focused on older adults. The negative impact of poor oral conditions on the quality of life of older adults is an important public health issue.[31] Moreover, given that older adults are likely to present with co-morbidities and polypharmacy, including medications that directly impact their oral health, comprehensive measurement of quality of oral health care becomes complicated. The intent of

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[31] Petersen PE, Yamamoto T. Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. Community Dent Oral Epidemiol 2005; 33: 81–92. Blackwell Munksgaard, 2005 Available from: https://www.who.int/oral_health/publications/orh_cdoe05_vol33.pdf

this report is also to present a starter core set of measures that allow for standardized assessment of programs and plans using administrative and claims data.

The MDMC identifies the following major challenges that limit the ability to engage in meaningful oral healthcare performance measurement, and that require action at the system level to spur the needed change for older adults:

- Although older adults constitute a growing segment of the population whose oral healthcare needs are magnified and complicated by co-morbidities and chronic conditions, there is a dearth of data to assess oral healthcare gaps and disparities affecting this population.

- Administrative and claims data, which are available in a standardized format and at relatively low cost, are an incomplete source of data for older adults because the majority of older adults do not have dental benefit coverage.

- Electronic health record data may enable practice level assessments among those practices that have the infrastructure to collect and report patient record data electronically. However, lack of standardization and interoperability makes it difficult to make comparisons or establish benchmarks across systems. It reduces the feasibility to aggregate measurement to broader populations.

- Older adults are likely to have co-morbidities and chronic conditions that are related to oral health status and the ability to access care, engage in self-care and follow through with recommended care. There is a critical need to be able to systematically and consistently identify both dental and medical diagnoses in order to provide comprehensive coordinated care that meets the needs of the whole person. Although standardized, structured diagnostic coding systems exist, their implementation and use is very limited. Incentives or drivers for widespread adoption within the healthcare system are lacking.

The MDMC emphasizes the challenges identified in this report require system-level action in order to effectively measure the quality of oral healthcare of older adults so that the system can move toward improved access, care quality and outcomes. To that effect, the MDMC strongly urges the stakeholder community to be the drivers of these changes:

1. Call for standardized reporting of measurement across delivery systems, to enable consistent assessments of oral healthcare quality across care settings and populations.

2. Push for routine and standardized capture of diagnostic codes in electronic health record and claims-based data systems to enable identification of both dental and

medical conditions to support care planning, treatment, interprofessional care coordination, and outcomes-based quality measurement.

Appendix A: Measures Development and Maintenance Committee

Measures Development and Maintenance Committee:

Craig W. Amundson, DDS, Senior Dental Advisor, HealthPartners. Dr. Amundson serves as chair for the Committee.

Frederick Eichmiller, DDS, Vice President & Science Officer Emeritus, Delta Dental of Wisconsin

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An Nguyen, DDS, MPH, Chief Dental Officer, Clinica Family Health

Chris Okunseri, B.D.S., M.Sc., Director, Predoctoral Program, Dental Public Health, Marquette University

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The Committee was supported by:

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Appendix B: Current DQA Program/ Plan Level Claims Administrative Data-Based Quality Measures

Population	Measure Name	Description
Pediatric	Utilization of Services	Percentage of all children under age 21 who received at least one dental service within the reporting year
	Preventive Services for Children at Elevated Caries Risk	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
	Treatment Services	Percentage of all children who received a treatment service within the reporting year
	Caries Risk Documentation	Percentage of children under age 21 years who have caries risk documented in the reporting year
	Oral Evaluation	Percentage of children under age 21 who received a comprehensive or periodic oral evaluation within the reporting year
	Topical Fluoride for Children at Elevated Caries Risk	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
	Sealant Receipt on Permanent 1st Molar	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
	Sealant Receipt on Permanent 2nd Molar	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
	Care Continuity	Percentage of all children enrolled in two consecutive years who received a comprehensive or periodic oral evaluation in both years
	Usual Source of Services	Percentage of all children enrolled in two consecutive years who visited the same practice or clinical entity in both years
	Ambulatory Care Sensitive Emergency Department Visits for Dental Caries in Children	Number of emergency department visits for caries-related reasons per 100,000 member months for all children
	Follow-Up after Emergency Department Visits for Dental Caries in Children	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
	Per Member Per Month Cost of Clinical Services	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
Adults	Periodontal Evaluation in Adults with Periodontitis	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
	Non-Surgical Ongoing Periodontal Care for Adults with Periodontitis	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

	Topical Fluoride for Adults at Elevated Caries Risk	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
	Ambulatory Care Sensitive Emergency Department Visits for Non-Traumatic Dental Conditions in Adults	Number of emergency department (ED) visits for ambulatory care sensitive dental conditions per 100,000 member months for enrolled adults
	Follow-up after Emergency Department Visits for Non-Traumatic Dental Conditions in Adults	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
	Adults with Diabetes – Oral Evaluation	Percentage of enrolled adults with diabetes who received a comprehensive or periodic oral evaluation or a comprehensive periodontal evaluation within the reporting year

Appendix C: Public Comments Received On Draft Report "Measuring Oral Healthcare Quality for Older Adults"

MEASURE	COMMENT	SUBMITTED BY
Ongoing Care Measure	The ongoing care measure isn't effective the current way it is written. It doesn't measure periodontal maintenance since S&RP is active treatment. It also does not measure periodontal patients who require further definitive treatment, since only S&RP is included when all active treatment codes would be included if this is the intent, and D4910 or D1110 should not be part of active treatment. There should be a measure for how many patients who have had active treatment continue with maintenance (D4910 or D1110). This would be a valuable measure at all levels. A second measure could than address the question "How many periodontal patients who have had active therapy in the past, both surgical and non-surgical (S&RP), require definitive treatment again?" A measure for both non-surgical and surgical therapies could be separated into two different categories if needed.	American Academy of Periodontology
Nursing Home Performance Measures	The AGD has concerns regarding the inclusion of *the Nursing Home Performance Measures* as it relates to dental quality measures. Most of these assessments are done by untrained non-dental personnel. These would lack credibility when compared to senior dental assessments/exams obtained in a dental setting with trained dental health care providers. Moreover, dental data obtained from pediatric hospitals may not have the same reliability compared to dental claims data when developing quality measures for that group.	Dr. Bruce Cassis, D.D.S., MAGD, President 2020-2021 Academy of General Dentistry
Evaluating Cost of Care Per Member Per Month Cost of Clinical Services	Under the heading: "Potential Claims-Based Program/Plan Level Core Set Identified by the MDMC, the "Domain of Quality" *Evaluating Cost of Care Per Member Per Month Cost of Clinical Services,"* the AGD questions whether this is truly a quality measure that can and should be evaluated. Adult populations are diverse in their needs and the question becomes what "members" of which "plans" are being measured? Given plan coverage variations as well as differences in state and federal policies, any diagnostic data resulting from such a survey would be considered flawed. The AGD questions both the validity and the need for this. Furthermore, the cost of clinical care per member per month as a measurement of flexible rebates in Medicare Advantage plans may not directly impact dental reimbursement or quality measures.	
Periodontal Evaluation in Adults with Periodontitis	This measure is limited to people with pre-existing periodontitis. The Committee could also consider measuring how many older adults with a periodic oral evaluation or a comprehensive periodontal evaluation are also receiving a new diagnosis of periodontitis.	Phillip Thompson, MS Executive Director Dr. An Nguyen, DDS, MPH Quality Committee Chair

	As is the case for many outcomes-based measures in dentistry, NNOHA recommends the use of diagnostic codes whenever possible, and measuring older adult outcomes related to periodontitis is a particular area where this is applicable.	National Network for Oral Health Access (NNOHA)
Adults with Diabetes – Oral Evaluation	Many federally qualified health centers would be interested in this measure, but it may not be applicable or feasible in settings without integrated medical and dental systems or integrated data sets.	
Topical Fluoride for Adults at Elevated Caries Risk	Promotion of this measure could help expand reimbursement for topical fluoride, which is an evidence-based practice for patients with caries risk	
MEASURE CONCEPTS TO LINK ORAL CARE TO CHRONIC, CO-MORBID DISEASES	**COMMENT**	**SUBMITTED BY**
	We agree with and approve the proposed core set of claims-based measures. We understand why you started with existing validated measures developed for the pediatric and adult population as a reference to develop the core set of claims-based measures for the geriatric population. Older adults are at a higher risk for chronic systemic diseases that are not as prevalent in younger adults and thus are not frequently measured in younger counterparts. Many of these chronic conditions can affect a person's functional abilities, cognitive abilities or quality of life, which increase their risk of oral disease, ability to perform self-care, and ability to access dental care. We would encourage the addition of future claims-based measures to target these at risk individuals. These individuals may include, but are not limited to older adults who have dementia, heart disease, cerebrovascular disease, arthritis, cancer, Parkinson's disease and diabetes. We believe some of your proposed core measures could easily be adapted to include patients with these conditions. **Example #1:** Adults with Cerebrovascular Disease – Oral Evaluation. The percentage of enrolled adults with cerebrovascular disease who received a comprehensive or periodic oral evaluation within the reporting year. **Example #2:** Adults with Dementia – Preventive Services. The percentage of older adults with dementia who received a prophy, scaling or root planning, cleaning in the presence of gingival inflammation, periodontal maintenance, or topical fluoride application with in the reporting year. With the growing importance of interprofessional collaboration between care providers and the effect of oral health on a patient's general health, these measures which link oral care to chronic disease can be useful measurements to track the oral healthcare services of older adults at high risk of oral diseases.	The Council of Geriatric Dentistry Special Care Dentistry Association

	In the future I would encourage measures that target older adults with co morbidities that impact oral health. Integrating oral health and the **4 major non-communicable diseases (cardiovascular disease, diabetes, cancer, COPD)** is an essential component of health and wellness in older adults since they share multiple risk factors and inflammatory processes. **Example** would be the % of older adults with dementia that are diagnosed with aspirational pneumonia (as an indicator of high oral bacteria levels/poor oral health)	Karin V. Arsenault, DMD, MPH Clinical Director, Geriatric Center Program Department of Public Health and Community Service
	Chronic diseases/combination medications –While medications are the primary cause of **hyposalivation**, and that it affects about 20-33% of older adults. Single medications sometimes cause dry mouth, but generally it is a combination of medications used for chronic diseases. With the advancement of EHRs, it will be useful to know what common medications combinations are having the greatest impact on hyposalivation, thus providing an opportunity to collaborate with medical professionals to modify medication management when possible.	Janet Yellowitz, DMD, MPH Director, Special Care Clinic University of Maryland School of Dentistry Member, ADA National Elder Care Advisory Committee
	Obstructive Sleep Apnea should be included on page 3. This is a very significant oral health condition that has considerable bearing on other oral conditions (perio, etc.) and on chronic diseases (diabetes, CVD, hypertension, etc.). We need to be measuring the incidence and severity of OSA in 2021 and beyond. **Obesity**. I see verbiage about diabetes which is a great addition but obesity can and should be measured: height and weight allows computation of BMI which is a very significant co factor in oral and chronic systemic diseases. I'll bet Dr. Cassamasimo will take action on this once he is aboard. Measure Development Challenges - I have a very difficult time understanding your "measures", "numerators" and "denominators" despite taking webinars with your teachers and studying the website. Are they truly of any value? They seem focused on large, insurance based practices...most of the dentistry done in the USA is still in small, privately owned practices. You are not playing to the current audience.	Dr. Joseph R Greenberg, DMD FAGD FCPP
ORAL HEALTH OUTCOMES	**COMMENT**	**SUBMITTED BY**
	What is most important for the older adults we treat is **access** (utilization), **prevention** (prophylaxis, exams), and **stability** (avoidance and resolution of acute conditions of pain/infection). 1. The Smith 2005 study I've attached demonstrates how to **operationalize oral health stability** in institutionalized elders (no new treatment needs at a recall exams following initial treatment identified at initial exam).	Dr. Lyubov Slashcheva, DDS, MS, FABSCD, DABDPH Dentist, AppleTree Dental Research Collaborator, Mayo Clinic Member, ADA National Elder Care Advisory Committee

ORAL HEALTH STABILITY

ARTICLE

ABSTRACT

The purpose of this study was to determine whether oral health stability was achievable over time for institutionalized elderly who routinely received comprehensive care and to examine the factors associated with stability. Records of 868 dentate nursing home residents, each with a minimum of 24 months continuous care, were analyzed to determine the number of services by type for each time period between periodic examinations. Presenting dental condition, age, gender, functional status, payer source and facility characteristics were tested as explanatory variables. Oral health status was considered *stable* when a resident had a "good checkup" (needing no further treatment), otherwise it was coded as *unstable*. Generalized estimating equations (GEE) were used to analyze predictors of stability over time. Stability over time was achieved in 44% of the study group and negatively associated with male gender, advanced age, and more initial treatment needs. The data show that high levels of initial unmet needs were associated with difficulty achieving oral health stability for institutionalized elderly who routinely received comprehensive care.

KEY WORDS: geriatric dentistry, long-term care, utilization, stability

What predicts oral health stabili in a long-term care population?

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Introduction

Research on the oral health status of nursing home residents has been sectional, providing slice-of-time portraits of a population with complex health needs. [...] discussing the 1995 U.S. National Nursing Home [...] that only 15 percent of the residents were described as having excellent oral health. Dolan and Atchison describe frail and functionally dependent having significant dental needs and experiencing greater barriers to receiving care than Independent elders. Low utilization of dental services by residents has been attributed to barriers to care, such as dental care costs, transportation to and from the dental office. Longitudinal studies described determined dental need and subsequent service utilization in nursing [...] care. Health services research reporting utilization in nursing home populations is also scarce and limited by small sample [...] knowledge gaps are significant, since demographic trends point to growth in those aged 85 and older, the people most likely to require long term care. Furthermore, the past three decades have shown a decreasing proportion [...] subjects in each subsequent cohort of elderly, which means that substantial [...] the risk for oral disease and the need for services to treat that need.

Planning for the service needs of an increasingly complex and growing population of nursing home residents requires the assessment of oral health needs, utilization, and outcomes. To that end, this study was undertaken to establish whether the desirable outcome of oral health stability, defined as requiring only diagnostic or preventive services at periodic examination, could be achieved in nursing home residents and maintained over time in an environment free of some of the common access barriers. Since stability was used as a measure of oral health status, factors reported to be associated with oral health in general, such as age, functional status and payer source were included in the analysis as potential explanatory variables. Presenting dental conditions, specifically number of teeth present at examination and number of services at the initial treatment included as potentially dental caries. In addition, each previously identified as [...] health status in nursing [...] size and proprietary status included.

Methods

Sources of data

Dental records of nursing home residents were obtained from Dental (ATD), a nonprofit practice that provides dental services to nursing home residents through the use of mobile dental

Predicting oral health stability i

2. [A heartening economic evaluation study](#) showing a decline in cost over time for older adults enrolled in the particular dental home model of Apple Tree Dental (ATD). In our collaborative research with the West Health Institute on that recent study, we did some preliminary work towards creating an "index" to depict the severity of disease ("burden of oral disease") that compiles information about missing teeth, teeth/gums treated for disease, etc. That collaboration with West Health Institute also explored the concept of "Oral Health Functional Status" that represents an individual's move past simply treatment rendered **to patient-centered measures of the impact that oral disease experience and oral functionality have on quality of life**. Both of these may be difficult to extract from treatment/claims data, but perhaps some of the recommendations in the DQA report could be aspirational in nature as we increasingly have access to both claims and clinical record data.

In this vein, our Scandinavian peers have tried to make use of [both claims and clinical data](#) to determine oral health outcomes. Recent discussions, recognizing that the fee-for-service model may become obsolete in favor of value-based-care delivery, have proposed a [standard set of patient-centered outcomes](#) to describe oral health outcomes.

	1. Caries/decay – is it possible to identify the extent of disease treated? ie) number of services treated? Preventive efforts (SDF),	Janet Yellowitz, DMD, MPH Director, Special Care Clinic University of Maryland School of Dentistry Member, ADA National Elder Care Advisory Committee
	2. Periodontal disease – As periodontal disease has been redefined by the AAP – are these standards reflected in the guidelines of data collection - I understand this is difficult, and certainly not definitive, it may be possible to identify the type of disease based on the number or kinds of treatment provided. At a minimum it may be a place to start.	
	3. Identifying the edentulous population could be useful to help identify 'when' in one's adult life the process of edentulism occurs. Some adults become edentulous early in life, many have difficulty wearing complete dentures, while others are edentulated at later years. Is it possible to identify the dental utilization patterns of adults both prior to and following the loss of all teeth? We suspect that older adults lose all of their teeth due to years of neglect, however, I do not believe we "know" this.	
	4. Oral cancer – it would be useful to identify in what type of practice the lesion is diagnosed and treated. Many elders seek care from ENT providers, not dentists, when they suspect something is going on in their mouths. Helping to identify this information could help address oral health literacy (a component determining utilization).	
	5. Dental insurance – how are utilization patterns different in older adults with/without dental insurance. While most elders do not have dental insurance – Medicare Advantage programs have been including it at various levels of care. What is the impact of this change in policy? What is the range and type of coverages provided by Medicare Advantage	

DATA/MEASUREMENT INFRASTRUCTURE	COMMENT	SUBMITTED BY
	In the objectives listed under the in heading of "Current State of Oral Healthcare Measures Focused on Older Adults," number 3 states: "*Conduct a preliminary assessment of the current measurement infrastructure to support reporting oral healthcare quality measures for older adults.*" The AGD seeks to clarify the purpose of the assessment of the measurement infrastructure. This explanation will provide us with a clearer picture of the committee's direction. Under that same heading, prior surveys deemed "*appropriate for this population in March 2021*" are named. Among the citations listed, some include **data too old to be considered relevant**: • The NQF Nursing Home Performance Measures - published in 2004. • National Oral Health Surveillance System The page leading to "Adult Indicators" was last updated in 2015. Under "Teeth Cleaning" the page states: "*Please note: Data for this indicator*	Dr. Bruce Cassis, D.D.S., MAGD, President 2020-2021 Academy of General Dentistry

	is not available for years after 2010." Further, the source links listed for National Oral Health Surveillance System all lead to broken links (*Error 522*). And finally, under *Policies Impacting Benefit Coverage,* the Academy of General Dentistry supports the intent to design quality measures for older adults that lead to improvement in a dental office setting. However as stated earlier, the AGD questions the application of any unsupported or unreliable data in the development of those, or any other, quality measures for older adults. The Academy of General Dentistry believes the goal is to assist the provider in the assessment of outcomes for the purpose of continued improvement in patient care delivery.	
	Diagnostic Codes - The report discusses the fact that there are no diagnostic codes, which does create a huge problem. When they are integrated into an EDR, they would help stratify the types of periodontal disease and the treatment applied to each, which would also help establish treatment guidelines. **EHR Interoperability -** A bigger problem currently is the lack of interoperability for EHR. This affects periodontal disease to a great extent since so many systemic diseases are associated with a higher risk of periodontal disease. Even with diabetes, there are few claims systems or carriers that link medical with dental, so providers who treat periodontal disease have no way of indicating that diabetes is present through dental claims systems. This area of important measurement is severely lacking. **Age Group -** The age group that is included in the current measures (over 30) would skew the measures if, as stated in the opening section of the report, the measures should be focusing on the geriatric population. Adding those between the ages of 30-50 or 30-60 would prevent a true picture of the current status of not only periodontal disease but also the resulting treatment. The percentage of disease and treatment in the 30-50 age group is far less than those above 50. Not only are the numbers and percentages affected, but the type of treatment would also be different in most cases which would affect the outcomes. If the DQA wants to consider adults as a whole, then that should be anyone over the age that was established in the pediatric measure (i.e., 21). If the DQA wants a true picture of the health of the geriatric population, then that should focus on an older age group- perhaps 55+. If the DQA wants to look at periodontal health measures, then that might even be a different age- possibly 50? The specific age groups should be able to be determined from the literature.	American Academy of Periodontology
	NNOHA recommends **standardizing definitions and criteria for this age-based population**. This standardization can also serve to create focus and drive outcomes for a defined population, for which there is increasingly more evidence that there is significant opportunity to improve quality of care. 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. This is particularly important for older adults, where dental outcomes can be particularly mediated and impacted by chronic medical conditions. This is an area of work for which there is significant opportunity for partnership between NNOHA and DQA.	Phillip Thompson, MS Executive Director Dr. An Nguyen, DDS, MPH Quality Committee Chair National Network for Oral Health Access (NNOHA)

IN SUPPORT/FURTHER REVIEW/ADDITIONAL CONSIDERATIONS	COMMENT	SUBMITTED BY
	NNOHA would like the Committee to **consider quality measures for older adults with applicability that is more widespread**. Many of the proposed measures are applicable to specific settings, like hospitals and academic centers	
	I believe this is a good start, realizing the limited data sets and sources for data accumulation. I would support such an endeavor as written.	Dr. Stephen J. Canis, DMD, CDC Chief Dental Officer Progressive Dental Concepts
	The aspect I'd like to address is the preventive/educational aspect. The majority of oral/dental problems can be avoided with proper daily oral hygiene and food management. It's just that simple! The report certainly comments on these issues at the top of page 8. It advises: "For example, additional concepts addressing dental caries prevention and management....oral health education/review of self-management goals...need further review". So, I'd just advise it's critical that those aspects get "further review" so they can be measured as well.	Dr. Michael Reed, DDS Mobile Dental Care Member, ADA National Elder Care Advisory Committee

	Based on the Potential claims based program/plan level core set identified by MDMC,
	Please consider:
	  A. Adults with hypertension (as it is the #1 chronic condition). If blood pressure readings are documented, this would be another measure of quality of care provided.
	  B. Adults with heart diseases (another major chronic condition)
	  C. Adults with artificial joints – (while guidelines have been established for antibiotic premedication usage – there is a wide discrepancy is following these guidelines – and it is unclear why this occurs) – Subsequent joint infection information would be useful as well.
	  D. Topical fluoride is often provided to patients not at elevated caries risk – and 'should' be measured. Including SDF for caries management and caries prevention. (new guideline)
	  E. Utilization of adults 50 years and older who received at least one dental service within past year. (include type of service provided, and date of last dental visit for individual)
	  F. Treatment Services – (as identified for children)
	  G. Caries risk documentation – (as identified for children)
	  H. Oral evaluation - (as identified for children)
	  I. Care continuity - (as identified for children)
	  J. Usual source of services - (as identified for children)
		Janet Yellowitz, DMD, MPH
		
		Director, Special Care Clinic
		
		University of Maryland School of Dentistry
		Member, ADA
		National Elder Care Advisory Committee

	Developing quality measures for older adults is critical tool for improving oral health care quality and outcomes. I truly appreciate the effort that went into this very insightful document. It was very helpful that you provided background information with references for additional information. The	Karin V. Arsenault, DMD, MPH

	proposed measures are an excellent beginning and provide a framework to look at quality measures in older adults.
	Bulleted are some of my suggestion:
	• Oral health problems most prevalent in older adults
	    o Tooth decay
	    o Gum/periodontal disease
	    o Tooth loss
	    o Oral cancer
	
	• It would be helpful to stratify data by age, sex, race/ethnicity, payer (private insurance, Medicaid, etc.), and geographic location urban/rural areas.
	
	• Measures that would evaluate multiple aspects of care
	    o Utilization
	        o % of 65 and older who received at least one dental service within a year/within 2 years.
	        o % of 65 and older who had a periodic exam within the past year.
	
	    o Access to care
	        o % of 65 and older adults who received synchronous/asynchronous teledentistry visits
	
	    o Preventative
	        o % of 65 and older who received a comprehensive periodontal evaluation
	        o % of 65and older who received
	            • SDF interim caries arresting medication
	            • Topical fluoride application of fluoride varnish
	            • Application of desensitizing resin for cervical and/or root surfaces per tooth
	        o % of smokers 65 and older who received tobacco counselling
	        o % 65 and older who received nutritional counselling
	        o % 65 and older who received caries risk assessment
	        o % 65 and older whose salivary flow was assessed
	
	    o Corrective procedures
	        o Restorative
	        o Complete denture fabrication
	
	    o Surgical
	        o % 65 and older who had a tooth extraction
	        o % 65 and older who had a biopsy
		Clinical Director, Geriatric Center Program
		
		Department of Public Health and Community Service

GENERAL FEEDBACK/COMMENTARY ON CITATIONS AND BACKGROUND INFORMATION	COMMENT	SUBMITTED BY
	The study's background information includes a CDC study citing tooth loss statistics. This study, which claims nearly 1 in 5 adults aged 65 have lost all teeth, was completed a decade ago, is flawed and has been removed from the CDC website. The AGD is in full agreement that there is a need for dental care in the older population, however, data describing current rates of edentulism is either lacking or does not exist. Empirical data from AGD members suggests the rate of edentulism is much lower. The AGD has questions related to the section on "Dental Coverage and Utilization of Dental Services." and the statistics describing utilization between "high- and low-income seniors." 1. Does the DQA have comparable historical data on income levels of the other populations of dental patients for which quality measures are developed? 2. How are the parameters established for "high income' and "low income" based on percentages above and below the federal poverty level, and what is the process by which these percentages become accepted values?	Dr. Bruce Cassis, D.D.S., MAGD, President 2020-2021 Academy of General Dentistry