

# Delta Dental Plans Association: Dental Benefit Value Proposition Analysis

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## Executive Summary

The Medicare Advantage (MA) program is in the midst of a historic expansion of benefit design flexibility. Effective in benefit year 2019, MA plans are newly permitted to offer enhanced benefits (including dental benefits) to beneficiaries with targeted, objectively-defined disease states, such as diabetes. Such flexibility affords MA plans the opportunity to tailor benefit designs to promote clinical, care management, cost savings, and quality improvement goals for beneficiaries afflicted with specified disease conditions.

Wakely Consulting Group, LLC (Wakely) performed analyses that revealed a consistent correlation between dental benefit use and lower overall medical costs for commercial insured beneficiaries afflicted with chronic conditions, combined with periodontal disease (perio). Commercial benchmark claims and eligibility data were chosen as the data sources for this study due to breadth (~130 million member months over 3 years) and credibility in correlating dental benefit use with average cost metrics for various chronic condition-afflicted populations. Limitations in dental benefit availability in the Medicare population<sup>1</sup>, combined with wide variability in dental benefit richness when offered, make relatively impractical a comparable study using Medicare population data.

For each of five (5) chronic conditions studied (diabetes, heart disease, chronic kidney disease, chronic obstructive pulmonary disorder, asthma), beneficiaries with periodontal disease that use dental benefits incur medical costs (including dental costs), on average, significantly lower than non-users. Even after controlling for the predicted morbidity profile of beneficiaries, as measured by two different risk score models<sup>2</sup> (described further in the Methodology section starting on page 11), the cost profile of chronic condition-afflicted members with periodontal disease that use dental benefits is lower than non-users, on average.

Considering the high prevalence of chronic conditions in the Medicare population, and the consistent and compelling correlation between dental benefit use and lower medical cost among beneficiaries afflicted with both periodontal disease and chronic conditions evaluated, MA plans may be well served to further explore the associations observed in this report. The correlations outlined herein, even after controlling for predicted morbidity, present pragmatically intriguing, albeit not necessarily causal, relationships between the use of dental benefits and more efficient

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<sup>1</sup> Freed, M., Neuman, T. & Jacobson, G., (March 2019). Drilling Down on Dental Coverage and Costs for Medicare Beneficiaries. Kaiser Family Foundation. Available at: <https://www.kff.org/medicare/issue-brief/drilling-down-on-dental-coverage-and-costs-for-medicare-beneficiaries/>

<sup>2</sup> [2018 Department of Health and Human Services \(HHS\) Hierarchical Condition Category \(HCC\) risk adjustment model](#), [Wakely Risk Assessment Model \(WRA\)](#)

management of certain chronic conditions. Further, the lower proportion of medical costs for dental users in the inpatient and emergency room settings may indicate a higher level of member engagement in lower acuity health care system encounters – a desirable dynamic for MA plans looking to more efficiently manage chronic condition-afflicted members.

## Analysis Summary & Key Findings

### Regulatory Changes in the Medicare Advantage Program

Effective in benefit year 2019, MA plans are newly permitted to offer non-uniform<sup>3</sup> enhanced benefits (including dental benefits) to beneficiaries with targeted, objectively-defined disease states, such as diabetes. In other words, within the same MA plan benefit package (PBP), the benefit design offered to individuals with objectively-defined medical conditions can vary from the benefit design offered to other plan enrollees. Such flexibility affords MA plans the opportunity to tailor benefit designs to promote clinical, care management, cost savings, and quality improvement goals for beneficiaries afflicted with specified disease conditions, including chronic conditions. Benefit enhancements may include additional services (e.g., allowance for comprehensive dental services) and/or reduced copays/coinsurance on particular services.

For 2019 benefit year, MA plans have the flexibility to offer enhanced dental benefits, e.g., additional cleanings, lower coinsurance and free electric toothbrushes, to beneficiaries with diabetes and periodontal disease (and other objectively defined conditions). Below is an actual example of a benefit enhancement offered by an MA plan in 2019:

| <u>Conditions Targeted</u>  | <u>Benefit Offered to Non-Targeted Members</u>  | <u>Benefit Enhancement for Targeted Members</u>   |
|---|---|---|
| <b>Diabetes,<br/>Coronary Artery Disease,<br/>Stroke,<br/>Pregnancy,<br/>Oral Cancer,<br/>Sjögren’s</b> | <ul style="list-style-type: none"> <li>Preventive Dental Services</li> <li>Comprehensive Services - 1 filling, 1 root canal, periodontal scaling and root planning (1 quadrant), denture adjustments (2 per year), simple denture repair (1 per year)</li> <li>\$2,500 annual plan benefit maximum per calendar year</li> </ul> | Dental services covered under the plan’s benefit are <b>not subject to the plan benefit maximum</b> coverage of \$2,500 per calendar year when provided by a network provider |

<sup>3</sup> April 27, 2018 Health Plan Management System Memorandums covering the Reinterpretation of the Uniformity Requirement and the Reinterpretation of “Primarily Health Related” for Supplemental Benefits

Effective in benefit year 2020, in order to implement provisions of the Bipartisan Budget Act of 2018, the Centers for Medicare and Medicaid Services (CMS) has proposed to further expand benefit flexibility options. CMS-proposed Special Supplemental Benefits for the Chronically Ill (SSBCI)<sup>4</sup> introduce new opportunities for MA plans to offer benefits that are not primarily health related (e.g., food and produce) to the chronically ill. The expansion of the Value-Based Insurance Model Design<sup>5</sup> (VBID) innovation model for 2020 introduces even more benefit design flexibility, including the option to vary benefits (including dental benefits) based on socioeconomic status. These changes are aligned with a general trend of CMS equipping MA plans with more levers to effectively manage chronic condition-afflicted beneficiaries.

Approximately two-thirds (66%) of the Medicare Fee-For-Service (FFS) population is afflicted with two (2) or more chronic conditions<sup>6</sup>. This population accounts for approximately 93% of Medicare FFS spending and approximately 99% of Medicare Hospital Readmissions. The MA population follows a comparable morbidity profile. MA plan design flexibility provisions implemented for 2019 and 2020 benefit years represent a monumental expansion of the benefit design levers available to plans to more effectively and efficiently managing the chronic condition population. Prompted by these regulatory changes, MA plans will be evaluating or re-evaluating efficacy in managing these populations, seeking to more judiciously address the following questions:

- Which chronic conditions should be targeted for benefit enhancements?
- For targeted chronic conditions, which benefit enhancements might be correlated with improvements in beneficiary health, cost savings, quality improvement, or improved beneficiary satisfaction?

The recent MA regulatory developments are expected by many to incite a massive “breeding ground” for experimental benefit innovations. Considered among such benefit innovations will be enhanced dental benefits offered to chronic condition-afflicted beneficiaries. There have been many published academic and clinical studies suggesting a compelling correlation between oral health and overall health, particularly among beneficiaries afflicted with chronic conditions. We expect that historical studies will re-surface and new studies will commence as MA plans explore how to most efficiently and dynamically deploy finite federal funding towards serving MA beneficiaries optimally.

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<sup>4</sup> [Advance Notice of Methodological Changes for Calendar Year \(CY\) 2020 for Medicare Advantage \(MA\) Capitation Rates, Part C and Part D Payment Policies and 2020 Draft Call Letter](#)

<sup>5</sup> [Medicare Advantage Value-Based Insurance Design Model](#)

<sup>6</sup> Centers for Medicare and Medicaid Services (CMS) Chronic Condition data, available at: [https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Chartbook\\_Charts.html](https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Chartbook_Charts.html)

## Evaluating Chronic Condition Costs for Dental Benefit Users vs. Non-Users

Wakely performed analyses commissioned by the Delta Dental Plans Association (DDPA) that revealed a consistent correlation between dental benefit use and lower overall medical costs for beneficiaries afflicted with certain chronic conditions, combined with periodontal disease, in the commercial insured population. The IBM MarketScan® Research Database Commercial benchmark claims and eligibility data was chosen as the data source for this study due to its breadth (~130 million member months over 3 years) and credibility in correlating dental use with average cost for various chronic condition-afflicted populations. Due to limitations on the available dental benefit and claims information for the Medicare population<sup>7</sup> and the wide variability in dental benefit richness, a study using currently available Medicare population data would be far less robust.

For each of five (5) chronic conditions studied (diabetes, heart disease, chronic kidney disease, chronic obstructive pulmonary disorder, asthma), beneficiaries with periodontal disease that use dental benefits incur medical costs (including dental costs), on average, significantly lower than non-users. Across all 3 years and all 5 chronic disease-periodontal disease cohorts studied, total cost (including medical, Rx, and dental) was lower for dental users than non-users. Even after controlling 2016 claims data for the predicted morbidity profile of beneficiaries, as measured by two different health risk score models<sup>8</sup>, the cost profile of chronic condition-afflicted members with periodontal disease that use dental benefits was lower than non-users, on average.

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<sup>7</sup> Freed, M., Neuman, T. & Jacobson, G., (March 13, 2019). Drilling Down on Dental Coverage and Costs for Medicare Beneficiaries. Kaiser Family Foundation. Available at: <https://www.kff.org/medicare/issue-brief/drilling-down-on-dental-coverage-and-costs-for-medicare-beneficiaries/>

<sup>8</sup> [2018 Department of Health and Human Services \(HHS\) Hierarchical Condition Category \(HCC\) risk adjustment model, Wakely Risk Assessment Model \(WRA\)](#)

**Table 1: Service Category Cost Distributions for Chronic-Periodontal Diseases**

| Chronic Condition                   | IBM MarketScan Commercial Database (2016)  |   |  |  |  |  | Medicare FFS Data (2015)   |
|-------------------------------------|--|---|--|--|--|--|----------------------------|
|                                     | Chronic Disease Prevalence for Members with Medical & Dental Benefit Eligibility | % of Chronic Disease Members with Periodontal Disease | Prevalence of Chronic-Perio Across Entire Population | Chronic-Perio Dental User vs. Non-User Total Cost (incl medical, Rx, | HHS Risk Score NORMALIZED (Medical+Rx) Cost Chronic-Perio Dental | WRA Risk Score NORMALIZED (Medical+Rx) Cost Chronic-Perio Dental | Chronic Disease Prevalance |
| Diabetes                            | 6.2%   | 14.1%   | 0.9%   | -13.0%   | -5.2%  | -11.2%   | 26.5%                      |
| Heart Disease                       | 3.2%   | 10.7%   | 0.3%   | -23.8%   | -8.5%  | -11.8%   | 26.5%                      |
| Kidney Disease                      | 0.2%   | 14.5%   | 0.0%   | -22.0%   | -12.6%   | -14.7%   | 18.1%                      |
| COPD                                | 1.4%   | 13.0%   | 0.2%   | -12.6%   | -11.6%   | -9.3%  | 11.2%                      |
| Asthma                              | 9.2%   | 6.1%  | 0.6%   | -6.6%  | -0.5%  | -6.4%  | 8.2%                       |
| ANY of the Above chronic conditions | 17.2%  | 9.4%  | 1.6%   | -13.8%   | -5.7%  | -10.9%   |                            |

Underlying the summary data points in Table 1, among the approximately 3.7 million beneficiaries studied for benefit year 2016, approximately 32,000 beneficiaries (0.9%) are afflicted with both diabetes and periodontal disease (perio). Within that population of diabetes-perio afflicted beneficiaries, dental users experience total cost (medical, pharmacy, and dental) approximately 13.0% lower than non-users, on average. Even after using beneficiary-level diagnostic and demographic data to control for predicted population morbidity under two different health risk scoring models, dental users within this cohort still experience between 5.2% (HHS model) and 11.2% (WRA model) lower combined medical and pharmacy costs. More than one quarter of the Medicare-eligible population is afflicted with diabetes and according to published prevalence studies<sup>9</sup>, approximately two-thirds of seniors have periodontal disease. We hesitate to explicitly extrapolate the observed morbidity-normalized cost relationships to the Medicare chronic-perio population. However, as outlined in subsequent sections, we find it reasonable to consider and study further the applicability of these observations to the Medicare population.

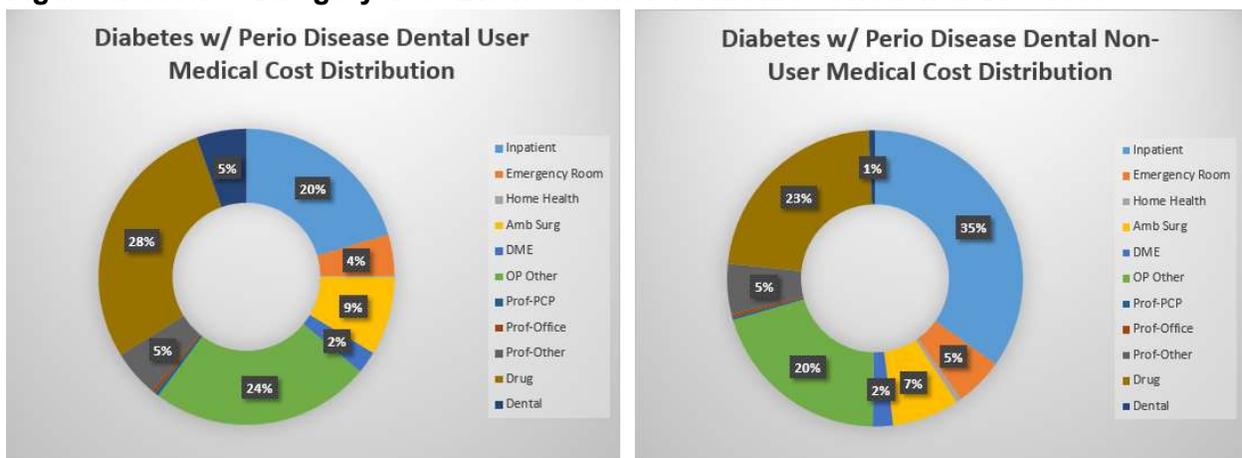
We do note that it is important to recognize variation in reimbursement levels and dynamics in the commercial market vs. the Medicare market. For example, dialysis payment rates, which primarily impact chronic kidney disease-afflicted beneficiaries, tend to be materially higher in the commercial market than in the Medicare market. As summarized in Figure 1, outpatient “other” costs, which include dialysis, comprises ~55% of total cost for both dental users and non-users. When extrapolating potential cost savings observed on the commercial population to the Medicare population, care should be assigned to variations in reimbursement levels and dynamics between the two markets.

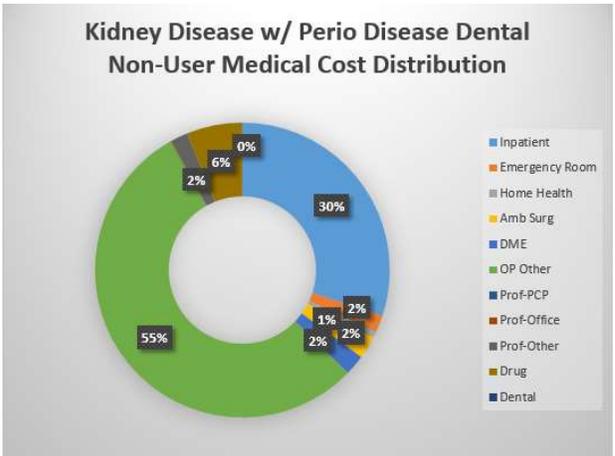
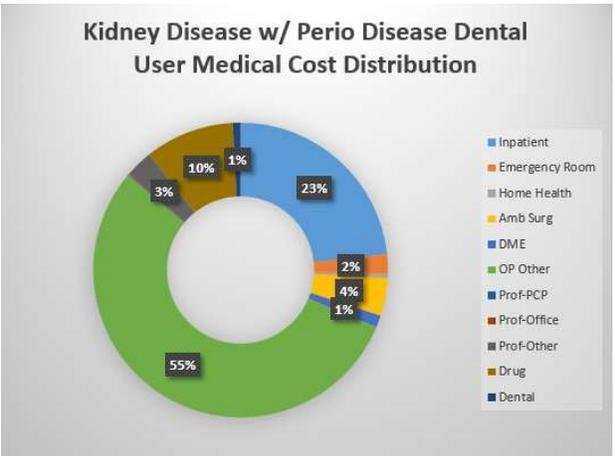
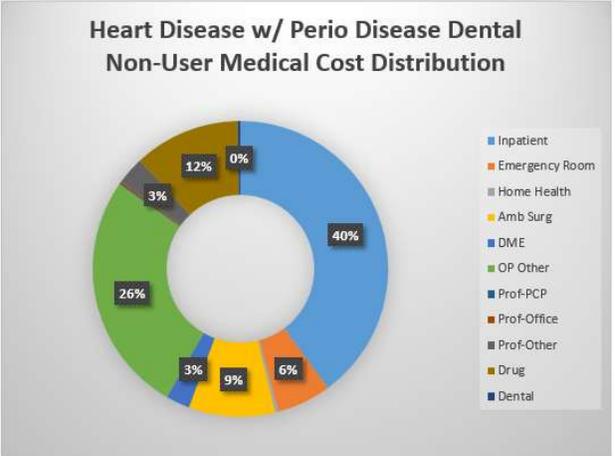
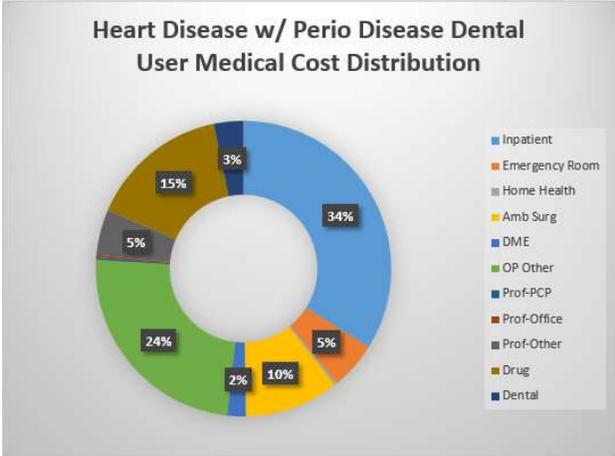
<sup>9</sup> Eke PI, Dye BA, Wei L, et al. [Update on Prevalence of Periodontitis in Adults in the United States](#)

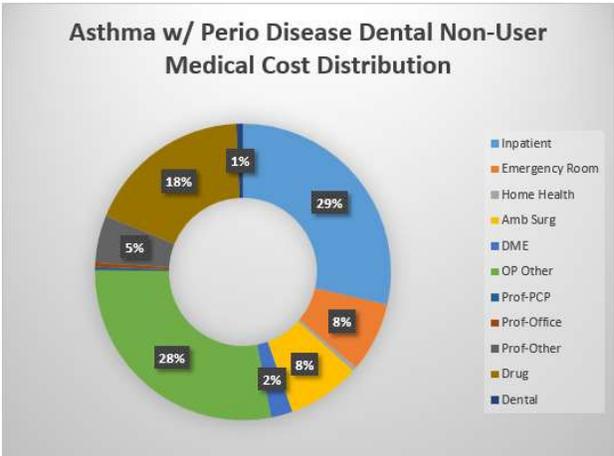
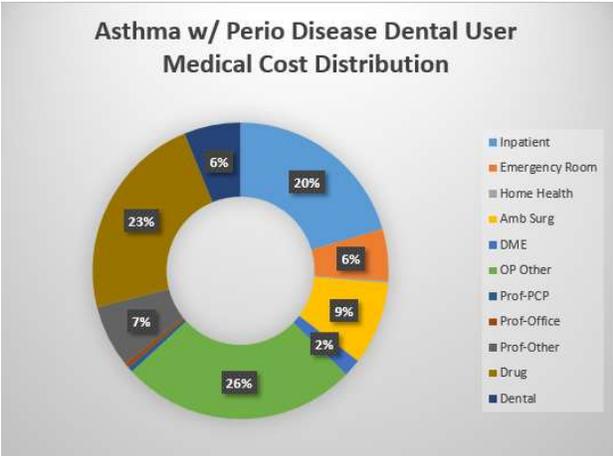
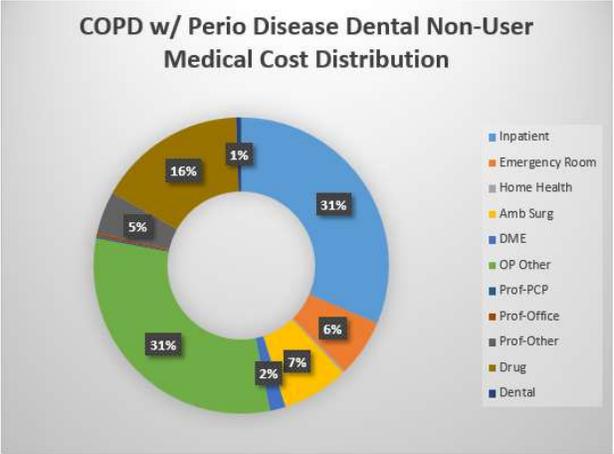
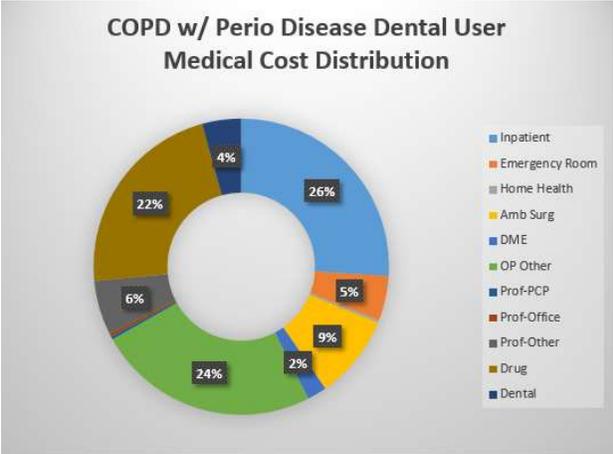
It is important to note that our data observations reflect correlation, not causation, associated with chronic condition-perio beneficiary use of dental benefits. We have not attempted to control for all potentially confounding variables, but we have attempted to control for an important one: predicted population morbidity, as measured by predicted medical and pharmacy cost using two different industry health risk scoring models. The compelling relationship between dental user average cost and average non-user cost is sustained even after controlling for predicted morbidity under both models, for all condition cohorts studied. We acknowledge that there are many other potentially confounding variables that we have not explicitly addressed, including but not limited to the influence of beneficiary compliance (or non-compliance) with recommended clinical protocol. While data points summarized herein indicate that dental benefit users may be more engaged in efficient use of the health care system, the absence of confounding variable controls precludes us from stating definitively that the presence and/or use of dental benefits are the key causal drivers of such observations. Further study is warranted.

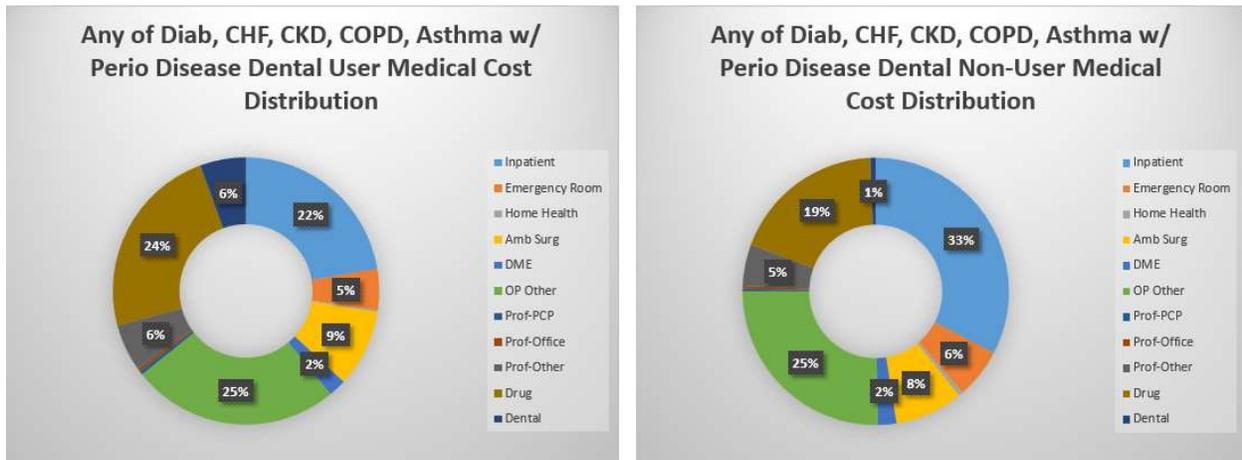
In addition to the cost relationships studied and presented herein, we also studied the mix of costs across service categories. Our analysis revealed a materially higher proportion of inpatient (IP) and emergency room (ER) medical costs for non-users of dental benefits vs. users of dental benefits. For example, diabetic perio dental non-users see an average of approximately 40.1% of total (including pharmacy and dental cost) cost in the inpatient (IP) and emergency room (ER) settings, whereas dental users see 24.9% of total cost flowing through inpatient and emergency room settings. This general pattern held true across all chronic disease-periodontal disease combinations studied, as detailed in Figure 1. The combination of lower absolute cost, lower predicted morbidity-normalized cost, and a lower proportion of cost flowing through high acuity and unpredictable inpatient/ER services, presents a compelling correlation between dental use and lower medical costs for the cohorts in question.

**Figure 1: Service Category Cost Distributions for Chronic-Periodontal Diseases**









### Applicability of Analytic Observations to the Medicare Advantage Market?

As previously noted, approximately two-thirds (66%) of the Medicare Fee-For-Service (FFS) population is afflicted with two (2) or more chronic conditions<sup>10</sup>. This population accounts for approximately 93% of Medicare FFS spending and approximately 99% of Medicare Hospital Readmissions. In general, the MA market follows a similar chronic disease burden profile.

We believe it is reasonable to consider the findings of our study in the context of MA plan design, as

- (i) we have no compelling reason to think that the analytic observations outlined herein for a commercial population would not hold, directionally, for a Medicare-eligible population, and
- (ii) the materially higher prevalence of chronic conditions in the MA population, combined with the higher average cost profile of Medicare beneficiaries, suggests the *potential* for material cost savings associated with managing chronic condition beneficiaries more effectively.

From a pragmatic perspective, the sheer breadth of the data set studied, even if associated with the commercial insurance market, should not be ignored in the context of MA benefit design. MA plans will be charged with designing benefit adaptations in the coming years using, in some cases, no data or limited data for unproven interventions (or in this case robust data associated with a

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<sup>10</sup> Centers for Medicare and Medicaid Services (CMS) Chronic Condition data, available at: [https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Chartbook\\_Charts.html](https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Chartbook_Charts.html)

different population and line of business). In fact, the published actuarial guidance associated with the new Value-Based Insurance Design (VBID) program includes the following statement<sup>11</sup>:

*“Due to the expected novel nature of some proposed components, it is possible that limited public experience or literature exists on which to base estimates of the impact of specific VBID components on utilization patterns or the cost of Part C and D services. In this case, it is sufficient for the justification of actuarial assumptions to be derived from the actuary’s reasoning, judgment, or other factors.”*

Acknowledging the limitations of our study, given the absence of broad dental benefits in the Medicare population, we believe it is reasonable for MA bid preparing actuaries to consider, with appropriate plan-specific consideration and adaptation, the applicability of the observations outlined herein to MA plan design opportunities.

In summary, our analysis revealed a consistent and compelling correlation between dental benefit use and lower overall medical costs for beneficiaries afflicted with certain chronic conditions and periodontal disease. The compelling cost relativity is preserved even after controlling for predicted morbidity using two different risk scoring models. Further, the lower proportion of medical costs for dental users in the inpatient and emergency room settings may indicate a higher level of member engagement in lower acuity interactions with the health care system – a desirable dynamic for MA plans looking to more efficiently manage chronic condition-afflicted members.

## **Future Studies to Consider – Drug Adherence and Star Rating Opportunities**

MA contracts that achieve a composite quality Star Rating of 4.0 or better bid against benchmark payment rates that are increased up to 5-10% by quality bonus adjustments. These high performing plans also see higher funding levels for supplemental benefits (called MA “rebate” revenue). Among the quality measures used to derive the composite Star Ratings are several Medication Adherence measures, which evaluate beneficiary compliance with prescribed drug therapy protocol. As part of our study, we observed that chronic condition-afflicted dental users tend to experience higher utilization of maintenance drugs associated with their chronic conditions than non-users. The observed correlation between dental benefit use and higher utilization of maintenance drugs provides ample motivation for further study of strategic opportunities for Star Rating improvement associated with dental benefit design.

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<sup>11</sup> Centers for Medicare & Medicaid Services, Center for Medicare and Medicaid Innovation, [Value-Based Insurance Design Model CY2020 Application Actuarial Guidance](#)

## Data Sources & Analysis Methodology

### Data Sources

The primary data source used to complete the analyses outlined herein was the IBM MarketScan® Research Database (Copyright IBM All Rights Reserved), henceforth referred to as “MarketScan®.” MarketScan® is a detailed claims and enrollment data set for a nationally representative sample of insured lives. The commercially-insured lives span various health plan design types such as HMO, POS, PPO, and indemnity. The data utilized span benefit years 2013 through 2017. Claims data reflect all medical (inpatient, outpatient, and professional), pharmacy, and dental claims. Claims data reflect details on Current Procedural Terminology (CPT), diagnosis-related group (DRG), revenue codes, International Statistical Classification of Diseases and Related Health Problems 10<sup>th</sup> revision (ICD-10, or ICD-9, depending on claim incurral date) diagnosis codes, and other common claim identifier elements. Claims data reflect sufficient run-out to be considered over 99% complete. Enrollment data contain demographic details such as age, gender, Metropolitan Statistical Area (MSA), state, months of enrollment, and other common identifying information.

### Population Evaluated

Wakely utilized three (3) years of available commercial insurance and eligibility data, 2015 to 2017. We limited the studied population to beneficiaries with both medical and dental benefit coverage in all three consecutive years. Based on this criteria, the resulting population comprised approximately 3.7 million beneficiaries, representing over 40 million member months in each year studied.

### Dental Users

Beneficiaries were segmented into “dental users” and “dental non-users” in each year of the analysis. Two options for defining dental users were considered.

1. The more restrictive approach defined a dental user as a beneficiary who experienced at least one (1) dental visit during the benefit year at which a preventive dental service was performed. For this approach, the receipt by a beneficiary of any preventive and/or diagnostic services (e.g., exams and cleanings) during the benefit year triggered dental user status.
2. The broader approach defined a dental user as a beneficiary that received any dental service whatsoever during the benefit year. Relative to the more restrictive approach, the broader criteria encompassed additional beneficiaries that received non-preventive dental services (but not preventive/diagnostic services) during the benefit year.

Our working hypothesis in exploring two options for defining dental users was that most beneficiaries that receive any dental services during the year also receive at least some preventive/diagnostic services. We therefore speculated that the two options would yield materially similar populations. Our analysis confirmed immaterial differences between the two options with respect to resulting population, so we elected to utilize the slightly more restrictive definition (option 1 above).

## Periodontal Disease

The presence of periodontal disease was identified using logic provided by Delta Dental Plans Association. For a beneficiary to be defined as having periodontal disease, one of the following periodontal services must be present in the beneficiary's dental claims history (in any of the benefit years studied):

- D4240 – Gingival Flap Procedure, including Root Planning
- D4241 – Gingival Flap Procedure, including Root Planning
- D4260 – Osseous Surgery
- D4261 – Osseous Surgery
- D4341 – Scaling and Root Planning
- D4342 – Scaling and Root Planning
- D4910 – Periodontal Maintenance

We further restricted the periodontal disease-afflicted subset to only include beneficiaries age 30 and over.

## Identifying Chronic Conditions and Controlling for Predicted Morbidity

To identify each beneficiary's medical conditions, and to control cost studies for morbidity risk, the 2018 United States Department of Health and Human Services (HHS) Hierarchical Condition Category (HCC) risk adjustment model logic was used. HCC risk adjustment models are used in both the commercial individual and small group markets, as well as the Medicare Advantage market, to predict the health care costs/morbidity of beneficiaries. HCC models use a combination of demographic data and health care diagnosis data to predict health care risk. ICD-10 codes are grouped into HCCs, and the combination of demographic data, binary indicators of the presence of HCCs, and considerations for co-morbidity among HCCs are used to define a beneficiary-level risk score. A risk score of 1.0 generally reflects an average risk beneficiary, whereas a risk score of 3.0 indicates that a beneficiary, based on diagnostic and demographic data, is expected to have a cost 3 times the average beneficiary cost.

The 2018 HHS-HCC logic was used to assign HCCs applicable to each beneficiary. Claims emanating from Facility and non-Facility services were included for each benefit year to determine eligible diagnoses. The HCC assignment process involves analyzing each claim's reported

diagnosis codes and comparing those diagnoses to the defined HHS-HCC mapping logic for each condition category. It is important to note that the mere presence of an HCC-triggering diagnosis code is not an automatic indication of the condition, at least for purposes of risk adjustment. Specific filtering logic is applied to identify claims that trigger a valid diagnosis. Since the HCC model is calibrated on diagnosis data that satisfy the same filtering criteria, we applied the same filtering criteria to diagnosis data in the data set studied. In addition to analyzing the diagnosis codes associated with each claim event, claims were analyzed and flagged as eligible or non-eligible based on claim bill types and procedure codes present in the claim records. Only eligible claims (based on bill type/procedure codes) with eligible diagnoses are considered valid for our study, both for purposes of identifying chronic condition-afflicted cohorts, as well as deriving the beneficiary-level predicted morbidity profile of those cohorts.

A beneficiary can fall into zero or numerous HCC buckets depending on how many eligible condition markers are present in his/her claims history. We defined chronic condition-afflicted beneficiaries by evaluating the presence of eligible diagnoses across all data years studied, and assumed that once a beneficiary is afflicted with a condition, the affliction continues for future years. For example, if a beneficiary was identified as a diabetic based on 2016 claims data, that beneficiary is assumed to be diabetic in 2016 and 2017.

The specific chronic conditions analyzed in this study were diabetes, heart disease, chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD), and asthma. Each condition is defined by a list of underlying HCCs listed below:

- Diabetes
  - HCC19 - Diabetes with Acute Complications
  - HCC20 - Diabetes with Chronic Complications
  - HCC21 - Diabetes without Complication
- Heart Disease
  - HCC130 - Congestive Heart Failure
  - HCC131 - Acute Myocardial Infarction
  - HCC132 - Unstable Angina and Other Acute Ischemic Heart Disease
  - HCC135 - Heart Infection/Inflammation, Except Rheumatic
  - HCC137 - Hypoplastic Left Heart Syndrome and Other Severe Congenital Heart Disorders
  - HCC138 - Major Congenital Heart/Circulatory Disorders
  - HCC139 - Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders
  - HCC142 - Specified Heart Arrhythmias
- Chronic Kidney Disease
  - HCC184 - End Stage Renal Disease
  - HCC187 - Chronic Kidney Disease, Stage 5
  - HCC188 - Chronic Kidney Disease, Severe (Stage 4)
- Chronic Obstructive Pulmonary Disease
  - HCC160 - Chronic Obstructive Pulmonary Disease, Including Bronchiectasis

- Asthma
  - HCC161 - Asthma

Note that we also scored studied beneficiaries using the proprietary Wakely Risk Assessment (WRA) Model. Similar to the HHS-HCC model, the WRA model assigns risk scores based on demographic and diagnostic information evident in claims and eligibility data. The WRA model relies on both medical and pharmacy data and assigns members to 90 different medical categories and 60 different pharmacy categories. The model uses linear regression to determine predictive risk score coefficients, consistent with other widely used risk scoring models.

## **Claim Cost Data**

The claim cost data analyzed reflect the allowed costs reported in the MarketScan® database. Allowed costs, in general, represent the amounts eligible for payment under the medical plan terms after applying rules such as discounts, but before applying coordination of benefits (COB) provisions, copayments, coinsurance, and deductibles. Claim cost summaries include Facility and Non-Facility services, as well as pharmacy (drug) costs and dental service costs. As previously noted, no adjustments have been made to claims to account for completion (claims run-out). Based on historical industry run-out patterns, we expect that claims reflected in our study are more than 99% complete.

Claim costs were further categorized into high-level service categories such as Inpatient, Emergency Room, Professional-Office, Outpatient, Drug, Dental, etc. by using the MarketScan® service category reported on the claim line. The MarketScan® service category field reflects more than 570 categories that Wakely rolled up to the high-level service categories presented.

## Disclosures & Limitations

This document transmitted herein reflects the results, assumptions, and methods employed in our analyses, and satisfies the Actuarial Standard of Practice (“ASOP”) 41 reporting requirements.

### General Limitations

Wakely was commissioned by DDPA to perform analyses relevant to the value proposition of offering dental benefits to chronic condition-afflicted beneficiaries. The report represents a technical evaluation and summarization of available benchmark data resources and does not represent support for any particular policy, benefit design, or strategy. We do not intend for this report to create a reliance by any third party on Wakely. Reliance on this report by DDPA is at DDPA’s discretion.

Wakely is not responsible for any use of the report or consequences of such use outside the specific purpose for which it was intended. Users of the report results should be qualified to use it and understand the results, limitations, and the inherent uncertainty. The report should be considered in its entirety.

Note that the observations and data summaries presented herein do not reflect conclusions of causative relationships between the offering/use of dental benefits and lower medical costs. Rather, the observations and data summaries reflect associative correlation between dental use and claims cost levels. A more robust study of clinical practice patterns and beneficiary care compliance patterns, considering other confounding variables, would be needed to expound a causal relationship between dental use and lower medical cost.

### Responsible Actuary

I, Tim Murray, am the actuary responsible for this communication. I am a Member of the American Academy of Actuaries and a Fellow of the Society of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to issue this report.

### Intended Users

This information has been prepared for the management of DDPA. The report may be distributed to third parties. However, the report is not intended to create reliance by any third party on Wakely.

## **Conflict of Interest**

I, Tim Murray, am financially independent and free from conflict concerning all matters related to performing the services underlying this analysis. In addition, Wakely is organizationally and financially independent from DDPA, the sponsor of this report.

## **Data & Reliance**

We have relied on others for data and assumptions used in the assignment, including the MarketScan® claims and eligibility data sets, and DDPA for periodontal disease identification logic. We have reviewed portions of the data for reasonableness, but have not performed any independent audit or otherwise verified the accuracy of the data/information upon which we relied. If the underlying information is incomplete or inaccurate, our estimates may be impacted, potentially significantly.

## **Subsequent Events**

There are no known events subsequent to the issuance of this report that would impact the report results and observations.

## **Contents of Actuarial Report**

This document and the supporting exhibits/files constitute the entirety of our actuarial report and supersede any previous communications related to the engagement.

## **Deviations from ASOPs**

Wakely completed the analysis using sound actuarial practice. To the best of my knowledge, the report and methods used in the analysis comply with the applicable Actuarial Standards of Practice (ASOP) with no known deviations.