DEPARTMENT OF HEALTH AND HUMAN SERVICES
Patient Protection and Affordable Care Act; 2015 Actuarial Value Calculator Methodology
AGENCY: Department of Health and Human Services.

This document was originally referenced in the *Patient Protection and Affordable Care Act; Standards Related to Essential Health Benefits, Actuarial Value, and Accreditation*, published in the Federal Register at 78 FR 12834 (February 25, 2013) and comprises part of the final rule for determining actuarial value at 45 CFR 156.135. A modified version of this document is being released as part of the final rule on *Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2015* (the final rule*)*, which was published in the Federal Register at [INSERT REFERENCE AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Introduction

In the Essential Health Benefits, Actuarial Value, and Accreditation final rule (EHB Final Rule), published in the Federal Register, the Department of Health and Human Services (HHS) requires use of an Actuarial Value (AV) Calculator by non-grandfathered health insurance plans offered in the individual and small group markets, both inside and outside of the Affordable Insurance Exchanges (Exchanges) for the purposes of determining levels of coverage. Section 1302(d)(2)(A) of the Affordable Care Act stipulates that AV be calculated based on the provision of essential health benefits (EHB) to a standard population. The statute groups health plans into four tiers: bronze, with an AV of 60 percent; silver, with an AV of 70 percent; gold, with an AV of 80 percent; and platinum, with an AV of 90 percent. The EHB Final Rule establishes that a de minimis variation of +/- 2 percentage points of AV is allowed for each tier.[1]

The AV Calculator represents an empirical estimate of the AV calculated in a manner that provides a close approximation to the actual average spending by a wide range of consumers in a standard population. Although producing an exact calculation of a very complex interaction of use of health care services is not possible in a tool that is publicly available and able to accommodate the majority of plans, the results provided by this AV Calculator are well within the de minimis range established in the EHB Final Rule (45 CFR 156.140(c)) and ensure compliance with the Affordable Care Act and final regulatory AV standards. This document is meant to detail the specific methodologies used in the AV calculation. As detailed in the final rule, for 2015, we finalized the 2014 AV Calculator with an updated maximum out of pocket (MOOP) limit as the 2015 AV Calculator. Thus, the modifications to this document are to address certain minor technical corrections and clarifications from the 2014 AV Calculator methodology document.

This document provides a detailed description of the development of the standard population and AV Calculator methodology. The first section details the changes between the final 2014 and final 2015 AV Calculators. The following section details the data and methods used in constructing the continuance tables that are used to calculate AV in combination with the user

[1] Under §156.400, the de minimis variation for cost-share reduction plans is a single percentage point.

inputs. The final section describes the AV Calculator interface and the calculation of actuarial value based on the interface and the continuance tables. The final 2015 AV Calculator is available at: http://www.cms.gov/cciio/resources/regulations-and-guidance/index.html.

Overview of Changes in the Final 2015 AV Calculator and Methodology

While the final AV methodology detailed in this document and the final AV Calculator are the same as the 2014 versions, the changes incorporated in this document are reflective of clarifications, where appropriate, to explain the operations and methodologies behind the AV Calculator and are also incorporated into the AV Calculator User Guide.

For the final 2015 AV Calculator, one change was made to account for the updated 2015 annual limit on cost sharing (as known as the MOOP limit) and the related functions in the AV Calculator. Similar to the 2014 AV Calculator, the final 2015 AV Calculator includes an estimated MOOP limit to allow versatility of the AV Calculator. Specifically, the MOOP limit in the 2015 AV Calculator was increased from $6,500 to $6,850 to account for the estimated 2015 annual limit on cost-sharing. Plan designs must not exceed the annual MOOP limit that is established in regulation regardless of the limit included in the AV Calculator. In future years when the AV Calculator is updated through implementation of the parameters set forth in the final rule, this limit will be likely finalized in the annual HHS notice of benefit and payment parameters, after the final AV Calculator is released.

As discussed in the final rule, since we are not finalizing the proposed 2015 AV Calculator at this time (with the exception of the updated estimated annual limit on cost sharing), we do not address the technical comments on the proposed 2015 AV Calculator and methodology, but we will take them under consideration when we update the AV Calculator in the future. As discussed in the final rule, in future years when updating the AV Calculator, we also intend to take under consideration feedback submitted by stakeholders to the CMS Actuarial Value email address at *actuarialvalue@cms.hhs.gov*.

Data Sources and Methods

This section describes the data and methods used to create the building blocks of the AV Calculator, including the development of the standard population. The inputs for AV calculation are information on utilization, cost-sharing and total costs for health services for a standard population of health plan enrollees resembling those likely to be covered by individual and small group market health insurance in 2014; the standard population developed for 2014 was not modified for the final 2015 calculator. This information is used to create a series of continuance tables that describe the distribution of claims spending for a population of health insurance users that we are proposing as the standard population. The standard population is the basis for these continuance tables from a utilization perspective.

Because spending is affected by plan design through induced demand, the claims data are used to develop four sets of continuance tables, based on bronze, silver, gold and platinum plan designs. The AV Calculator estimates the actuarial value of a plan design based on the aggregated data contained in the four sets of continuance tables representing each plan's metal tier.

The remainder of this document outlines the process for creating and using each of these components in turn. The first section describes the large national claims database that was used as the basis to develop the standard population. In addition, preliminary adjustments to that database are described in the first section. The second section explains the process for adjusting and supplementing the claims data in the national database to better estimate the individual and small group markets in 2014 to develop the standard population. The third section describes the methodology for using the claims database to develop the continuance tables. Finally, the last section details the process for accounting for spending and utilization of certain EHB that are poorly represented in the database.

National Database

To provide information on utilization and cost sharing for a standard population of enrollees, HHS began with claims data from the Health Intelligence Company, LLC (HIC) database for calendar year 2010. This commercial database includes detailed enrollment and claims information for individuals who are members of several regional insurers and covers over 54 million individuals enrolled in individual and group health plans. A database including enrollees in small group plans is desirable because 83 percent[2] of small group plans do not offer multiple choices of plans, reducing selection bias between plans. Including claims in the small group market permits the continuance tables to be based on induced demand assumptions that reflect plan design options that will be available in 2014, particularly the bronze and silver options that are described in 45 CFR 156.140. In addition, large group health plans tend to have gold and platinum level benefit generosity, and data on these plans offer information about gold and platinum plan design options. As described below, several adjustments were made to this data to more closely represent the expected population of enrollees in 2014 and these adjustments are included in the final 2015 AV Calculator.

Since descriptions of the plan benefit design characteristics were not included in the database, cost sharing variables, including copayments, coinsurance and deductibles from the claims data were used to infer the member and plan shares of the total spending that is reflected in the database, as described below.[3] The data contains spending, demographic and enrollment information at the member level, including age, sex, family structure, presence of a pre-existing condition, enrollment, spending, and number of claims. Enrollees are grouped into Product Client Contracts (PCCs) defined by plan type (for example, PPO, HMO, indemnity, etc.) and benefit design for a given contract or plan group. The AV Calculator treats each PCC as a separate health plan, since each PCC represents a uniform benefit structure under a contract or plan group. However, in practice a regional health plan may operate multiple PCCs. All cost data in the database are trended forward to 2014; no additional trending was incorporated into the final 2015 AV Calculator.

[2] http://ehbs.kff.org/pdf/2012/8345.pdf (Table 4.1)

[3] The AV Calculator does not incorporate information from Individual Market plans because these data could not be used to infer plan design.

Spending and claims information is provided in the database both for total services and for each of the following medical and drug service categories:

- Emergency Room Services
- All Inpatient Hospital Services (including Mental Health and Substance Use Disorder Services)
- Primary Care Visit to Treat an Injury or Illness (excluding Preventive Well Baby, Preventive, and X-rays[4])
- Specialist Visit
- Mental/Behavioral Health and Substance Abuse Disorder Outpatient Services
- Imaging (CT/PET Scans, MRIs)
- Rehabilitative Speech Therapy
- Rehabilitative Occupational and Rehabilitative Physical Therapy
- Preventive Care/Screening/Immunization
- Laboratory Outpatient and Professional Services
- X-rays and Diagnostic Imaging
- Skilled Nursing Facility (SNF)
- Outpatient Facility Fee (e.g., Ambulatory Surgery Center)
- Outpatient Surgery Physician/Surgical Services
- Drug Categories
    - Generics
    - Preferred Brand Drugs
    - Non-Preferred Brand Drugs
    - Specialty Drugs (High Cost)

With the exception of preventive care, the claims database defines which services fall into each category. In addition, the database provides a breakdown of whether a service and associated cost is considered part of Outpatient Surgery Physician/Surgical Services or Outpatient Facility Fees for the following service categories: Mental Health and Substance Use Disorder, Advanced Imaging, Rehabilitative Speech Therapy, Occupational and Physical Therapy, Diagnostic Laboratory, and Unclassified (medical). In the development of the continuance tables based on the standard population, we relied on this aspect of the database to account for separate

[4] If special cost-share provisions are indicated for Primary Care and/or Specialist Office Visits, certain office visits will be split into their component parts only if those office visits include services that do not have special cost-sharing provisions (not having special cost-sharing provisions is defined as being Subject to Deductible, Subject to Coinsurance, with no special coinsurance rate and no copayment). This is applicable to X-rays, and the component parts are Primary Care Office Visit and Specialist Office Visit. For example, if Primary Care office visits are not subject to the deductible and have a $20 copayment, but X-rays are subject to the deductible and general coinsurance, a Primary Care office visit that includes an X-ray will be split into two services, a Primary Care office visit and an X-ray.

copayments and cost sharing payments applying to the professional and facility components of services.

Preventive care is defined, and claims are categorized, using the CPT code list from the US Preventive Services Task Force. The services defined as preventive care correspond to the preventive services covered without cost sharing under section 2713 of the Affordable Care Act.

To prepare the data for use in the continuance tables, several enrollment restrictions are applied to ensure that the data represent a full year of utilization experience for enrollees. The full data include 39,184,536 enrollees and 767,517 PPO/POS (Point of Service) plans. Restricting to group PPO/POS with drug coverage and at least 50 enrollees brings the count down to 15,243,652 enrollees and 61,647 plans. In the absence of plan benefit design information directly from the plans that submitted data to this commercial database, the cost-sharing parameters that apply to individuals are inferred from the spending data to aid in the construction of the continuance tables. To ensure that the imputation procedure can be applied effectively, plans with utilization data that are likely incomplete are excluded. Specifically, to be included, plans with more than 50 members must be PPO/POS plans with positive drug enrollment in at least one month, and plans with over 1,000 members must additionally have at least one claim with a maternity DRG. Moreover, all plans must have at least one member with over $5,000 in spending. For plans that meet these requirements, the 90^{th} percentile of positive deductibles that are at least $250 lower than the amount of total spending for all enrollees within a PCC is set as the plan deductible, and the 90^{th} percentile of beneficiary spending above $1,000 over all enrollees within a PCC is set as the plan MOOP limit. The coinsurance rate is estimated by examining the coinsurance variable on claims for plan members with spending between the deductible and the MOOP. Spending data are also used to impute copayments for several services including in-patient (IP) services, emergency room (ER) services, primary care office visits, specialist office visits, and four tiers of prescription drugs: generics, preferred brand drugs, non-preferred brand drugs, and specialty high-cost drugs.

To prepare the data for use in the continuance tables, additional restrictions are made to exclude implausible plan designs. Plans with zero spending for all enrollees and plans with imputed coinsurance rates that fall outside the range of 0-100 percent are dropped. Additionally, plan-demographic group combinations with negative realized actuarial value are dropped. Enrollees with unspecified sex are also excluded. The resulting database consisting of 12,553,043 enrollees and 46,359 plans was used to construct the continuance tables, subject to the additional adjustments identified in the next two sections of this document.

The final 2015 AV Calculator does not include new enrollment data in the continuance tables and only applies the adjustments that were made in 2014. Specifically, when we began considering potential updates for the AV Calculator for 2015, there was uncertainty regarding the 2014 claims costs based on the cost of plans being offered by issuers and the actual enrollment patterns of Exchange members. A July 2013 report by the Department of Health and Human Services' Assistant Secretary for Planning and Evaluation (ASPE) found that 2014 premium rates for certain states were averaging 18 percent lower for the lowest cost silver plan than the

expected estimate for the 2014 individual market premiums.[5] Additionally, ASPE's September 2013 report found that the weighted average for second lowest cost silver plan premium rates for 48 states will be 16 percent lower than projected by the Congressional Budget Office.[6] Thus, since actual enrollment data was not available to analyze when we began considering updates to the AV Calculator and changes to the enrolled population could only be accounted for through another projection of the enrolled population, no enrollment updates were applied for the 2015 AV Calculator. Provisions for reweighting the AV Calculator based on actual enrollment data in the future are discussed in the final rule.

Standard Population Development and Adjustment from Primary Claims Data

The claims data, excluding the populations and plans noted above, provide the raw material for developing a standard population based on the expected enrollment in individual plans for the years 2014 and beyond. Utilization and spending in this data do not necessarily represent utilization and spending in the population expected to participate in the individual and small group markets. Further adjustment is therefore necessary to reflect the expected enrollment in plans required to use the AV Calculator; as noted above, the expected standard population developed for the 2014 AV Calculator was not modified for the final 2015 AV Calculator.

We anticipate that the standard population should be composed of the following:

Newly insured individuals: Most currently uninsured individuals will be eligible to enroll in the individual or small group markets beginning in 2014. Because the data in the commercial database represent a population insured under group policies with guaranteed issue, utilization in this group is likely to adequately represent utilization among the newly insured. However, it is possible that there is pent-up demand for health services in this group due to their prior lack of insurance. The AV Calculator is intended for multiple years of use and pent-up demand (to whatever extent it occurs) is likely to greatly diminish over time. The continuance tables therefore do not incorporate any adjustment for additional utilization due to pent-up demand in this group.

Individuals in the status quo individual market: After January 1, 2014, utilization in the group of enrollees in the individual market is likely to be comparable to enrollees in the database, so no adjustments in addition to those noted above are incorporated to account for this group.

Individuals in the small group market: The database consists of individuals with group coverage, and we expect the small group population after January 1, 2014 to be very similar to the current group market enrollees. Therefore, no adjustments in addition to those noted above are incorporated to account for this group.

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[5] APSE's Issue Brief on Market Competition Works: Proposed Silver Premiums in the 2014 Individual and Small Group Markets Are Nearly 20% Lower than Expected is available at: http://aspe.hhs.gov/health/reports/2013/MarketCompetitionPremiums/rb_premiums.pdf

[6] APSE's Issue Brief on Health Insurance Marketplace Premiums for 2014 is available at: http://aspe.hhs.gov/health/reports/2013/marketplacepremiums/ib_marketplace_premiums.cfm

Individuals moving out of employer coverage: If individuals move from employer coverage to the individual market, their utilization is likely to be comparable to enrollees in the database, so there is no adjustment in addition to those noted above to account for this group.

Individuals with Medicaid eligibility for part of the year: During the course of a year, some individuals enrolled in Medicaid will become ineligible due to income and will enroll in the individual or small group markets. Utilization in this group is likely to be similar to that among enrollees in the group market because the ability to move up out of Medicaid income levels and into employment likely indicates better health status than that of the average Medicaid beneficiary. Therefore, no adjustments are incorporated to account for this group.

High risk individuals: As of June 2013, about 60,000 people were enrolled in state high risk pools (HRPs), and about 44,000 were enrolled in the federally-administered or state-administered Pre-existing Condition Insurance Plans (PCIP).[7] Average spending for individuals in both the HRPs and the PCIP is substantially higher than spending for enrollees in the claims database. Individuals in state high-risk pools have average spending of about $10,900 per year, based on 2010 annual state high-risk pool expenses reported by the National Conference of State Legislatures (NCSL)[8] and most have annual spending that consistently exceeds their plan's MOOP. While states have the flexibility to keep high risk pools open beyond 2014, the continuance tables include adjustments to the existing utilization data to account for both of these populations as described in the following section.

Similar to the enrollment data, the claims data for the standard population was not further adjusted or further trended between 2014 and 2015. In recognition of the importance of market stability for both issuers and consumers from year-to-year, updates to the trend in the AV Calculator was not applied for 2015 and no new claims data was taken into account to better ensure that issuers might not have to make benefit changes. The final methodology for updating the AV Calculators' claims data, including trending, in the future years is discussed in the final rule.

Constructing Continuance Tables

Continuance tables summarize the claims experience and utilization of the standard population and are therefore the key input to calculating actuarial value. Specifically, a continuance table describes the distribution of claims spending for a population of health insurance users who face a particular benefit structure. The set of continuance tables underlying the AV Calculator reflect the standard population developed by the Secretary to implement section 1302(d) of the Affordable Care Act. The continuance tables themselves, as a representation of the standard population and not the standard population itself, are a component of the rules for determining actuarial value under the EHB Final Rule and are available at http://www.cms.gov/cciio/resources/regulations-and-guidance/index.html.

[7] The June 2013 PCIP enrollment data by state is available on the Centers for Medicare and Medicaid Services' website: http://www.cms.gov/CCIIO/Resources/Fact-Sheets-and-FAQs/Downloads/pcip-expenditures-6-30-2013.pdf.

[8] NCSL annual spending data by state is available on the organization's website: http://www.ncsl.org/issues-research/health/high-risk-pools-for-health-coverage.aspx.

The continuance tables rank enrollees by allowed total charges (after any provider discounts but before any member cost-sharing) and group them by ranges of spending. These ranges of spending define the rows of the continuance table. The data are then used to calculate the number of enrollees with total spending falling within each range, the cumulative average cost in the range for all enrollees, and the average cost for all enrollees whose total spending falls within the range. For each service type listed above, the columns of the continuance table display the average cost of spending on that service type that is attributed to cumulative enrollees in each range[9] and the average frequency of the service type per enrollee.

To construct the continuance tables from the underlying utilization data, enrollees are separated into groups based on common plan enrollment, sex, and age bracket, and each group is assigned to a metal level based on the estimated actuarial value of the plan. Separate continuance tables are created based on the utilization of enrollees in the same metal tier, sex, and age bracket.

Because continuance tables are constructed for plan designs with similar actuarial values, the tables must account for changes in utilization induced by plan design. To account for this induced demand, each continuance table reflects utilization of individuals from the claims database in plans with actuarial values in each of the four metal tiers. That is, each plan in the database is assigned an actuarial value based on the service utilization and plan payments for enrollee groups in that plan, and enrollees are grouped by these values into the metal tiers. The continuance tables for each metal tier are based on utilization data from enrollees in the claims database with estimated actuarial values within +/- 5 percentage points of the target actuarial value for each metal tier.

To estimate actuarial value for each plan, the realized actuarial value of the imputed benefit characteristics is calculated for groups of enrollees by age, sex, and spending bracket; the spending brackets are $0 to $250, $250 to $500, $500 to $1,500, $1,500 to $5,000, $5,000 to $15,000, $15,000 to $25,000, and $25,000 and over. Nonlinear least squares regressions, a statistical technique, are used to develop models estimating actuarial value based on the imputed cost shares in each of the spending brackets.

The utilization data are then used to create continuance tables for each sex/age group and each metal tier. Only utilization data from enrollees with exactly 12 months of enrollment or newborns are used in the continuance tables in order to represent a consumer's view of what cost-sharing to expect in a full 12 months of eligibility. The continuance tables for bronze and silver plans are based on utilization of enrollees in PPO/POS plans with between 50 and 250 enrollees with estimated actuarial values in the bronze and silver range.[10] Utilization data from

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[10] Because the bronze and silver tables use only enrollees in plans with between 50 and 250 enrollees, the overall means are distorted due to random observations of extreme spending above the 99th percentile. To account for this distortion, enrollees above $45,000 in total allowed spending were combined between the two continuance tables, with the average proportion and utilization rates being applied for all buckets above $45,000 for both bronze and silver tables. A further ad hoc adjustment of reducing bronze spending by 4 percent for all enrollees below the $45,000 cut-off rate is made to emulate the difference in mean spending observed in the full empirical HIC distributions.

all group plans with more than 50 enrollees and estimated actuarial values in the gold and platinum range is used to construct continuance tables for gold and platinum plans.

To produce a single continuance table for each metal tier, each of the separate continuance tables representing age/sex groups for a given metal tier are assembled into a single metal-level-specific continuance table, with each sex/age-group cell weighted by expected individual market participation in the corresponding metal tier for enrollees with those characteristics.[11] Expected market participation for each sex/age group is estimated by a model developed by HHS to predict 2014 insurance enrollment. The model estimates market enrollment in a manner that incorporates the effects of policy choices and accounts for the behavior of individuals and employers. The model was developed with reference to existing models such as those of the Congressional Budget Office and the Office of the Actuary, to characterize medical expenditures and enrollment choices across the 2014 marketplace. The model is made up of integrated modules which predict the number and characteristics of enrollees and their medical spending. The outputs of the model, especially the estimated enrollment and expenditure distributions, were used to analyze estimated enrollment in the 2014 marketplace. For a continuance table representing a particular metal tier, the HHS model predicts the share that each age/sex group represents of the full enrollee population at that metal tier.

Separate continuance tables for medical services and prescription drugs underlie the AV Calculator to accommodate the input of benefit structures with separate deductibles for these types of spending. To estimate costs for a plan with a separate drug benefit, the continuance table must include only non-drug claims to determine actuarial value for the medical portion of the plan. To produce a single AV for this type of plan, the plan-covered spending on drugs and medical services are added together and divided by total spending.

Because enrollees in the group market data do not fully represent the population expected to enroll in the individual and small group markets for either 2014 or 2015 (including the Exchanges), the continuance tables are adjusted to include spending by enrollees in both the federal and state-administered PCIP and the state HRPs. As explained above, PCIP and HRP enrollees generally have spending far above the individual market average, and most exceed the MOOP; however we have only average claims for this population. To adjust for the presence of these individuals, first the incremental spending for all PCIP enrollees is averaged across all market enrollees, including PCIP, by dividing the increment of expected spending for all PCIP members above the expected spending for the standard population by the expected individual market population in 2014. An analogous calculation is made for HRP enrollees.

Second, both of these per-member-per-year amounts are added to the average-cost-per-member column in the final row of each combined continuance table, which represents the average cost over all enrollees. This step adjusts the continuance tables to reflect that spending by PCIP and HRP enrollees is expected to increase average total spending for enrollees that are reflected in the standard population and the continuance tables.

[11] We expect that small group participation is similar to individual market participation in terms of age and sex distribution.

Third, a weighted portion of the per-member-per-year costs for PCIP and HRP enrollees is added to the average-cost-per-enrollee column of each row of the continuance table. The weight for each row is chosen so that the median of the distribution of medical spending for PCIP and HRP enrollees is equal to that of ER spending, and the median of drug spending is equal to that of generic drug spending. For the combined medical and drug continuance tables, the weight of each row is chosen so that the median of the combined distribution for PCIP and HRP enrollees is equal to that of ER spending. ER spending was chosen for this process because the distribution of ER spending in the claims database was the most closely aligned of all spending types to the observed distribution of spending among PCIP/HRP enrollees. This step spreads spending for PCIP and HRP enrollees across the distribution of enrollee spending in accordance with observed distributions of spending for high-risk enrollees relative to MOOP. It is important to note that incorporating spending for PCIP and HRP enrollees creates a gap in the continuance tables between the average-cost-per-enrollee derived from the national claims database and the data used in the AV calculation, which is the sum of the weighted portion of the per-member-per-year costs for PCIP and HRP enrollees and the average-cost-per-enrollee from the claims database that is used in the calculation.

Essential Health Benefits Generally Not Represented in Current Policies

Certain EHB that must be covered under the definition of EHB in the EHB Final Rule are relatively uncommon among the insured population reflected in the 2010 claims database that was used to develop the standard population and the continuance tables. These EHB services include pediatric oral and vision and habilitative services. The continuance tables incorporate a number of assumptions and additional data sources to ensure the AV Calculator will account for these benefits.

Pediatric oral services must be covered by all EHB- benchmark plans. The continuance tables incorporate assumed utilization of pediatric dental visits based on estimates from an analysis performed for the National Association of Dental Plans (NADP). The NADP estimated per-child per month cost for preventive services is annualized and then multiplied by the expected participation rate of children in the exchange based on the Affordable Care Act Health Insurance Model (ACAHIM) Market Enrollment module. Spending for these services is incorporated into the continuance tables using a similar method to that described above for incorporating PCIP and HRP spending. First, the per-member-per-year spending is added to the average-cost-per-member column in the final row of each combined continuance table, which represents the average cost over all enrollees. This accounts for the increase in average per-member spending for these services. Next, a weighted portion of the per-member-per-year cost is added to the average-cost-per-enrollee column of each row of the continuance table, with the weight proportional to the ratio of the spending limit for that row to the highest cumulative-average-cost-per-enrollee listed in the continuance table.[12] This spreads the cost for pediatric dental services across the spending distribution but puts the bulk of those costs in the highest spending brackets, under the assumption that enrollees who spend more on all services are likely to spend more on pediatric oral services.

[12] For example, assume that the highest cumulative average cost per enrollee is $10,000. If the spending limit for a row of the continuance table is $1,000, the weight is proportional to 1,000/10,000.

Pediatric vision services must also be covered by all EHB benchmark plans. Spending for these services is incorporated into the continuance tables by the same method for pediatric dental services using a cost estimate from a public employee health plan.

Generally, habilitative services are intended to create and/or maintain function. Given the transitional nature of the approach to habilitation services in the EHB Final Rule and that the utilization of these services is assumed to be low across the entire enrollee population, at this time the continuance tables do not incorporate any additional adjustments for these services.

The AV Calculator Interface

This section describes the AV Calculator interface and how inputs into the calculator are used to determine AV. The inputs for the calculator were based on the 10 broad categories of EHB and determined through a combination of consultation with actuarial experts and testing the magnitude of the effect of parameters on the calculated actuarial value as well as comments received. The calculator is designed to produce a summarized AV rounded to the nearest tenth of a percentage point based on the continuance tables described above and the cost sharing inputs described below.

Plan Benefit Features Allowed as Inputs

Plan design structures are characterized by cost-sharing features that determine the division of expenses between the plan and the insured. The ratio of the share of total costs paid by the plan relative to the total costs of covered services is the AV of the plan. No summary calculator could capture every single potential plan variation, nor are they necessary for an accurate calculation of AV. However, empirically, the vast majority of the variation between the AVs of health plans is captured by a finite number of variables, and the calculator focuses on accurately determining plan actuarial values based on this set of key plan characteristics. Therefore, the calculator includes only these key characteristics that have a significant effect on actuarial value. The user inputs a combination of metal tier and cost-sharing features, and the AV Calculator uses these inputs and the continuance tables to produce an AV for the health plan. The metal tier input allows the AV Calculator to account for induced demand by using the set of continuance tables for that specified metal tier. This is necessary to take into account the differences in utilization that are based on generosity of the health plan (i.e. induced utilization).

Deductibles, general rates for coinsurance, and MOOPs generally have a significant effect on utilization and the share of plan-covered expenses. The AV Calculator allows the user to specify either an integrated deductible that applies to both medical and drug expenses or separate deductibles for each type of spending. Similarly, if a plan design has separate medical and drug MOOP spending limits, the user may specify either an integrated MOOP or separate MOOPs for medical and drug spending. The user may also specify different coinsurance rates for medical and drug spending.

The AV Calculator allows the user to specify coinsurance rates and copayments for the medical services listed on page 4 of this document, along with the deductible, general coinsurance, and

out-of-pocket maximum. In addition the AV Calculator allows the user to specify whether services are subject to deductible or subject to coinsurance.

The AV Calculator does not allow the user to subject recommended preventive care to a copayment or deductible because the Affordable Care Act directs that these services be covered by the plan at 100 percent.[13]

The AV Calculator also allows users to specify other plan details. For inpatient and skilled nursing facility services, the default option is that copayments and coinsurance costs apply per stay, but these may be applied at the per day level by choosing the corresponding options. If inpatient copayment costs are applied per day, the user may specify that these copayments only apply for a set number of days chosen by the user, ranging from the first one to ten days in the hospital. Users may also specify that cost sharing for primary care visits only applies after a set number of visits chosen by the user, ranging from one to ten visits. Alternatively, users may specify that the deductible or coinsurance does not apply to primary care services until after a set number of visits, ranging from one to ten visits; during this initial set of visits, the enrollee pays a per-visit primary care copayment. Users may specify cost-sharing for four tiers of prescription drugs: generics,[14] preferred brand drugs, non-preferred brand drugs, and specialty high-cost drugs. Additionally, the user may specify that for specialty tier drugs, the enrollee pays the lesser of either the specialty drug coinsurance or a set dollar limit chosen by the user. The calculator also incorporates health savings accounts (HSAs) and health reimbursement arrangements (HRAs) that are integrated with group health plans if the amounts may only be used for cost-sharing; to use this option the user must include an annual amount contributed by the employer or in the case of HRAs, the amount first made available (sometimes referred to in this document as "HRA contributions").

Plans typically apply very different cost-sharing structures to in-network and out-of-network utilization. However, our empirical analysis of the claims database and other analyses by the American Academy of Actuaries indicate that relatively little utilization actually occurs out of network in terms of total dollars. In testing of the AV Calculator, AVs, including and excluding out-of-network spending, differed by less than one percent. In addition, 45 CFR 156.130(c) requires that only in-network costs apply to the MOOP. For standard plans with in-network and out-of-network tiers, the AV Calculator therefore produces estimates of actuarial value based only on in-network utilization and allows the user to specify only in-network cost-sharing parameters. This is consistent with §156.135(b)(4).

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[13] For the purposes of the AV calculator, preventive care means the services required to be covered without cost sharing under Section 2713 of the Public Health Service Act and its implementing regulations. *See* 45 C.F.R. § 147.130.

[14] From a technical perspective, it is important to note that the generic drug category in the claims data base includes maintenance drugs. To address the fact that not all maintenance drugs are generics and that some of those drugs are high cost, we have revised the definition of the generic drug category to only include maintenance drugs that cost less than $50 per prescription.

The final 2015 AV Calculator can accommodate plans utilizing a multi-tiered network with up to two tiers. Users may input separate cost-sharing parameters—such as deductibles, coinsurance rates, MOOPs, and schedules for service-specific copayments and coinsurance—and specify the share of utilization that occurs within each tier. The resulting actuarial value is a blend of the AV for the two tiers.

Calculating Actuarial Value

AV is the anticipated covered medical spending for EHB coverage (as defined in §156.110(a)) paid by a health plan for a standard population, computed in accordance with the plan's cost-sharing, and divided by the total anticipated allowed charges for EHB coverage provided to a standard population. It is reflected as the percentage and basically means the value of the total expenditures for EHB that are covered by the plan. The denominator of this calculation is simply the average allowed cost of all services for the standard population in the year for a specified metal tier; the numerator is calculated as the share of average allowed cost covered by the plan, using the cost-sharing parameters specified.

The remainder of this section describes each step in the calculation of actuarial value for the various plan structures that may be specified by the user. Before proceeding with the calculation, the calculator checks that the user has specified the necessary deductibles, coinsurance, and MOOPs consistent with the choice of integrated or separate deductibles and MOOPs for medical and drug expenses. The calculator also checks that the deductible is less than the MOOP and that the MOOP (or sum of the MOOPs, for plans with separate medical and drug MOOPs) is less than $6,850.[15] Per the final rule, the AV Calculator uses an estimated MOOP limit. Plan designs must not exceed the annual MOOP limit that is established in regulation regardless of the limit included in the AV Calculator.

If the user's chosen inputs for deductible and MOOP are not exactly equal to the spending thresholds used in constructing the continuance table, the values are pro-rated using linear interpolation. For instance, if a user enters a $150 deductible, then the AV Calculator estimates the amount of spending below the deductible by interpolating between the average cost per enrollee that occurs below the $100 threshold on the continuance table and the average cost per enrollee that occurs below the $200 threshold on the continuance table. In this case, if the average cost per enrollee at the $100 threshold was $85 and the average cost per enrollee at the $200 threshold was $185, the interpolated average cost per enrollee would be $135 (halfway between $85 and $185).

Step 1: Set Metal Tier

The user enters the desired metal tier for the calculation, and the calculator selects the corresponding continuance tables for use in all remaining steps of the calculation.

[15] The AV calculator allows for a MOOP up to $6,850 to ensure that once the annual limit on cost-sharing for 2015 is defined, the calculator will be able to accommodate a slightly higher MOOP to allow versatility of the AV calculator.

Step 2: Calculate Average Expenses over all Enrollees

The denominator of the AV calculation is the average cost over all enrollees for a plan of the specified metal level, found in the final row of the corresponding continuance table in the column for average cost.[16]

Step 3: Calculate Expenses Covered by Employer Contributions to HSA and HRA, if Applicable

Section 156.135(c) provides that, for plans other than those in the individual market that at the time of purchase are offered in conjunction with an HSA or with integrated HRAs that may be used only for cost-sharing, annual employer contributions to HSAs or amounts newly made available under such HRAs for the current year are counted towards the total anticipated medical spending of the standard population that is paid by the health plan. When the HSA or HRA Employer Contribution box is checked and the entered annual contribution amount is positive, because the value of a contribution to this type of HSA or HRA can affect expected utilization, the calculator treats the actuarial average spending of the employer contributions as covered "first-dollar" spending for covered EHB services, as if the annual contribution amount is applied at the very beginning of an enrollee's spending in a benefit year.

Specifically, the AV Calculator uses the continuance table for combined expenses to identify the average cost per enrollee at the annual HSA or HRA contribution amount. If the annual contribution amount falls between two spending thresholds in the continuance table, this amount is pro-rated as described in the previous section. The pro-rated amount is plan-covered expenses and is included in the numerator. Next, the calculator identifies any plan-covered benefits obtained in the deductible stage and subtracts them from the numerator, to avoid double-counting when these benefits are included in the numerator during the regular benefit calculation steps described in Step 4: Calculate Plan-Covered Expenses for Spending Below Deductible Amount below. At the conclusion of these steps, plan-covered expenses in the numerator include average costs at the annual HSA or HRA contribution amount less any plan-covered expenses in the deductible stage below the HSA or HRA contribution amount.

We note that while the AV Calculator cannot accommodate situations in which the employer contribution to certain types of HSA and HRA exceeds the deductible, such contributions can still be accommodated by using the alternative methods for AV calculation pursuant to §156.135(b).

[16] It is important to note that incorporating spending for PCIP and HRP enrollees creates a gap between the average-cost-per-enrollee derived from the national claims database and the data used in the AV calculation, as it is the sum of the weighted portion of the per-member-per-year costs for PCIP and HRP enrollees and the average-cost-per-enrollee from the claims database that is used in the calculation.

Step 4: Calculate Plan-Covered Expenses for Spending Below Deductible Amount

The AV Calculator next computes any plan-covered expenses for spending below the amount of the deductible for each benefit type and includes these expenses in the numerator. The computation process depends on whether the plan includes separate medical and drug deductibles or a combined deductible. For plans with a combined ("integrated") deductible, the calculator computes the deductible portion of the benefit in the same way for both medical and drug benefit types. For plans with separate deductibles, the calculator computes the deductible portion of the benefit separately for medical and drug benefit types. This section first describes the computation process that applies to plans with combined deductibles and to medical benefits in plans with separate deductibles, and then describes the computation for drug benefit types in plans with separate deductibles.

For plans with a combined deductible, the calculator computes plan-covered expenses in the deductible range for all medical and drug benefit types listed in the calculator, relying on the continuance table for combined expenses. For plans with separate deductibles, the calculator uses only medical benefit types and utilizes the continuance table for medical expenses. The process for calculating plan-covered expenses for a given benefit type varies depending on whether the benefit type is subject to the deductible or to a copayment as follows:

- If the benefit type is subject to neither deductible nor copayment, the plan covers all spending on that benefit type below the deductible. The calculator identifies the average cost of that benefit listed in the row of the continuance table corresponding to spending at the plan deductible (which may be pro-rated, if necessary). This is total per-member spending for this benefit in the relevant range, all of which is included in plan-covered expenses.
- If the benefit type is subject to copayment but not deductible, the plan covers all spending on that benefit type in this range, less enrollee copayments. The calculator identifies the average cost of that benefit, as above. Next, the calculator divides this amount by the benefit type frequency to estimate the per-service cost. Subtracting the copayment for the benefit type from the per-service cost produces plan-covered expenses per service for this benefit type. The calculator multiplies this result by the benefit type frequency to produce total plan-covered expenses for the benefit type. This is added to the total plan covered expenses. The calculator may use one of several variations on this process to compute plan-covered spending, depending on whether the user selects options that affect how the AV Calculator applies copays or general cost-sharing requirements.[17] In this instance, the AV Calculator

[17] Variations on the process include the following: (a) If the user limits IP copayments to a set number of days, the AV calculator compares the IP frequency at the Annual HSA Contribution Amount to the set number of days. If the IP frequency is less than or equal to the set number of days, the calculation proceeds normally. However, if the IP frequency is greater than the set number of days, the AV calculator multiplies the set number of days by the copayment and subtracts the resulting total copayment spending from the average cost of the benefit to compute plan-covered spending. (b) If the user selects the option restricting primary care cost sharing to care after a set number of visits, the AV calculator first determines whether or not the primary care frequency at the Annual HSA Contribution Amount exceeds the set number of visits. If the frequency is less than or equal to the set number of visits, the copayment does not apply and the plan-covered spending equals the full value of average cost for that

computes plan-covered spending based on the average spending and frequency for each benefit type at the deductible level.

- If the benefit type is both subject to copayment and the deductible, the plan covers no spending on that benefit type in the deductible range. Service costs less enrollee copayments are applied to the deductible.
- If the benefit type is not subject to deductible, is not subject to coinsurance rate and the copayment field input is $0, no cost sharing for the beneficiary is applied to the benefit.
- If the benefit type is subject to deductible and is among a subset of benefit types (mental health and substance abuse, advanced imaging, rehabilitative speech therapy, occupational and physical therapy, and diagnostic laboratory), is not subject to a copayment, and if outpatient professional and/or facility services are not subject to the deductible, the calculator follows the process described in the first two bullets for the outpatient professional and outpatient facility portions of the service category. The calculator determines whether to follow the process described in the first or second bullet for the outpatient professional and outpatient facility portions based on the deductible and copayment requirements for those two benefit types.
- For X-rays and diagnostic imaging, if they are subject to deductible, not subject to a copayment rate, and if primary care and/or specialist office visit benefits are not subject to deductible, the calculator applies the steps laid out in the first two bullets to the primary care and specialist portions of those service categories. The calculator determines whether to follow the process described in the first or second bullet for the primary care and specialist portions based on the deductible and copayment requirements for those two benefit types.
- For primary care services, if the user specifies that the deductible and/or coinsurance applies only after a set number of visits with copayments, the AV Calculator compares the set number of copayment visits to the frequency of visits when total average spending is equal to the deductible. If the frequency of visits is less than or equal to the set number of copayment visits, then the calculator uses the process described in the second bullet to compute plan-covered expenses. However, if the frequency of visits exceeds the set number of copayment visits, the calculator computes the per-service cost for spending at the deductible using the process described in the second bullet. The calculator then computes total plan-covered spending at the deductible by multiplying this per-service cost by the set number of copayment visits and subtracting from the result the set number of copayment visits multiplied by the copayment amount.

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service. However, if the frequency is greater than the set number of visits, the AV calculator subtracts the set number of visits from the frequency and multiplies the result by the copayment to obtain total enrollee copayment spending. The AV calculator then subtracts total enrollee copayment spending from the average cost for that service to compute total plan-covered spending.

- If a medical benefit type is subject to a copay in the deductible range and coinsurance rate in the coinsurance range, the calculator applies the above rules to the user-provided copay rate for expenditures in the deductible range, and uses the provided coinsurance rate for expenditures during the coinsurance range. For prescription drugs a separate coinsurance rate is not directly supported; however, a plan with a copay in deductible range and a coinsurance rate in the coinsurance range can be created by both specifying a copay and allowing the prescription drug category to be subject to the general drug coinsurance rate.
- For copayments to affect actuarial value the copayments must apply in the deductible range with a deductible greater than zero, apply in the coinsurance range with the benefit type not subject to coinsurance, or both.

To calculate plan-covered expenses up to the amount of the deductible for drugs in plans with separate medical and drug deductibles, the calculator relies on the continuance tables for the plan metal tier that are constructed from drug claims. For each drug benefit type, the calculator identifies the average cost for that benefit listed in the row of the continuance table that corresponds to the plan drug deductible (which may be pro-rated, if necessary). If the benefit type is not subject to either deductible or copayment, the calculator adds this per-member spending amount to the total plan-covered expenses in full. If the benefit type is subject to copayment but not deductible, the calculator divides average cost for that benefit by the frequency for the benefit type to estimate the per-service cost. The calculator next subtracts the copayment for the benefit type from the per-service cost and multiplies the resulting value by the benefit-type frequency to produce total plan-covered expenses for the benefit type. Copayments are set equal to the service unit costs and if the copayment is greater than the service unit cost, the AV Calculator only accounts for the cost up to the service unit costs. This applies for copays where the remainder of the service cost is covered by the plan in the deductible range and applies for all copays in the coinsurance range. In the calculator, it is applied when the "Subject to the Deductible?" is not checked for the deductible range. This is a clarification on what the 2014 AV Calculator was doing. This result is added to the total plan-covered expenses.

At the conclusion of these steps, plan-covered expenses in the numerator include all plan-covered expenses for spending up to the amount corresponding to the deductible.

The calculator also tracks the average cost per enrollee at the amount of the deductible, which is used in later steps. For plans with an integrated deductible, this is the average cost per enrollee at a level of spending equal to the deductible, listed in the corresponding row of the combined continuance table. For plans with separate deductibles, this is the sum of the average cost per enrollee at spending equal to the medical deductible, listed in the corresponding row of the medical continuance table, and the average cost per enrollee at spending equal to the drug deductible, listed in the corresponding row of the drug continuance table. For plans with separate medical and drug deductibles, the calculator uses the drug-claim continuance table to track the average cost per enrollee corresponding to the plan drug deductible (which may be pro-rated); this value is also used in later steps.

Step 5: Determine Applicable Spending Level for MOOP

To identify the spending level at which an enrollee will reach the MOOP, the calculator first determines a modified MOOP that takes into consideration benefit types excluded from coinsurance. It examines each medical and drug benefit type and if a benefit has a copayment, the calculator multiplies this copayment by the average frequency at the deductible for the benefit type. The resulting value, which represents the amount of copayment an enrollee pays for that benefit type at the deductible, is subtracted from the MOOP to obtain the amount that an enrollee would have to pay in coinsurance for the remaining service types before reaching the MOOP limit. The calculator may use one of several variations on this process to compute the amount of copayment an enrollee pays for each benefit type, depending on whether the user selects options that affect how the AV Calculator applies copayments or general cost-sharing requirements. In this instance, the AV Calculator computes total copayment spending based on the average spending and frequency for each benefit type at the deductible level. Additionally, if the user specifies that primary care services are subject to copayments for a set number of visits before the deductible and/or coinsurance applies, the AV Calculator subtracts from the MOOP the lesser of the following two amounts: either the frequency of primary care visits at the deductible multiplied by the copayment amount or the set number of copayment visits multiplied by the copayment amount.

If the benefit type is subject to coinsurance and is among a subset of benefit types that have both a professional and facility component (mental health, substance abuse, imaging, rehabilitative speech therapy, occupational therapy, physical therapy, and laboratory), and if outpatient professional and/or facility services are not subject to coinsurance, the calculator applies the process described in the prior paragraph to the outpatient professional and facility portions of the service category. To do so, the calculator relies on the coinsurance and copayment requirements for outpatient professional and outpatient facility services.

Similarly, for X-rays, if they are subject to coinsurance and if primary care and/or specialist office visit benefits are not subject to coinsurance, the calculator applies the process described in the first paragraph of this section to the primary care and specialist portions of the service category. To do so, the calculator relies on the coinsurance and copayment requirements for primary care and specialist office visits.

Upon completion of these adjustments, the resulting "modified MOOP" represents the amount that an enrollee would have to pay in coinsurance for all remaining service types before reaching the MOOP limit. If the plan has separate MOOPs for medical and drug spending, the calculator carries out the above steps separately for medical and drug benefit types and their corresponding MOOPs, producing a modified MOOP for medical spending and a modified MOOP for drug spending.

Next, the calculator computes the spending level at which the modified MOOP will apply. To do so, the calculator subtracts the deductible from the modified MOOP and divides the resulting value by one minus the coinsurance rate, or the percentage of costs borne by the enrollee for services subject to coinsurance after accounting for copayments; it then adds the deductible to this value to calculate the total amount of spending at which out-of-pocket costs paid by the enrollee reach the modified MOOP. The calculator matches this amount to the appropriate row

in the combined continuance table to obtain the average cost per enrollee at the modified MOOP limit. For plans with separate MOOPs, the calculator performs this process separately for medical and drug benefits and their corresponding deductibles, modified MOOPs, and continuance tables to obtain separate average cost estimates for medical and drug spending at the relevant modified MOOP.

While the modified MOOP created by this adjustment does not capture the precise effect of copayments, it provides a value that adequately fulfills the needs of the remaining calculation steps. Small differences between the modified MOOP calculated by this method and the exact MOOP that applies are unlikely to have a significant effect on the output of the AV Calculator.

Step 6: Calculate Plan-Covered Expenses for Spending Between the Deductible and the MOOP

To calculate expenses covered by the plan in the coinsurance range (that is, the plan's spending for services when spending is between the amount corresponding to the deductible and the amount corresponding to the modified MOOP), the calculator examines each of the medical and drug benefits listed in the calculator to determine whether they are subject to coinsurance and copayment. The computation for each benefit type depends on the coinsurance and copayment requirements applying to that type. First, the calculator computes plan-covered expenses for benefits not subject to the overall plan coinsurance rate or benefits subject to the overall plan coinsurance rate within set limits. Second, the calculator computes the average cost per enrollee at the modified MOOP adjusted for costs for all services not subject to the overall plan coinsurance rate. Finally, this adjusted average cost is used to compute plan-covered expenses for benefits subject to the overall plan coinsurance rate. The narrower the range between the deductible and the MOOP, as in the case for bronze plans, the smaller the role this computation plays in the overall actuarial value of the plan.

The calculator computes plan-covered expenses for benefits not subject to the overall plan coinsurance rate and benefits subject to a restricted form of the plan coinsurance rate as follows:

- For each benefit type that is subject to coinsurance at a coinsurance rate different from the overall plan coinsurance rate, the calculator subtracts the average cost of that benefit corresponding to spending at the deductible from the average cost of that benefit corresponding to spending at the modified MOOP to obtain the average costs for that benefit that are attributed to spending in the range between the deductible and the modified MOOP. Multiplying this average cost by the benefit's coinsurance rate produces plan-covered expenses for this benefit in the range, which are included in the numerator.
- For each benefit type subject to copayment but not coinsurance, the calculator divides average cost at spending at the deductible for that benefit by the frequency for that benefit type to estimate the per-service cost at that spending level. The calculator then subtracts the benefit copayment from the per-service cost and multiplies the result by the benefit frequency to produce plan-covered spending for the benefit corresponding to spending at the deductible. Next, the calculator follows a similar process to calculate plan-covered

spending for the benefit corresponding to spending at the modified MOOP. Finally, the calculator subtracts plan-covered spending at the deductible from plan-covered spending at the modified MOOP and adds the resulting value to the total plan-covered spending. The calculator may use one of several variations on this process, similar to those described above in the section on HSAs and HRAs, to compute plan-covered spending, depending on whether the user selects options that affect how the AV Calculator applies copayments or general cost-sharing requirements. In this instance, the AV Calculator computes plan-covered spending at the deductible level based on the average spending and frequency for each benefit type at the deductible level, and it follows an analogous process to compute plan-covered spending at the modified MOOP level.

- If the benefit type is subject to coinsurance and is among a subset of benefit types (mental health and substance abuse, advanced imaging, rehabilitative speech therapy, occupational and physical therapy, and X-rays and diagnostic imaging), and if outpatient professional and/or facility services are not subject to coinsurance, the calculator applies the process described in the first two bullets to the outpatient professional and outpatient facility portions of the service category. The calculator determines whether to follow the process described in the first or second bullet for the outpatient professional and outpatient facility portions based on the coinsurance and copayment requirements for those two benefit types.
- For X-rays and diagnostic imaging, if they are subject to coinsurance and if primary care and/or specialist office visit benefits are not subject to coinsurance, the calculator applies the steps laid out in the first two bullets to the primary care and specialist portions of those service categories. The calculator determines whether to follow the process described in the first or second bullet for the primary care and specialist portions based on the coinsurance and copayment requirements for those two benefit types.
- For specialty high-cost drugs, if they are subject to the plan coinsurance rate and if the user selects the option to limit the amount of beneficiary cost sharing on those drugs, the calculator follows a process analogous to that described above to determine whether the beneficiary cost-sharing amount for spending between the deductible and the modified MOOP exceeds the specialty-drug spending limit. If the beneficiary cost-sharing amount is less than or equal to the specialty-drug spending limit, the calculator treats the benefit as subject to plan coinsurance and incorporates it into the numerator using the process described below. However, if the beneficiary cost-sharing amount exceeds the specialty-drug spending limit, the AV Calculator computes plan-covered spending by subtracting the spending limit from the average cost for that benefit between the deductible and the modified MOOP.
- For primary care, if the benefit is subject to plan or benefit-specific coinsurance and if the user selects the option to begin cost sharing after a set number of visits, the calculator compares the set number of visits to the frequency for primary care at the modified MOOP. If the set number of visits

> is less than or equal to the frequency at the modified MOOP, then plan-covered spending equals the difference between the average cost of services at the modified MOOP and the average cost of services at the deductible. However, if the set number of visits is greater than the frequency at the modified MOOP, the calculator computes the beneficiary cost-sharing amount by subtracting the set number of visits from the frequency and multiplying the result by the coinsurance rate. The AV Calculator then computes plan-covered spending by subtracting the beneficiary cost-sharing amount from the difference between the average cost of services at the modified MOOP and the average cost of services at the deductible.[18]

At the completion of these steps, the numerator includes plan-covered expenses in the range of spending between the MOOP and deductible for all services except those that are subject to the plan's overall coinsurance rate.

Next, to account for spending on services already considered in this step, the calculator subtracts the sum of the average cost for each of those services from average cost per enrollee for spending at the modified MOOP to obtain adjusted average cost at the modified MOOP. Finally, the process for computing plan-covered expenses in the coinsurance range for the remaining benefit types depends on both whether the plan has integrated or separate deductibles and whether the deductible or deductibles equal the MOOP. If the plan has an integrated deductible, plan-covered expenses for services not already considered in this step (i.e., services subject to the overall plan coinsurance rate) are equal to the coinsurance rate multiplied by spending on these remaining services. This spending is calculated as the difference between average cost at the level corresponding to the modified MOOP, adjusted as described above for spending on services already considered in this step, and average cost at the level corresponding to the deductible.

If the plan has separate medical and drug deductibles, the remaining plan-covered expenses in this range have two components. The first component, for medical spending, is equal to the coinsurance rate multiplied by spending on medical services in the range between the modified MOOP and deductible. This spending is calculated as the difference between average cost at the level corresponding to the modified MOOP, adjusted as described above for spending on services already considered in this step, and average cost for drug benefits subject to the plan's overall coinsurance rate at spending corresponding to the modified MOOP, less the difference between average cost at the deductible and average cost for all drug benefits at the deductible. That is, the calculator adjusts both the modified MOOP and the deductible for costs attributed to drugs so that spending on medical services can be considered separately. The second

[18] The AV calculator follows a similar process if primary care services are subject to coinsurance and the user specifies that cost-sharing only applies after a set number of visits with copayments. If the set number of copayment visits is less than or equal to the frequency for primary care at the modified MOOP, the AV calculator computes plan-covered spending in this range using the process described above but subtracting the copayment amount multiplied by the frequency for primary care at the modified MOOP. Similarly, if the set number of copayment visits exceeds the frequency at the modified MOOP, the calculator computes plan-covered spending in this range as described above but contracting the copayment amount multiplied by the copayment visit limit.

component, for drug spending, is calculated in a parallel manner, and is equal to the drug coinsurance rate multiplied by drug spending in the range between the modified MOOP and deductible. This spending is computed as the difference between average cost for drug benefits subject to the plan's overall coinsurance rate at spending corresponding to the modified MOOP and average cost for all drug benefits at the deductible. Again, the calculator adjusts both the modified MOOP and the deductible for costs attributed to medical services so that spending on prescription drugs can be considered separately.

If the medical deductible for a plan with separate deductibles is equal to the MOOP, the calculator computes the medical component using a coinsurance rate equal to one, because all medical expenses in this range are covered by the plan. If the drug deductible is equal to the MOOP, the calculator computes the drug component using a drug coinsurance rate equal to one, because all drug expenses in this range are covered by the plan.

For plans with separate MOOPs for medical and drug spending, the calculator uses a variation of the process described above: calculating plan-covered expenses separately for medical and drug spending falling between the corresponding separate deductibles and modified MOOPs. This variation is described below. First, for benefits not subject to the overall plan coinsurance rate or benefits subject to a restricted form of the plan coinsurance rate, the calculator uses the same process as described above to calculate spending between the deductible and the modified MOOP, but it uses the medical deductible and modified MOOP for calculations involving medical benefits and the drug deductible and modified MOOP for drug benefits. At the conclusion of this step, the numerator includes plan-covered expenses in the range of spending between each benefit type's corresponding MOOP and deductible for all services except those that are subject to the plan's overall unrestricted coinsurance rate.

Second, the calculator subtracts the sum of the average cost of medical services not subject to the unrestricted plan coinsurance rate from the average cost per enrollee at the modified medical MOOP, and performs a corresponding calculation for drug services not subject to the unrestricted plan coinsurance rate. This step adjusts the average costs for medical and drug benefits at the corresponding modified MOOPs to account for spending on benefits not subject to the unrestricted plan coinsurance rate.

Finally, for benefits subject to the plan coinsurance rate without restriction, the calculator uses a similar process as described above to calculate spending between the deductible and the MOOP; however, this step relies on the separate medical and drug deductibles and modified MOOPs to calculate spending for medical and drug benefits. As in the above process, the calculator computes spending separately for medical and drug benefits. However, it is unnecessary to adjust the deductible and modified MOOP to account for spending in the other benefit type due to the separate medical and drug deductibles and modified MOOPs.

At the conclusion of this step, the numerator includes plan-covered expenses for all spending below the MOOP (or MOOPs).

Step 7: Calculate Plan-Covered Expenses for Spending Above the MOOP

The plan covers all expenses for spending on covered benefits above the MOOP. To calculate the amount of this spending, the calculator computes the difference between average cost over all enrollees and average cost at the modified MOOP, and includes the full amount in the numerator. If the plan has separate MOOPs for medical and drug spending, the calculator computes the difference between the average cost for medical benefits over all enrollees and the average cost for medical benefits at the modified medical MOOP and performs a corresponding calculation for drug benefits; the full amount for both benefit types is included in the numerator. At the conclusion of this step, the numerator includes plan-covered expenses over the full range of spending.

Step 8: Apply Network Blending, if Applicable

If the plan is a blended network/POS plan, the calculator multiplies the numerator calculated in step 7 by the portion of total claims cost specified by the user as anticipated to be used in the first tier. The result becomes the preliminary numerator. The calculator then repeats steps 3 through 7, utilizing the information about the deductible, coinsurance rate, MOOP and benefit-specific deductible, coinsurance, and copayment requirements contained in the Tier 2 columns of the AV Calculator to calculate a secondary numerator. This secondary numerator is then multiplied by the portion of total claims cost specified by the user to reflect utilization of the second tier network. Once this process is complete, the calculator adds the preliminary and secondary numerators to produce the new final numerator. In order to guarantee that the change in AV is due to a change in cost-sharing requirements, please note that when calculating for cost-sharing reductions (CSR) plan variations, these percentages cannot vary from the percentages used for the standard silver plan.

Step 9: Calculate AV and Corresponding Metal Tier

In the final step, the calculator computes the final actuarial value amount, classifies the plan by metal tier, and determines whether the metal tier matches the desired metal tier input by the user. To compute the actuarial value, the calculator divides the numerator by the denominator. If the actuarial value is outside of these ranges, the calculator outputs the actuarial value and the message “Error: Result is outside of +/- 2 percent de minimis variation.”

The AV Calculator compares the observed metal tier to the user’s desired metal tier. If the desired metal tier matches the observed metal tier, the calculator outputs the actuarial value, metal tier, and the message, “Calculation Successful.” If the plan does not match the desired metal tier, the calculator provides the user the option to reset the “Desired Metal Tier” parameter to the observed metal tier and rerun the actuarial value calculation. If the user declines, the calculator outputs the actuarial value, the metal tier, and the message, “Calculation resolved without matching metal tiers.”

Additionally, users may select the option to determine whether the plan design satisfies the Affordable Care Act CSR requirements for enrollees falling below 250 percent of the Federal Poverty Level (FPL) under section 1402(a) through (c) of the Affordable Care Act. Under the final rule to implement section 1402, issuers of qualified health plans must provide plan variations to eligible lower-income enrollees, who have enrolled in silver qualified health plans

in the individual market through the Exchange.[19] These plan variations must have reduced cost sharing and meet specified AV levels depending on the enrollee's household income. To use the AV Calculator to verify the AV of a plan variation, users should select the indicator that the plan meets the CSR standard, and select the desired metal tier. The below table provides information on which metal tier should be chosen to align with the expected utilization for each plan variation. Please note that the metal tier continuance tables indicated below should be used regardless of any error message prompting the use of a different continuance table.

Household Income	**Silver Plan Variation AV**	**Desired Metal Tier**
100-150% of FPL	Plan Variation 94%	Platinum
150-200% of FPL	Plan Variation 87%	Gold
200-250% of FPL	Plan Variation 73%	Silver

After the other information has been entered, and the AV is calculated, the AV Calculator will produce an additional output message, which describes whether the plan satisfies the AV requirements for enrollees at a particular percentage of FPL.

[19] "Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2014," 78 FR 15410 (March 11, 2013), codified at 45 CFR § 156.420.