Risk Adjustment in the Individual & Small Group Market in Minnesota – A Progress Report

Minnesota Department of Health

April 2014

Health Economics Program
Division of Health Policy
PO Box 64882
St. Paul, MN 55164-0882
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MINNESOTA MDH DEPARTMENT OF HEALTH

April 7, 2014

The Honorable Tony Lourey
Chair, Health and Human Services Finance Division
Minnesota Senate
Room 120, State Capitol
Saint Paul, MN 55155-1606

The Honorable Tom Huntley
Chair, Health and Human Services Finance Committee
Minnesota House of Representatives
585 State Office Building
Saint Paul, MN 55155-1606

The Honorable Kathy Sheran
Chair, Health, Human Services and Housing Committee
Minnesota Senate
Room 120, State Capitol
Saint Paul, MN 55155-1606

The Honorable Tina Liebling
Chair, Health and Human Services Policy Committee
Minnesota House of Representatives
367 State Office Building
Saint Paul, MN 55155-1606

To the Honorable Chairs:

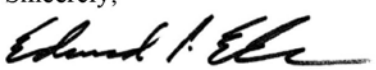
The 2013 Minnesota Legislature directed the Minnesota Department of Health (MDH) to conduct a series of studies related to performing state-based risk adjustment in the individual and small group market in Minnesota with the state's All-Payer Claims Database (APCD). Specifically, the Commissioner of Health is directed to:

1. Assess the extent to which data in the APCD that is collected and maintained by MDH are sufficient for developing and operating a state alternative risk adjustment methodology consistent with applicable federal rules;
2. Assess the readiness of the data for state-based risk adjustment, including by performing audits of statistically valid samples of data from health carriers;
3. Collect from health carriers in the individual and small group health insurance market all data required for conducting risk adjustment with standard risk adjusters; and
4. If the data are determined to be sufficient for developing and operating a state-based risk adjustment system, perform analysis to study whether Minnesota-based risk adjustment in the individual and small group market, using either the federal risk adjustment model or a state-based alternative, can be more cost effective and perform better than risk adjustment conducted by federal agencies.

The enclosed report presents a progress update of the work conducted to date in fulfillment of MDH's requirements, and includes information about procurement of a data collection vendor; background research conducted by MDH about federal requirements; and an initial assessment of the readiness of the APCD for risk adjustment. The report also includes a discussion of the next steps required for the completion of the study.

Please feel free to contact Stefan Gildemeister, the Director of the Health Economics Program with any questions. Mr. Gildemeister can be reached at 651.201.3554 or Stefan.Gildemeister@state.mn.us.

Sincerely,



Edward P. Ehlinger, M.D., M.S.P.H
Commissioner
P.O. Box 64975
St. Paul, MN 55164-0975

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1. Background

The 2013 Minnesota Legislature directed the Minnesota Department of Health (MDH) to conduct a series of studies related to performing state-based risk adjustment in the individual and small group market in Minnesota with the state's All-Payer Claims Database (APCD).[1] Specifically, the Commissioner of Health is directed to:

1. Assess the extent to which data in the APCD that is collected and maintained by MDH are sufficient for developing and operating a state alternative risk adjustment methodology consistent with applicable federal rules;[2]
2. In support of assessing the readiness of the data for state-based risk adjustment, perform audits of statistically valid samples of data from health carriers;
3. Collect from health carriers in the individual and small group health insurance market all data required for conducting risk adjustment with standard risk adjusters; and
4. Conditional on finding that the data are sufficient for developing and operating risk adjustment, perform analysis to study whether Minnesota-based risk adjustment in the individual and small group market, using either the federal risk adjustment model or a state-based alternative, can be more cost effective and perform better than risk adjustment conducted by federal agencies.

The Commissioner is required to submit to the Legislature two reports about this study. An interim report, due in March 2014, is to provide preliminary findings from the assessment of the data. A final report, due to the Legislature by October 1, 2015, is intended to deliver conclusive findings from each component of the study and a recommendation on whether Minnesota should conduct state-based risk adjustment.

In conducting the work on item (4), the Commissioner of Health is directed to work in consultation with the Commissioners of Human Services and Commerce, as well as the Board of the Minnesota Health Insurance Exchange, MNsure.

[1] Laws of Minnesota -- 2013, Regular Session, Chapter 108—HF1233, Article 1, Sec. 65
[2] Absent approved state-based risk adjustment, the federal government conducts risk adjustment under the Patient Protection and Affordable Care Act (ACA).

2. Progress Update

The Minnesota Department of Health (MDH), in the course of conducting the study as required by the Legislature, has performed the following activities to date:

Procuring a data collection vendor to assist with new data collection and readiness assessment: MDH has been working since 2009 on the development and maintenance of an All-Payer Claims Database for Minnesota. In the process, MDH has, since 2009, retained the services of a vendor who was responsible for managing data collection, ensuring quality of the data and aggregating data for analytic purposes. As required under State of Minnesota procurement Rule, this contract came in the end of 2013 to a natural close – it could not be amended further.

In 2013, MDH developed a Request for Proposals (RFP) that included not only a continuation of the services performed by the previous vendor, but also additional services related to this study. These additional services include collection of additional data elements needed for the risk adjustment study and working with the vendor on addressing questions concerning data quality, aggregation, and classification of data using clinical groupers. Through a competitive procurement process that included multiple responses to the RFP, MDH executed a contract with the highest scoring vendor, Onpoint Health Data, in March 2013 for a 24 month contract period. Under this contract, the contractor, who also served as the state's previous vendor, will be responsible for continuing the work on data intake and aggregation. In addition, the vendor will assist the state with collecting additional information required for the conduct of this study; work with a vendor designated by the state to demonstrate publicly the quality of the data; and work with MDH and contract staff to fully assess the readiness of the data for state-based risk adjustment.

Conducting background research about requirements: The U.S. Department of Health and Human Services issued a series of guidance documents through federal Rules that, among other things, govern the implementation of risk adjustment by the federal government, including the mechanism for states to perform risk adjustment.[3] MDH studied these Rules to identify requirements concerning state-based risk adjustment, including:

- Approval mechanism for state-operated risk adjustment;
- Methodology and risk adjustment performance standards; and
- Risk adjustment data validation.

[3] Federal Register, Vol. 78, No. 47/ Monday, March 11, 2013; Part II—Department of Health and Human Services, 45 CFR Part 153, 155, 156, *et al.*, Patient Protection and Affordable Care Act: HHS Notice of Benefit and Payment Parameters for 2014 and Amendments to the HHS Notice of Benefit and Payment Parameters for 2014; Final Rules; Patient Protection and Affordable Care Act; Establishment of Exchanges and Qualified health Plans; Small Business Health Options Program; Proposed Rule and Federal Register, Vol. 79, No. 47/ Tuesday, March 11, 2014, Part II—Department of Health and Human Services 45 CFR Parts 144, 147, 153, et al., Patient Protection and Affordable Care Act: HHS Notice of Benefit and Payment Parameters for 2015

As part of this analysis, MDH reviewed progress by other states, primarily Massachusetts and Utah, towards obtaining approval for operating state-based risk adjustment systems using their state's APCDs. Findings from this background research are used to inform Minnesota's procurement of vendors for conducting activities under this legislative study. This initial background research from both states indicated:

- Typically, APCDs lack some data elements that are minimally required to perform risk adjustments under the federal model. A subset of these data elements can be collected outside of the claims stream, but some resubmission of data submitted by payers will likely be necessary.
- Audits have revealed a mixed picture. Recognizing that existing APCDs, like that in Minnesota, have not been designed with risk adjustment as the primary application in mind, data from smaller insurers might either not be available or not meet data quality standards. One state began its risk adjustment initiative initially by supplementing its market-specific APCD with commercially available data for the region.
- Considering the complex requirements by the federal government associated with state-based risk adjustment, any state would have to begin seeking certification substantially ahead of the policy year in which it plans to begin risk adjustment. For instance, for risk adjustment to begin with policy year 2016, states would be required to issue notice about the process of risk adjustment by March 2015; states would have had to obtain certification before that date.

Conducting preliminary assessment of readiness of the APCD for risk adjustment: States that pursue obtaining federal approval for conducting state-based risk adjustment must certify that the data is sufficiently complete. This assessment includes determining:

1. If data submission to the APCD covers all carriers who write health insurance policies in the individual and small group health market spaces in the state;
2. Whether variables necessary for running the federal risk adjustment model (hierarchical conditions category, or HCC, grouping logic) or alternative risk adjusters (e.g., the Johns Hopkins Adjusted Clinical Groups system or the University of California Chronic Illness and Disability Payment System) are present in the APCD; and
3. The extent to which claims contained in the APCD meet the validation standards established by HHS.

MDH has conducted initial work in all three areas; final evidence will be assembled by an independent contractor to MDH. Results from the initial work are as follows:

- The APCD was developed and maintained under legislation allowing MDH to conduct research in support of increasing transparency on cost and quality for Minnesota providers. In developing the Rules for submission of the data, MDH sought to find balance between completeness of information and reporting burden for health plan companies. As a result, current Rules stipulate that health plan companies and third-party administrators that have earned less than $3 million in health care claims for covered individuals are exempted from submission; similarly, pharmacy

benefit managers with annual claims below $300,000 are also currently not required to submit data to the APCD.

Our preliminary analysis based on partial data from 2012 shows that currently approximately three carriers in the individual market and three in the small group market are exempt from submitting data to the APCD.[4] These health plan companies accounted for approximately $2 million in premium revenue in 2012. MDH will be seeking recommendations from its vendor about the extent to which data would be required to be collected from these small carriers, as well as new market entrants (these carries would have no or only minimal history in the Minnesota market) and what subset of data elements typically available in the APCD would be sufficient to meet minimally necessary standards for risk adjustment.

- MDH has analyzed the minimally necessary data elements, initially limited to the risk adjustment model used by the federal government,[5] and has preliminarily determined the need for additional data elements, as shown in Table 1. After further analysis by MDH and a contractor, any identified needed data will be collected from health plan companies to complete this study. Collection of this data is authorized by Minnesota Laws directing the conduct of this study.

Table 1: Availability of Data Elements in Minnesota's APCD Needed for Risk Adjustment with the HCC Risk Adjuster

Data File	Needed Data Element	Current Availability in MN APCD
Eligibility	Unique person identifier	Yes, encrypted
Eligibility	Subscriber identifier	Yes
Eligibility	Date of birth	Birth month/year
Eligibility	Gender	Yes
Eligibility	Enrollment span	Yes
Eligibility	Plan metal tier, including catastrophic	No
Eligibility	Market space (individual, small group, catastrophic, inside/outside exchange)	No
Eligibility	Subscriber premium	No
Eligibility	Indicator for cost sharing reduction	No
Eligibility	Patient geography	Yes
Medical	Unique person identifier	Yes, encrypted
Medical	Diagnosis code(s)	Yes
Medical	Bill type code	Yes
Medical	Procedure code(s)	Yes
Medical	Service dates	Yes
Medical	Paid dates	Yes

[4] In addition, one carrier has not complied with the requirement to register with the data system, which affects our ability to assess whether they are exempt.
[5] Compare also HCC model description in the Appendix to this report.

- In its new contract with the APCD data collection and aggregation vendor, Onpoint Health Data, MDH has required more robust quality assurance and reporting activities. This includes performing quality checks concerning the completeness and accuracy of data over time and establishing additional logic checks to be performed monthly. In addition, MDH is in the process of procuring an independent contractor to assess and document the degree to which reported claims are complete and appropriately represent care delivered and paid for to individual and small group market enrollees. As required by federal Rules, these activities will include auditing a sample of claims

Holding Preliminary Discussions with the Department of Human Services (DHS): In a payment notice titled, "Basic Health Program; Federal Funding Methodology for Program Year 2015", released by the federal Department of Health and Human Services on March 12, 2014, the Centers for Medicare & Medicaid Services (CMS) specified parameters and calculations it would use for funding the Basic Health Program (BHP); this financing mechanism will likely support MinnesotaCare beginning in 2015.

The funding methodology provides DHS the opportunity to propose a risk adjustment methodology that measures the relative health status of enrollees in MinnesotaCare compared to enrollees in the individual insurance market. The methodology must be proposed by August 1, 2014. To the extent that DHS' proposed risk adjustment methodology identifies that the MinnesotaCare population is less healthy, Minnesota will be eligible for additional federal funding to support MinnesotaCare.

MDH and DHS are collaborating to ensure that risk adjustment activities related to BHP funding are coordinated with efforts to evaluate state-based risk adjustment in the individual insurance market.

3. Next Steps

As mentioned earlier, MDH is in the process of procuring analytical services in support of activities required to complete the legislative study; MDH anticipates beginning work with a contractor in summer 2014 on a range of activities. It will be part of the contractor's responsibility to finalize the assessment of the readiness of the APCD for risk adjustment, including by determining the completeness of available data; make recommendations about needed additional data or data granularity, and report on how well data collection timelines align with federal certification timelines.

Given the existing experience among health plans with aggregating data for federal risk adjustment on servers accessible by the federal risk adjustment processes, MDH will work with the contractor and health plans to assess what aspects of the existing risk adjustment process currently work well for Minnesota and what aspects could benefit from a Minnesota designed alternative process, mechanism and data system. Key among these discussions will be assessing the potential value of developing and using alternative risk adjusters, including potential measures of income, socio-demographic

characteristics[6] and volatility in coverage across metal levels, something that may be particularly important during the initial years of ACA implementation and the period of phasing out the federal re-insurance mechanism.

Based on the initial assessment presented in this report and additional recommendations from MDH's contractor, the agency will move forward with collecting data necessary to perform assessment of the effectiveness of a state-based risk adjustment mechanism compared to that performed at the national level. This collected data for 2014 will again be assessed by the contractor for completeness to determine whether in and of itself it can be sufficient for developing state-based risk adjustment.

Depending on the outcome of this analysis, MDH, in consultation with state partners in the Departments of Commerce and Human Services and the Board of Directors of MNsure, will move forward with testing the effectiveness of alternative risk adjustment models, statistical fits and cost-effectives of a state-based approach in Minnesota in the context of the federal alternative. This process will aim at developing a risk adjustment model that appropriately reflects the health care market statistics in the Minnesota small group and individual market and that is calibrated to the specific utilization experience of Minnesota's population in these market spaces.

As required, MDH will submit to the Legislature by October 2015 a final report with findings from the full study and recommendations for moving forward with state-based risk adjustment in the individual and small group market in Minnesota. These recommendations will include considerations for implementing the system of calculating plan average actuarial risk; schedule for communicating risk scores to health plan companies; parameters for timing and operationalizing the payment and charge process; framework for assuring appropriate oversight, including of financial operations, statutory compliance, and performance management of the entity responsible for performing Minnesota's risk adjustment mechanism.

[6] Association for Community Affiliated Plans, Improving Risk Adjustment in Health Insurance Exchanges to Ensure Fair Payment, November 28, 2012.

Appendix: HHS-Developed Risk Adjustment Model Algorithm Instructions

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
Center for Consumer Information and Insurance Oversight
200 Independence Avenue SW
Washington, DC 20201

CENTERS FOR MEDICARE & MEDICAID SERVICES
CENTER FOR CONSUMER INFORMATION & INSURANCE OVERSIGHT

HHS-Developed Risk Adjustment Model Algorithm Instructions

Section 1343 of the Affordable Care Act provides for a permanent risk adjustment program. To protect against potential effects of adverse selection, the risk adjustment program transfers funds from plans with relatively lower-risk enrollees to plans with relatively higher-risk enrollees. It generally applies to non-grandfathered individual and small group plans inside and outside Exchanges.

The HHS risk adjustment methodology is described in the HHS Notice of Benefit and Payment Parameters for 2014, Final Rule (CMS-9964-F), which was published in the *Federal Register* on March 11, 2013.

The methodology that HHS will use when operating a risk adjustment program on behalf of a State for the 2014 benefit year would calculate a plan average risk score for each covered plan based upon the relative risk of the plan's enrollees, and apply a payment transfer formula in order to determine risk adjustment payments and charges between plans within a risk pool within a market within a State. The risk adjustment methodology addresses three considerations: (1) the newly insured population; (2) plan metal level differences and permissible rating variation; and (3) the need for risk adjustment transfers that net to zero. The risk adjustment methodology developed by HHS for the 2014 benefit year:

- Is developed on commercial claims data for a population similar to the expected population to be risk adjusted;
- Employs the hierarchical condition category ("HCC") grouping logic used in the Medicare risk adjustment program, but with HCCs refined and selected to reflect the expected risk adjustment population;
- Establishes concurrent risk adjustment models, one for each combination of metal level (platinum, gold, silver, bronze, catastrophic) and age group (adult, child, infant);
- Results in payment transfers that net to zero within a risk pool within a market within a State;
- Adjusts payment transfers for plan metal level, geographic rating area, induced demand, and age rating, so that transfers reflect health risk and not other cost differences; and
- Transfers funds between plans within a risk pool within a market within a State.

This document provides instructions for the HHS risk adjustment models for the 2014 benefit year. The risk adjustment methodology consists of concurrent risk adjustment models, one for each combination of metal level (platinum, gold, silver, bronze, and catastrophic) and age group

1

(adult, child, infant). This document provides the detailed information needed to calculate risk scores given individual diagnoses.

The model instructions are based on the methodology described in the final notice of benefit and payment parameters. Please direct questions regarding the model instructions to HHS HCC Risk Adjustment Models at hhshccraops@cms.hhs.gov. This mailbox will be used only to answer questions pertaining to operations of the HHS risk adjustment model as posted to this site. We look forward to assisting with inquiries pertaining to your risk adjustment program operations using the HHS-HCC risk adjustment models for the 2014 benefit year.

HHS has created two versions of software (SAS software and HHS-developed risk adjustment model algorithm software) and software instructions for issuers to use with their enrollment data to simulate their enrollee populations' risk scores within the risk adjustment model, as finalized in the 2014 notice of benefit and payment parameters. This software is being issued only as supplemental guidance for issuers to better understand and simulate the calculation of plan liability risk scores for their expected enrollees.

This software is not a required prerequisite to submitting claims to the Edge Server, nor is it a requirement of the risk adjustment program. Further, issuers should not use this software to filter on their own servers prior to posting data to the Edge Server. The software on the Edge Server may have several additional layers of operational information. This software merely provides some simulation of the software on the Edge Server that will calculate enrollees' risk scores.

List of Tables

I. Introduction

The risk adjustment program transfers funds from lower than average risk plans to higher than average risk plans using a specified methodology. A risk adjustment methodology includes a risk adjustment model, a determination of plan average actuarial risk, and a calculation of payments and charges.[1] The latter two elements are referred to by HHS as the payment transfer formula. This document provides a detailed description of the HHS risk adjustment models, and enables interested parties to develop software to determine risk scores given individual diagnoses.

[1] A risk adjustment methodology also includes a data collection approach and a schedule for program operation. These elements are not discussed in this document.

This document should be viewed as a supplement to the final HHS Notice of Benefit and Payment Parameters, Final Rule. Please note that the models described herein were finalized in the final rule.

The following is a description of the HHS risk adjustment models for the 2014 benefit year. This description includes a narrative and accompanying tables for calculating the risk scores from diagnoses in the HHS risk adjustment models. The HHS risk adjustment models calculate risk scores by summing an enrollee's factors (age/sex, HCCs, and interaction terms). This description shows, in detail, how individual diagnoses are assigned to HCCs, and then allows the user to build individual risk scores from those diagnoses.

The intent is to outline the steps needed to produce individual risk scores from the HHS risk adjustment models.

The HHS risk adjustment methodology includes risk adjustment models based on age, as detailed in Table 1 Model Membership. Adult scores are calculated for enrollees age 21+ using the adult models set. Child scores are calculated for enrollees age 2 – 20 using the child model set. Infant scores are calculated for enrollees age 0 – 1 using the infant model set. Because HHS models predict plan liability, there are 5 models within each age group model set – one each for platinum, gold, silver, bronze, and catastrophic plans.

The following five sections describe the algorithm for creating risk scores. Any algorithm developed to calculate risk scores should prepare the diagnosis-level file and use it to assign HCCs for each person. This is described in Section II and includes the list of acceptable CPT/HCPCS codes listed in Table 2.[2] Section III and Section IV, respectively, identify that data that are inputted to and outputted from the risk adjustment model. Finally, Section V describes the algorithm to produce risk scores (i.e., outputs). First, the algorithm should crosswalk acceptable diagnoses to HHS Condition Categories (CCs). Then the algorithm should create HHS Hierarchical Condition Categories (HCCs) by imposing hierarchies on the HHS-CCs. For persons without claims or encounter records, zeros are assigned to all HHS-CCs and HHS-HCCs. After HHS-HCCs are created, the algorithm should compute predicted scores using the factors from the adult, child, and infant HHS risk adjustment regression models. This information is referenced in Tables 3-9.

The factors from the following regression models are used to produce risk scores:

- Adult regressions
    - Adult platinum
    - Adult gold
    - Adult silver
    - Adult bronze
    - Adult catastrophic
- Child regressions
    - Child platinum

[2] Definitions taken directly from the Current Procedural Terminology (CPT®) codes and the Healthcare Common Procedure Coding System (HCPCS) code set.

    - Child gold
    - Child silver
    - Child bronze
    - Child catastrophic
- Infant regressions
    - Infant platinum
    - Infant gold
    - Infant silver
    - Infant bronze
    - Infant catastrophic

Terminology: In this document, the abbreviations HHS-HCC and HCC are used interchangeably for Health and Human Services Hierarchical Condition Categories.[3] The abbreviations HHS-CC and CC are used interchangeably for HHS Condition Categories. The abbreviations ICD-9 and ICD-9-CM are used interchangeably for International Classification of Diseases, 9th Revision, Clinical Modification.

II. Creation of diagnosis-level file according to source of diagnoses allowable for risk adjustment

The diagnosis-level input file (Section III) should include ICD-9-CM diagnosis codes used for risk adjustment. These ICD-9 CM diagnosis codes are listed in Table 3, ICD-9 to HHS-Condition Category (CC) Crosswalk. The user must evaluate each claim or encounter record to determine whether its diagnoses are included in the diagnosis file to be inputted to the algorithm or software. Encounter records normally report dates, provider or bill types, diagnoses and procedures, and other information, though they may not have payment information.

This section on the diagnosis file preparation explains how each record is evaluated to determine whether or not the record's diagnoses are to be used for CC/HCC creation. It is the user's responsibility to create the diagnosis-level file according to the filtering logic below. This document provides filtering instructions and a list of the 2012 CPT/HCPCS codes that identify acceptable sources of diagnoses for risk adjustment. However, the user must create the diagnosis-level file for input to the risk adjustment algorithm; the data set is <u>not</u> created by the algorithm.

Only ICD-9-CM diagnosis codes from sources allowable for risk adjustment should be included in the diagnosis-level file. ICD-9 codes that are not listed in Table 3 may be included in the diagnosis-level file but are ignored by the algorithm. The steps below provide logic to determine which diagnoses are allowable. Note that Steps 1 and 3 refer to Table 2, CPT/HCPCS Included List, which provides the 2012 CPT/HCPCS codes used to define service types that are acceptable sources of diagnoses for risk adjustment. The CPT/HCPCS codes marking services with diagnoses allowable for risk adjustment are listed in column A of Table 2. Column B lists the short description of the procedure codes. Column C identifies applicable footnotes on the CPT/HCPCS codes. Notes begin on row 6966 of the Excel table with the line "Notes:" and should not be imported by any program.

The diagnosis-level input file should include diagnoses from claims/encounter records with discharge dates or through dates within the benefit year. Though the term "claim" is used in the steps below, the steps apply equally to encounter records.

1. Professional source of diagnosis
    a. For professional records, use diagnoses from records that have at least one line item with an acceptable CPT/HCPCS code (Table 2). If there is at least one acceptable line on the record, use all the header diagnoses.
    b. If there are no acceptable service lines on the record, do not use any of the diagnoses for risk adjustment.
2. Inpatient facility source of diagnosis
    a. Use all header diagnoses from records where facility bill type code equals one of the following:
        i. 110 (inpatient nonpayment/zero claim); or
        ii. 111 (inpatient admit through discharge); or
        iii. 114 (inpatient interim- last claim); or
        iv. 116 (inpatient adjustment of prior claim); or
        v. 117 (inpatient replacement of prior claim).
    b. If the facility bill type code =114, then also use all header diagnoses on related records with facility bill type code = 112 (inpatient interim-first claim) or 113 (inpatient interim-continuing claim).
    c. If the facility bill type code =117 and is being used as a 114 or final interim bill, then also use all header diagnoses on related records with facility bill type code = 117 and discharge status code 30 (still a patient).
    d. There is no procedure screen for these record types.
3. Outpatient facility source of diagnosis
    a. Restrict records to those with facility bill type code equal to:
        i. 130 (hospital outpatient nonpayment/zero claim); or
        ii. 131 (hospital outpatient admit though discharge); or
        iii. 132 (hospital outpatient interim- first claim); or
        iv. 133 (hospital outpatient interim- continuing claim); or
        v. 134 (hospital outpatient interim-last claim); or
        vi. 136 (hospital outpatient adjustment of prior claim); or
        vii. 137 (hospital outpatient replacement of prior claim); or
        viii. 71x (rural health clinic); or
        ix. 73x (federally qualified health center); or
        x. 76x (community mental health center).
    b. For records with at least one acceptable CPT/HCPCS code (Table 2) in the revenue center trailers, use all header diagnoses. Otherwise, do not use the diagnoses for risk adjustment.

Note on bundled claims for mother and newborn infant: In practice, some hospital claims for childbirth include both the mother's record and the newborn infant's record on the same claim (diagnoses and procedure codes). Because there are separate adult, child, and infant risk adjustment models and some of the diagnosis codes may not be distinguishable between mother and infant on bundled claims, any bundled claims should be redefined as two separate records

(mother and infant, each with a separate ID and age) in order for the diagnoses to be appropriately included in the input dataset and used for appropriately calculating risk scores.[4]

The user will need to create a program to detect any bundled claims and redefine them (i.e., it is not part of these instructions). The bundled claim detection program would need to identify enrollees with a claim containing these elements:

- AGE_LAST >= 2 (an age corresponding to the child or adult models; more specifically age should be appropriate for a maternity diagnosis) and
- ICD-9 diagnoses corresponding to a completed pregnancy HCC (HHS-HCC 207 or 208 or 209) and
- ICD-9 diagnoses corresponding to a newborn HCC (HHS-HCC 242 or 243 or 244 or 245 or 246 or 247 or 248 or 249).

See Table 3, ICD-9 to HHS-Condition Category (CC) Crosswalk, for diagnosis codes corresponding to the completed pregnancy and newborn HCCs.

For purposes of creating the diagnosis-level input file, if bundled claims will not be detected and redefined, enrollees with any bundled claims should be excluded because their scores would be inappropriately calculated. Table 1, Rows 11-29, provides an algorithm for excluding these enrollees. Assuming the bundled claim corresponds to the mother's ID, the mother will be excluded and the infant codes will be ignored. Related to this issue, age 0 infants lacking a maturity category are assigned to the newborn "Term" category, as detailed in Table 8, row 129.

III. Input data files for HHS-CC/HCC variable creation

This section describes the two input data files needed to create HHS-CC and HHS-HCC grouping and regression variables—a person-level file and a diagnosis-level file. It is the responsibility of the user to create these input data files with the variables listed in this section.

1. PERSON file – a person-level file of demographic and enrollment information
    a. ENROLID (or other person identification variable)
        i. character or numeric type and unique to an individual
    b. SEX
        i. one character, 1=male; 2=female
    c. AGE_FIRST
        i. Age as of first day of enrollment in benefit year
        ii. Used only for MCE diagnosis code age edits
    d. AGE_LAST
        i. Age as of last day of enrollment in benefit year
        ii. Used for all risk adjustment purposes except MCE diagnosis code age edits
        iii. For infants born in the previous year but not discharged until the benefit year, users should substitute Age 0 for Age 1 in AGE_LAST.

[4] Operationally, if an infant claim cannot be separated from the bundled claim, HHS will assign the infant to the "term" maturity category. If a newborn infant's record on a bundled claim were instead to be redefined by the plan as an individual infant claim, the infant would be appropriately assigned to a newborn HHS-HCC and any additional model diagnoses from that infant claim would be assigned to corresponding HCCs.

e. METAL
    i. Enrollee's metal level
    ii. Allowable values: platinum, gold, silver, bronze, catastrophic (only 1 of these values)
f. CSR_INDICATOR
    i. Person-level indicator. Enrollees who qualify for cost-sharing reductions will be assigned CSR_INDICATOR =1-8. Non-CSR recipients will be assigned CSR_INDICATOR = 0.
        1. 1 = Enrollees in 94% AV Silver Plan Variation
        2. 2 = Enrollees in 87% AV Silver Plan Variation
        3. 3 = Enrollees in 73% AV Silver Plan Variation
        4. 4 = Enrollee in Zero Cost Sharing Plan Variation of Platinum Level QHP
        5. 5 = Enrollee in Zero Cost Sharing Plan Variation of Gold Level QHP
        6. 6 = Enrollee in Zero Cost Sharing Plan Variation of Silver Level QHP
        7. 7 = Enrollee in Zero Cost Sharing Plan Variation of Bronze Level QHP
        8. 8 = Enrollee in Limited Cost Sharing Plan Variation
        9. 0 = Non-CSR recipient and enrollees with unknown CSR

2. DIAG file – a diagnosis-level input file of diagnoses
    a. ENROLID (or other person identification variable that must be the same as in PERSON file)[5]
        i. person identifier of character or numeric type and unique to an individual
    b. DIAG
        i. ICD-9-CM diagnosis code, 5 character field, no periods, left justified. Codes should be to the greatest level of available specificity. (Age and sex edits for diagnoses are applied in Part V, step 1(2a) to ensure diagnoses are appropriate for the age and sex of the enrollee.) Only diagnoses from allowable sources (Part II) should be included in the diagnosis-level file.

IV. Variables output by the algorithm

This section describes the variables that are outputted by the HHS risk adjustment model. Any software or algorithms developed from the tables output a person-level file and need to be capable of adding any person-level variables that the user wants to keep.

The following variables can be specified:

1. Any person-level variables from the original person-level file
2. Demographic age/sex variables created by the algorithm
3. HHS-HCCs created by the algorithm
4. HHS-CCs (condition categories assigned before hierarchies are applied)
5. HHS-HCC groups and HHS-HCC interactions created by the algorithm

[5] Please note that in operation, this information can not include personally identifiable information.

6. Infant model maturity categories, severity level categories, and maturity by severity level interactions created by the algorithm
7. Score variables:
    a. Adult Models
        i. SCORE_ADULT_PLATINUM
        ii. SCORE_ADULT_GOLD
        iii. SCORE_ADULT_SILVER
        iv. SCORE_ADULT_BRONZE
        v. SCORE_ADULT_CATASTROPHIC
    b. Child Models
        i. SCORE_CHILD_PLATINUM
        ii. SCORE_CHILD_GOLD
        iii. SCORE_CHILD_SILVER
        iv. SCORE_CHILD_BRONZE
        v. SCORE_CHILD_CATASTROPHIC
    c. Infant Models
        i. SCORE_INFANT_PLATINUM
        ii. SCORE_INFANT_GOLD
        iii. SCORE_INFANT_SILVER
        iv. SCORE_INFANT_BRONZE
        v. SCORE_INFANT_CATASTROPHIC
8. CSR-adjusted score variables:
    a. Adult Models
        i. CSR_ADJUSTED_SCORE_ADULT_PLATINUM
        ii. CSR_ADJUSTED_SCORE_ADULT_GOLD
        iii. CSR_ADJUSTED_SCORE_ADULT_SILVER
        iv. CSR_ADJUSTED_SCORE_ADULT_BRONZE
        v. CSR_ADJUSTED_SCORE_ADULT_CATASTROPHIC
    b. Child Models
        i. CSR_ADJUSTED_SCORE_CHILD_PLATINUM
        ii. CSR_ADJUSTED_SCORE_CHILD_GOLD
        iii. CSR_ADJUSTED_SCORE_CHILD_SILVER
        iv. CSR_ADJUSTED_SCORE_CHILD_BRONZE
        v. CSR_ADJUSTED_SCORE_CHILD_CATASTROPHIC
    c. Infant Models
        i. CSR_ADJUSTED_SCORE_INFANT_PLATINUM
        ii. CSR_ADJUSTED_SCORE_INFANT_GOLD
        iii. CSR_ADJUSTED_SCORE_INFANT_SILVER
        iv. CSR_ADJUSTED_SCORE_INFANT_BRONZE
        v. CSR_ADJUSTED_SCORE_INFANT_CATASTROPHIC
9. Final unadjusted and CSR-adjusted score variables depending on the enrollee's metal level.
    a. Adult scores
        i. SCORE_ADULT
        ii. CSR_ADJUSTED_SCORE_ADULT
    b. Child scores

i. SCORE_CHILD
ii. CSR_ADJUSTED_SCORE_CHILD

c. Infant scores
i. SCORE_INFANT
ii. CSR_ADJUSTED_SCORE_INFANT

The user should determine which of the scores is appropriate for the enrollee depending upon the age and plan benefit design of that enrollee.

V. Algorithm to produce output

This section describes the process by which the outputs identified in Section IV are created. The algorithm to produce risk scores can be segmented into five parts—HHS-CC and HHS-HCC creation, model variable creation, access factors table, unadjusted score calculation, and CSR-adjusted score calculation.

Step 1: HHS-CC and HHS-HCC creation. This first step should use Table 3 for HHS-CC creation and Table 4 for HHS-HCC creation.

Table 3 crosswalks ICD-9 codes to the HHS-Condition Categories (CCs) in the risk adjustment models. This table incorporates the ICD-9 Medicare Code Edits (MCEs) for age and sex, the further specified CC age and sex splits, and the creation of CCs and additional CCs.[6] Explanations of the fields in Table 3 are provided below:

- OBS (column A): Observations, numeric count from 1 to 3,518 of the code list.
- ICD9 (column B): Only ICD-9 codes assigned to HCCs in the risk adjustment models are included in this crosswalk. All other ICD-9 codes correspond to HCCs not included in the risk adjustment models and are not used to calculate risk scores.
- ICD9 Label (column C): Abbreviated ICD-9 code labels.
- Code Valid columns (columns D-F): Identifies the fiscal year in which the ICD-9 codes are valid. There are three possible values in columns D-F:
  - Y = Yes, code is valid ICD-9 code in that fiscal year
  - N = No, code is no longer valid ICD-9 code in that fiscal year
  - (blank) = code is not yet in existence in that fiscal year
- MCE Age Condition [use AGE_FIRST] (column G): Checks that a person with a diagnosis code has the appropriate age for the diagnosis. Conditions listed in this column are required for the CC to be assigned.
  - Newborn diagnosis: Age of 0 years
  - Pediatric diagnosis: Age range is 0-17 years inclusive
  - Maternity diagnosis: Age range is 12-55 years inclusive
  - Adult diagnosis: Age range is 15 years or older

[6] The diagnosis-code edits used are based on the Definitions of Medicare Code Edits (MCEs), which are updated and published each year to correspond with ICD-9 code updates. The MCEs detect inconsistencies based on a person's age and diagnosis or sex and diagnosis. In addition to the standard MCE age 0 edit list, Table 3 includes these codes as requiring age = 0: V302, V312, V322, V332, V342, V352, V362, V372, and V392. These codes were added because like the other codes in the V30-V39 range which do appear on the MCE age 0 edit list, they correspond to the infant's birth status and should not appear on the mother's record or on an older child's record.

- MCE Sex Condition (column H): Checks that a person with a diagnosis code has the appropriate sex for the diagnosis. Conditions listed in this column are required for the CC to be assigned.
    - Female indicates the diagnosis is only appropriate for females.
    - Male indicates the diagnosis is only appropriate for males.
- CC Age Split [use AGE_LAST] (column I): Identifies diagnosis codes that are assigned to CCs in the risk adjustment models based on age. ICD-9 codes assigned by age to more than one CC in the risk adjustment models are listed more than once.
- CC Sex Split (column J): Identifies diagnosis codes that are assigned to CCs in the risk adjustment models based on sex. ICD-9 codes assigned by sex to more than one CC in the risk adjustment models are listed more than once.
- CC (column K): Identifies the CC in the risk adjustment models that a person with the ICD-9 code who meets the MCE conditions and CC splits is assigned.
- Additional CC (column L): Identifies the additional CC in the risk adjustment model that a person with the ICD-9 code who meets the MCE conditions and CC Age or Sex splits is assigned. Additional CCs are assigned when the ICD-9 code is assigned to more than one HCC in the risk adjustment models (such as a single ICD-9 diagnosis code that encompasses both chronic kidney disease and heart failure).
- Footnote (column M): Identifies applicable footnotes for the ICD-9 code. Notes begin on row 3523 of the Excel table with the line "Notes:" and should not be imported by any program.

Table 4 provides the hierarchy rules to apply to the CCs to create HHS-HCCs. Explanations of the fields in Table 4 are provided below:

- OBS (column A): Observations, numeric count from 1 to 127 of HCCs in the HHS risk adjustment models.
- HCC (column B): Only HCCs in the risk adjustment models are identified. HCCs are created when hierarchies are applied to CCs.
- Set to 0 HCCs (column C): Hierarchy exclusions for each HCC are listed. Users should set the HCCs in this column to 0 when a person has the HCC listed in column B.
- HCC Label (column D): Full HCC labels.

Use Table 3 and Table 4 to create CCs and HHS-HCCs:

1. Create CC and HHS-HCC 0/1 indicator variable for each HCC in the risk adjustment models listed in Table 4. (Example: CC001, CC002, CC003, CC004, CC006, CC008 ... CC254; HHS_HCC001, HHS_HCC002 ... HHS_HCC254). Initially, set CCs and HHS-HCCs to 0 for each person.
2. If there are any acceptable diagnoses for a person, then:
    a. Perform ICD-9 Medicare Code Edits (MCEs) for age and sex (use MCE Age Condition and MCE Sex Condition columns in Table 3). Use AGE_FIRST for applying MCE age edits. This is done so that age 0 infants who turn age 1 by the end of the year will not have valid age 0 diagnoses excluded that may have been assigned in months earlier in the year in which they were age 0. (Similar issue for ages 17-18.)

b. If a person meets the MCE conditions, apply CC Age Split and CC Sex Split to create CC (set to 1) using crosswalk of ICD-9 to CCs (use CC Age Split, CC Sex Split, and CC columns in Table 3). Use AGE_LAST for CC age splits.
c. Create additional CCs (set to 1) using Additional CC column.

3. Create HHS-HCCs after all diagnoses for a person are processed and CC variables are created using hierarchies provided in Table 4.
    a. Set HCC to 1 when corresponding CC is set to 1.
    b. Set the HCCs in column C to 0 when a person has the HCC listed in column B set to 1.

Step 2: Model variable creation.
This step should use Table 5 for demographic variable creation, Table 6 for additional adult model variables, Table 7 for additional child model variables, and Table 8 for additional infant model variables.

Explanations of the fields in Tables 5-8 are provided below:

- Column A identifies the model set in which the variable is used (adult, child or infant).
- Column B identifies the variable name.
- Column C gives a variable description.
- Column D indicates if the variable is used in the model.
- Column E defines the variable creation.

Variables must be assigned values in the same order as defined in Tables 5, 6, 7, and 8. For example, in Table 6, assign a value to variable SEVERE_V3 first, then the HCC group variables, then the severe illness interactions, then the severe illness interaction groups.

Variable creation:

1. Create demographic variables needed for score calculation using Table 5.
    a. A person's age and sex are used to create 1 of 28 mutually exclusive age-sex variables (18 for adult models, 8 for child models, 2 for infant models). Use AGE_LAST.
    b. Because the infant model is computed with females as the reference group for the age-sex demographic variables, there are no separate age-sex demographic variables for females age 0 or 1.
    c. Adult age-sex variables are listed in rows 8-25.
    d. Child age-sex variables are listed in rows 27-34.
    e. Infant age-sex variables are listed in rows 36 and 37.
2. For the adult model, create the severe illness indicator variable using Table 6.
    a. The severe illness indicator variable, SEVERE_V3, is created when an adult has at least 1 of 8 HHS-HCCs that indicate a severe illness. Rows 5-12 of column E in Table 6 identify these 8 HHS-HCCs.
        i. SEVERE_V3 is initially set to 0 for each adult and is set equal to 1 if the adult has at least 1 of the 8 HHS-HCCs.
3. For the adult and child models – create HCC groups using Tables 6 and 7.

a. HCC groups are effectively treated as single HHS-HCCs in the models. The HCC groups are assigned variables GXX, where XX is the group number.
b. For the adult models:
    i. There are 17 adult HCC groups. The group variable names are listed in rows 14-67 of column B of Table 6.
    ii. Initially create the 17 HCC groups for adults and set to 0 for each person.
    iii. The HHS-HCCs in an HCC group are listed in column E of Table 6 starting in row 14.
    iv. A variable for an HCC group is set to equal 1 if an adult has at least one of the HHS-HCCs in a given adult HCC group.
c. For the child models:
    i. There are 17 child HCC groups. The HCC group variable names are listed in rows 5-59 of column B of Table 7.
    ii. Initially create the 17 HCC groups for children and set to 0 for each person.
    iii. The HHS-HCCs in an HCC group are found in column E of Table 7 starting in row 5.
    iv. A variable for an HCC group is set to equal 1 if a child has at least one of the HHS-HCCs in a given child HCC group.

4. For the adult models – create HHS-HCC interaction variables using Table 6.
    b. The variable SEVERE_V3 is used to create the severe illness indicator in HHS-HCC or HCC group interactions. There are 16 interactions identified in rows 71-86 of Table 6.
        i. Interaction variables are initially set to 0 for each adult.
        ii. The variable for an interaction is set to 1 if an adult has SEVERE_V3=1 and the HHS-HCC or HCC group in the interaction =1.
    c. The interactions are aggregated to create two severe illness interaction groups based on the predicted expenditures of the interactions that are in the models.
        i. Variables INT_GROUP_H and INT_GROUP_M are set to 0 for each adult.
        ii. INT_GROUP_H is set to 1 if an adult has at least 1 of the 9 high-cost interactions. The variable and interactions are found in rows 88-96 of Table 6.
        iii. INT_GROUP_M is set to 1 if an adult has at least 1 of the 7 medium-cost interactions and INT_GROUP_H is set to 0. The variable and interactions are found in rows 98-104 of Table 6.
5. For the infant models – create maturity and severity categories and maturity by severity level interaction variables using Table 8.
    a. Table notation: Severity category and maturity category variables (which are not included in the regression, but are used to create regression interaction variables) use the “IHCC_” prefix designating them as Infant variables. Examples: IHHC_Severity5; IHCC_Extremely_Immature.

b. Create 5 severity level category 0/1 indicator variables based on HHS-HCC flags (See Table 8, rows 5-116). Set to 1 if any of the corresponding HHS-HCC variables is set to 1.
    a. Severity Level 5 (Highest)
    b. Severity Level 4
    c. Severity Level 3
    d. Severity Level 2
    e. Severity Level 1 (Lowest)
c. Apply hierarchies so that each age 0 or age 1 infant has only a single severity level variable, the highest qualifying level, set to 1. (See Table 8, rows 118-122.) Note that infants lacking any of the HHS-HCCs corresponding to severity levels are assigned to Severity Level 1 (Lowest).
d. Create 5 maturity category 0/1 indicator variables set to 1 based on age only if age 1, and on age as well as newborn HHS-HCC flags if age 0. (See Table 8, rows 124-129).
    a. Age 1
    b. Extremely Immature
    c. Immature
    d. Premature/Multiples
    e. Term
e. Apply hierarchies so that that each age 0 or age 1 infant has only a single maturity variable set to 1. (See Table 8, rows 130-132). Note that age 0 infants lacking a newborn HHS-HCC (242-249) are assigned to Term.
f. Create 25 maturity by severity level interactions (0/1) using the 5 maturity category variables and 5 severity level category variables. (See Table 8, rows 134-158). These are mutually-exclusive interactions—each infant will have only one maturity by severity level interaction set to 1.
    a. Extremely_Immature_x_Severity5
    b. Extremely_Immature_x_Severity4
    c. Extremely_Immature_x_Severity3
    d. Extremely_Immature_x_Severity2
    e. Extremely_Immature_x_Severity1
    f. Immature_x_Severity5
    g. Immature_x_Severity4
    h. Immature_x_Severity3
    i. Immature_x_Severity2
    j. Immature_x_Severity1
    k. Premature_Multiples_x_Severity5
    l. Premature_Multiples_x_Severity4
    m. Premature_Multiples_x_Severity3
    n. Premature_Multiples_x_Severity2
    o. Premature_Multiples_x_Severity1
    p. Term_x_Severity5
    q. Term_x_Severity4
    r. Term_x_Severity3
    s. Term_x_Severity2

t. Term_x_Severity1
u. Age1_x_Severity5
v. Age1_x_Severity4
w. Age1_x_Severity3
x. Age1_x_Severity2
y. Age1_x_Severity1

Step 3: Access factors in Table 9.

1. For the adult models, use adult factors in rows 4-167 for each of the metal levels (columns D-H).
2. For the child models, use child factors in rows 169-320 for each of the metal levels (columns D-H)
3. For the infant models, use infant factors in rows 322-348 for each of the metal levels (columns D-H)

Step 4: Unadjusted score calculation (using directions in Tables 6-8, variables created in Tables 5-8, and factors from Table 9).

1. For each adult, create an adult model score for the metal level in which that adult is enrolled (corresponding to scores in Part IV).
    a. Create scores for each metal level using directions in rows 106-111 in Table 6.
        i. SCORE_ADULT_PLATINUM
        ii. SCORE_ADULT_GOLD
        iii. SCORE_ADULT_SILVER
        iv. SCORE_ADULT_BRONZE
        v. SCORE_ADULT_CATASTROPHIC
    b. The score for each of the above variables is the sum of the factors of the corresponding metal level in Table 9 for all variables set to 1 for that adult: demographic variable, any HHS-HCCs, any HCC groups, and a severe illness interaction group if applicable.
        i. SCORE_ADULT_PLATINUM uses factors from column D
        ii. SCORE_ADULT_GOLD uses factors from column E
        iii. SCORE_ADULT_SILVER uses factors from column F
        iv. SCORE_ADULT_BRONZE uses factors from column G
        v. SCORE_ADULT_CATASTROPHIC uses factors from column H
    c. Identify the metal level in which the adult is enrolled (Table 1).
    d. Create an adult model score SCORE_ADULT for the metal level in which the adult is enrolled using directions in rows 130-131 in Table 6.
2. For each child create a child model score for the metal level in which that child is enrolled (corresponding to scores in Part IV).
    a. Create scores for each metal level using directions in rows 63-67 in Table 7.
        i. SCORE_CHILD_PLATINUM
        ii. SCORE_CHILD_GOLD
        iii. SCORE_CHILD_SILVER
        iv. SCORE_CHILD_BRONZE
        v. SCORE_CHILD_CATASTROPHIC

b. The score for each of the above variables is the sum of the factors of the corresponding metal level in Table 9 for all variables set to 1 for that child: demographic variable, any HHS-HCCs, and any HCC groups.
    i. SCORE_CHILD_PLATINUM uses factors from column D
    ii. SCORE_CHILD_GOLD uses factors from column E
    iii. SCORE_CHILD_SILVER uses factors from column F
    iv. SCORE_CHILD_BRONZE uses factors from column G
    v. SCORE_CHILD_CATASTROPHIC uses factors from column H
c. Identify the metal level in which the child is enrolled (Table 1).
d. Create a child model score SCORE_CHILD for the metal level in which the child is enrolled using directions in rows 86-87 in Table 7.

3. For each infant create an infant model score for the metal level in which that infant is enrolled (corresponding to scores in Part IV) using directions starting at row 160 of Table 8, infant variables created in Tables 5 and 8, and factors from Table 9.
    a. Unadjusted infant risk score is the sum of (0/1 variable x factor) over all of the following:
        i. 0/1 age-sex categories for INFANT models
        ii. 0/1 maturity x severity level interactions for INFANT models
    b. The unadjusted score is the sum of the factors of the corresponding metal level in Table 9 for all variables set to 1 for that infant.
        i. SCORE_INFANT_PLATINUM uses factors from column D
        ii. SCORE_INFANT_GOLD uses factors from column E
        iii. SCORE_INFANT_SILVER uses factors from column F
        iv. SCORE_INFANT_BRONZE uses factors from column G
        v. SCORE_INFANT_CATASTROPHIC uses factors from column H
    c. In effect, females will have a single maturity level x severity level interaction set to 1 and that factor will be their score. Males will a have a single maturity level x severity level interaction set to 1 and a single age-sex variable set to 1; the sum of the factors for those two variables will be their score.
    d. Identify the metal level in which the infant is enrolled (Table 1).
    e. Create an infant model score SCORE_INFANT for the metal level in which the infant is enrolled using directions in rows 183-184 in Table 8.

<u>Step 5:</u> CSR-adjusted score calculation (using instructions in Tables 6-8).

1. For each adult, create an adult model CSR-adjusted score for the metal level in which that adult is enrolled (corresponding to CSR-adjusted scores in Part IV).
    a. Each adult will have one of the following CSR-adjusted risk scores that corresponds to his/her metal level. CSR-adjusted scores are created using directions in rows 113-128 in Table 6.
        i. CSR_ADJUSTED_SCORE_ADULT_PLATINUM
        ii. CSR_ADJUSTED_SCORE_ADULT_GOLD
        iii. CSR_ADJUSTED_SCORE_ADULT_SILVER
        iv. CSR_ADJUSTED_SCORE_ADULT_BRONZE
        v. CSR_ADJUSTED_SCORE_ADULT_CATASTROPHIC
    b. Identify the metal level in which the adult is enrolled (Table 1).

    c. Create an adult model score CSR_ADJUSTED_SCORE_ADULT for the metal level in which the adult is enrolled using directions in rows 133-135 in Table 6.
2. For each child, create a child model CSR-adjusted score for the metal level in which that child is enrolled (corresponding to CSR-adjusted scores in Part IV).
    a. Each child will have one of the following CSR-adjusted risk scores that corresponds to his/her metal level. CSR-adjusted scores are created using directions in rows 69-84 in Table 7.
        i. CSR_ADJUSTED_SCORE_CHILD_PLATINUM
        ii. CSR_ADJUSTED_SCORE_CHILD_GOLD
        iii. CSR_ADJUSTED_SCORE_CHILD_SILVER
        iv. CSR_ADJUSTED_SCORE_CHILD_BRONZE
        v. CSR_ADJUSTED_SCORE_CHILD_CATASTROPHIC
    b. Identify the metal level in which the child is enrolled (Table 1).
    c. Create a child model score CSR_ADJUSTED_SCORE_CHILD for the metal level in which the child is enrolled using directions in rows 89-91 in Table 7.
3. For each infant, create an infant model CSR-adjusted score for the metal level in which that infant is enrolled (corresponding to CSR-adjusted scores in Part IV).
    a. Each infant will have one of the following CSR-adjusted risk scores that corresponds to his/her metal level. CSR-adjusted scores are created using directions in rows 166-181 in Table 8.
        i. CSR_ADJUSTED_SCORE_INFANT_PLATINUM
        ii. CSR_ADJUSTED_SCORE_INFANT_GOLD
        iii. CSR_ADJUSTED_SCORE_INFANT_SILVER
        iv. CSR_ADJUSTED_SCORE_INFANT_BRONZE
        v. CSR_ADJUSTED_SCORE_INFANT_CATASTROPHIC
    b. Identify the metal level in which the infant is enrolled (Table 1).
    c. Create an infant model score CSR_ADJUSTED_SCORE_INFANT for the metal level in which the infant is enrolled using directions in rows 186-188 in Table 8.


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