

HHS-HCCs

► HHS-HCC Diagnostic Classification

The Department of Health and Human Services Hierarchical Condition Category (HHS-HCC) diagnostic classification is the basis of the HHS-operated risk adjustment program for the individual and small group markets since 2014, under section 1343 of the Patient Protection and Affordable Care Act (PPACA).

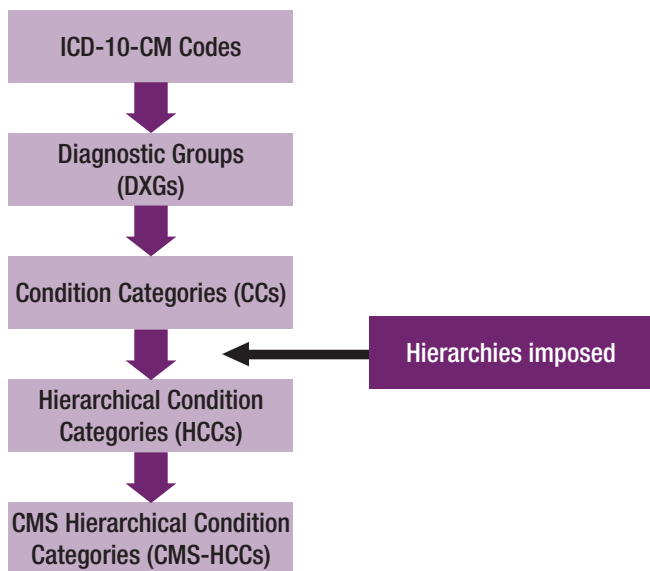
The intent of this model is to eliminate or lessen the influence of risk selection on plan premiums. Specifically, the HHS-HCC risk adjustment model predicts plan liability—the healthcare expenditures for which plans are liable.

The logic governing HHS-HCCs is similar to the Medicare CMS-HCC risk adjustment model. All ICD-10-CM diagnosis codes are first classified into diagnostic groups, or DXGs. Each DXG represents a specified medical condition or set of conditions, such as the DXG for Type 2 Diabetes with Ketoacidosis or Coma. DXGs are further grouped into Condition Categories, or CCs, which describe a broader set of similar conditions that are related both clinically and regarding resource expenditure. An example is the CC for Diabetes with Acute Complications, which includes the DXG for Type 2 Diabetes with Ketoacidosis or Coma and the DXGs for Type 1 Diabetes and Secondary Diabetes (each with ketoacidosis or coma).

Additionally, similar to CMS-HCCs, HHS-HCCs use the concept of hierarchies to order clinically related CCs within the classification. Hierarchies are imposed among sets of related CCs, so that only the most severe manifestation among related diseases is ordered. At this point, CCs become Hierarchical Condition Categories, or HCCs. An enrollee can only receive one HCC for CCs within a hierarchy. For example, diabetes diagnosis codes are organized in a hierarchy consisting of three CCs

arranged in descending order of clinical severity and cost, from CC 19 Diabetes with Acute Complications to CC 20 Diabetes with Chronic Complications to CC 21 Diabetes without Complications. Thus, a person with diagnosis codes in CC 20 and CC 21 would have both CCs. However, once hierarchies are imposed, that enrollee would only be assigned the single highest HCC in the hierarchy corresponding to the enrollee's CCs—in this case, HCC 20 Diabetes with Chronic Complications. See Figure 4.1 for a visual depiction.

Figure 4.1



The model is “additive” in that multiple HCCs can accumulate for enrollees with unrelated diseases even though hierarchies exist among related disease categories. For example, a female with both diabetes and asthma will have at least two separate HCCs coded, and her predicted cost will reflect increments for both conditions. There are also interaction

factors in the HHS-HCC risk adjustment model, similar to the CMS-HCC risk adjustment model.

Because a single individual may be coded for one, more than one, or zero HCCs, the HHS-HCC model can individually price millions of distinct clinical profiles. Thus, the model's structure provides, and makes predictions using, a detailed comprehensive clinical profile for each enrollee.

The HHS risk adjustment model uses patient diagnoses identified by ICD-10-CM codes, age, and sex, along with enrollment duration factors, a limited number of drugs for adults, and interaction factors, to predict medical and drug expenditure risk for health plans.

Classification systems

There are two classification systems used in the HHS-HCC model. The first separates by population age:

- Adult (ages 21+)
- Child (ages 2–10)
- Infant (ages 0–1), with subpopulations categorized by severity

The second separates by tiers of insurance plan actuarial value known as “metal levels,” based on benefits and cost sharing:

- Platinum
- Gold
- Silver
- Bronze
- Catastrophic (for individual market only)

The adult model includes an additional factor for the months enrolled when an enrollee's enrollment period in an issuer's plans is shorter than 12 months.

There are a limited number of prescription drug factors (RXC) in the HHS-HCC model (anti-HIV, antiarrhythmics, insulin, and cystic fibrosis agents, to name a few) along with additional effects for each RXC having at least one listed diagnosis HCC.

Infants are assigned a birth maturity (by length of gestation and birth weight) and a disease severity category (based on severity levels pre-assigned to the infant diagnosis HCCs). There are five maturity categories (extremely immature, immature, premature/multiples, term, and age 1) and five disease severity categories (from 1 to 5, lowest to highest, based on clinical severity and associated costs). Each of the five severity levels is attached to one of the maturity categories; therefore, each infant is assigned to one of the 25 categories. There are also two additive line categories for sex, for age 0 males and age 1 males, which account for higher morbidity and infant mortality in the male infant population.

Aside from the classification differences, the HHS-HCC plan is concurrent (unlike CMS-HCCs, which are prospective), focusing on predicting costs during the current year. Enrollees in plans offered through healthcare exchanges may move in and out of enrollment in small-group and individual markets, so prior-year data may not be available. The concurrent model tends to focus and better capture the costs of acute events that include exacerbations of chronic conditions.

There are many diagnoses that are categorically unique to the population served by the HHS-HCC risk adjustment model, not only in the child and infant groups but also in the adult population. Some of the diagnoses seen in the HHS-HCC model that aren't included in the CMS-HCC model are cleft lip/cleft palate, hydrocephalus, autism, Down's syndrome, and diagnoses associated with miscarriage and pregnancy.

Infant category example

A newborn male is born prematurely with a birth weight of 2,200 grams and diagnosed with hydrocephalus. He is enrolled in a platinum plan.

- Male, newborn = risk factor of 0.633
- Hydrocephalus = severity level of 3
- Premature with birth weight of 2,200 grams (with a severity level of 3) = 14.762

Total risk score: $0.633 + 14.762 = 15.395$

Child category example

A 12-year-old female with a history of autism and seizure disorder is seen in the clinic for a fractured wrist following a fall off her bicycle. She is enrolled in a platinum plan.

- Female, age 12 = 0.175
- Autism = 2.812
- Seizure disorder = 2.135
- Fractured wrist = 0 (no HHS-HCC assigned)

Total risk score: $0.175 + 2.182 + 2.135 = 5.122$

Adult category example

A 63-year-old male with a history of type 1 diabetes mellitus (controlled on insulin), inflammatory bowel disease (being treated by medication), and opioid dependence is seen in the office for a follow-up visit. He switched to the platinum plan six months ago.

- Male, age 63 = 0.410
- HHS-HCC 021: Diabetes Mellitus, Without Complications = 0.443
- HHS-HCC 022: Type 1 Diabetes Mellitus add-on for Diabetes HCCs 19-21 = 0.437
- HHS-HCC 048: Inflammatory Bowel Disease = 1.293
- HHS-HCC 082: Opioid Dependence = 2.766
- Enrollment duration of 6 months = 0.168
- RXC 05: Prescription drug coefficient for inflammatory bowel disease agents = 2.277
- RXC 06: Prescription drug coefficient for insulin = 1.678
- Additional effect for enrollees with RXC 05 and HCC 048 is (-1.115) = 2.455*
- Additional effect for enrollees with RXC 06 and HCC 021 = 0.314

Total risk score: $0.410 + 0.443 + 0.437 + 1.293 + 2.766 + 0.168 + 2.277 + 1.678 + 2.455 + 0.314 = 12.241$

*An interaction of RXCs and HCCs with a negative coefficient does not mean that an enrollee's risk score decreases due to the presence of an RXC, an HCC, or both. In this scenario, the coding of HCC 048 increases the blended risk score by 1.293, and when RXC 05 is then coded, the blended risk score increases again by $2.277 + (-1.115) = 1.162$ (coefficient for RXC 05 + coefficient for interaction of RXC 05 and HCC 048) for a combined increase of $1.293 + 1.162 = 2.455$.

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