How To Hack HCC

The HCC Risk Adjustment Model is a payment method based on risk to adjust health plan payments at the patient level based upon demographics, disability and attributable diagnoses.

Background

The ICD10 classification consists of 2 parallel tree structures. The second tree structure classifies external causes of morbidity. It can be ignored for the purposes herein. The primary tree syntax consists of a 3-character category, a letter A-T or Z, followed by 2 digits, 00-99. There is a subcategory of 0-3 digits. For injuries and pregnancy, there is a 7th character providing information about episode of care and fetal status, respectively. There can be 1 or 2 placeholders (‘X’) before the 7th character; these are not relevant either. All 3-character categories (tree branches) in the ICD10 schema have at most a several dozen leaves (corresponding to the highest level of coding specificity). For example, E11, Type 2 Diabetes Mellitus, has 85 leaves.

Hierarchical Condition Categories (HCCs) are a mapping of ICD10 codes. The current category classification is Model V22. Not all ICD10 codes map to HCCs, but all HCCs map to at least one ICD10 code. Thus, the function *f* : **HCC → ICD10** is injective. Each HCC has 2 adjustment factors assigned to it – community and institutional. HCC categories are designated 1-189, but the scheme is not exhaustive (e.g., there is no HCC3, 4, 5, 7, 13, 14, 15, 16, etc.). In model V22 there are 79 HCCs

The 2018 Midyear Final ICD-10 Mappings (available at <https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors-Items/Risk2018.html>) list 10767 ICD10 codes. 9531 of these ICD10 codes are mapped to an HCC and 1236 are not

The payment amount for a given patient is in part determined by the HCCs to which correspond to the diagnoses that have been documented for that patient, presumably by claims data. Adjustment factors are, in general, additive, with some exceptions (see next paragraph)

Certain HCCs have an assigned hierarchy, which makes them mutually exclusive. There is a relatively brief rules list that determines this hierarchical structure. HCCs higher in a hierarchy have larger payment adjustments.

Statement of the Problem

It follows from the above that payment adjustments can be optimized by:

(1) maximizing the number of HCCs that can be applied to a given patient; and

(2) applying the highest possible HCC in a hierarchy.

Since the data is claims-driven, this needs to be accomplished at the claims coding level.

Proposed solution

The overhead for optimizing HCC documentation is borne by the diagnosis coders. They should not be responsible for any direct lookups, and keystroke/mouse usage should be minimized. To this end, an application with the following specifications is envisioned:

1. All ICD10 to HCC mapping rules and HCC hierarchy rules are built into the application
2. Since the 3-character ICD10 category yields a manageably sized chunk of data, this will be used as user input. 3 characters only.
3. If the 3-character ICD10 category maps directly to an HCC with the highest level in a hierarchy, the routine terminates
4. If not, software will then present all ICD10 codes in that entered category which have an associated HCC, in the form of a pick list with a button selector for each. These will be full 4, 5 or 6-character ICD10 codes.
5. If user deems appropriate, user selects from pick list via button click
6. Selected code will be checked for hierarchy status. If this code maps directly to an HCC with the highest level in a hierarchy, the routine terminates.
7. If not, then software checks if there are HCCs with a higher hierarchy level. If so, then a pick list with ICD10 codes mapped to HCCs at the next highest level will be presented.
8. Repeat (4)-(6) until highest hierarchy level is attained.