South Carolina ACDIS
Risk Adjustment - Leveraging HCCs

December 2015
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Objectives

- Understand the meaning of risk adjustment
- Understand the meaning of hierarchical condition categories
- Learn the history of HCCs and how they are being used today in population health management and value based purchasing
- Understand how disease management and reporting affect risk scores
- Understand the financial impact of risk adjustment
Risk Adjustment Methodology

• Risk adjustment is calculated using an actuarial tool that has been developed to predict the cost of health care for covered beneficiaries/enrollees
• A risk adjustment score is determined by using a combination of demographic information along with disease information to predict the cost of future health care for the enrollees of the plan
• The score is highest for the sickest patients as determined by the combination of the factors
Who uses risk adjustment?

- Medicare Advantage Plans – Medicare Part C
- Medicaid Plans
- Commercial Carriers
- Accountable Care Organizations (ACO)
- Part of the Total Performance Score for Value Based Purchasing

Medicare Value Based Purchasing

How Will Hospitals Be Evaluated?
Total Performance Score

Clinical Process 20% + Patient Experience 30% + Outcome 30% + Efficiency 20% = Total Performance Score

Hospitals need scores for at least two of four domains to receive a Total Performance Score.

For hospitals with at least two domain scores, the excluded domain weights will be proportionately distributed to the remaining domains to calculate the Total Performance Score.
Value Based Purchasing - Inpatient

12 Clinical Process of Care Measures

1. AMI-7a Fibrinolytic Therapy Received within 30 Minutes of Hospital Arrival
2. AMI-8 Primary PCI Received within 90 Minutes of Hospital Arrival
3. HF-1 Discharge Instructions
4. PN-3b Blood Cultures Performed in the ED Prior to Initial Antibiotic Received in Hospital
5. PN-6 Initial Antibiotic Selection for CAP in Immunocompetent Patient
6. SCIP-Inf-1 Prophylactic Antibiotic Received within One Hour Prior to Surgical Incision
7. SCIP-Inf-2 Prophylactic Antibiotic Selection for Surgical Patients
8. SCIP-Inf-3 Prophylactic Antibiotics Discontinued within 24 Hours After Surgery
9. SCIP-Inf-4 Cardiac Surgery Patients with Controlled 6 a.m. Postoperative Serum Glucose
10. SCIP-Inf-9 Postoperative Urinary Catheter Removal on Postoperative Day 1 or 2
11. SCIP-Card-2 Surgery Patients on a Beta Blocker Prior to Arrival That Received a Beta Blocker During the Perioperative Period
12. SCIP-VTE-2 Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis within 24 Hours

Domain Weights

- Efficiency 20%
- Clinical Process of Care 20%
- Patient Experience of Care 30%

8 Patient Experience of Care Dimensions

1. Nurse Communication
2. Doctor Communication
3. Hospital Staff Responsiveness
4. Pain Management
5. Medicine Communication
6. Hospital Cleanliness & Quietness
7. Discharge Information
8. Overall Hospital Rating

5 Outcome Measures

1. MORT-30-AMI – Acute Myocardial Infarction (AMI) 30-day mortality rate
2. MORT-30-HF – Heart Failure (HF) 30-day mortality rate
3. MORT-30-PN – Pneumonia (PN) 30-day mortality rate
4. PSI-90 – Patient safety for selected indicators (composite)
5. CLABSI – Central Line-Associated Bloodstream Infection

1 Efficiency Measure

1. MSPB-1 Medicare Spending per Beneficiary measure

Represents a new measure for the FY 2015 program that was not in the FY 2014 program.
Hierarchical Condition Categories (HCCs)

There are two types of HCC’s

**CMS HCC**
- Developed by CMS for risk adjustment of the Medicare Advantage Program (Medicare Part C)
- CMS also developed a CMS RX HCC model for risk adjustment of Medicare Part D population
- Based on aged population (over 65)

**HHS HCC (Commercial HCC)**
- Developed by the Department of Health and Human Services (HHS)
- Designed for the commercial payer population
- HHS-HCCs predict the sum of medical and drug spending
- Includes all ages
CMS-HCCs

Developed by CMS to adjust Medicare capitation payments to Medicare Advantage Plans (Medicare Part C) based on the health expenditure risk of their enrollees

Current year data predictive of future year risk

Based on diagnoses patient on Medicare has accumulated over a year from data submitted from:

- Principal diagnosis hospital inpatient
- Secondary diagnosis hospital inpatient
- Hospital outpatient diagnoses
- Physician office diagnoses
- Clinically-trained non-physician

Provider type samples

- Physician
- Nurse Practitioner
- CRNA
- Physician’s Assistants
- Therapists
- Certified wound care nurse
- Psychologist
- Podiatrist
Risk Adjustment Factor (RAF) for CMS-HCC

Total score of all relative factors related to one patient for a total year – derived from a combination of the two scores

Demographics

- Age and whether community based on institution based
- Medicaid Disability and interaction with age and gender

Disease

- HCC category, based on diagnoses reported
- Interaction between certain disease categories
- Interaction between certain disease categories and disability status
HCC Classification System

ICD-10-CM Codes – 70,000+ diagnoses

Diagnostic Groups- 805 groups

Condition Categories- 189 categories

Hierarchical Condition Categories (HCC’s)- 189 categories

CMS-HCC- 79 categories used in payment model as of 2014
Hierarchical Condition Categories (HCC)
79 Condition Categories - examples

- Infection
- Neoplasm
- Diabetes
- Metabolic
- Liver
- Gastrointestinal
- Musculoskeletal
- Blood
- Substance Abuse
- Psychiatric
- Spinal
- Neurological
- Heart
- Arrest
- Cerebrovascular Disease
- Vascular
- Lung
- Eye
- Kidney
- Injury
CMS-HCCs

RISK SCORE of 1.0
• A risk score of 1.0 reflects the Medicare-incurred expenditures of an average beneficiary

HIERARCHIES
• Within each category, there are hierarchies that represent more advanced and costly conditions in a higher coefficient

INTERACTIONS
• There are additional factors to account for disease interaction and disabled status

Diabetes
- With Acute Complications
  HCC 19 wt. 0.474
- With Chronic Complications
  HCC 18 wt. 0.474
- Without complications
  HCC 17 wt. 0.182
Documentation Requirement

• Diagnoses must be captured in a face to face meeting
• Diagnoses must be documented in the medical record with all appropriate identification, date and provider signature
• Some specific reporting rules:
  ✓ Chronic diseases can continue to be reported on an on-going basis as long as they receive treatment and care for the condition
  ✓ Diagnoses that receive care and management during the encounter can be reported
  ✓ Diagnoses that have resolved or are no longer treated should not be listed
  ✓ Malignancy can be reported as long as they are receiving active treatment
  ✓ Be careful using diagnoses on problem lists that have been resolved
Disease specific requirements

• Cancer reporting
  ✓ Primary malignancy that has been eradicated or excised is reported as history (History of breast cancer, mastectomy) once treatment is completed
  ✓ Secondary malignancy currently receiving treatment can be reported by site of the metastasis
  ✓ Leukemia is reported by type and acuity with “in remission” included on the list
  ✓ Personal history of malignancies, leukemia and lymphoma can be reported

• Complications or manifestations of a disease process must be clearly linked to that condition

• Substance use is reported as Use, Dependence or Abuse
  ✓ Dependence can be reported as “in remission”
Goal for each patient

- Report all current diagnoses at the highest level of specificity based on physician documentation.
- The more categories of diagnoses reported over a year creates a higher risk score.
- Only one diagnosis per category is used in the risk score calculation.
- If both angina and AMI are reported in one year, only the AMI is scored as it is a higher level of specificity within the Heart category.

More specificity, higher risk score
Less specificity, lower risk score
Understanding the Risk Adjustment Factor (RAF) & Affect on Reimbursement

Hypothetical example of CMS-HCC expenditure predictions and risk score for a community-residing, 76 year old woman with AMI, angina pectoris, COPD, renal failure, chest pain and ankle sprain.
Understanding the Risk Adjustment Factor (RAF) & Affect on Reimbursement

Hypothetical example of CMS-HCC expenditure predictions and risk score for a community-residing, 76 year old woman with AMI, angina pectoris, COPD, renal failure, chest pain and ankle sprain.

Demographics: 76 Year old + Female + Community = Demographics
- Demographics: 0.437

Disease: Acute Myocardial Infarction + Angina Pectoris + Ankle Sprain + Chest Pain + Renal Failure + COPD = Disease
- Acute Myocardial Infarction: HCC 86 0.275
- Angina Pectoris: HCC 88 Use AMI
- Ankle Sprain: HCC 111 0.346
- Chest Pain: Dropped in 2014
- Renal Failure: HCC 111 0.346

Risk Adjustment Factor = 0.437 + 0.621 = 1.058
Understanding the Risk Adjustment Factor (RAF) & Affect on Reimbursement

If only AMI documented

Total PMPM Payment $800 (Illustrative Purposes) x RAF Score
Sample Clinical Scenario for Documentation

- 85 year old white female, symptoms of UTI.
- Patient is tired, less energy and poor appetite and had a heart attack (MI) 1 year ago. Patient has mild malnutrition, is frail and has lost 30 lbs. in the past 6 months. Urinalysis performed which shows white cells, leukocyte esterase, and microalbuminuria. Serum creatinine is 1.4. Patient has been complaining of urinary discomfort, weakness, and has had dry and itchy skin for the past 6 months.
- PMH: Stable diabetes mellitus (DM), chronic kidney disease (CKD) exacerbated by diabetes, stable right BKA, stable history of MI, UTI w/ serum creatinine 1.3 6 months ago. Lab findings revealed CKD Stage 4.
- Amputation site is healed with no open areas
- Plan: Glucophage 500 mg b.i.d. for DM. Cipro for UTI. Ensure supplements for malnutrition. RTC in 3 months. Referral to nephrologist for CKD4.
Represents what would actually be coded and reported to the plan by many physicians

85 year old white female, Diabetic with symptoms of UTI.

85 Year old + Female + Community = Demographic 0.677

DM without Complication + Urinary Tract Infection = Disease 0.118

HCC 19 0.118

0.677 + 0.118 = RAF 0.795

$800 x 0.795 = $636
Represents what would actually be coded and reported to the plan by many physicians

85 year old white female, Diabetic with symptoms of UTI.

85 Year old + Female + Community = Demographic 0.677

DM with Renal + Urinary Tract Infection + Nephropathy + CKD 4 + Malnutrition + Old MI + BKA Status = Disease 2.084

0.677 + 2.084 = RAF 2.761

2.761 × PMPM $800 = $2209
## Disease Interactions

Disease Interactions – Represents 78 Year Old Male - Institutional Based Score

<table>
<thead>
<tr>
<th>Condition</th>
<th>ICD 9 Code</th>
<th>ICD-10 Code</th>
<th>HCC</th>
<th>CMS Risk Score</th>
<th>Demographic Score</th>
<th>Total RAF Score</th>
<th>Total Payment $800 (Illustrative Purposes)</th>
<th>Total Payment $800 (Illustrative Purposes) x RAF Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Mellitus without Complications</td>
<td>250.00</td>
<td>E11.9</td>
<td>19</td>
<td>0.182</td>
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<tr>
<td>Epilepsy</td>
<td>345.90</td>
<td>G40.909</td>
<td>79</td>
<td>0.144</td>
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<tr>
<td>Hypertension</td>
<td>401.9</td>
<td>I10</td>
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<tr>
<td>Chronic Kidney Disease Stage 4</td>
<td>585.4</td>
<td>N18.4</td>
<td>137</td>
<td>0.294</td>
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<td>Schizophrenia</td>
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<td>57</td>
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<td>0.452</td>
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Payment = Plan’s Base Payment x Total RAF Score
Disease Interactions – Community Model

Cancer
- Immune disorders

Cardiorespiratory failure
- Sepsis
- Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease
- Cardiorespiratory Failure
- Congestive Heart Failure

Congestive Heart Failure
- Chronic Obstructive Pulmonary Disease
- Renal Disease
- Diabetes
Disease Interactions – Institutional Model

**Chronic Obstructive Pulmonary Disease**
- Congestive Heart Failure
- Cardio-respiratory failure
- Aspiration Pneumonia

**Congestive Heart Failure**
- Diabetes
- Schizophrenia
- Chronic Obstructive Pulmonary Disease

**Schizophrenia**
- Congestive Heart Failure
- Seizures

**Aspiration Pneumonia**
- Chronic Obstructive Pulmonary Disease
- Pressure Ulcer
- Sepsis

**Pressure Ulcer**
- Artificial Openings
- Aspiration Pneumonia
- Sepsis

**Sepsis**
- Aspiration Pneumonia
- Pressure Ulcer
# Disease/Disability Interactions

Payment = Plan’s Base Payment x Total RAF Score

<table>
<thead>
<tr>
<th>Condition</th>
<th>ICD 9 Code</th>
<th>ICD 10</th>
<th>HCC</th>
<th>CMS Risk Score</th>
<th>Demographic Score 65 year old disabled male</th>
<th>Total RAF Score</th>
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<td>Congestive Heart Failure</td>
<td>428.0</td>
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<td>Chronic Obstructive Pulmonary Disease</td>
<td>496</td>
<td>J44.9</td>
<td>111</td>
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<td>Acute Myocardial Infarction</td>
<td>410.91</td>
<td>I21.3</td>
<td>86</td>
<td>0.515</td>
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<td>Pneumococcal pneumonia</td>
<td>481</td>
<td>J13</td>
<td>115</td>
<td>0.285</td>
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<td>Diabetes without Complication</td>
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<td>E11.9</td>
<td>19</td>
<td>0.182</td>
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<td>DIABETES_CHF</td>
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<tr>
<td>CHF_COPD</td>
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</table>

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Disabled/Disease Interactions – Community Model

Disabled with:

- Complications of Specified Implanted Device or Graft
- Cystic Fibrosis
- Drug/Alcohol Dependence
- Drug/Alcohol Psychosis
- Opportunistic Infections
- Pancreatitis
- Severe Hematological Disorders
Disabled/Disease Interactions – Institutional Model

Disabled with:

- Bone/Joint Muscle Infections/Necrosis
- Chronic Skin Ulcer
- Congestive Heart Failure
- Multiple Sclerosis
- Pressure Ulcer
Understanding the Risk Adjustment Factor (RAF) Progression Over Time

**Year 1 – 2008**

<table>
<thead>
<tr>
<th>Condition</th>
<th>ICD 9 Code</th>
<th>ICD-10 Code</th>
<th>HCC</th>
<th>CMS Risk Score</th>
<th>Demographic Score</th>
<th>Total RAF Score</th>
<th>Total Payment</th>
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<tbody>
<tr>
<td>Chest Pain</td>
<td>786.50</td>
<td>R07.9</td>
<td>n/a</td>
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<td>$800 (Illustrative Purposes) x RAF Score</td>
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<tr>
<td>Diabetes Mellitus without Complications</td>
<td>250.00</td>
<td>E11.9</td>
<td>19</td>
<td>0.181</td>
<td>0.52</td>
<td>1.033</td>
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<td>Hypertension</td>
<td>401.9</td>
<td>I10</td>
<td>n/a</td>
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<td>$800 (Illustrative Purposes) x RAF Score</td>
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<tr>
<td>Unstable Angina and Other Acute Ischemic Heart Disease</td>
<td>411.1</td>
<td>I20.0</td>
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<td>0.332</td>
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Understanding the Risk Adjustment Factor (RAF) Progression Over Time

**Year 4 – 2011**

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<th>Condition</th>
<th>ICD 9 Code</th>
<th>ICD-10 Code</th>
<th>HCC</th>
<th>CMS Risk Score</th>
<th>Demographic Score</th>
<th>Total RAF Score</th>
<th>Total Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Mellitus w/ Renal Manifestations</td>
<td>250.40</td>
<td>15</td>
<td>0.508</td>
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<td>Congestive Heart Failure</td>
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<tr>
<td>Diabetic Nephropathy</td>
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<td>132</td>
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<td>Interaction: DIABETES_CHF</td>
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<td>0.154</td>
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Payment = Plan’s Base Payment x Total RAF Score

Year 4 – Represents 78 Year Old Male - Community Based Score

Total Payment $800 (Illustrative Purposes) x RAF Score

$1,658.40
## Understanding the Risk Adjustment Factor (RAF) Progression Over Time

### Year 7 – 2014

<table>
<thead>
<tr>
<th>Condition</th>
<th>ICD 9 Code</th>
<th>ICD-10 Code</th>
<th>HCC</th>
<th>CMS Risk Score</th>
<th>Demographic Score</th>
<th>Total RAF Score</th>
<th>Total Payment</th>
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<tbody>
<tr>
<td>Diabetes Mellitus w/ Renal Manifestations</td>
<td>250.40</td>
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<td>18</td>
<td>0.368</td>
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<td>0.442</td>
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<td>Old MI (dropped 2014)</td>
<td>412</td>
<td></td>
<td>83</td>
<td>0.275</td>
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<td>2.614</td>
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<tr>
<td>Congestive Heart Failure</td>
<td>428.0</td>
<td>I50.9</td>
<td>85</td>
<td>0.368</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Kidney Disease Stage 4</td>
<td>585.4</td>
<td>N18.4</td>
<td>137</td>
<td>0.224</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mild Degree Malnutrition</td>
<td>263.1</td>
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<td>21</td>
<td>0.713</td>
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<td></td>
<td></td>
<td>0.182</td>
<td></td>
<td></td>
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<tr>
<td>Interaction: Renal Failure_CHF</td>
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<td>0.317</td>
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\[ \text{Payment} = \text{Plan’s Base Payment} \times \text{Total RAF Score} \]
### Additional Examples

**Total PMPM Payment $800 (Illustrative Purposes) x RAF Score**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>HCC</th>
<th>Weight</th>
<th>Diagnosis</th>
<th>HCC</th>
<th>Weight</th>
<th>Variance in Weight</th>
<th>$$$ $$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Insufficiency</td>
<td>None</td>
<td>0</td>
<td>Respiratory Failure</td>
<td>84</td>
<td>0.442</td>
<td>0.442</td>
<td>$353.60</td>
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<td>Angina</td>
<td>88</td>
<td>0.474</td>
<td>Acute MI</td>
<td>86</td>
<td>0.515</td>
<td>0.041</td>
<td>$32.80</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>None</td>
<td>0</td>
<td>Aspiration Pneumonia</td>
<td>114</td>
<td>0.285</td>
<td>0.285</td>
<td>$228.00</td>
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<tr>
<td>Asthma</td>
<td>None</td>
<td>0</td>
<td>COPD with Asthma</td>
<td>111</td>
<td>0.364</td>
<td>0.364</td>
<td>$291.20</td>
</tr>
<tr>
<td>Left ventricular dysfunction</td>
<td>None</td>
<td>0</td>
<td>Left heart failure</td>
<td>85</td>
<td>0.229</td>
<td>0.229</td>
<td>$183.20</td>
</tr>
</tbody>
</table>
Reporting issues

Diagnoses not always reported

- Secondary Cancers
- Diabetic manifestations
- Morbid Obesity/BMI >40
- Drug dependence
- Hemiplegia due to stroke
- Monoplegia or paralysis due to stroke
- Status amputations
- Status ostomy

Issues affecting accurate reporting

- The majority of patients are only seen in a physician office setting
- Physician office notes are limited and specificity is not always identified
- Physician’s have to report what is treated, evaluated and monitored and might not be aware of what falls into each category
- Physician’s report on a 1500 claim form which has space only for 4 diagnoses – electronically more can be reported
- Unspecified and symptom diagnoses are not considered as HCCs
Wrap up slide

Good documentation including specificity impacts

- HCCs
- E/M levels
- Medical Necessity
- Quality

Risk Score affected by

- Reporting the highest level or specificity of a disease within each category
- Completeness of reporting all conditions
- Certain disease interactions carry additional weight
References

http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors.html

**HHS-HCCs**

**Commercial HCC**

- The Department of Health and Human Services (HHS) have also created HCCs to adjust risk in the individual and small group markets.
- Models have been developed by:
  - Age group (adult, child and infant)
  - At each cost sharing level (platinum, gold, silver and bronze metal levels as well as catastrophic plans)
- CMS-HCCs were used as the starting point for these particular categories and adapted for Affordable Care Act (ACA) risk adjustment
- Reasons for the differences between CMS-HCC and HHS-HCC include:
  - Population is based on all ages – not just the aged
  - Current year diagnoses and demographics used to predict this year risk
  - Prediction includes the sum of medical and drug spending
Calculating Risk Scores – HHS-HCCs

Demographics
- Enroll ID; Age first, Age last; Sex;
- Metal level (platinum, gold, silver, bronze, catastrophic)
- Cost-Sharing Indicator

Diagnoses
- Diagnoses from claims or encounter records for current benefit year
- Based on discharge date or service date

Risk Score
- Map ICD diagnoses to HHS condition categories (CCs)
  - Subset of ICD codes are used, all others ignored and duplicate diagnosis codes are ignored
  - Rules for allowed sources apply (hospital, outpatient facility, or professional) - based on service type
    - designated by allowed CPT/HCPCS codes - or bill type
  - For a given claim/encounter record either all the diagnoses or none will be allowed
  - Bundled mother/infant claims need to be unbundled
- Map to hierarchical condition categories (HCCs)
  - Most severe CC assigned from same category
- Compute risk score from the risk adjustment models:
  - Age/Sex and Metal level
- Risk factors added to produce risk scores

Members without claims or encounter records are assigned zeroes
Thank you.