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**Health Pricing Boot Camp
August 10- 11, 2009**

Session 10b: Medicare Risk Adjusters

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HEALTHPRICING
BOOTCAMP
August 10-11
Renaissance Seattle Hotel • Seattle, WA

Medicare Risk Adjusters

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Agenda

- Risk Adjustment and Medicare
- Why is Risk Adjustment Important
- Part C Model Details
- RAPS Data Submission/Risk Adjustment Timeline
- MA Coding Intensity
- Part D Risk Score Model
- Risk Score Improvement Industry
- Milliman Risk Score Study

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History of Medicare Risk Adjustment

- Demographics (AAPCC)
 - Doesn't explain all cost variation
 - Favorable selection => higher program costs
- Principal inpatient diagnoses (PIP-DCG model, 2000)
 - Incentive to admit
 - Penalizes plans that avoid admissions
- Inpatient and ambulatory diagnoses (2004)
 - CMS HCC Model introduced
- Phased in, 100% risk adjustment began in 2007
- Updated coefficients prior to 2007 bids and again for 2009 bids

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Part C Payment Formula

- CMS publishes benchmark payment rates by county
 - Benchmarks are normalized to 1.00 risk score
- Medicare Advantage plans produce "Bids" to provide Medicare coverage
- Risk Adjusted Benchmark Rate - Bid = Savings
- CMS retains 25% of savings, 75% provided to plan as rebate
- Rebate used to provide additional benefits, reduce cost sharing
- Final payments
 - Risk Score x Bid (at the county level)
 - Rebate (not risk adjusted at member level)
 - Member premium (not risk adjusted at member level)

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Why is Risk Adjustment Important?

- Majority of Medicare revenue is dependent on risk score
 - Direct impact on top and bottom lines
- Special Needs Plans (SNP) not feasible without risk adjustment
- Risk Adjustment reduces the incentive to not cover the sick
- Examples risk score levels:

Population	Risk Score
NI/NM	0.93
Dual Eligible	1.26
Institutionalized	1.86
Total	1.00

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CMS-HCC Model

- Centers for Medicare & Medicaid Services (CMS) Hierarchical Condition Categories (HCC) model
- Prospective
- Inpatient and outpatient diagnoses w/o distinction
- 70 diagnostic categories (HCCs)
- Hierarchical within diseases

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CMS-HCC Model (continued)

- Cumulative (additive) across diseases
- Demographic factors included
- 6 disease interactions
- 5 disabled/disease interactions
- 29 disease hierarchies
- Coefficients calibrated based on 2004/2005 data
 - 5% sample data for community
 - 100% sample data for institutionalized
 - 2007 denominator is \$7,463.14 per year

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CMS-HCC Models for Medicare Subpopulations

- New enrollees
- Disabled
- End-stage renal disease
- Institutionalized vs. Community
- Medicaid (Dual Eligibles)
- Originally Disabled

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New Enrollees

- Lack 12 months of base year enrollment
- Two-thirds are 65 year olds
- Demographic model

Attachment IV-3. 2009 CMS-HCC Model for New Enrollees

	Non-Medicaid & Non-Originally Disabled	Medicaid & Non-Originally Disabled	Non-Medicaid & Originally Disabled	Medicaid & Originally Disabled
Female				
0-34 Years	0.496	0.807	0.000	0.000
35-44 Years	0.652	0.963	0.000	0.000
45-54 Years	0.841	1.152	0.000	0.000
55-59 Years	0.969	1.280	0.000	0.000
60-64 Years	1.094	1.404	0.000	0.000
65 Years	0.497	0.958	1.096	1.557
66 Years	0.554	0.987	1.153	1.587

Disabled

- Approximately 15% of the Medicare population were originally entitled to coverage due to disability
- Under age 65
- Model estimated separately for aged and disabled
 - Overall cost patterns similar
 - For 5 diagnostic categories, incremental expense of the disabled is higher
- 5 disease interactions for disabled in final CMS-HCC model
 - Opportunistic Infections
 - Severe Hematological Disorders
 - Drug/Alcohol Psychosis
 - Drug/Alcohol Dependence
 - Cystic Fibrosis

Institutionalized Beneficiaries

- About 5% of Medicare population
- Different cost patterns by age and diagnosis for community and institutionalized
- CMS-HCC model calibrated separately on community and institutionalized
- Combined CMS-HCC model
 - Over predicts costs for institutionalized
 - Under predicts costs for community frail elderly

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End-Stage Renal Disease

- About 1% of Medicare population
- Very expensive: approximately \$60,000/year
- Separate 3-segment model
 - Dialysis patients
 - CMS-HCC model calibrated on dialysis patients
 - Transplant period (3 months)
 - Lump-sum payment
 - Post-transplant period
 - Aged/disabled CMS-HCC model w/add-on for drugs

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Medicaid Add-on Factor (Dual Eligibles)

- Important for Dual Eligible SNPs
- Additional coefficient for Medicaid members
 - Medicaid eligible for at least one month in data collection period
- Factors vary:
 - Aged vs. disabled
 - Male vs. female
 - Originally disabled
- Example:
 - Medicaid, Female, Aged = 0.179

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CMS-HCC Risk Score Coefficients Updated

- Updated every two years
- All coefficients updated in 2009
- 2004/2005 Medicare FFS data used for calibration of all models
- CMS provided recalibrated risk scores to plans (HPMS)
 - Based on July 2008 enrollment for 2010 bids
- Recommend reviewing the impact for CY2008
 - Milliman has developed a tool to accomplish this
 - Requires the Model Output Data Reports (HCCMODD files) and eligibility files (MMRs)

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CMS-HCC Examples – 2009 Coefficients

Variable	Disease Group	Community Factors	Institutional Factors
HCC8	Lung, Upper Digestive Tract, and Other Severe Cancers	1.053	0.470
HCC9	Lymphatic, Head and Neck, Brain, and Other Major Cancers	0.794	0.368
HCC10	Breast, Prostate, Colorectal and Other Cancers and Tumors	0.208	0.182
HCC15	Diabetes with Renal or Peripheral Circulatory Manifestation ¹	0.508	0.459
HCC16	Diabetes with Neurologic or Other Specified Manifestation ¹	0.408	0.459
HCC17	Diabetes with Acute Complications ¹	0.339	0.459
HCC18	Diabetes with Ophthalmologic or Unspecified Manifestation ¹	0.259	0.459
HCC19	Diabetes without Complication ¹	0.162	0.248
HCC21	Protein-Calorie Malnutrition	0.856	0.374
HCC25	End-Stage Liver Disease	0.978	0.654

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Disease Hierarchies (29 for Part C)

CMS-HCC DISEASE HIERARCHIES			
If the Disease Group is Listed in This Column...		...Then Drop the Associated Disease Group(s) Listed in This Column	
HCC	Disease Group Label	HCC	Disease Group Label
9	Lymphatic, head & neck, brain & other major cancers	10	Breast, prostate, colorectal & other cancers & tumors

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Disease Interactions

Disease Interactions		Community Factors	Institutional Factors
INT1	DM_CHF ²	0.154	0.125
INT2	DM_CVD	0.102	0.028
INT3	CHF_COPD	0.219	0.194
INT4	COPD_CVD_CAD	0.173	0.071
INT5	RF_CHF ^{2,3}	0.231	-
INT6	RF_CHF_DM ²	0.477	0.358

- DM=Diabetes Mellitus (HCCs 15-19)
- CHF is congestive heart failure (HCC 80)
- COPD is chronic obstructive pulmonary disease (HCC 108)
- CVD is cerebrovascular disease (HCCs 95,96,100,101)
- CAD is coronary artery disease (HCCs 81-83)
- RF is renal failure (HCC 131)

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CMS- HCC: Example Risk Score

- Female, age 70-74, non-institutionalized, non-Medicaid, not originally disabled, Congestive Heart Failure, Vascular Disease

Female, 70-74	0.413
HCC 80 – Congestive Heart Failure	0.410
HCC 105 – Vascular Disease	0.316
Total	1.139

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Risk Adjustment Processing System (RAPS) Data Submission

- CMS requires plans to submit diagnoses on claims and encounters for:
 - Inpatient
 - Outpatient
 - Physician (face-to-face with physician, nurse practitioner, or PA)

- Must exclude from data submission:
 - Skilled nursing facility
 - Home health
 - Diagnostic Radiology
 - Lab
 - Ambulatory surgery
 - DME
 - Pharmacy

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Risk Adjustment Data Submission Timetable

CY	Dates of Service	Initial Submission Deadline	First Payment Date	Final Submission Deadline
2007	7/1/05 – 6/30/06	9/1/06	1/1/07	NA
2007	1/1/06 – 12/31/06	3/2/07	7/1/07	1/31/08
2008	7/1/06 – 6/30/07	9/7/07	1/1/08	NA
2008	1/1/07 – 12/31/07	3/7/08	7/1/08	1/31/09
2009	7/1/07 – 6/30/08	9/5/08	1/1/09	NA
2009	1/1/08 – 12/31/08	3/6/09	7/1/09	1/31/10

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RAPS Data Submission – Quality Controls

- Implement data quality controls
- Ensure technology supports appropriate filtering
- Apply internal or external audit controls on RAPS
- Monitor duplicate diagnoses (may not exceed 5%) to avoid CMS Corrective Action
- Make sure you meet the CMS submission deadlines that occur three times per year (Jan, Mar, Sept)
- Audit Controls:
 - Missing periods of claims
 - Un-submitted pending or denied claims
 - Capitated encounters properly submitted

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Risk Score Monitoring Reports

- RAPS File
 - Diagnoses file which risk scores are based
- MMR (Monthly Membership Reports)
 - Include risk scores for Part C and Part D and eligibility information needed to calculate scores
 - Should reconcile revenue payments to expectations
- HCC MODD (Model Output Data Reports)
 - Includes data at the HCC level by member
 - Useful for indentifying patients for disease management

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CMS Payment Adjustments: Updates to Risk Scores

- CMS adjusts each member's risk score twice per year
- Mid-year update:
 - Occurs in July of Payment Year
 - Risk scores updated from lagged (7/07-6/08) to non-lagged (1/08-12/08) data
 - Risk scores swing +/- by member
- Final reconciliation of plan year
 - Occurs in August of the year after the plan year
 - Incorporates late data
 - For PY2008, 2007 claims submitted between 3/16/2008 and 1/31/2009
 - Risk scores generally increase

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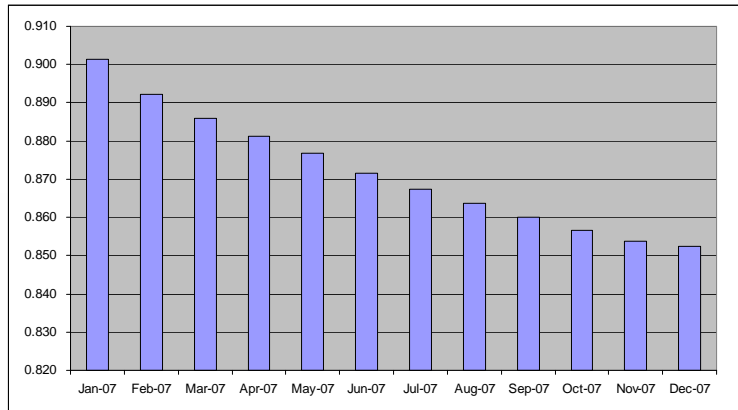
Risk Scores Expected to Decrease Throughout the Year (Seasonality)

- Due to addition of new enrollees and deaths occurring throughout the year
- New Enrollees
 - Majority age-in
 - 65 years old
 - 65 year old factor approximately 0.50 for non-Medicaid
- Deaths
 - Typically high risk score in last years of life
- Part C Risk score decreases on average 0.5% per month

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Risk Score Seasonality



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Projecting Risk Scores in 2010 Bids

- Bids based on CY2008 data
 - Risk scores should be consistent with this period
 - CMS provides July 2008 risk score based on 2009 coefficients (via HPMS)
- CMS prescribed adjustments
 - Late or lagged data
 - Coding intensity (1.3% per year for Part C)
 - FFS normalization factor (1.041 for 2010)
 - Seasonality adjustment (-0.5% per month)
 - MA Coding Pattern Differences Adjustment
 - Population change (morbidity)

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MA Coding Pattern Differences Adjustment

- Deficit Reduction Act (DRA) requires CMS reflect in its risk adjustment for Part C differences in coding patterns between MA plans and providers under FFS to the extent such differences are identified
- 2010 Adjustment = 0.9659 (3.41% adjustment)
- Studied changes to stayers' disease scores based on three cohorts: 2004-2005, 2005-2006 and 2006-2007
- Results:
 - MA scores trending at faster rate than FFS (1.75% per year)
 - Difference due to increase in severity and retention of HCC's
- No surprise:
 - Risk score improvement a major industry
 - If you aren't doing it, you are falling behind.

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MA Coding Patterns Differences Adjustment

- CMS decided not to incorporate the 2007-2008 cohort
 - 2007-2008 cohort showed that coding pattern differences have accelerated
 - Adjustment likely to be larger next year
- Risk Adjustment Data Validation (RADV) Audits
 - CMS will audit subset of MA plans each year
 - Both randomly selected plans and targeted plans
 - Targeted plans based on risk score growth relative to FFS
 - Financial implications (results extrapolated at the plan level)
- Accurate diagnoses submission is crucial

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Part D Risk Adjustment Model: RXHCC

- Implemented in 2006
- Based on medical diagnoses, similar to Part C
- Different list of diagnoses (i.e., hypertension)
- Risk score represents plan liability
 - Part D standard benefit
- Member premium not risk adjusted
- Accurate projection of risk score is imperative in bids

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RXHCC Model

- Additive model (demographics + RXHCCs)
- 84 RXHCCs
- 3 DRXHCCs
 - Add-ons for disabled population (<65)
 - Schizophrenia
 - Other major psychiatric disorders
 - Cystic fibrosis
- 28 disease hierarchies
- Originally disabled (65+)

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Part D Model (cont.)

- Long Term Care (LTC) and Low-Income (LI) Multipliers
- LTC
 - Disabled (<65) = 1.21
 - Aged (65+) = 1.08
- Low Income
 - Group 1 (full subsidy) = 1.08
 - Group 2 (partial subsidy) = 1.05
- Mutually exclusive, LTC takes precedence over LI
- LTC defined as residing in nursing home for more than 90 days prior to the payment month

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Risk Adjustment Improvement Initiatives

- Internal or Outsource?
- It has become a major industry
 - Leprechaun
 - MedAssurant
 - MMC 20/20
 - Dynamic Healthcare Systems
 - Infocrossing
- Mine data:
 - Medical claims for past 2-3 years (include DME)
 - CMS Model Output Reports (HCC MODD)
 - PDE data (pharmacy)
 - Lab outcomes data

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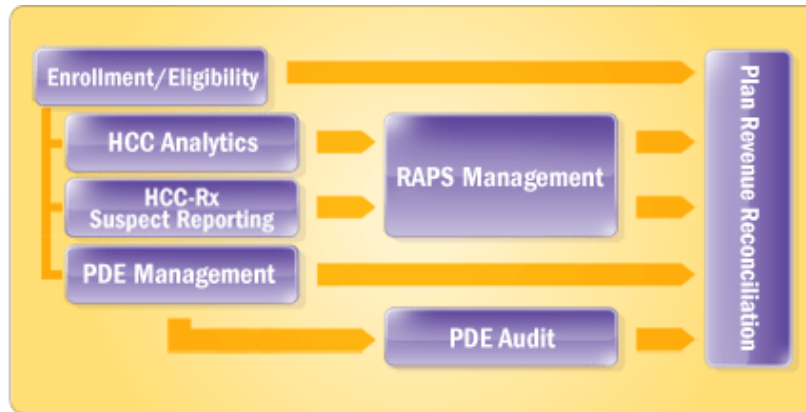
Data Submission Validation

Guiding Principle: The medical record documentation must show that the HCC diagnosis was assigned within the correct data collection period by an appropriate provider type (hospital inpatient, hospital outpatient, and physician) as defined in the CMS instructions for risk adjustment implementation. In addition, the diagnosis must be coded according to *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Guidelines for Coding and Reporting*. MA organizations will be allowed more flexibility, per the guiding principle, in the submission of supporting medical record documentation when responding to a medical record request.

Requirements for Documenting Diagnoses Coding/Collection

- Administrative Check
 - Confirms beneficiary demographic information (name, HIC, service dates within data collection period)
- Clinical Check
 - Is the record from an appropriate provider type?
 - Are the pertinent components needed for coding included in the record?
 - If a physician claim, was an evaluation of the patient performed by a physician or acceptable physician extender (PA, nurse practitioner)?
 - Physician signature and date entries are present

Risk Score Analytics



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Risk Score Improvement/Optimization

- Mine data
- Identify suspects
- Identify providers with multiple suspects
 - Review average number of diagnoses per claim
 - Review claim frequency by specialty type
- Chart reviews to identify missing diagnoses
- Provider education

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Milliman Risk Score Study – 2 Year Diagnoses Period

- Conducted in late 2007
- Determine if chronic disease persistency is a problem
 - Review retention of HCCs
- Analyze impact of including 2-years of diagnoses
- Summarize results

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Milliman Risk Score Study

- Retention of HCCs for chronic patients a problem

Medicare Population Coded with Diabetes, CHF, or COPD in Two Year Period		
Disease Status	Percent of Diseased Population	Concern
No in Year 1, Yes in Year 2	25.5%	Newly Diseased Rate Too High
Yes in Year 1, No in Year 2	13.8%	Chronic Diseases Apparently Cured!
Yes in Year 1, Yes in Year 2	60.7%	

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Research

- Tested if using two years of diagnoses data increases risk scores for Medicare beneficiaries with one or more of the chronic diseases Diabetes, CHF, or COPD relatively more than it does for other Medicare beneficiaries
- Research goal was to investigate use of multiple years of data and indicate whether worthy of further look by CMS
- If CMS pursues, they have more robust data not publicly available and would likely redo their regression analyses so their results will differ

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Research Method

- Identify “diseased” and “non-diseased” cohorts
- Develop two sets of CMS-HCC70 risk scores using one and two years of diagnoses data
- Normalize each set of risk scores (i.e., make sure the risk adjuster simply allocates the same pool of revenue)
- Compare results

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Results

Increase in Relative CMS-HCC70 Risk Score Using Diagnoses from Two Years Compared to One Year

Population	Relative Risk Score with Diagnoses from One Year	Relative Risk Score with Diagnoses from Two Years	Increase (Decrease) in Relative Risk Score
Diseased*	1.520	1.580	4.0%
Non-diseased	0.742	0.712	(4.1%)
Total	1.000	1.000	0.0%

* *Diseased refers to having Diabetes, CHF, and / or COPD*

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Risk Study Conclusion

- Using Diagnoses Data from Multiple Years for Risk Adjustment Appears Worthy of Further Study
- Whether they pursue it or not is unknown

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Closing

- Medicare risk adjustment has been evolving
 - Demographic → Inpatient → All-Encounter
(AAPCC) (PIP-DCG) (CMS-HCC)
- Risk adjustment necessary for viability of SNPs
 - Increases payment accuracy for plans
 - Viability of plans
 - Beneficiaries' access to plans
- Risk score improvement initiatives imperative
- Must continue to improve and evolve

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Thank You!

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