Medicare Advantage Boot Camp for Health Actuaries

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2017 SOA BOOT CAMP
MEDICARE ADVANTAGE

REVENUE & RISK SCORES

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Agenda

- Goals of CMS Risk Adjustment
- The CMS HCC Risk Adjustment Model
- Timing of Data Submissions related to Risk Scores
- Risk Score Projections

Goals of Risk Adjustment

- **Objective of Risk Adjustment:**
  - To pay plans for the risk of the beneficiaries they enroll, as a way to incent the plan to better manage the member's care.
  - Allows CMS to directly compare bids on a standardized basis.
  - Reduce adverse selection and promotes plans to enroll all types of risks. This increases access for beneficiaries and reduces gaming.

- Medicare Advantage Plans are paid on a **Prospective** basis, using CMS' "Risk Based" methodology related to the health risk status of plan members.
  - Prospective payment approach uses diagnosis as a measure of health status (based on historical claims experience) and demographic information of each beneficiary
  - Pay appropriate and accurate payments for subpopulations with significant cost differences based on their risk

- The risk factor is determined by the claims and encounter data submitted by the Medicare Advantage plan (as well as FFS claim data) on behalf of each member, each year. The diagnosis data accepted by CMS in the prior year will determine the payment the plan will receive for that member the following year (i.e. 2017 dates of service determine 2018 CMS risk score and payment)

- The claims and encounters must be supported by an appropriate, accurate and complete medical record, as the medical record is the only credible documentation recognized by CMS during audits.

CMS HCC Model

(Hierarchical Condition Categories)

- Used to predict contract medical claims for Medicare Advantage enrollees
- Based on diagnosis codes from either MA plans or Medicare FFS. 2018 RS developed:
  - Using 2017 HCC Model
  - 85% based on RAPS & FFS Data
  - 15% based on EDS and FFS Data
- Prospective using inpatient and ambulatory diagnoses from prior year to predict costs for the current year
- Starting point is a demographic/Medicaid/originally disabled factor
- Non-ESRD HCCs for Community and Institutional Members:
  - Diagnostic categories
  - Disease Interactions
  - Disabled/Disease Interactions
- New Enrollees are based on demographics
- Raw Risk Scores are Adjusted for Payment Risk Scores
  - Coding Pattern Differences (0.9409 for CY2018 payments)
  - FFS Normalization (1.017 for CY2018 payments)

HCC Starting Point is a Demographic Factor

Table 1. 2017 CMS-HCC Model Relative Factors for Community and Institutional Beneficiaries (there are more categories)

Variable	Community (Non-Dual)	Institutional
Female		
0-34 Years	0.244	1.031
35-44 Years	0.303	0.999
45-54 Years	0.322	1.007
55-59 Years	0.250	0.986
60-64 Years	0.411	1.028
65-69 Years	0.312	1.200
70-74 Years	0.374	1.092
75-79 Years	0.448	0.995
80-84 Years	**0.537**	0.860
85-89 Years	0.664	0.749
90-94 Years	0.797	0.626
95+ Years	0.816	0.456
Male		
0-34 Years	0.155	1.049
35-44 Years	0.190	1.074
45-54 Years	0.221	1.008
55-59 Years	0.271	1.055
60-64 Years	0.303	1.039
65-69 Years	0.300	1.269
70-74 Years	0.379	1.323
75-79 Years	0.466	1.331
80-84 Years	0.561	1.189
85-89 Years	0.694	1.129
90-94 Years	0.857	0.964
95+ Years	0.976	0.781
Medicaid and Originally Disabled Interactions with Age and Sex		
Medicaid		0.062
Originally Disabled_Female	0.244	
Originally Disabled_Male	0.152	

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The Conditions and their Risk Factors

Disease	Coefficients	Community (non-Dual disabled)	Institutional
HCC1	HIV/AIDS	0.288	1.747
HCC2	Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock	0.532	0.346
HCC6	Opportunistic Infections	0.704	0.580
HCC8	Metastatic Cancer and Acute Leukemia	2.644	1.143
HCC9	Lung and Other Severe Cancers	0.927	0.727
HCC10	Lymphoma and Other Cancers	0.656	0.401
HCC11	Colorectal, Bladder, and Other Cancers	0.352	0.293
HCC12	Breast, Prostate, and Other Cancers and Tumors	0.202	0.199
HCC17	Diabetes with Acute Complications	0.371	0.441
HCC18	Diabetes with Chronic Complications	0.371	0.441
HCC19	Diabetes without Complication	0.128	0.160
HCC21	Protein-Calorie Malnutrition	0.753	0.260
HCC22	Morbid Obesity	0.227	0.511
HCC86	Acute Myocardial Infarction	**0.306**	0.497
HCC170	Hip Fracture/Dislocation	**0.513** -	0.000

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Disease Interactions

Disease Interactions	Description	Community(nonDual,Dis)	Institutional
CANCER_IMMUNE	Cancer*Immune Disorders	0.675	-
CHF_COPD	Congestive Heart Failure*Chronic Obstructive Pulmonary Dis	0.096	0.154
CHF_RENAL	Congestive Heart Failure*Renal Disease	0.493	-
COPD_CARD_RESP_FAIL	Chronic Obstructive Pulmonary Disease*Cardioresp Failure	0.256	0.423
COPD_ASP_SPEC_ BACT_PNEUM	COPD*Aspiration and Specified Bacterial Pneumonias	-	0.254
SCHIZOPHRENIA_CHF	Schizophrenia*Congestive Heart Failure	-	0.173
SCHIZOPHRENIA_COPD	Schizophrenia*Chronic Obstructive Pulmonary Disease	-	0.363
SEPSIS_ASP_SPEC_ BACT_PNEUM	Sepsis*Aspiration and Specified Bacterial Pneumonias	-	0.321
ETC			

Disabled Interactions

(Disabled & Disease)

Disabled/Disease Interactions	Description	Community(nonDual,Dis)	Institutional
DISABLED_HCC6	Disabled, Opportunistic Infections	-	0.277
DISABLED_HCC39	Disabled, Bone/Joint Muscle Infections/Necrosis	-	0.567
DISABLED_HCC77	Disabled, Multiple Sclerosis	-	0.425
DISABLED_HCC85	Disabled, Congestive Failure	-	0.321
DISABLED_HCC161	Disabled, Chronic Ulcer of the Skin, Except Pressure Ul	-	0.369
DISABLED_PRESS_ULCER	Disabled, Pressure Ulcer	-	0.608

Hierarchies

Table 4. Disease Hierarchies for the 2017 CMS-HCC Model

Hierarchical Condition Category (HCC)	If the HCC Label is listed in this column…	…Then drop the HCC(s) listed in this column
8	Metastatic Cancer and Acute Leukemia	9,10,11,12
9	Lung and Other Severe Cancers	10,11,12
10	Lymphoma and Other Cancers	11,12
11	Colorectal, Bladder, and Other Cancers	12
17	Diabetes with Acute Complications	18,19
18	Diabetes with Chronic Complications	19
27	End-Stage Liver Disease	28,29,80
28	Cirrhosis of Liver	29
46	Severe Hematological Disorders	48
54	Drug/Alcohol Psychosis	55
57	Schizophrenia	58
70	Quadriplegia	71,72,103,104,169
71	Paraplegia	72,104,169
72	Spinal Cord Disorders/Injuries	169
82	Respirator Dependence/Tracheostomy Status	83,84
83	Respiratory Arrest	84
86	Acute Myocardial Infarction	87,88
87	Unstable Angina and Other Acute Ischemic Heart Disease	88
99	Cerebral Hemorrhage	100
103	Hemiplegia/Hemiparesis	104
106	Atherosclerosis of the Extremities with Ulceration or Gangrene	107,108,161,189
107	Vascular Disease with Complications	108
110	Cystic Fibrosis	111,112
111	Chronic Obstructive Pulmonary Disease	112
114	Aspiration and Specified Bacterial Pneumonias	115
134	Dialysis Status	135,136,137
135	Acute Renal Failure	136,137
136	Chronic Kidney Disease (Stage 5)	137
157	Pressure Ulcer of Skin with Necrosis Through to Muscle, Tendon, or Bone	158,161
158	Pressure Ulcer of Skin with Full Thickness Skin Loss	161
166	Severe Head Injury	80,167

New Enrollee Factors - Aged & Disabled

(There are Different Factors for Chronic Condition SNPs)

Table 2. 2017 CMS-HCC Model Relative Factors for Aged and Disabled New Enrollees

	Non-Medicaid & Non-Originally Disabled	Medicaid & Non-Originally Disabled	Non-Medicaid & Originally Disabled	Medicaid & Originally Disabled
Female				
0-34 Years	0.644	0.985	-	-
35-44 Years	0.936	1.221	-	-
45-54 Years	1.035	1.337	-	-
55-59 Years	1.004	1.342	-	-
60-64 Years	1.122	1.438	-	-
65 Years	0.522	1.059	1.130	1.566
66 Years	0.516	0.946	1.167	1.619
67 Years	0.544	0.946	1.167	1.619
68 Years	0.581	0.946	1.167	1.619
69 Years	0.605	0.946	1.167	1.619
70-74 Years	0.674	0.975	1.167	1.619
75-79 Years	0.892	1.092	1.167	1.619
80-84 Years	1.066	1.395	1.167	1.619
85-89 Years	1.324	1.458	1.167	1.619
90-94 Years	1.324	1.678	1.167	1.619
95 Years or Over	1.324	1.678	1.167	1.619
Male				
0-34 Years	0.456	0.766	-	-
35-44 Years	0.665	1.095	-	-
45-54 Years	0.834	1.357	-	-
55-59 Years	0.889	1.422	-	-
60-64 Years	0.923	1.582	-	-
65 Years	0.514	1.201	0.790	1.613
66 Years	0.533	1.208	0.957	1.613
67 Years	0.575	1.208	1.005	2.202
68 Years	0.641	1.208	1.074	2.202
69 Years	0.671	1.311	1.398	2.202
70-74 Years	0.776	1.311	1.398	2.202
75-79 Years	1.040	1.361	1.398	2.202
80-84 Years	1.270	1.603	1.398	2.202
85-89 Years	1.511	1.850	1.398	2.202
90-94 Years	1.511	1.850	1.398	2.202
95 Years or Over	1.511	1.850	1.398	2.202

Risk Score Example

(Using 2017 HCC Model for 2018 Payments)

- **Risk Score Example: Mrs. Jones**
  - 81 years old, Resides in her home
  - Original reason for entitlement is Aged
  - Not Medicaid eligible
  - Plan submitted six diagnostic codes with dates of service during last year
    - Acute Myocardial Infarction – 410.21, 410.41, 410.91
    - Hip Fracture – 821.00, 821.10, 821.20
- **Which model applies?**
  - Part C CMS-HCC
- **Which risk factors apply?**
  - Community (non-Dual)
  - Female 80-84 years old = ***0.537***
  - ICD-9 410.21, 410.41, 410.91 map to HCC 86 Acute Myocardial Infarction = ***0.306***
  - ICD-9 821.00, 821.10, 821.20 map to HCC 170 Hip Fracture/Dislocation = ***0.513***
- **What is her raw risk score?**
  - ***0.537+0.306+0.513 = 1.356***
- **Final Adjustments to 2017HCC Model Score for CY2018 Payments:**
  - **Apply Coding Pattern Differences & FFS Normalization**
  - ***1.356 x 0.9409 / 1.017 = 1.2545***
- ***In practice this will be developed once from RAPS data and once from EDS data and blended 85%/15%***

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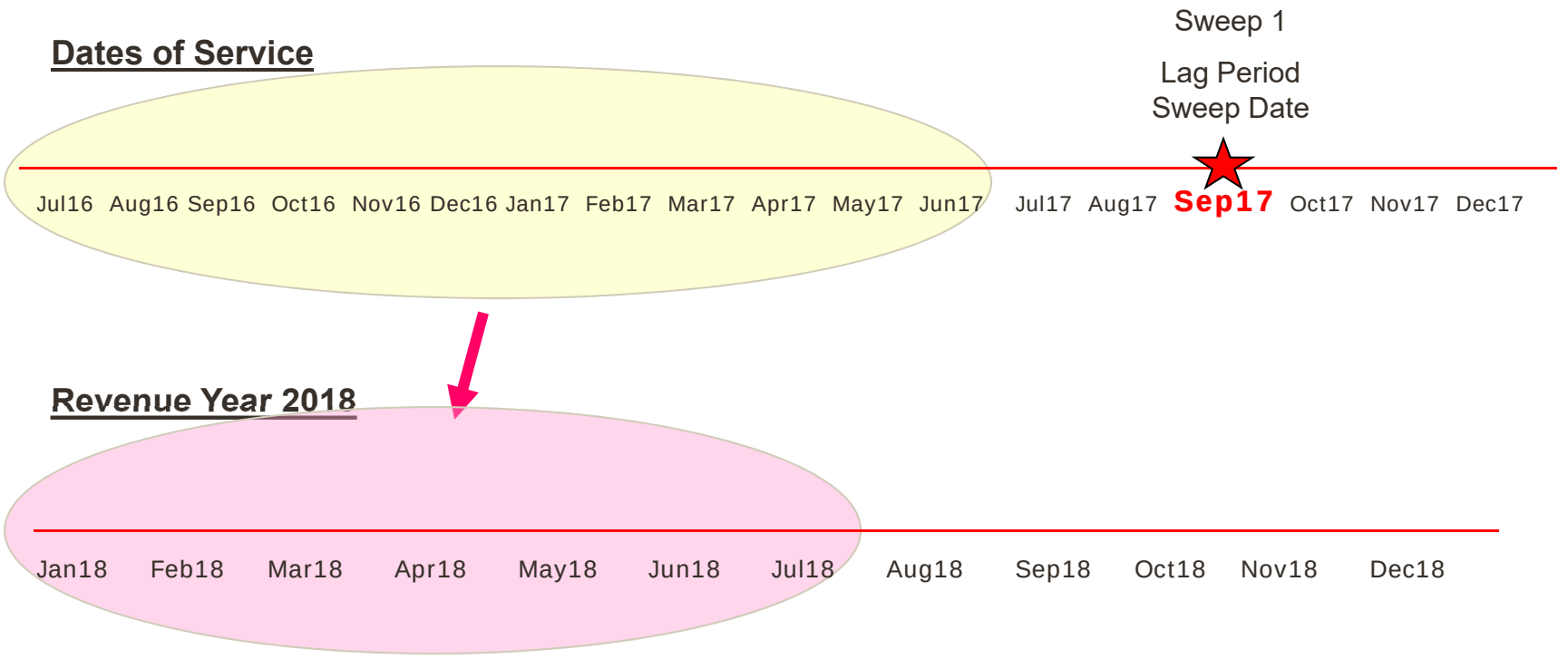
Revenue Payments

(January through July)



Ultimately, CY 2018 revenue will be based on diagnosis codes from services that were incurred in CY 2017. However, starting in January 2018, the Risk Scores and the associated CMS revenue are estimated based upon a lagged time period (July 2016-June 2017) due to data availability.

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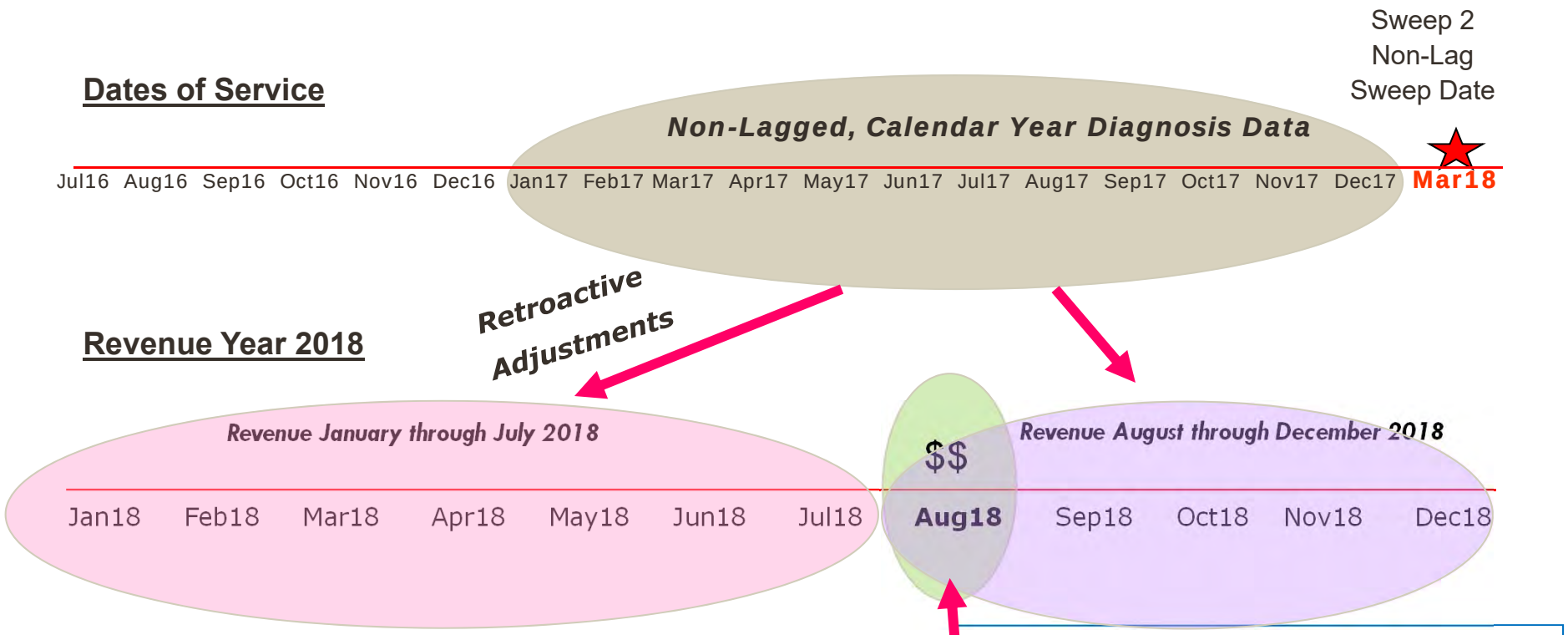
Revenue Payments

(August through December)



In August of the 2018 Revenue Year, CMS will switch from lagged to non-lagged diagnosis data. CMS will restate the risk scores for the 1st seven months of the year based on the updated data. This will generate a lump sum positive or negative payment between CMS and the Company. In addition, all monthly payments going forward for the rest of the year will be based on the non-lagged calendar year data.

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Revenue Payments

(Final Adjustment)

- In August of the year after a "Revenue Year" (August 2019 for Revenue Year 2018), CMS will make one final true-up payment and restatement of risk scores to account for any diagnosis codes that were incurred in CY2017 that were reported to CMS by 1/31/19
- Companies get more than a full year of opportunity to report run-out .
- This provides opportunities for companies to perform retroactive initiatives to ensure correct diagnosis reporting.

Projecting Risk Scores

(CMS Preferred Methodology for Bid Development)

- **Two Sources of starting risk score data (both provided by CMS)**
  - Beneficiary-Level File containing 12 months of 2016 membership with retroactive enrollment and retroactive status adjustments (Most Common).
  - Plan-level data for the July 2016 enrollee cohort that reflects retroactive enrollment and retroactive status adjustments.
- **Advantages of Using 2016 Risk Scores from CMS as base:**
  - Consistent with the base period medical expenses
  - Requires no adjustment for seasonality since the values reflect CY2016 (or avg. for 2016)
  - Reflects complete CY2015 diagnosis data through final 1/31/17 sweep.
  - CMS adjusts the risk scores to reflect the latest risk score models (CY2017 HCC Model used for 2018 payments)
  - Do not need to reflect:
    - Transition from lagged to non-lagged
    - Incomplete reporting of diagnosis data
    - Seasonality

Projecting Risk Scores

(CMS Preferred Methodology Sample Calculation)

2018 MA Risk Score Development Illustration

Risk Score Element		HPMS Posted Data 2017 HCC Model
A Starting Data (from Bene-Level File)		1.0900
B Covert to Raw - remove FFS Normalization		n/a
C Covert to Raw - remove Coding Pattern Adjustment		n/a
D Plan Specific Coding Trend		1.0404
E Starting Data Adjustments (i x ii x iii below)		n/a
i) Transition from lagged to non-lagged diagnosis data	n/a	
ii) Incomplete reporting of diagnosis data	n/a	
iii) Seasonality	n/a	
F Other Plan Specific Data Adjustment (Population)		1.0000
G Risk Model Adjustment		n/a
H. Projected Raw Risk Score		1.1340
I MA Coding Pattern Adjustment		0.9409
J Normalization Factor (must calibrate to denominator year; divide)		1.0170
K Frailty Factor		0.0000
L Final Risk Score (H x I / J + K)		1.0491

The CMS provided Beneficiary-Level files have these starting risk score for each member once from RAPS and FFS data and once from EDS and FFS data – these must be blended 85%/15%.

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Projecting Risk Scores
(Alternate Methodology)

- Used for plans with limited or no enrollment during the base period. May also be appropriate if there were significant changes to the plan or enrollment characteristics since the base period.

- For example for the 2018 bids, if there was a plan that was new in 2016 (base year) that had very little enrollment in 2016; however, it had a significant enrollment increase for January 2017. In this case, you will likely have reliable risk scores from the CMS Monthly Membership Report (MMR) for January 2017 through March 2017 when you are preparing your 2018 bids.

- Must take care to understand base period population in connection with the 2016 medical costs, and make any necessary medical expense pricing adjustments to reflect the early 2017 population from which risk scores (and hence revenues) are being projected.

Projecting Risk Scores

(Alternative Methodology Likely Adjustments)

- **Conversion to a "Raw" Risk Score-** MMR risk scores reflects FFS Normalization and Coding Pattern Adjustments for the data year. Need to back this out.
- **Impact of Lagged vs. Non-Lagged Diagnosis Data-** If using MMR risk scores from first quarter of 2017, which are based on 6 month lagged diagnosis codes, then will need to adjust to reflect what those risk scores will actually look like once the risk scores are restated to reflect the non-lagged risk score which will be based on calendar year 2016 diagnoses.
- **Run-out of Diagnosis Data** (submissions of diagnoses through January 2018)
- **Seasonality-** often see a decline in risk scores throughout the year as members with higher risk scores may pass away and new entrants usually have lower risk scores.
- **Risk Model Change** (2017 MMR is based on the 2017 HCC Model, which for 2018 is the same model)
- **Plan Specific Coding Trend**
- **Population Changes**
- **Convert back to a "Payment" Risk score-** by adjusting for the FFS Normalization and Coding Pattern Difference factors for CY2018 Payments

Projecting Risk Scores

(Alternative Methodology Sample Calculation)

2018 MA Risk Score Development Illustration

Risk Score Element		Jan-Mar 2017 RS from MMR File
A Starting Data (from MMR)		1.0376
B Covert to Raw - remove FFS Normalization (CY2014 HCC Model)		0.998 multiply
C Covert to Raw - remove Coding Pattern Adjustment		0.9434 divide
D Plan Specific Coding Trend		1.0200
E Starting Data Adjustments (i x ii x iii below)		1.0160
i) Transition from lagged to non-lagged diagnosis data	*1.0180*	
ii) Incomplete reporting of diagnosis data	*1.0250*	
iii) Seasonality	*0.9737*	
F Other Plan Specific Data Adjustment (Population)		1.0000
G Adjust for RAPS/EDS Ratio (75% RAPS in 2017, 85% RAPS in 2018)		1.0050
H Risk Model Adjustment (MMR based on 2017HCC)		1.0000
I. Projected Raw Risk Score		1.1432
J MA Coding Pattern Adjustment		0.9409
K Normalization Factor (must calibrate to denominator year; divide)		1.0170
L Frailty Factor		0.0000
M Final Risk Score (H x I / J + K)		1.0577

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Risk Score Projection

(Coding Trends: Retrospective Initiatives)

Use vendors or internal resources to identify "suspected opportunities" for missed diagnosis codes (i.e. look back at the diagnoses that you already have and see if anything seems to be missing). For example, if a member has been a diabetic for the last 5 years, but no diagnosis for diabetes is in the current year claims, then check the medical record for evidence of diabetes.

- Usually involves an on-site visit to the physician's office to check the medical record for recorded diagnoses that were not submitted on the claim form. Process gets easier as electronic medical records evolve.
- Sample timeframe: For the 2016 revenue year which is based on 2015 diagnoses, on-site visits usually occur during the second half of 2016 so that diagnoses can be submitted by the third and final sweep on 1/31/17.
- **Critical to consider these initiatives when projecting risk scores.**

Risk Score Projection

Coding Trends: Prospective Initiatives

Often utilizes vendors to send a physician or nurse to a member's home to perform a Health Risk Assessment to identify potentially undiagnosed conditions. Usually uses a predictive algorithm to identify likely candidates.

- An actual claim is created and since it is a face-to-face visit between a health practitioner and the member, any identified diagnoses can be used for risk adjustment.
- Sample timeframe: For the 2016 revenue year which is based on 2015 diagnoses, a health practitioner would have needed to visit someone in their home during 2015 for it to impact 2016 revenue.
- **Critical to consider these initiatives when projecting risk scores.**

Risk Score Projection

Risk Score Credibility

CMS MA Risk Score Credibility Guidelines

- 3,600 MM for full credibility
- Formula = square-root of (base period MM / 3,600)

Choice of Manual Rate Risk Score

- Manual rate risk score must be shown to have similar characteristics to the projected experience rate risk score
- Essentially, the manual rate reflects the claims and risk scores for the same set of risks as the experience rate
- ASOP #25, Paragraph 3.3 – "The actuary should use care in selecting the related experience that is to be blended with the subject experience. Such related experience should have frequency, severity, or other determinable characteristics that may reasonably be expected to be similar to the subject experience."