The "Rxisk" of adjustments in 2018 ACA risk adjustment

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Several years into its implementation, the Patient Protection and Affordable Care Act (ACA) continues to reshape the existing insurance landscape.

Most ACA issuers are probably aware of the new prescription drug category (RXC) classification system that the Centers for Medicare and Medicaid Services (CMS) is adding to the 2018 risk adjustment model. However, no market participant can fully appreciate the impending changes heading for them or the market as a whole without knowledge of how prescribed medications will affect the assignment of conditions to an insured member—something CMS has not yet provided.

To help our clients understand the implications of the 2018 model and begin planning for its issuer-specific and marketwide effects, we approximated the likely CMS mapping based on the publicly available information to date and present the results and our conclusions in this paper.

Incorporating prescribed medication into the model

Under the current risk adjustment program, a member is assigned a specific condition, or not, based on the presence of certain diagnosis codes from that member's medical claim records. Starting in benefit year 2018, however, a condition will be identified through a Hierarchical Condition Category (HCC) with associated medical diagnosis codes, a prescribed medication, or both—each one affecting the final member risk score differently. CMS is adding a limited number of RXCs to identify the presence of a condition treated primarily through medication or to capture materially different costs within a disease category for members taking specific, high-cost medications. The hallmark example is hepatitis C, where a patient's annual prescription cost could be rather minimal if the member is not treated or potentially over $100,000 if a member is treated with a recently approved curative therapy.

To illustrate the changes to the 2018 ACA risk adjustment methodology, Figure 1 shows how a sample diabetic member in a silver plan could be scored in 2016 (or 2017) and in 2018.[1]

A diabetic member will be identified in three distinct ways in 2018. All things equal, the risk score for any one member may increase or decrease over the 2016 value, depending on the combination of utilized medications and medical diagnoses. Additionally, *some members may be identified as diabetic in 2018 who were not identified as diabetic in 2016* (the RXC only category).

In aggregate, the contribution of an HCC/RXC to an issuer's 2018 total risk score will be highly dependent on the membership distribution across each of the outcomes in Figure 1. Further, it is possible for the contribution to the total risk score to increase or decrease in 2018 compared with 2016, independent of other model changes (i.e., other HCCs, demographics, metallic level, etc.).

1 The coefficients for the HCC group HCC019, 020, and 021 and RXC06 are available at https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/2018-Benefit-Year-Final-HHS-Risk-Adjustment-Model-Coefficients.pdf.

FIGURE 1: SCORING A MEMBER IN A SILVER PLAN WITH AND WITHOUT DIABETES

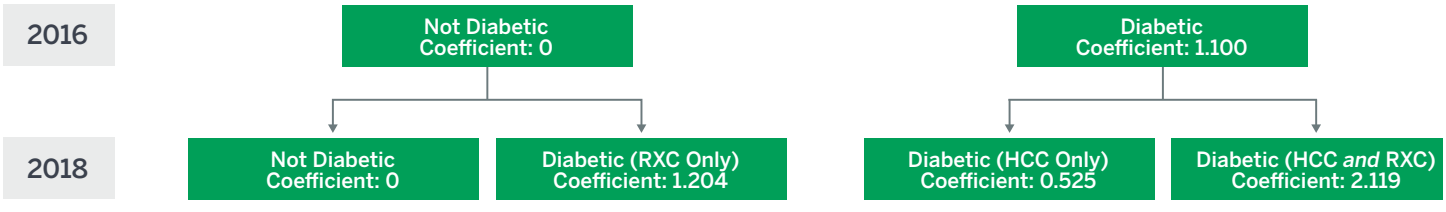


Figure 2 illustrates these concepts with the risk scores from Figure 1 and two sample distributions of a group of members with and without conditions.[2]

In sample distribution #1, most members do not take medications eligible for risk adjustment. This population's contribution to the risk score would decrease in 2018 relative to 2016. In sample distribution #2, all members receive both an HCC and an RXC. This population's impact is the opposite—its contribution increases significantly in 2018 because of the credit given to medications treating the underlying disease. While these examples are illustrative, both demonstrate the level of variation possible and how differently the presence (or absence) of an RXC can impact an issuer in the future.

2018 risk scores decrease overall, but impacts by condition are highly variable

We worked with our pharmacists and clinicians to assign drugs to the HCCs with published RXC coefficients. We performed the analysis at a member level among adults and aggregated the results into groupings of clinically similar conditions (available in the Appendix). Overall, we expect marketwide risk scores to decrease in 2018 relative to 2016, but the variation in impact may be high across the clinical groupings.

RESULTS AT THE MEMBER LEVEL

The graph in Figure 3 displays the change in illustrative member-level transfer amounts as a percentage of member premium[3] between 2016 and 2018 by grouping (inclusive of HCC and RXC changes, holding all other risk score components constant).[4]

The major clinical categories we expect will generate more favorable risk transfer outcomes include Hepatitis, Autoimmune, Liver, Nervous, and HIV. For a member with one of these conditions, the anticipated change in transfer receipts as a percentage of that member's premium is quite large—in excess of a 50% change for all categories. In most cases, the impact is directly attributable to the addition of RXCs (with or without an associated diagnosed medical condition) and the prevalence of insured patients taking the prescribed medications that trigger an RXC. In the case of HIV, though, the positive change in transfers is mostly driven by higher 2017 risk score *before* the introduction of RXCs in the risk adjustment model.

The graph in Figure 3 illustrates some interesting changes in the relationships among some of the condition categories. For instance, the Hepatitis and Liver categories provide an example of how related conditions may be impacted differently. Based on the coefficients released by CMS, members with liver conditions received a higher risk score than hepatitis in 2016—the opposite of which is true in 2018. This reflects increased compensation for high-cost prescription treatments for hepatitis C. Invariably, other relational shifts across years exist, depending on the latest recalibration and other model changes, particularly whether CMS assigned an RXC to a condition.

We also expect several condition groupings to provide less risk adjustment compensation, on average, in 2018 compared with 2016. These categories include Cerebrovascular, Musculoskeletal, Infectious, Renal, and Transplant. In all cases, the recalibration of the risk model in 2018 led to lower risk scores for the condition groups irrespective of the presence of an RXC. In fact, when RXCs *are* a marker for a condition, the overall risk score tends to decrease similarly to other conditions with no RXC counterpart.

It is worth noting the composite combined HCC and RXC risk scores in 2018 could decrease relative to analogous 2016 risk scores but still generate a transfer receipt. This occurs when the aggregate condition risk score decreases by less than the decrease in the market average risk score (holding all other variables constant).

2 Prevalence distributions are purely illustrative and do not represent actual issuer data.

3 The risk adjustment transfer formula is complex, and results will vary for each issuer in practice. For illustrative purposes, we assumed a standard CSR variant silver, made up entirely of adult members. We based statewide risk adjustment factors on the actual metallic level and age factors of our ACA data sample.

4 Refer to the Methodology and Key Assumptions section for more details behind our calculation of the RXC impacts.

FIGURE 2: ILLUSTRATIVE EXAMPLE OF COMPOSITE RISK SCORES 2018 OVER 2016

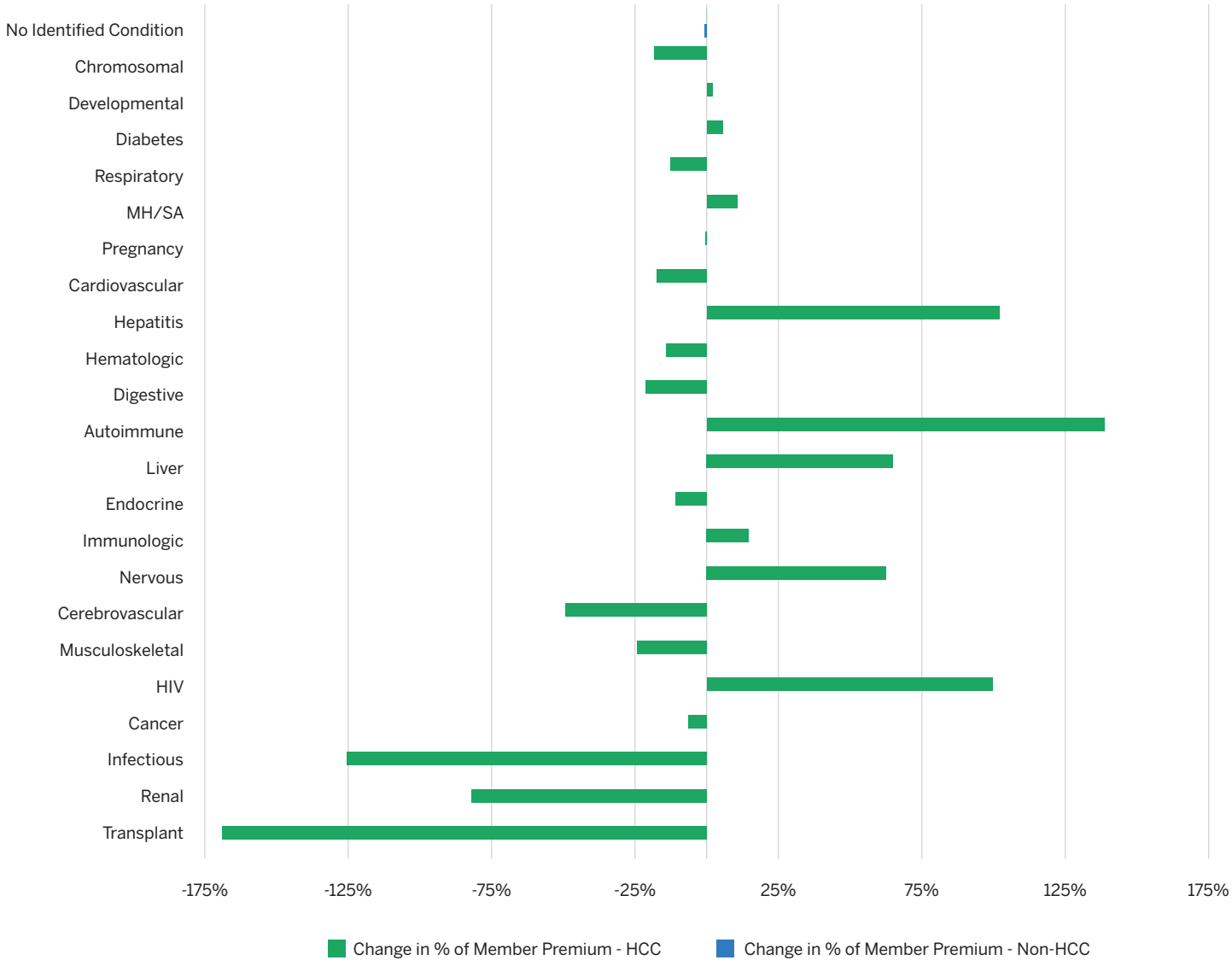
SAMPLE DISTRIBUTION #1

IDENTIFICATION TYPE	2016 COEFFICIENT	2018 COEFFICIENT	DISTRIBUTION
NO MARKER	0.000	0.000	0.0%
HCC ONLY	1.100	0.525	80.0%
RXC ONLY	0.000	1.204	10.0%
HCC & RXC	1.100	2.119	10.0%
TOTAL	**0.990**	**0.752**	**100.0%**

SAMPLE DISTRIBUTION #2

IDENTIFICATION TYPE	2016 COEFFICIENT	2018 COEFFICIENT	DISTRIBUTION
NO MARKER	0.000	0.000	0.0%
HCC ONLY	1.100	0.525	0.0%
RXC ONLY	0.000	1.204	0.0%
HCC & RXC	1.100	2.119	100.0%
TOTAL	**1.100**	**2.119**	**100.0%**

FIGURE 3: CHANGE IN 2018 MEMBER-LEVEL TRANSFER AMOUNT AS A PERCENTAGE OF PREMIUM BY CLINICAL GROUPING



RESULTS AT THE POPULATION LEVEL

Generally speaking, the relationships in the graph in Figure 3 above hold when observing the transfer change at the block level, although now the incidence rate of the condition(s) factors into the magnitude of the change. The graph in Figure 4 (on page 4) displays the expected impact to transfers at the population level.

We identified several noteworthy movements when viewed in aggregate rather than by member. For instance, the Transplant category produces the largest unfavorable change in transfers in Figure 3, but the impact is much smaller in aggregate due to the relative rarity of these procedures compared with other, more common conditions. Conversely, the change in revenue for diabetics is minimal at the member level, but the high prevalence of the condition amplifies its effect across the population. Similar observations can be noted for the Cardiovascular, Infectious, Renal, HIV, and Hepatitis categories. The relevant takeaway is still that a plan's total transfers could be highly affected by conditions with risk scores that change only slightly or could be minimally affected by conditions with significant risk score changes. It's all a matter of member mix—and an issuer understanding its current mix and adept at anticipating its future mix will be better positioned to properly reflect expected changes to its ACA risk scores and transfers.

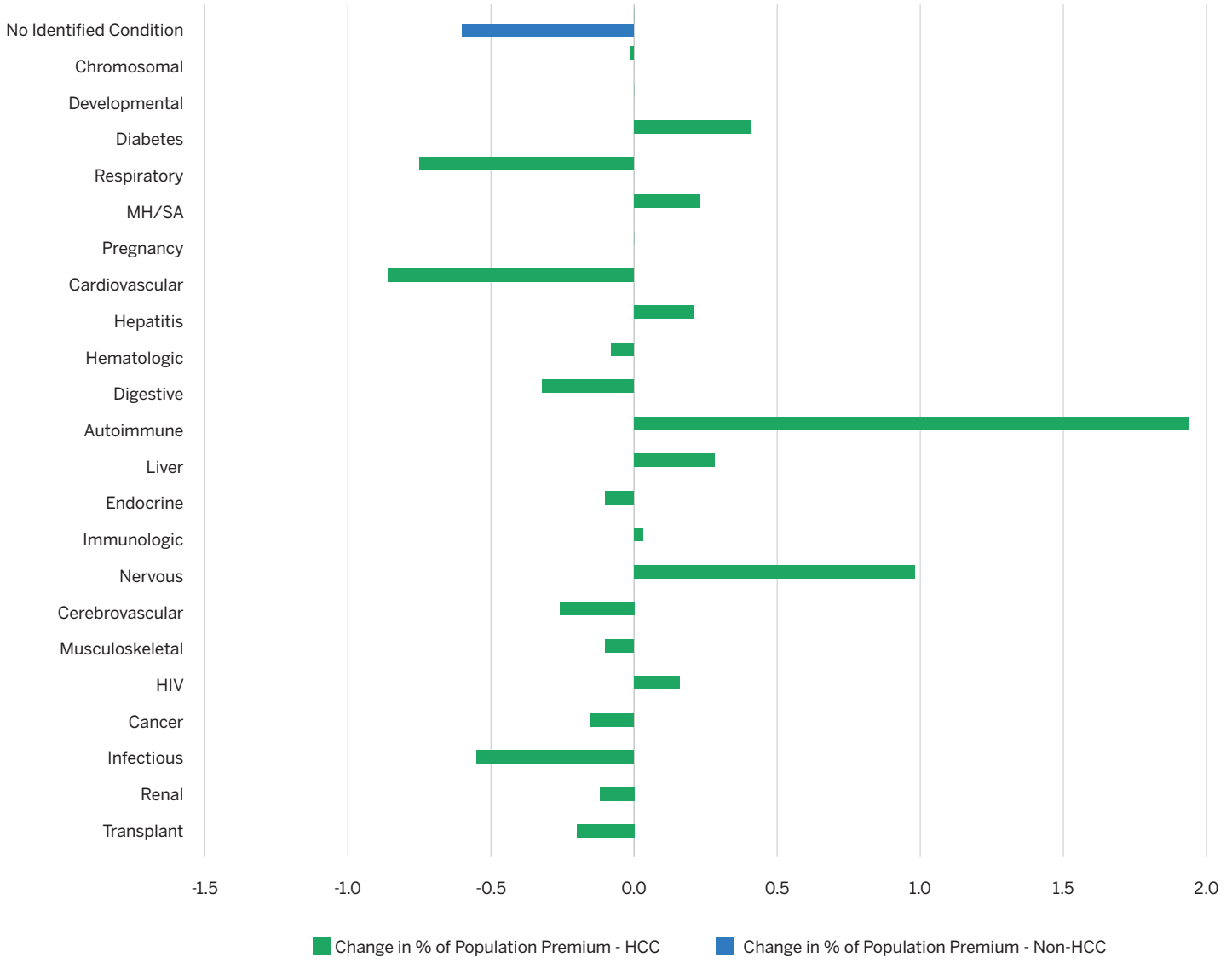
What it means for ACA issuers

While welcomed by many in the market as a mechanism to better account for claim costs, the addition of pharmacy utilization explicitly into ACA risk scores adds a new piece into the medical and financial management puzzle. Those participating in the ACA must now consider the implications of the interaction between medication and medical diagnoses and how these new effects will contribute to the risk scores of the members within their blocks of business and the market as a whole. Both the issuer-specific and market-level outcomes of pharmacy markers in the risk adjustment model may require additional analysis and time before the effects are truly understood and properly accounted for.

While outside the scope of this paper, discussions have emerged about how formulary design, tier placement, and, ultimately, pharmaceutical manufacturer rebates will factor into the equation long-term.[5] In order to truly understand and plan for these higher-order effects, issuers will likely need to wait until CMS releases the final mapping of RXC and NDC categories. Until then, an issuer can take the first steps now to open internal dialogue and begin incorporating the concepts and results of this paper into existing risk analytics to inform and help plan for its new risk adjustment position within the 2018 market.

5 The Incidental Economist (June 1, 2017). Risk adjustment in the ACA marketplaces: A success with some important gaps. Retrieved August 2, 2017, from **http://theincidentaleconomist.com/wordpress/risk-adjustment-in-the-aca-marketplaces-a-success-with-some-important-gaps/**.

FIGURE 4: CHANGE IN 2018 POPULATION-LEVEL TRANSFER AMOUNT AS A PERCENTAGE OF PREMIUM BY CLINICAL GROUPING



Methodology and key assumptions

The foundation of our analysis rests on the identification of member-level risk-adjustment-eligible conditions—both through attributed diagnoses and prescription medications filled in a retail pharmacy, specialty pharmacy, or a mail order setting. Since the introduction of the risk adjustment program, CMS has annually published crosswalks from diagnosis code to HCC (sometimes premised on other supporting logic). However, as of finalization of this publication, CMS had not released an analogous drug level crosswalk for RXCs.

RXC MAPPING

Before introducing RXCs, CMS went to great lengths to develop statistical model alternatives and analysis to balance certain guiding principles when filtering the drugs or classes of drugs that would identify specific conditions and disease states. CMS published its conclusions and recommendations on March 31, 2016 within its HHS-Operated Risk Adjustment Methodology Meeting Discussion Paper (CMS Whitepaper).[6] We leveraged the content of this publication and our clinical/pharmaceutical expertise to map NDCs to RXCs and create an approximation of the currently unpublished portions of the 2018 risk adjustment model logic.

We began with the USP Medicare Model Guidelines v6.0 (Categories and Classes)[7] and mapped the relevant "USP Category" and "USP Class" to each of the RXC categories defined in the U.S. Department of Health and Human Services (HHS) Notice of Benefit and Payment Parameters for 2018 (BPPs).[8] We sorted the PY2017_EHBRxCrosswalk[9] file of the Center for Consumer Information and Insurance Oversight (CCIIO) by "USP Class" to create an RxCUI-to-RXC Label crosswalk. We completed this exercise at the "USP Class 1," "Class 2," and "Class 3" levels.

At this point, we had created a list of RXCs and their associated prescription drug concept unique identifiers (RxCUIs). We then performed a detailed clinical review, comparing the RxCUIs we associated with a particular condition with the guiding principles for drug inclusion outlined in the CMS Whitepaper. After adjustments, we established a final RxCUI list for each RXC. We applied our logic to a proprietary 2016 sample ACA population[10] and compared the resulting RXC imputation and severity additions from our drug mapping with Table 4.4 in the CMS Whitepaper.

We performed sensitivity testing of RXC outcomes for those drugs where it was not apparent whether the CMS guiding principles would be satisfied by their inclusion in our mapping. We found the results at the condition level and in aggregate to be reasonably stable.

HCC MODEL LOGIC

Upon completion of the NDC-RXC mapping, we scored our proprietary sample population under both the 2016 and 2018 HHS risk-scoring methodology. We modeled benefit year 2016 using an internal implementation of the final 2016 CMS "Do It Yourself" (DIY) tool[11] and benefit year 2018 with a version of the same 2016 DIY tool, modified to include our RXC drug mapping and both the coefficients[12] and risk adjustment model changes published in the final 2018 BPPs. By keeping the population constant and modeling each year independently, we isolated the impacts of model changes only while incorporating the interaction of HCCs, RXCs, demographics, and member duration.

Because the DIY tool has not been released for benefit year 2018, we assumed the following in our implementation of the 2018 risk-scoring algorithm:

- RXC06 and RXC07 are part of the only drug hierarchy in the 2018 model, with RXC06 classified as the more severe category.
- HCC37_1 and HCC37_2 are part of a new hierarchy in the 2018 model, with HCC37_1 classified as the more severe condition.
- Only one valid NDC is required to trigger RXC identification for imputation or severity, and CMS will not impose restrictions or conditions (i.e., limits on fills, days, supply, etc., are not considered by the risk-scoring logic) other than the presence of a valid NDC on a valid pharmacy claim.
- A member with a partial month of coverage is credited with a full month when calculating duration factors.

RISK SCORE ANALYSIS

The HHS-HCC risk scoring algorithm, by design, returns detailed results at the member level, creating challenges when analyzing year-over-year changes. Even grouping the data at the condition level (HCC, RXC, or both) creates far too many combinations for truly meaningful and interoperable analysis—particularly when accounting for the interactions of HCCs with the new RXCs.

6 CMS (March 24, 2016). March 31, 2016, HHS-Operated Risk Adjustment Methodology Meeting. Discussion Paper. Retrieved August 2, 2017, from https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf.

7 USP Medicare Model Guidlines, Version 6.0 at http://www.usp.org/sites/default/files/usp/document/our-work/healthcare-quality-safety/uspmmg_v6_0_cat-class.pdf.

8 See the full document at https://s3.amazonaws.com/public-inspection.federalregister.gov/2016-30433.pdf.

9 Essential Health Benefits Rx Crosswalk Methodology for Plan Year 2017. Retrieved August 2, 2017, from https://www.cms.gov/CCIIO/Resources/Data-Resources/Downloads/EHB-Rx-Crosswalk-Methodology-PY-2017.pdf.

10 Sample population includes 3 million individual and small group ACA member months.

11 "2016 Benefit Year HHS RA Model Algorithm DIY Software: SAS Version" posted to REGTAP on December 30, 2016.

12 CMS (April 18, 2017). 2018 Benefit Year Final HHS Risk Adjustment Model Coefficients. Retrieved August 2, 2017, from https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/2018-Benefit-Year-Final-HHS-Risk-Adjustment-Model-Coefficients.pdf.

Consider the case of diabetes. A diabetic in 2018 will be identified by HCC019, HCC020, HCC021, RXC06, and RXC07. To understand the impact of HCC coefficient changes and RXC additions, we must classify member outcomes into HCC only, RXC only, and HCC and RXC categories. Assigning members to the HCC only or HCC and RXC categories is relatively straightforward. However, the same cannot be said for the RXC only outcome, as there is no obvious method for assigning, say, RXC06 to HCC019, HCC020, or HCC021. To help mitigate this concern, we utilized clinical expertise to group HCCs and RXCs into broader disease categories. These groupings serve to circumvent the issues just discussed, simplify the analysis, and present conditions more holistically.

We modeled risk scores from our data set two ways: 1) retaining all member characteristics, including plan design, cost-sharing reduction (CSR) variant, duration, and demographics, and 2) standardizing members to reflect an adult population enrolled in a standard silver-level plan. For the statewide averages, we leveraged our initial data set without modification, which provided the composite risk scores for the market and created a basis for determining the transfer changes among our disease groupings. For the disease groupings themselves, we used the risk score, durational, and demographic results from our modified adult silver data set.

To isolate the transfer impact from risk score changes and condition imputations, we eliminated the underlying differences in demographics and enrollment duration by calculating the transfer values for each condition group assuming the population average age, gender, and durational factors from the silver data set. For each condition and year, we calculated the total and non-HCC (demographic and duration, if applicable) transfers, after which we could derive the transfers specific to each condition grouping and compare the change across benefit years.[13] The results by condition in Figure 3 above reflect the expected per member per month (PMPM) change in transfer payments 2018 over 2016, while Figure 4 aggregates results to the population level, which incorporates both the change in risk score and the prevalence of diseases within that condition group.

Limitations

Readers should consider the following limitations when reviewing the results of this study.

The analysis relies on data from a limited set of 2016 individual and small group ACA members. Given differences in medical service and drug utilization as well as prescribing patterns among members in our data and other ACA markets, there is no guarantee the results we present are generalizable to any one specific state, market, region, or issuer in 2018.

We aggregated results to demonstrate shifts among classes of conditions across a sample ACA market. Any one issuer's risk score and risk transfer may be significantly different from the averages in this analysis, depending on the mix of services and medications utilized, the issuer's metallic tier mix and market share, and other market dynamics.

As of this publication, CMS had not released a crosswalk of NDC to RXC. Although we relied on internal pharmaceutical and clinical expertise, stress tested the model under a variety of drug inclusion and exclusion scenarios, and compared our results with Table 4.4 of the 2016 CMS Whitepaper, our drug list will likely not perfectly align with the final list CMS has already incorporated into the 2018 risk score model. If material differences exist between the NDC-RXC mappings, our conclusions may not hold.

As noted above, we conducted sensitivity analyses on the performance of our drug crosswalk by comparing incidence rates of RXCs with the results published in Table 4.4 of the 2016 CMS Whitepaper. Since then, CMS changed the 2018 risk adjustment model and coefficients in the 2018 BPPs but did not provide updated Table 4.4 results. To the extent the newly calibrated risk adjustment model leads to significantly different patterns from those in the CMS Whitepaper, our results may no longer hold.

This analysis estimates only risk transfer changes given 2018 published coefficients and assumed 2018 implementation logic. Pharmacy rebates play a significant role in the current health insurance marketplace. Both the absence of rebates in the calibration of the HHS-HCC model and issuer-specific negotiated rebates will have a material impact on the net profitability (i.e., after risk adjustment and rebates) of a member with a condition. Such an analysis was beyond the scope of this paper.

13 While we model RXCs under the constraint of a silver metallic tier to simplify the analysis, the conclusions do not directionally change if we, instead, model members in only a bronze metallic tier.

Our conclusions may not reflect future risk adjustment program results over time for a variety of reasons:

- Since the ACA's inception, the risk adjustment program has been refined at least annually with new data, calculation logic, and/or other fine tuning. Our conclusions may no longer hold should CMS continue to alter the data underlying its statistical models, the HCCs included in the risk-scoring algorithm, or the services and drugs tied to a risk-adjustment-eligible condition.
- The change in the administration and the recent push by Congress to modify the ACA could have a direct impact on the risk adjustment program. Some items materially affecting our analysis include:
  - Complete removal of risk adjustment or significant modification to its implementation
  - Lack of funding for CSR subsidies and the proposed alterations to CSR variants in the risk adjustment program by CMS, the reintroduction of underwriting, or the creation of high-risk pools, which could materially alter the composition of the markets after the 2017 benefit year

  Our conclusions may no longer hold should the ACA or the risk adjustment program change.
- Our analysis assumes a steady state in the market and does not consider how shifting formulary or plan design strategies or changes in prescribing patterns might impact outcomes.

Lastly, we do not consider the interaction of the newly established reinsurance pool in the 2018 risk adjustment program and focus, instead, on the impact of the HCC/RXC changes only. It is possible members with specific conditions taking certain medications will reach the reinsurance attachment point and directly lead to increased issuer revenue. Such an analysis was beyond the scope of this paper.

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Appendix

The following table presents the breakdown of the individual 2018 HCCs within each broad condition grouping in Figures 3 and 4 above.

DESCRIPTION	HCC	CATEGORY
HIV/AIDS	HCC001	HIV
SEPTICEMIA, SEPSIS, SYSTEMIC INFLAMMATORY RESPONSE SYNDROME/SHOCK	HCC002	INFECTIOUS
CENTRAL NERVOUS SYSTEM INFECTIONS, EXCEPT VIRAL MENINGITIS	HCC003	INFECTIOUS
VIRAL OR UNSPECIFIED MENINGITIS	HCC004	INFECTIOUS
OPPORTUNISTIC INFECTIONS	HCC006	INFECTIOUS
METASTATIC CANCER	HCC008	CANCER
LUNG, BRAIN, AND OTHER SEVERE CANCERS, INCLUDING PEDIATRIC ACUTE LYMPHOID LEUKEMIA	HCC009	CANCER
NON-HODGKIN'S LYMPHOMAS AND OTHER CANCERS AND TUMORS	HCC010	CANCER
COLORECTAL, BREAST (AGE < 50), KIDNEY, AND OTHER CANCERS	HCC011	CANCER
BREAST (AGE 50+) AND PROSTATE CANCER, BENIGN/UNCERTAIN BRAIN TUMORS, AND OTHER CANCERS AND TUMORS	HCC012	CANCER
THYROID CANCER, MELANOMA, NEUROFIBROMATOSIS, AND OTHER CANCERS AND TUMORS	HCC013	CANCER
PANCREAS TRANSPLANT STATUS/COMPLICATIONS	HCC018	TRANSPLANT
DIABETES WITH ACUTE COMPLICATIONS	HCC019	DIABETES
DIABETES WITH CHRONIC COMPLICATIONS	HCC020	DIABETES
DIABETES WITHOUT COMPLICATION	HCC021	DIABETES
PROTEIN-CALORIE MALNUTRITION	HCC023	ENDOCRINE
MUCOPOLYSACCHARIDOSIS	HCC026	ENDOCRINE
LIPIDOSES AND GLYCOGENOSIS	HCC027	ENDOCRINE
CONGENITAL METABOLIC DISORDERS, NOT ELSEWHERE CLASSIFIED	HCC028	ENDOCRINE
AMYLOIDOSIS, PORPHYRIA, AND OTHER METABOLIC DISORDERS	HCC029	ENDOCRINE
ADRENAL, PITUITARY, AND OTHER SIGNIFICANT ENDOCRINE DISORDERS	HCC030	ENDOCRINE
LIVER TRANSPLANT STATUS/COMPLICATIONS	HCC034	LIVER
END-STAGE LIVER DISEASE	HCC035	LIVER
CIRRHOSIS OF LIVER	HCC036	LIVER
CHRONIC HEPATITIS	HCC037	HEPATITIS
CHRONIC VIRAL HEPATITIS C	HCC037_1	HEPATITIS
CHRONIC VIRAL HEPATITIS, OTHER/UNSPECIFIED	HCC037_2	HEPATITIS
ACUTE LIVER FAILURE/DISEASE, INCLUDING NEONATAL HEPATITIS	HCC038	LIVER
INTESTINE TRANSPLANT STATUS/COMPLICATIONS	HCC041	DIGESTIVE
PERITONITIS/GASTROINTESTINAL PERFORATION/NECROTIZING ENTEROCOLITIS	HCC042	DIGESTIVE
INTESTINAL OBSTRUCTION	HCC045	DIGESTIVE
CHRONIC PANCREATITIS	HCC046	DIGESTIVE
ACUTE PANCREATITIS/OTHER PANCREATIC DISORDERS AND INTESTINAL MALABSORPTION	HCC047	DIGESTIVE
INFLAMMATORY BOWEL DISEASE	HCC048	DIGESTIVE
NECROTIZING FASCIITIS	HCC054	MUSCULOSKELETAL

DESCRIPTION	HCC	CATEGORY
BONE/JOINT/MUSCLE INFECTIONS/NECROSIS	HCC055	MUSCULOSKELETAL
RHEUMATOID ARTHRITIS AND SPECIFIED AUTOIMMUNE DISORDERS	HCC056	AUTOIMMUNE
SYSTEMIC LUPUS ERYTHEMATOSUS AND OTHER AUTOIMMUNE DISORDERS	HCC057	AUTOIMMUNE
OSTEOGENESIS IMPERFECTA AND OTHER OSTEODYSTROPHIES	HCC061	MUSCULOSKELETAL
CONGENITAL/DEVELOPMENTAL SKELETAL AND CONNECTIVE TISSUE DISORDERS	HCC062	MUSCULOSKELETAL
CLEFT LIP/CLEFT PALATE	HCC063	CHROMOSOMAL
MAJOR CONGENITAL ANOMALIES OF DIAPHRAGM, ABDOMINAL WALL, AND ESOPHAGUS, AGE < 2	HCC064	CHROMOSOMAL
HEMOPHILIA	HCC066	HEMATOLOGIC
MYELODYSPLASTIC SYNDROMES AND MYELOFIBROSIS	HCC067	HEMATOLOGIC
APLASTIC ANEMIA	HCC068	HEMATOLOGIC
ACQUIRED HEMOLYTIC ANEMIA, INCLUDING HEMOLYTIC DISEASE OF NEWBORN	HCC069	HEMATOLOGIC
SICKLE CELL ANEMIA (HB-SS)	HCC070	HEMATOLOGIC
THALASSEMIA MAJOR	HCC071	HEMATOLOGIC
COMBINED AND OTHER SEVERE IMMUNODEFICIENCIES	HCC073	IMMUNOLOGIC
DISORDERS OF THE IMMUNE MECHANISM	HCC074	IMMUNOLOGIC
COAGULATION DEFECTS AND OTHER SPECIFIED HEMATOLOGICAL DISORDERS	HCC075	HEMATOLOGIC
DRUG PSYCHOSIS	HCC081	MH/SA
DRUG DEPENDENCE	HCC082	MH/SA
SCHIZOPHRENIA	HCC087	MH/SA
MAJOR DEPRESSIVE AND BIPOLAR DISORDERS	HCC088	MH/SA
REACTIVE AND UNSPECIFIED PSYCHOSIS, DELUSIONAL DISORDERS	HCC089	MH/SA
PERSONALITY DISORDERS	HCC090	MH/SA
ANOREXIA/BULIMIA NERVOSA	HCC094	MH/SA
PRADER-WILLI, PATAU, EDWARDS, AND AUTOSOMAL DELETION SYNDROMES	HCC096	CHROMOSOMAL
DOWN SYNDROME, FRAGILE X, OTHER CHROMOSOMAL ANOMALIES, AND CONGENITAL MALFORMATION SYNDROMES	HCC097	CHROMOSOMAL
AUTISTIC DISORDER	HCC102	DEVELOPMENTAL
PERVASIVE DEVELOPMENTAL DISORDERS, EXCEPT AUTISTIC DISORDER	HCC103	DEVELOPMENTAL
TRAUMATIC COMPLETE LESION CERVICAL SPINAL CORD	HCC106	NERVOUS
QUADRIPLEGIA	HCC107	NERVOUS
TRAUMATIC COMPLETE LESION DORSAL SPINAL CORD	HCC108	NERVOUS
PARAPLEGIA	HCC109	NERVOUS
SPINAL CORD DISORDERS/INJURIES	HCC110	NERVOUS
AMYOTROPHIC LATERAL SCLEROSIS AND OTHER ANTERIOR HORN CELL DISEASE	HCC111	NERVOUS
QUADRIPLEGIC CEREBRAL PALSY	HCC112	NERVOUS
CEREBRAL PALSY, EXCEPT QUADRIPLEGIC	HCC113	NERVOUS
SPINA BIFIDA AND OTHER BRAIN/SPINAL/NERVOUS SYSTEM CONGENITAL ANOMALIES	HCC114	NERVOUS
MYASTHENIA GRAVIS/MYONEURAL DISORDERS AND GUILLAIN-BARRE SYNDROME/INFLAMMATORY AND TOXIC NEUROPATHY	HCC115	NERVOUS

DESCRIPTION	HCC	CATEGORY
MUSCULAR DYSTROPHY	HCC117	NERVOUS
MULTIPLE SCLEROSIS	HCC118	NERVOUS
PARKINSON'S, HUNTINGTON'S, AND SPINOCEREBELLAR DISEASE, AND OTHER NEURODEGENERATIVE DISORDERS	HCC119	NERVOUS
SEIZURE DISORDERS AND CONVULSIONS	HCC120	NERVOUS
HYDROCEPHALUS	HCC121	NERVOUS
NON-TRAUMATIC COMA, BRAIN COMPRESSION/ANOXIC DAMAGE	HCC122	NERVOUS
RESPIRATOR DEPENDENCE/TRACHEOSTOMY STATUS	HCC125	RESPIRATORY
RESPIRATORY ARREST	HCC126	RESPIRATORY
CARDIO-RESPIRATORY FAILURE AND SHOCK, INCLUDING RESPIRATORY DISTRESS SYNDROMES	HCC127	RESPIRATORY
HEART ASSISTIVE DEVICE/ARTIFICIAL HEART	HCC128	CARDIOVASCULAR
HEART TRANSPLANT	HCC129	TRANSPLANT
CONGESTIVE HEART FAILURE	HCC130	CARDIOVASCULAR
ACUTE MYOCARDIAL INFARCTION	HCC131	CARDIOVASCULAR
UNSTABLE ANGINA AND OTHER ACUTE ISCHEMIC HEART DISEASE	HCC132	CARDIOVASCULAR
HEART INFECTION/INFLAMMATION, EXCEPT RHEUMATIC	HCC135	CARDIOVASCULAR
HYPOPLASTIC LEFT HEART SYNDROME AND OTHER SEVERE CONGENITAL HEART DISORDERS	HCC137	CARDIOVASCULAR
MAJOR CONGENITAL HEART/CIRCULATORY DISORDERS	HCC138	CARDIOVASCULAR
ATRIAL AND VENTRICULAR SEPTAL DEFECTS, PATENT DUCTUS ARTERIOSUS, AND OTHER CONGENITAL HEART/ CIRCULATORY DISORDERS	HCC139	CARDIOVASCULAR
SPECIFIED HEART ARRHYTHMIAS	HCC142	CARDIOVASCULAR
INTRACRANIAL HEMORRHAGE	HCC145	CEREBROVASCULAR
ISCHEMIC OR UNSPECIFIED STROKE	HCC146	CEREBROVASCULAR
CEREBRAL ANEURYSM AND ARTERIOVENOUS MALFORMATION	HCC149	CEREBROVASCULAR
HEMIPLEGIA/HEMIPARESIS	HCC150	NERVOUS
MONOPLEGIA, OTHER PARALYTIC SYNDROMES	HCC151	NERVOUS
ATHEROSCLEROSIS OF THE EXTREMITIES WITH ULCERATION OR GANGRENE	HCC153	CEREBROVASCULAR
VASCULAR DISEASE WITH COMPLICATIONS	HCC154	CEREBROVASCULAR
PULMONARY EMBOLISM AND DEEP VEIN THROMBOSIS	HCC156	CARDIOVASCULAR
LUNG TRANSPLANT STATUS/COMPLICATIONS	HCC158	TRANSPLANT
CYSTIC FIBROSIS	HCC159	RESPIRATORY
CHRONIC OBSTRUCTIVE PULMONARY DISEASE, INCLUDING BRONCHIECTASIS	HCC160	RESPIRATORY
ASTHMA	HCC161	RESPIRATORY
FIBROSIS OF LUNG AND OTHER LUNG DISORDERS	HCC162	RESPIRATORY
ASPIRATION AND SPECIFIED BACTERIAL PNEUMONIAS AND OTHER SEVERE LUNG INFECTIONS	HCC163	RESPIRATORY
KIDNEY TRANSPLANT STATUS	HCC183	TRANSPLANT
END STAGE RENAL DISEASE	HCC184	RENAL
CHRONIC KIDNEY DISEASE, STAGE 5	HCC187	RENAL
CHRONIC KIDNEY DISEASE, SEVERE (STAGE 4)	HCC188	RENAL
ECTOPIC AND MOLAR PREGNANCY, EXCEPT WITH RENAL FAILURE, SHOCK, OR EMBOLISM	HCC203	PREGNANCY

DESCRIPTION	HCC	CATEGORY
MISCARRIAGE WITH COMPLICATIONS	HCC204	PREGNANCY
MISCARRIAGE WITH NO OR MINOR COMPLICATIONS	HCC205	PREGNANCY
COMPLETED PREGNANCY WITH MAJOR COMPLICATIONS	HCC207	PREGNANCY
COMPLETED PREGNANCY WITH COMPLICATIONS	HCC208	PREGNANCY
COMPLETED PREGNANCY WITH NO OR MINOR COMPLICATIONS	HCC209	PREGNANCY
CHRONIC ULCER OF SKIN, EXCEPT PRESSURE	HCC217	NOT GROUPED
HIP FRACTURES AND PATHOLOGICAL VERTEBRAL OR HUMERUS FRACTURES	HCC226	MUSCULOSKELETAL
PATHOLOGICAL FRACTURES, EXCEPT OF VERTEBRAE, HIP, OR HUMERUS	HCC227	MUSCULOSKELETAL
EXTREMELY IMMATURE NEWBORNS, BIRTHWEIGHT < 500 GRAMS	HCC242	NOT GROUPED
EXTREMELY IMMATURE NEWBORNS, INCLUDING BIRTHWEIGHT 500-749 GRAMS	HCC243	NOT GROUPED
EXTREMELY IMMATURE NEWBORNS, INCLUDING BIRTHWEIGHT 750-999 GRAMS	HCC244	NOT GROUPED
PREMATURE NEWBORNS, INCLUDING BIRTHWEIGHT 1000-1499 GRAMS	HCC245	NOT GROUPED
PREMATURE NEWBORNS, INCLUDING BIRTHWEIGHT 1500-1999 GRAMS	HCC246	NOT GROUPED
PREMATURE NEWBORNS, INCLUDING BIRTHWEIGHT 2000-2499 GRAMS	HCC247	NOT GROUPED
OTHER PREMATURE, LOW BIRTHWEIGHT, MALNOURISHED, OR MULTIPLE BIRTH NEWBORNS	HCC248	NOT GROUPED
TERM OR POST-TERM SINGLETON NEWBORN, NORMAL OR HIGH BIRTHWEIGHT	HCC249	NOT GROUPED
STEM CELL, INCLUDING BONE MARROW, TRANSPLANT STATUS/COMPLICATIONS	HCC251	TRANSPLANT
ARTIFICIAL OPENINGS FOR FEEDING OR ELIMINATION	HCC253	DIGESTIVE
AMPUTATION STATUS, LOWER LIMB/AMPUTATION COMPLICATIONS	HCC254	MUSCULOSKELETAL