IAAHS Webcast:

Global Perspective on Risk Adjustment and Effects of Adding Rx Usage Factors

January 19th 2017

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Presenters

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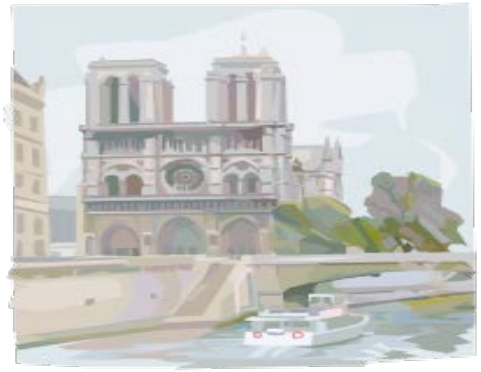
- **Moderator**: **April Choi, MAAA, FSA**,

  Chairperson, International Actuarial Association Health Section (United States)

Review of Global Risk Adjustment: The 2016 RAN Meeting Summary



JOHN BERTKO, FSA

HEALTH SECTION OF IAA WEBINAR

JANUARY 19, 2017

The European Risk Adjustment Network (RAN)

- Informal Group called the RAN meets generally once per year to discuss Risk Adjustment topics
- In 2016, economists, actuaries and regulators from Austria, Belgium, Germany, Ireland, Israel, the Netherlands and Switzerland attended
- From the U.S., participants join for updates which can be applied to the new U.S. Affordable Care Act (ACA) risk adjustment for Individual and Small Group markets and Medicare Advantage for seniors
  - Actuaries: John Bertko
  - Economists: Tom McGuire, John Hsu and Tim Layton of Harvard and Randy Ellis of Boston University

U.S. Context

- The ACA requires Risk Adjustment for all ACA-compliant policies in two markets:
  - Separately for the Individual and Small Group blocks of policies
  - Integrated across 4 Metal Tiers of benefit levels
    - Catastrophic policies are a separate pool
  - One Risk Adjustment pool per state per block
  - Both on-Exchange and off-Exchange compliant policies
- Federal agency (HHS) did this for all states except Massachusetts in 2014 and 2015
  - Massachusetts dropped its separate method for 2016 and will use the federal approach now
  - Risk adjustment data is to be analyzed using a distributed approach with “Edge Server” technology where data remains with the insurer
  - Method is called the HHS-HCC (variant of DCGs developed by CMS and contractor)

ACA Risk Adjustment Methodology

- Risk adjustment model
  - Calculation of individual risk scores
  - Concurrent model
  - Uses demographic and diagnosis data
- Plan liability risk score
  - Plan level average risk score
  - Reflects plan liability (metal level)
- Calculation of payments and charges within a state
  - Adjusts for allowed rating variations such as age, geography, and metal level
  - Three pools: Individual, Small Group and Catastrophic

Major Observations

- European health insurance is a mix of:
  - Government run systems
    - National Health Service (NHS) in the UK
    - Single Sickness Fund per region in Belgium
  - Competitive markets in several countries need Risk Adjustment
    - Germany with 100+ Sickness Funds (some from unions or industries, others are national)
    - Switzerland and the Netherlands with 10 to 60 insurance companies, offered competitively
    - Israel has 4 health plans that serve all of the country
    - Ireland has the only voluntary individual insurance system among these countries; other countries have mandatory insurance

Lessons Learned from Europe

1. Risk adjustment continues to evolve in these countries to incorporate new methods and better data
   - Most European countries use pure community rating across all ages (children to elderly), unlike the U.S. which has a separate Medicare system for the elderly and disabled
   - Many European countries started with age and gender adjustments only in the 1990s
   - Diagnosis-based risk adjusters were added in the last decade (mostly a variant of Diagnostic Cost Groups, similar to what U.S. uses)

Lessons Learned

2. Timing of re-calibration of risk adjustment weights or addition of new adjustment factors
   - Some countries are doing annual adjustments (Germany and Switzerland)
   - Others feel it is better to have stability for 3 – 5 years
   - Medicare Advantage in the U.S. re-calibrates every 3 or so years; ACA is getting ready to re-calibrate for Individual/Small Group in the U.S.
     - See Benefits & Payment Notice dated December 16, 2016

Lessons Learned

3. Drugs were added as predictor to improve predictive accuracy
   - Netherlands, Germany, and Belgium are using drugs to some extent
     - Switzerland will move to using Rx starting in 2017 with a 5000 CHF threshold indicator in 2017 and then adding 24 Pharmacy Cost Groups (PCGs) in 2019
   - Potential choices include only validating diagnoses found on medical claims or using drug data for stratification of severity (for payment purposes)
     - Use of Pharmacy Cost Groups (PCGs) to add more specificity
   - Two of the countries established minimum usage for Drug Daily Doses (DDDs) of 181 days for a specific drug

Lessons Learned

4. Addition of co-morbidity factors may only marginally improve fit and R-Squared (one of the measures of performance),
   - According to Dutch researchers and a prior paper
   - The U.S. system (the HHS-HCC) has some two-condition factors, but an open question is whether more condition dyads or more than two conditions should be added to the HHS-HCC model
     - Still some issue of whether Risk Adjustment payments are sufficient for “train wrecks” (people with multiple co-morbidities)

Lessons Learned

5. Recognition of very large claims may be used again in Germany
   - Was used until 2009
   - Will likely start again in 2017 or 2018; helps truncate variation due to very large claims
   - The U.S. will add very high cost claim reinsurance (for claims above $1 million, with a coinsurance corridor)

Lessons Learned

6. Potential Issues:
   - Switzerland has had some risk selection issues with merging insurers but less now with better Risk Equalization (RE)
     - Also some monitoring of the use of FitBit or social media activity monitoring as an indicator of risk selection
   - Netherlands makes use of a Mental Illness factor for its RE system
   - Israel has added prospective payment for certain severe illnesses, in addition to demographic RE system
   - Ireland has lots of "product proliferation" causing issues for its RE system
   - Chile is just getting started with RE for the 20% of population in private health insurance

Lessons Learned

7. All European countries used prospective risk adjustment models, although some were blended with other mechanisms, like concurrent payments for certain high cost conditions.
   - Since the U.S. was required to use a concurrent model due to lack of data for 2014 and some future years, policy makers and analysts need to consider when and whether to shift to a prospective model and whether to include other adjustments (such as neo-natal payments with a prospective model)

Lessons Learned

8. Technical Issues
   - Adding some form of recognition of certain prior year expenses, such as for certain acute conditions (rather than only chronic conditions in the risk adjustor)
   - Using a high dollar threshold (e.g., like the 5000 CHF used by the Swiss) for determining whether to add or delete factors

Summary

Quote from Thomas Zeltner/former Swiss Secretary of Health:

"The . . . point I think we all have to learn is that it's (reform) not done with a one-step reform. I think the reforms of our health care systems will be going on for the next decades or more. You end one reform and you start the next one. It's a never-ending task."

Questions and Remarks (following the second presentation)

Overview of ACA Risk Adjustment and Potential Impact of Incorporating Prescription Drug Usage Information

Erin Trish, PhD

USC Schaeffer Center for Health Policy and Economics

Health Section of IAA Webinar

January 19, 2017

ACA Rating Regulations

- Guaranteed issue and adjusted community rating
  - Premiums can vary with age (3:1), geography, family composition, tobacco use (1.5:1)
  - Premiums cannot vary with health status

Substantial predictable but un-priced variation in risk

ACA Risk Mitigation Programs

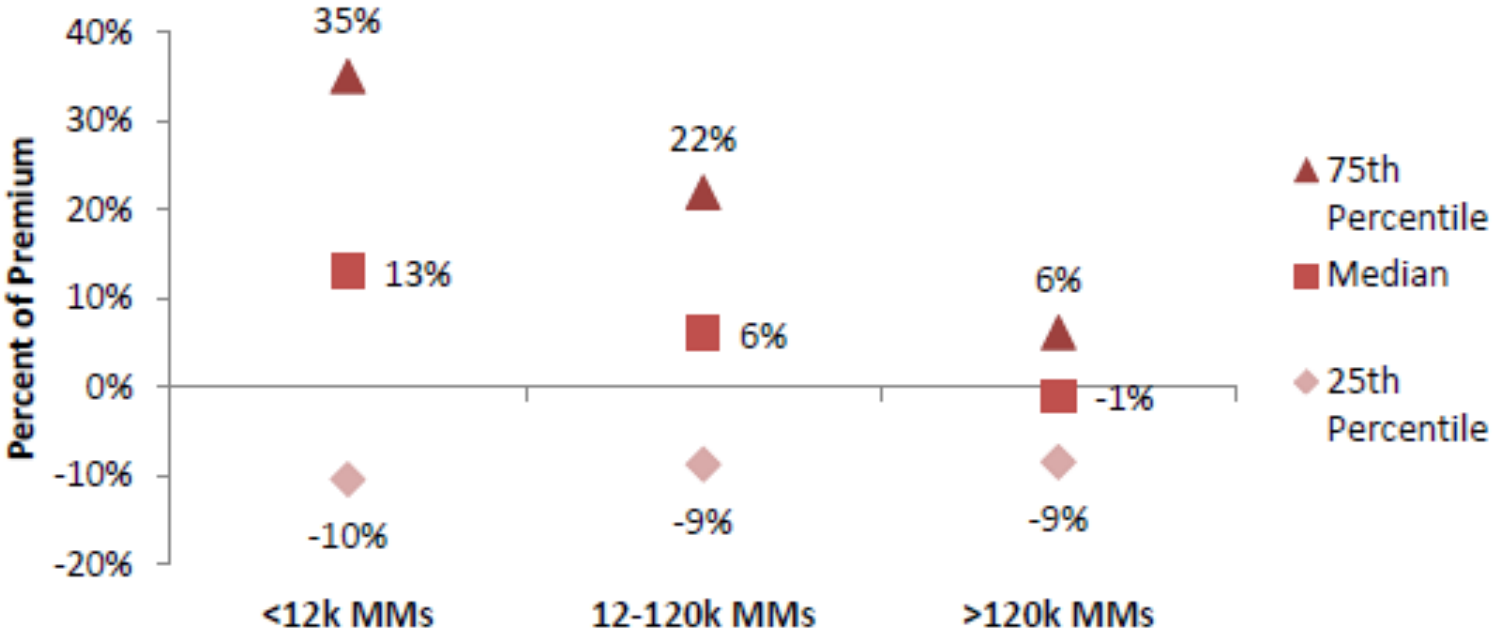
	Reinsurance	Risk Corridors	Risk Adjustment
What	Subsidy for high cost claims	Limits issuer losses and gains	Transfers funds from plans with lower risk to higher risk enrollees
Why	Offsets high cost outliers and lowers premiums	Protects against inaccurate rate-setting	Protects against adverse selection
Who	Individual market plans subject to ACA market rules (on- and off-exchange) eligible for payments	QHPs sold on-exchange	Non-grandfathered individual and small group plans (on- and off-exchange)
How Financed	Fee on all commercial issuers (including self-insured)	Issuer gains (though these have not covered losses)	Balanced transfers across plans (zero-sum)
Time Frame	2014-2016	2014-2016	Permanent

ACA Risk Adjustment Methodology

- Generate individual risk scores using HHS-HCC model
  - Concurrent demographic and diagnoses data
- Compute plan liability
  - Accounting for variation in plan generosity
- Transfer funds between plans within a market within a state
  - After adjusting for allowed rating variation

Risk Adjustment Financial Transfers are Significant

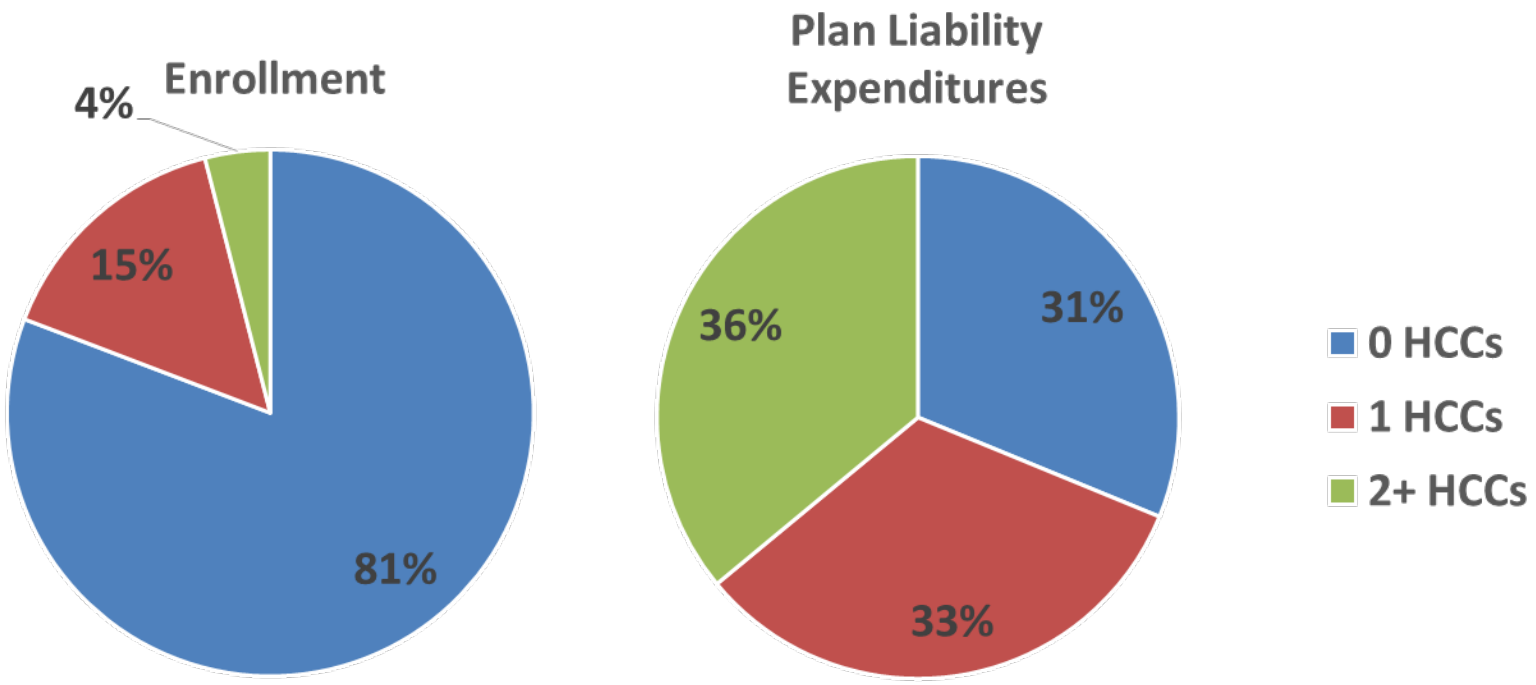
Figure 5.2: Distribution of transfers as percent of premium, by issuer size, Individual Market



Amounts shown at issuer level and weighted by billable members months of enrollment.

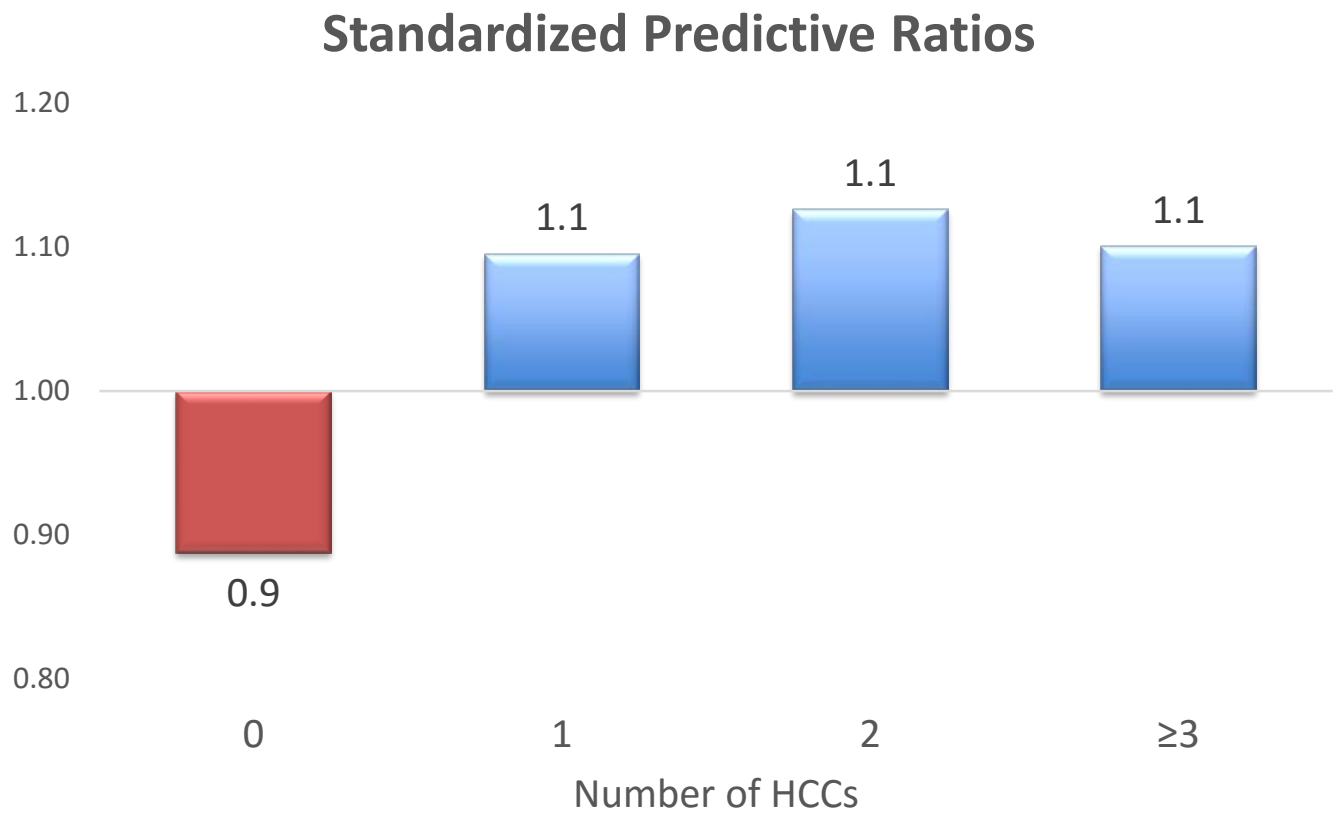
Source: CMS CCIIO Risk Adjustment Methodology Meeting Discussion Paper. March 24, 2016.

But Most Enrollees Do Not Have Condition-Related Adjustments



Adapted from: Kautter J et al. 2014.

Concern About Undercompensation for Low Risk Enrollees



Notes: Zhang and Trish analysis of Optum claims data of commercially insured adults from 2011 to 2013 using the 2015 benefit year HHS-HCC model. The Optum claims data may not necessarily reflect the Exchange population.

Adding Prescription Drug Claims May Improve Model

- Pharmacy claims may help with:
  - Incomplete coding of diagnoses in medical claims
  - Differentiation of disease severity
  - Timeliness of claims availability
- Some concerns about accuracy and incentives for over-prescribing

CMS is incorporating limited use of prescription drug data for imputation of diagnoses and/or severity of disease beginning in 2018

Use of Prescription Drug Data in HHS-HCC Model (2018)

- 12 prescription drug categories (RXCs)
  - 10 for diagnosis imputation and severity
  - 2 for severity only
- Examples:
  - Multiple Sclerosis Agents
  - HIV/AIDS Antivirals
  - Insulins
  - Ammonia Detoxicants for severity of Liver Disease

Example: Multiple Sclerosis Agents

Brand Name	Generic
Aubagio	Teriflunomide
Avonex	Interferon beta- 1a
Betaseron	Interferon beta-1b
Copaxone	Glatiramer acetate
Extavia	Interferon beta-1b
Gilenya	Fingolimod
Glaptopa	Glatiramer acetate
Lemtrada	Alemtuzumab
Novantrone	Mitoxantrone
Plegridy	Peginterferon beta-1a
Rebif	Interferon beta-1a
Tecfidera	Dimethyl fumurate
Zinbryta	Daclizumab

Excluded: Tysabri (natalizumab) due to dual indication for MS and Crohn's disease

Note: THIS IS NOT AN OFFICIAL CMS LIST

Classification example produced by Massachi and Trish

Example: Patient Capture Using Medical Diagnoses vs. Rx Claims

Multiple Sclerosis (N = 2,312)		Medical	
		Yes	No
Rx	Yes	63%	29%
	No	8%	0%

Diabetes (N = 67,965)		Medical	
		Yes	No
Rx	Yes	53%	33%
	No	14%	0%

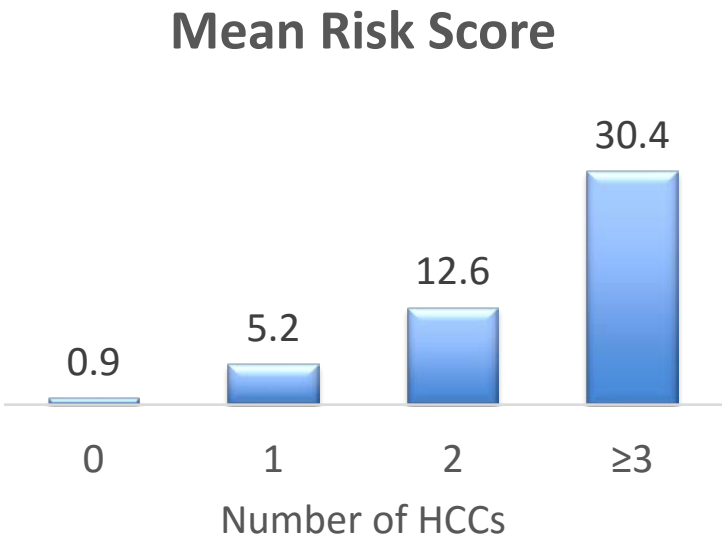
HIV/AIDS (N = 2,328)		Medical	
		Yes	No
Rx	Yes	73%	7%
	No	19%	0%

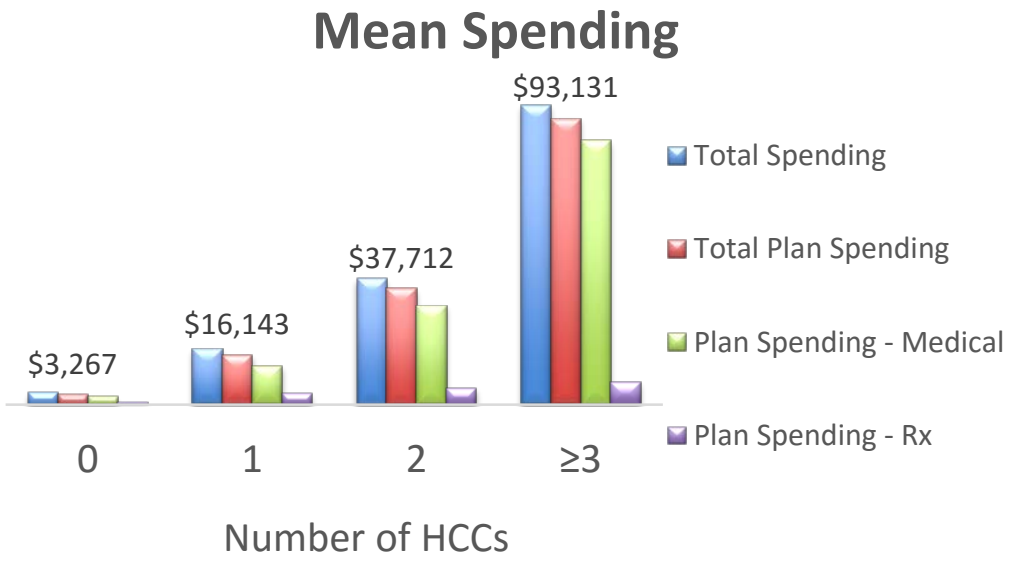
Notes: Massachi and Trish analysis of Optum claims data of commercially insured adults in 2013 using the 2015 benefit year HHS-HCC model. Rx categorizations are defined within the study and not by CMS. The Optum claims data may not necessarily reflect the Exchange population.

Potential Impact for Enrollees with No Diagnostic HCCs

- **Study Objective:** Evaluate utilization patterns for commercially insured patients with no diagnostic HCCs but persistently high spending
- **Data:** Optum commercially insured adults continuously enrolled from 2011 to 2013
  - **Caveat:** Risk profile might differ from Exchanges
- **Individual Risk Scores:** HHS-HCC algorithm for the 2015 benefit year

Distribution of Mean Risk Score and Spending by Number of HCCs





Over 80% of sample has 0 HCCs

Notes: Zhang and Trish analysis of Optum claims data of commercially insured adults in 2013 using the 2015 benefit year HHS-HCC model. The Optum claims data may not necessarily reflect the Exchange population.

Persistently High Spenders with 0 HCCs

	High Spenders (N = 54,229)	Non-High Spenders (N = 539,187)
Age:		
21 – 24 years	2.2%	7.1%
25 – 44 years	28.2%	45.9%
45 – 64 years	69.5%	47.0%
Male	40.3%	49.2%
Race/Ethnicity:		
Asian	3.1%	4.5%
Black	9.9%	10.7%
Hispanic	8.0%	9.9%
White	79.1%	74.9%
Household Income:		
<$40,000	10.1%	10.9%
$40,000 – $100,000	49.3%	41.8%
>$100,000	50.7%	47.4%

High Spenders defined as having spending above the 75th percentile (among non-HCC enrollees) in all three years

Notes: Zhang and Trish analysis of Optum claims data of commercially insured adults from 2011 through 2013 using the 2015 benefit year HHS-HCC model. The Optum claims data may not necessarily reflect the Exchange population.

Some Drug Classes Strongly Predict Persistent High Spending

AHFS Drug Class	Odds Ratio (SE)	Indication
Amphetamines	118.79** (24.90)	Attention deficit hyperactivity disorder (ADHD), narcolepsy, and obesity
Androgens	165.36** (51.47)	Multiple indications
Antilipemic Agents, Miscellaneous	125.45** (76.16)	Hyperlipidemia
Cholesterol Absorption Inhibitors	138.96** (102.48)	Hyperlipidemia
Dipeptidyl Peptidase-4 (Dpp-4) Inhibitors	38.48** (20.58)	Type 2 Diabetes
Insulins	430.68** (214.74)	Diabetes
Thiazolidinediones	57.42** (44.64)	Type 2 Diabetes

Results from a logistic regression of the use of prescription drugs on being a persistently high spender (rather than a persistently low spender) among enrollees with 0 HCCs. ** $p < 0.01$

Notes: Zhang and Trish analysis of Optum claims data of commercially insured adults from 2011 through 2013 using the 2015 benefit year HHS-HCC model. The Optum claims data may not necessarily reflect the Exchange population.

But Patients Without Diagnoses-Based HCCs May Have A Different Profile

	Patients with 0 HCCs but Using an Antidiabetic Agent (N = 46,166)	Patients with Diabetes HCC Only (N = 10,052)
Age: 21 – 24 years 25 – 44 years 45 – 64 years	 0.7% 21.6% 77.7%	 0.4% 11.6% 88.0%
Male	51.6%	52.8%
Mean Plan Spending – Total	$7,015	$22,895
Mean Plan Spending – Medical	$4,553	$18,017
Mean Plan Spending – Rx	$2,482	$4,992

Notes: Zhang and Trish analysis of Optum claims data of commercially insured adults from 2011 through 2013 using the 2015 benefit year HHS-HCC model. The Optum claims data may not necessarily reflect the Exchange population.

Key Takeaways

- ACA risk adjustment performs quite well and moves significant dollars across plans
  - But, majority of population adjusted on demographics alone and some concern that plans are undercompensated for these enrollees
- Incorporating prescription drug usage factors into the model (starting 2018) will help identify patients with higher healthcare utilization
- Ongoing research and evaluation will be necessary to ensure that plans are adequately compensated for the health risk they enroll

Questions and Remarks