

# ST. JOHN'S COLLOQUIUM

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# Risk Adjustment in Medical Insurance Plans in the USA

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Healthfirst

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# Organization of Presentation

- Risk Adjustment - Medical Insurance in the USA
  - Commercial – Under 65 Population
  - Medicare (Advantage) – Over 65 Population
- Modeling Considerations for Risk Adjustment

# Before Risk Adjustment

For any given policy

1. Premium minus expenses (claim and admin) equals net gain
2. With a given premium and admin, \$1 less in claims means \$1 more in net gain
3. With Commercial insurance, insurer can underwrite based on age, gender, and health status

# Risk Adjustment

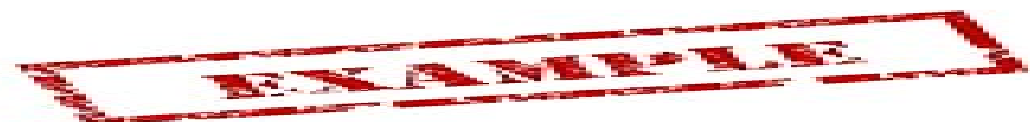
- Replaces underwriting
- Bigger unknown in many cases than unpaid claims liability (IBNR)
- Coding, not claim dollars, key for maximizing risk score

# Risk Adjustment - Commercial

- Commercial: System designed as zero-sum – those insurers that have better risk pay those who have worse risk
  - Based on 2 factors
    - Age/gender
    - Hierarchal Condition Category (HCC) on medical claims

## Numerical Example – Before Risk Adjustment - Commercial

	Before Risk Adjustment			
	Insurer			
	A	B	C	Total
Premium	\$ 10,000	\$ 10,000	\$ 10,000	\$ 30,000
Claims	8,500	8,500	8,500	25,500
Admin	1,300	1,300	1,300	3,900
Total Expenses	9,800	9,800	9,800	29,400
Net Gain	200	200	200	600



## Numerical Example – After Risk Adjustment - Commercial

	With Risk Adjustment			
	A	B	C	Total
<b>Cumulative Factors</b>				
Age	0.98	1.00	1.02	
Diagnosis	0.95	1.00	1.06	
Weight	1.93	2.00	2.08	6.01
<b>Weighted Average Premium</b>				
	\$ 9,634	\$ 9,983	\$ 10,383	\$ 30,000
<b>Risk Transfer</b>				
	(366)	(17)	383	-
<b>Net Gain Before Risk Transfer</b>				
	200	200	200	600
<b>Net Gain After Risk Transfer</b>				
	(166)	183	583	600

# Commercial Risk Adjustment

- Commenced for 2014 Plan Year
- Material Dollars Transferred (Results for 2014 released on June 30, 2015)
  - One insurer: Received \$350 million between federal reinsurance and risk adjustment
  - Another insurer: major restatement of earnings
  - Result for 2015 expected in 2 days, on June 30

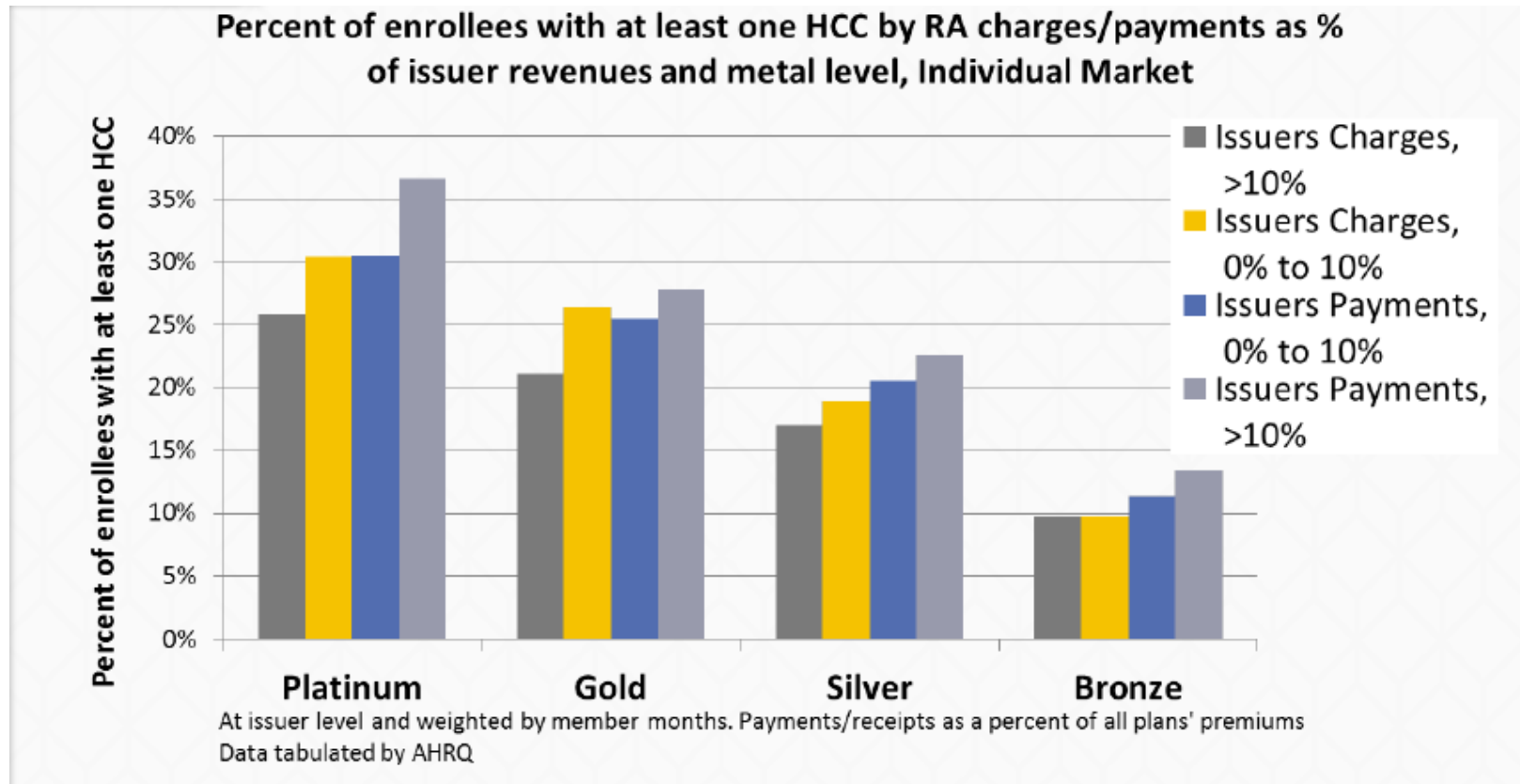
# Actuarial Value and Induced Demand

- Actuarial Value – Percent of benefit cost covered by the Plan
  - Specific Ranges for Actuarial Value
    - Platinum: 92% - 88%
    - Gold: 82% - 78%
    - Silver: 72% - 68%
    - Bronze: 62% - 58%
    - Catastrophic: < 60%
- Induced Demand
  - USA Federal Government (CMS) recognizes additional costs
    - Platinum: +15%
    - Gold: +8%
    - Silver: +3%

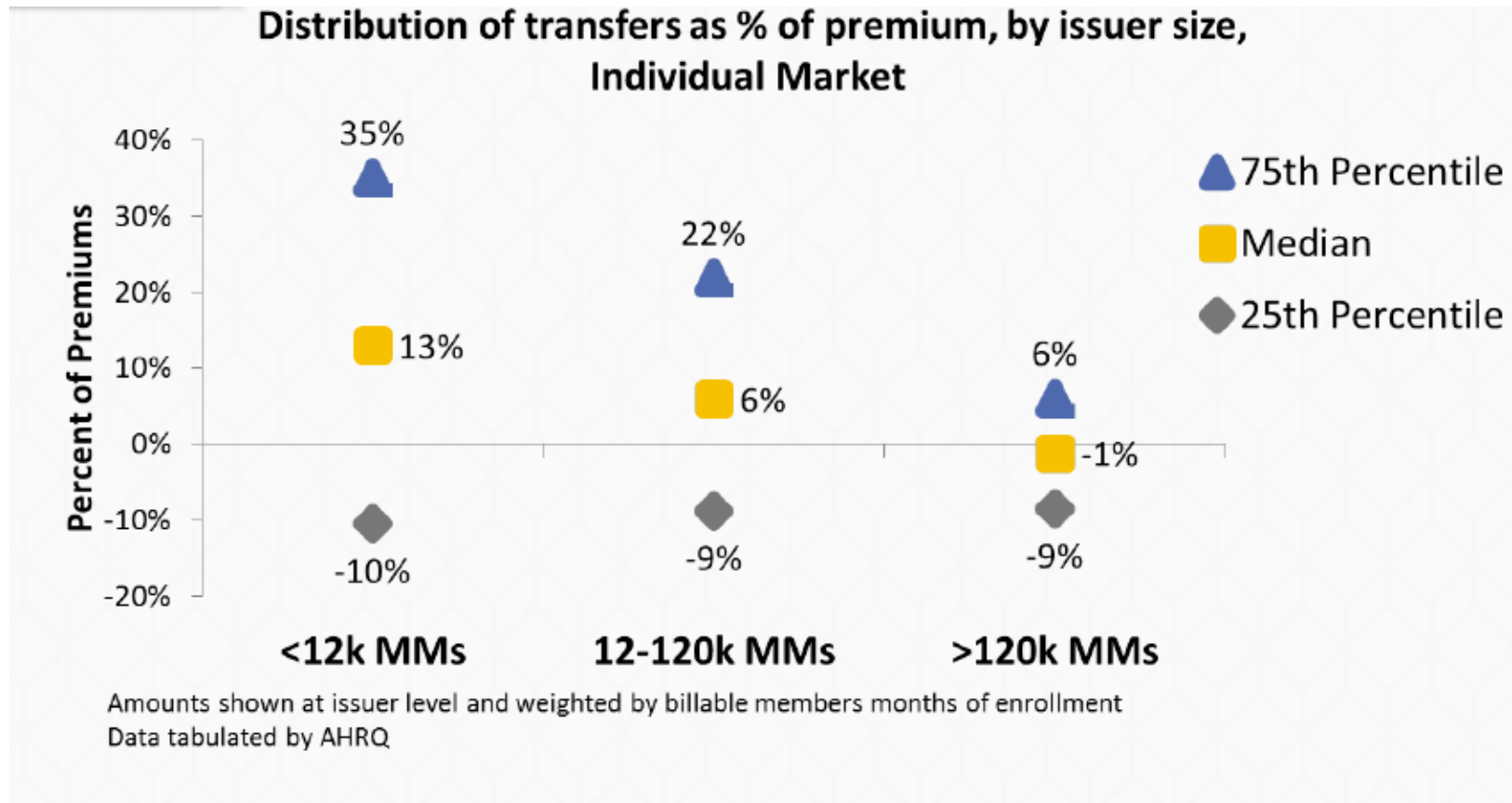
# 3 R's

- One is Risk Adjustment
- Other 2 are Reinsurance and Risk Corridor
  - Effective only for 2014 - 2016

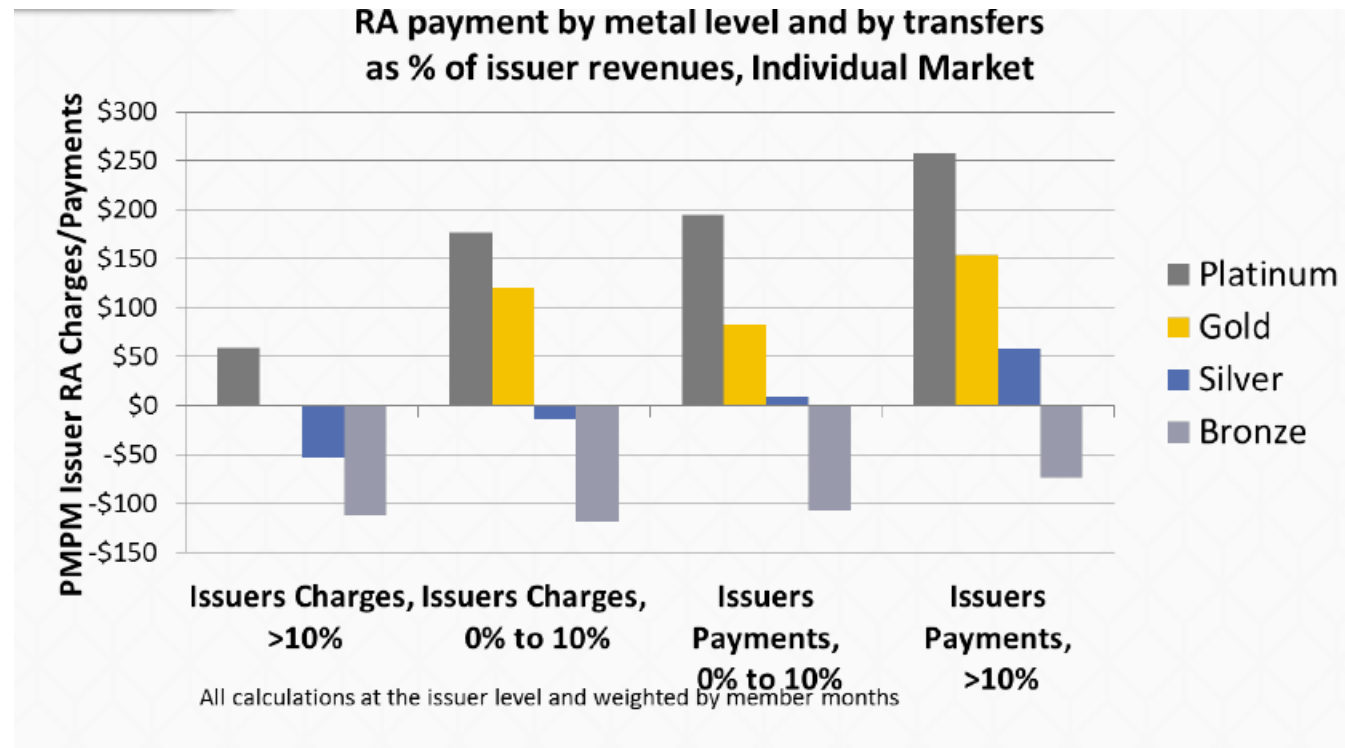
# CMS: Results from 2014 Risk Adjustment



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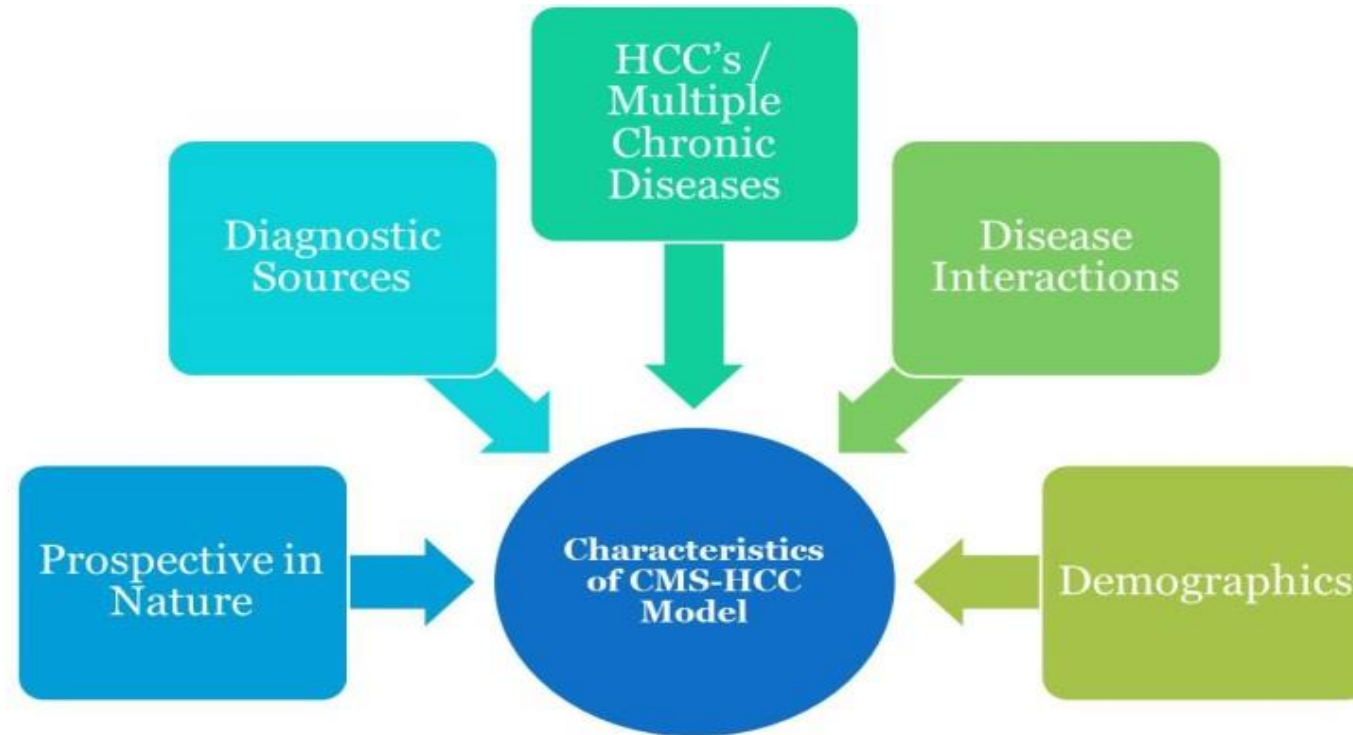
# CMS: Results from 2014 Risk Adjustment



# Risk Adjustment - Medicare

- Major difference from Commercial – based on diagnosis in current year, vs. previous year
- For over-65 and disabled members
- Modeled on fee-for-service data
- Normalized for Medicare population changes
- Adjusted for coding intensity, currently at statutory floor

# Medicare Advantage Risk Scores



# Medicare Risk Score Example

- Our example member is a hypothetical 73 year old woman, who aged into the Medicare program (as opposed to being disabled), with documented Diabetes without Complication & Congestive Heart Failure.
- However her underlying clinical diabetes condition is actually Diabetes with Chronic Complications; as a result the risk score is less than underlying medical conditions would merit, and so are payments to the plan.

# Actual Documented vs. Potential

HCC/ Demographic	Coefficient
Female, 70-74	0.348
Medicaid & Female & Aged-in	0.151
Diabetes w/o Complication	0.118
Diabetes w/ Chronic Complications	--
CHF	0.368
CHF/Diabetes Interaction	0.182
<b>Risk Score</b>	<b>1.167</b>

HCC/ Demographic	Coefficient
Female, 70-74	0.348
Medicaid & Female & Aged-in	0.151
Diabetes w/o Complication	0.00
Diabetes w/ Chronic Complications	0.368
CHF	0.368
CHF/Diabetes Interaction	0.182
<b>Risk Score</b>	<b>1.417</b>

# Medicare Risk Scores in Forecasting & Pricing

- Risk Score forecasts are a key component of pricing. Plans bid at a forecasted risk score, and then are paid for the risk-weighted component of premium at a rate equal to that bid standardized to a risk score of 1.0 multiplied by the actual risk score.
  - Forecasting above actual risk scores may result in failure to meet plan margin requirements
  - Forecasting below actual risk scores may result in noncompetitive benefits

# Medicare Risk Scores in Forecasting & Pricing

- Medicare Advantage bids are done in Q2 of the year beforehand. Final risk scores for two years prior to the year being bid are known, but risk scores for the current year (one year prior to the year being bid and based on claims from the year before that) are not yet final. For 2017 bids, risk scores for 2015, based on 2014 experience, are known.

# Medicare Risk Scores in Forecasting & Pricing

- Risk score trend does not equal claims trend.
- Risk score forecasts are a required part of the “BPT” (Bid Pricing Tool) document submitted with rate-setting information for each plan. Plans with credible base period experience project off of risk scores from two years prior. CMS requires manual rates to be used for non- and partially-credible plans, either fully or blended respectively.

# Specific Considerations on Trend

- Model Year Change
  - Can be material Year over Year (>4% plan-specific)
  - Major changes to included conditions and coefficients in 2014, 2015, & 2016
  - Impact on plan-specific populations may vary significantly from the average
- Plan Specific Coding Intensity Trend
  - Tendency for providers to more completely and accurately code member diagnoses over time
  - May vary from the national rate and statutory reductions to risk scores to offset greater coding intensity than Fee-For-Service Medicare

**Trending  
Now**



# Specific Considerations on Trend

- Initiatives
  - May be chart reviews, medical assessments, provider education, etc.
  - Sometimes targeted using predictive analytics; as both more are done and as the documented diagnoses approach the full universe of underlying conditions the marginal return of additional initiatives may decline
- Population Morbidity Change
  - May vary from the national rate, however unless material population shifts are expected many plans assume the national rate
  - A large American population cohort (the “Baby-Boomers”) is aging into Medicare

# Modeling Considerations

- Fixed
  - Age and gender factor



# Modeling Considerations

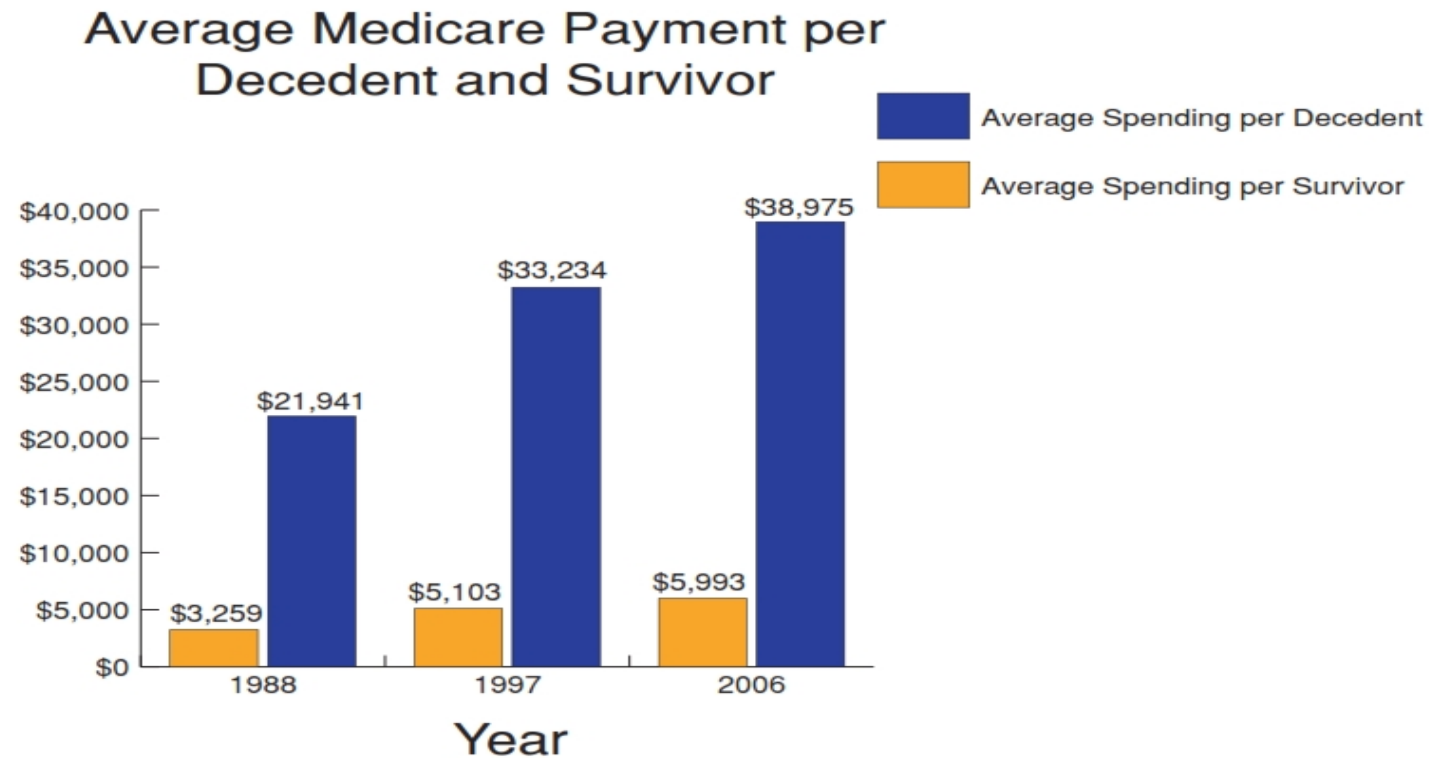
- Average risk score
  - Historical data
  - Emerging data from other carriers

# Modeling Considerations

- Disease states
  - Distribution of costs by each HCC
  - Interaction of disease states

# Modeling Considerations

- Claims in last year of life



Graph 1: Data for the graph is from an article published by Riley and Lubitz, "Long Term Trends in Medicare Payments in the Last Year of Life," published by Health Services Research in April 2010.

# Simplifying Assumptions in Modeling

- 10% of individuals – 80% of medical costs
- 16% of members – 50% of Rx costs
- 30 Rx 50% of costs
- Due to risk sharing, just looking at high utilizers would have less predictive value

# Reinsurance

- Reinsurance – Insurance for insurers
- Specific – subtract risk share recoveries before applying stop-loss
- Aggregate – greater need for aggregate stop loss

# Valuation Considerations

- Claim reserves (IBNR) can be calculated as before
- Extra and more variable calculation of risk score to date

# Conclusion

- Added uncertainty with risk sharing
- New methods are evolving to measure this risk.



# Questions?



# Sources

- ["HHS-Operated Risk Adjustment Methodology Meeting, March 31, 2016", Center for Medicare and Medicaid Services \(CMS\), www.REGTAP.INFO](#)
- [<http://www.medicarenewsgroup.com/context/understanding-medicare-blog/understanding-medicare-blog/2013/06/03/the-cost-and-quality-conundrum-of-american-end-of-life-care>](#)
- Slides on Actuarial Value on Commercial Risk Sharing from joint presentation given by Scott Mack and Jed Linfield at the Society of Actuaries' 2014 Valuation Actuary Symposium
- "Pricing and Valuation in the Presence of Risk Adjustment in Medical Insurance Plans in the USA", Jed Linfield, presentation at Actuarial Research Conference, Toronto, August 2015
- Reviewers: Alan Kuang, Lena Panok