Advising the Congress on Medicare issues

Issues for risk adjustment in Medicare Advantage

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Background

- MA plans receive monthly capitated payments for each enrollee
- Each payment is the product of two factors
  - Base rate
  - Enrollee's risk score
- Risk scores
  - Come from the CMS Hierarchical Condition Categories (CMS-HCC) model
  - Represent enrollee's expected annual Medicare spending relative to national average

Description of CMS-HCC

- Uses beneficiaries' data on demographics and medical conditions
- Medical conditions
  - Uses conditions diagnosed in previous year
  - Conditions on inpatient, outpatient, and physician claims collected into 70 HCCs
- Each demographic variable and HCC has a coefficient that is used to determine risk scores

Example of how risk scores are calculated

- Female, age 76, Medicaid, diagnosed with COPD
- These CMS-HCC coefficients apply:
  - Female, age 75-69: .46
  - Female, Medicaid, aged: .18
  - COPD: .40
- Risk score = .46+.18+.40 = 1.04
- Each year, the national average risk score is 1.0

Concerns over CMS-HCC

- Possibility that plans may benefit financially, depending on the risk profile of enrollees (favorable selection)
- Regional differences in coding intensity of conditions may benefit plans in regions that have more intensive coding
- CMS estimates CMS-HCC with FFS data, but cost of treating conditions may be different in FFS and MA (Newhouse et al.)

Possible selection issues

- CMS-HCC explains about 11% of variation in Medicare spending; research indicates at least 20-25% of variation can be predicted
- Within an HCC, all payments adjusted by same rate
  - Severity (and costliness) vary within an HCC
  - For a given HCC, plans can benefit if they attract the lowest cost beneficiaries
  - Plans focusing on the sickest beneficiaries may be at a disadvantage

Is there selection in MA?

- Difficult to answer definitively
- We examined
  - Beneficiaries in FFS Medicare in 2007
  - Compared 2007 FFS costs for those who stayed in FFS in 2008 to those who enrolled in MA in 2008
- Cost of those enrolling in MA 15 percent lower than cost of those staying in FFS
- In 68 of 70 HCCs, those enrolling in MA less costly than those staying in FFS

Options for improving predictive power of CMS-HCC

- Add socioeconomic information (race, income)
- Add number of conditions (HCCs)
- Use two years of diagnosis data rather than one year to determine HCCs

Measures of predictive power

- R^2: How much of the variation in beneficiary-level costliness is explained by CMS-HCC
- Predictive ratio: How accurately CMS-HCC predicts costs for beneficiaries with a given characteristic:
  - (Predicted cost for group)/(Actual cost for group)
  - Less than 1.0: Costs underpredicted
  - Greater than 1.0: Costs overpredicted

Adding socioeconomic data does not improve predictive power

Category	Predictive ratio	
	Standard CMS-HCC	CMS-HCC with race and income
Diabetes	1.00	1.00
COPD	1.00	1.00
Cancer	1.00	1.00
0 conditions	0.95	0.95
2 conditions	1.03	1.03
4 conditions	1.03	1.03
8 or more conditions	0.93	0.93

R^2 = .11 for both models

Adding number of conditions improves prediction for sickest beneficiaries

Category	Predictive ratio	
	Standard CMS-HCC	CMS-HCC with no. of conditions
Diabetes	1.00	1.00
COPD	1.01	1.01
Cancer	0.99	0.99
0 conditions	0.94	1.00
2 conditions	1.03	1.00
4 conditions	1.02	1.00
8 or more conditions	0.95	1.00

R^2 = .11 for both models

Problem of using one year of diagnosis data in CMS-HCC

- Data indicate that providers in FFS and MA often do not consistently code chronic conditions from year to year
- Problems of inconsistent coding:
  - CMS-HCC may not reflect true cost of conditions
  - Beneficiaries' risk scores fluctuate, resulting in less stable revenue streams to MA plans
- Using two years of diagnosis data would mitigate these problems

Two years of diagnosis data improves prediction for sickest beneficiaries

Category	Predictive ratio	
	Standard CMS-HCC	CMS-HCC with two years of data
Diabetes	1.00	1.00
COPD	1.01	1.01
Cancer	0.99	0.99
0 conditions	0.94	0.92
2 conditions	1.03	1.02
4 conditions	1.02	1.03
8 or more conditions	0.95	0.97

R^2 = .11 for both models

Are regional differences in coding an issue for risk adjustment?

- Song et al.: In FFS Medicare conditions coded more intensively in high-use regions (higher risk scores)
- If regional coding differences in MA, higher payments for plans in high-coding regions
- However, MA plans have incentive to code as much as possible
- CMS collecting data that should allow us to determine regional differences in MA

If MA has regional differences in coding, how to address?

- If regional differences exist, adjust MA risk scores based on how much coding affects regional risk scores
  - Adjust downward in regions with more intensive coding
  - Adjust upward in regions with less intensive coding

Should CMS use MA data to estimate CMS-HCC?

- CMS uses data from FFS beneficiaries to estimate the CMS-HCC
- This is consistent with Commission's position on financial neutrality between FFS and MA

FFS vs. MA data to estimate CMS-HCC

- In large MA plan, relative cost of treating conditions is different from FFS Medicare (Newhouse et al.)
- For some conditions, relative cost in MA is higher, for others it is lower
- If this is widespread in MA under current system, plans benefit financially by
  - Attracting beneficiaries with some conditions
  - Avoiding beneficiaries with other conditions

Summary

- Improving predictive power of CMS-HCC
  - Adding race and income does not help
  - Adding number of conditions helps
  - Using two years of data helps and makes risk scores more stable
- Effects of regional differences in coding needs analysis
- Eventually, question will arise whether to use MA or FFS data to estimate CMS-HCC

Next steps

- Evaluate model that has both number of conditions and uses two years of diagnosis data
- Include interactions between specific conditions and number of conditions
- Evaluate model that has more conditions than the 70 in the current CMS-HCC