American Academy of Actuaries
Medicare Supplement Work Group

Update on Medicare Supplement Refund Formula Review

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Agenda

- NAIC charge

- Background on work to date

- Caveats and limitations

- Initial results and observations

- Next steps

- Questions

NAIC Charge to the Work Group

- **1st Priority**
  - Evaluate current formula against alternative formulas specific to Issue Age and non-issue age ("attained age") rate structures
  - Provide a recommendation for a revised formula

- **2nd Priority**
  - Evaluate the impact of pooling across all plans within type within a state
  - Provide a recommendation regarding pooling

- **3rd Priority**
  - Evaluate the impact of alternative tolerance formula and levels
  - Provide a recommendation regarding a revised tolerance formula

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Background on Work to Date

- Obtained data on refund filings for reporting years 2005-2008 for four states (FL, OR, VA, WA)

- Retained Medical Information Bureau (MIB) to poll companies for rate structure assignment

- Determined algorithms for analysis

- Developed model

Background on Work to Date (cont.)

- Data limitations and how they were addressed:
    - Refunds cannot be analyzed prior to 2005; therefore, the work group excluded past refunds in its analysis
    - Records were excluded that showed first year premium inconsistencies across reporting years or that were not contained for all reporting years
- Applied current and alternative refund formulas based on Reden & Anders' assumptions ("R&A") as presented in their report on the study of alternatives to the Medicare supplement refund formula (12/6/2002) as well as the Academy report on loss ratio curves for redetermination of refund benchmarks (3/10/2004)

http://actuary.org/files/publications/Report%20to%20NAIC%20on%20MedSUpp%20031004.pdf

Background on Work to Date (cont.)

- Applied current and alternative refund formulas based on R&A assumptions, with and without pooling

- Results included the extent to which the modeling accurately matched experience of actual premium volume and level of dispersion against projected premium

Caveats and Limitations

- Results reflect the underlying data set and assumptions used

- Individual company results will not necessarily follow aggregate patterns

- Note that the data represents a much higher representation of issue age-rated business (due to FL) than would be the case of a dataset representative of the nation as a whole

- The underlying dataset include only 43 filing records with reported refunds out of a total of 6,436. It is likely that any analysis results of refund levels need to be viewed with an understanding of the inherent variability

- The work group's choice of assumptions and the resulting output is intended to illustrate the results of the modelling efforts to date and should not be considered recommendations at this stage in the project

Initial Results of Observations

Data Basis

Rate Structure	Baseline	Plan Detail Analysis	Plan Pooling Analysis
Earned Premium Measures (2006-2008)			
AA	555,547,749	468,731,396	280,984,978
IA	3,307,342,894	3,153,290,713	2,890,678,916
NA	82,841,301	119,911,353	62,619,538
Total	4,045,731,944	3,741,933,462	3,234,283,432
Total Entries			
AA	396	153	119
IA	752	380	311
NA	694	219	167
Total	1,842	752	597

Source: Refund filing data records from the NAIC

Initial Results and Observations
Review of Current and Alternative Formulas

Refund Calculation Results – Current Formula

Rate Structure	Amount
Attained Age	1,504,577
Issue Age	5,579,087
NA	596,161
Total	7,679,824

Source: Refund filing data records from the NAIC

Initial Results and Observations
Review of Current and Alternative Formulas

**Refund Calculation Results –
Current and Alternative based on R&A
(Limited to data with identified rate structure)**

Rate Structure	Current	R&A
Attained Age	1,504,577	2,515,819
Issue Age	5,579,087	1,514,740
Total	7,083,664	4,030,559

Source: Refund filing data records from the NAIC

Initial Results and Observations
Impact of Pooling all Plans

**Analysis of Pooling –
Current and Alternative based on R&A
(Limited to data with identified rate structure)**

Rate Structure	Current	R&A
Without Pooling		
Attained Age	711,011	1,079,444
Issue Age	1,976,041	187,912
Total	2,687,052	1,267,356
With Pooling		
Attained Age	0	0
Issue Age	1,595,730	309,587
Total	1,595,730	309,587

Source: Refund filing data records from the NAIC

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Initial Results and Observations
Premium Fit

Premium Fit

Rate Structure	Premium Volume			+-10% Tolerance distribution of entries		
	Actual	Projected	Ratio	Actual Low	Within Threshold	Actual High
Current Refund Formula						
Attained Age	468,731,396	363,343,113	129.0%	26%	22%	52%
Issue Age	3,153,290,713	2,359,354,077	133.7%	31%	12%	58%
Not Available	119,911,353	154,026,210	77.9%	39%	14%	47%
All	3,741,933,462	2,876,723,400	130.1%	32%	14%	53%
R&A Basis						
Attained Age	468,731,396	366,571,361	127.9%	57%	16%	27%
Issue Age	3,153,290,713	2,786,479,067	113.2%	54%	17%	29%
Not Available	119,911,353	156,116,191	76.8%	58%	8%	34%
All	3,741,933,462	3,309,166,618	113.1%	55%	14%	30%

Source: Refund filing data records from the NAIC

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Initial Results and Observations
Take Aways

- A separate alternative formula specific to rate structure would be expected to increase refunds on attained age business and decrease refunds on issue age business

- The impact of pooling across plans can go both directions; however, the overall impact on the work group's data sample is a reduction in refunds

- The underlying premium comparison of actual premium volume to expected levels of premium inherent in a particular formula can be improved overall, but there appears to be significant dispersion on a company entry basis

Next Steps

- Additional model testing and documentation

- Possible additional modeling refinements

- Based on results to date the work group can either narrow its focus or expand the analysis to additional alternatives

- Incorporate initial testing of tolerance formula at various extremes and select alternatives in between

Questions

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Appendices

Appendix 1 – Premium Assumptions

Appendix 1
Academy Medicare Supplement Work Group
Premium Assumptions

		Current	R&A - AA	R&A - IA
Premium Trend		10.0%	7.5%	7.5%
Termination Rates				
	1	30.0%	25.00%	25.00%
	2	25.0%	15.00%	15.00%
	3	20.0%	12.00%	12.00%
	4	20.0%	12.00%	12.00%
	5	20.0%	12.00%	12.00%
	6+	17.0%	12.00%	12.00%
Durational LR				
	1	40.0%	52.0%	44.0%
	2	55.0%	57.0%	50.0%
	3	65.1%	61.0%	55.0%
	4	67.1%	65.0%	61.0%
	5	69.1%	69.0%	66.0%
	6	71.1%	69.0%	67.0%
	7	73.1%	69.0%	68.0%
	8	75.1%	69.0%	70.0%
	9	76.1%	69.0%	71.0%
	10	76.1%	69.0%	72.0%
	11	76.1%	69.0%	73.0%
	12	77.1%	69.0%	74.0%
	13	77.1%	69.0%	74.0%
	14	77.1%	69.0%	75.0%
	15	77.1%	69.0%	76.0%
	16	77.1%	69.0%	76.0%
	17	77.1%	69.0%	76.0%
	18	77.1%	69.0%	76.0%
	19	77.1%	69.0%	77.0%
	20	77.1%	69.0%	77.0%
	21	77.1%	69.0%	77.0%
	22	77.1%	69.0%	77.0%
	23	77.1%	69.0%	78.0%
	24	77.1%	69.0%	78.0%
	25	77.1%	69.0%	78.0%
	26	77.1%	69.0%	78.0%
	27	77.1%	69.0%	78.0%
	28	77.1%	69.0%	79.0%
	29	77.1%	69.0%	79.0%
	30	77.1%	69.0%	79.0%

Source: Assumptions and output from work group model

Appendix 2 – Refund Formulas Tested
(Based on Individual)

Appendix 2
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Refund Formulas Tested (Based on Individual)

	Current Formula					Reden & Anders - Attained Age					Reden & Anders - Issue Age			
Year	EP Factor (c)	Cumulative Loss Ratio (e)	EP Factor (g)	Cumulative Loss Ratio (i)	Year	EP Factor (c)	Cumulative Loss Ratio (e)	EP Factor (g)	Cumulative Loss Ratio (i)	Year	EP Factor (c)	Cumulative Loss Ratio (e)	EP Factor (g)	Cumulative Loss Ratio (i)
1	2.770	0.442	0.000	0.000	1	2.806	0.534	0.000	0.000	1	2.806	0.457	0.000	0.000
2	4.175	0.493	0.000	0.000	2	4.349	0.554	0.000	0.000	2	4.349	0.481	0.000	0.000
3	4.175	0.493	1.194	0.659	3	4.349	0.554	1.434	0.629	3	4.349	0.481	1.434	0.579
4	4.175	0.493	2.245	0.669	4	4.349	0.554	2.790	0.649	4	4.349	0.481	2.790	0.606
5	4.175	0.493	3.170	0.678	5	4.349	0.554	4.073	0.662	5	4.349	0.481	4.073	0.625
6	4.175	0.493	3.998	0.686	6	4.349	0.554	5.287	0.668	6	4.349	0.481	5.287	0.636
7	4.175	0.493	4.754	0.695	7	4.349	0.554	6.435	0.672	7	4.349	0.481	6.435	0.646
8	4.175	0.493	5.445	0.702	8	4.349	0.554	7.521	0.675	8	4.349	0.481	7.521	0.654
9	4.175	0.493	6.075	0.708	9	4.349	0.554	8.549	0.677	9	4.349	0.481	8.549	0.661
10	4.175	0.493	6.650	0.713	10	4.349	0.554	9.521	0.678	10	4.349	0.481	9.521	0.668
11	4.175	0.493	7.176	0.717	11	4.349	0.554	10.440	0.679	11	4.349	0.481	10.440	0.674
12	4.175	0.493	7.655	0.720	12	4.349	0.554	11.310	0.680	12	4.349	0.481	11.310	0.679
13	4.175	0.493	8.093	0.723	13	4.349	0.554	12.133	0.681	13	4.349	0.481	12.133	0.683
14	4.175	0.493	8.493	0.725	14	4.349	0.554	12.911	0.681	14	4.349	0.481	12.911	0.688
15	4.175	0.493	8.684	0.725	15	4.349	0.554	13.290	0.681	15	4.349	0.481	13.290	0.690

Source: Assumptions and output from work group model