

APPENDIX Nb:

**PRESENTATION ENTITLED
“ACTUARIAL RESEARCH CORPORATION’S
LONG TERM CARE INSURANCE MODEL”**

Actuarial Research Corporation's Long Term Care Insurance Model

September 22, 2010

Actuarial Basis For Premium Formula

- ▶ For each issue age, projections of benefits, expenses, and premium income are made until age 100 (presumed to be the end of life for all individuals in the cohort).
- ▶ The Premium for each issue age is set so that the present value of benefits and expenses is equal to the present value of premium income.

Caveats

- ▶ No one can foresee how this program will operate, therefore premiums cannot be guaranteed to be adequate.
 - Unknowns include level of participation, level of antiselection, and the effectiveness of regulations and procedures to determine "actively at work," qualifications for benefits, and the effect of providing advocacy services
- ▶ Opinions on the reasonableness of the assumptions used to calculate premiums can be made.
- ▶ Premiums are indeterminate under variable indexing provisions.

Assumptions

- ▶ There will be no subsidy across years of issue or age at issue, as is typical of social insurance.
- ▶ There is a subsidy for low-income individuals.
- ▶ Premiums are based on a set of assumptions:
 - Interest Rates
 - Mortality Rates
 - Lapse Rates
 - Expense Levels
 - Utilization Rates

Source for Assumptions

- ▶ Interest rates and mortality rates are taken from the 2010 OASDI Trustees Reports
- ▶ Lapse Rates are assumed to be zero.
- ▶ Premium load for expenses is assumed to be 3%.
- ▶ Utilization from survey data with several adjustments.

Utilization Assumptions: Data Sources

- ▶ For nursing home prevalence rates, incidence rates, average length of stay, and continuance table: 1985 and 1999 National Nursing Home Surveys.
- ▶ For home care ages 65 and over prevalence rates, incidence rates, average length of episode, and continuance table: 1982-1999 National Long-Term Care Surveys as analyzed by Eric Stallard and Bob Yee.
- ▶ For home care ages under 65 prevalence rates from the 2009 National Health Interview Survey. Average length of episode is extrapolated from the over 65. Continuance table is from the over 65. Incidence rates are derived from the formula:
 - $PR = IR * ALOS$, which is equivalent to $IR = PR / ALOS$

Utilization Assumptions: Adjustments

- Utilization data are tabulated by age, gender, and ADL level
- Utilization of the under 65 are also tabulated by income level (our model has not yet incorporated all of these data)
- We assume that 25% of those with one ADL less than the requirement will receive benefits
- We calculate the number of new beneficiaries in the first year of benefit payments (2017) by using prevalence rates rather than incidence rates

Utilization Assumptions: Selection and Antiselection

- ▶ Selection: Provisions that result in participants being healthier than average (average is based on survey data for the whole population)
 - The 3-year work requirement
 - HIS data shows that ADL level of those that work (even at the rate of \$1) have significantly lower utilization than the total population
- ▶ Antiselection: Those in need of services are the most likely to participate in an unsubsidized / voluntary program.

Utilization Assumptions: Selection

- ▶ Selection Factor: incidence rates in the last year of required work = 60% of ultimate
 - Work is required for 3 out of the 5-year vesting period
- ▶ Selection wears off over 10-year period

Utilization Assumptions: Antiselection

- ▶ Antiselection Factor (AF): A function of the participation rates and prevalence rates and assumed to reach ultimate value of 110% over 20-year period.
- ▶ Different factor at each age and sex

Utilization Assumptions: Antiselection - Examples

- ▶ Example 1: participation & prevalence rates=1%
 - $AF = 1/.01 = 100$ (perfect antiselection)
 - $AF = 100^{0.7} = 25.12$ (imperfect antiselection)
 - $AF(5) = 11.49$ (interpolated value at duration 5)
- ▶ Example 2: participation=2%, prevalence=1%
 - $AF = 1/.02 = 50$ (perfect antiselection)
 - $AF = 50^{0.7} = 15.46$ (imperfect antiselection)
 - $AF(5) = 8.82$ (interpolated value at duration 5)

Policy Options That Can Be Modeled

- ▶ Earnings requirement
 - Years of work required (3)
 - Level for participation (quarter of coverage = \$1,090 in 2009)
 - Level for subsidy (poverty line = \$10,830 in 2009)
- ▶ Benefit trigger (ADL requirement)
- ▶ Dollars per day of benefit including indexing options
- ▶ Indexing of premium
- ▶ Waiver of premium while in claim status
 - While in nursing home
 - And / or while in home care
- ▶ Deductible period
- ▶ Lifetime maximum

Premium Sensitivity

- ▶ Final set of assumptions for calculating premiums have not yet been determined.
- ▶ Premiums are very sensitive to some assumptions:
 - Subsidy
 - Participation rates
 - Income requirements
- ▶ Premiums also can be sensitive to waiver of premium and indexing.

Premium Sensitivity to Low Income Subsidy

- ▶ Data on workers by earnings levels for 2009 Current Population Survey.
- ▶ Roughly 28 million workers above QOC (\$1,090) and below poverty (\$10,830) in 2009 dollars.
- ▶ Roughly 130 million above poverty.
- ▶ Premiums for unsubsidized group is affected more by the dependency ratio than by utilization.

Low Income PR	High Income PR	Dependency Ratio (Total / Unsubsidized)
10%	1%	3.2
10%	6%	1.4
20%	1%	5.3
20%	6%	1.7

Premium Sensitivity to Participation Rates

- ▶ Participation rates affect the level of antiselection assumed in the model, and thus the level of the premiums.
- ▶ The level of the premiums affects the level of antiselection.
 - Once premium levels go above private insurance alternatives, participation drops and antiselection increases.
- ▶ We use participation rates that vary by age and gender according to the patterns from the Federal and California LTC programs.

Premium Sensitivity to Income Requirements

- ▶ Model determines selection effect from NHIS data that shows ADL levels crossed with income levels.
- ▶ Model varies selection factor by level of earnings requirement and by years of work requirement.
- ▶ Selection effect stays in place until work requirement stops.
- ▶ Utilization rates decline as income requirement increases.

Premium Sensitivity to Waiver of Premium

- ▶ Waiver of premium is also affected by the dependency ratio (beneficiaries divided by premium payers).
- ▶ If beneficiaries do not pay premiums, then the burden on premium payers increases.
- ▶ This provision interacts with the level of antiselection to destabilize premiums.
- ▶ Example: ratio of beneficiaries to premium payers when beneficiaries are 10% and 50%:
 - $10\% / 90\% = 11\%$ vs $50\% / 50\% = 100\%$
- ▶ Note: Ceiling on premium with waiver of premium = infinity. Ceiling on premium with no waiver of premium = \$1500 (= \$50/day for 30 days).

Premium Sensitivity to Indexation of Premium

- ▶ If benefits are indexed to inflation and premiums are level, premiums are highly sensitive to the actual level of inflation
 - Example: The difference between 2.8% inflation and 5.6% inflation could more than double premiums at younger ages and increase them by 50% at older ages.
- ▶ Indexing premiums at the same rate as benefits greatly reduces the sensitivity, but does not eliminate it.
 - Example: The difference between 2.8% inflation and 5.6% inflation could increase premiums at younger ages by 25% and increase them at older ages by 15%.

Summary of Premium Sensitivity to Selected Parameters

Parameter	Premium SENSITIVITY to an Increase in parameter
Low-Income Subsidy	+++++
Participation Rates (much more sensitive at low participation rates)	---
Income Requirement (while reducing low income group and sheltered workshop workers)	-----
Income Requirement (while above low income group and sheltered workshop wage levels)	-
Waiver of Premium (while in nursing home)	+
Waiver of Premium (while in home care, but effect compounds with antiselection)	+++
Indexing of Premium	----
Lapse	---

A REPORT ON THE ACTUARIAL, MARKETING, AND LEGAL ANALYSES OF THE CLASS PROGRAM

For additional information, you may visit the DALTCP home page at http://aspe.hhs.gov/_/office_specific/daltcp.cfm or contact the office at HHS/ASPE/DALTCP, Room 424E, H.H. Humphrey Building, 200 Independence Avenue, SW, Washington, DC 20201. The e-mail address is: webmaster.DALTCP@hhs.gov.

Files Available for This Report

[HTML versions of Appendices will be added as they are formatted]

Main Report	[48 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/index.shtml http://aspe.hhs.gov/daltcp/reports/2011/class/index.pdf
APPENDIX A: Key Provisions of Title VIII of the ACA, Which Establishes the CLASS Program	[6 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appA.htm http://aspe.hhs.gov/daltcp/reports/2011/class/appA.pdf
APPENDIX B: HHS Letters to Congress About Intent to Create Independent CLASS Office	[11 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appB.htm http://aspe.hhs.gov/daltcp/reports/2011/class/appB.pdf
APPENDIX C: <u>Federal Register</u> Announcement Establishing CLASS Office	[2 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appC.htm http://aspe.hhs.gov/daltcp/reports/2011/class/appC.pdf
APPENDIX D: CLASS Office Organizational Chart	[2 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appD.pdf
APPENDIX E: CLASS Process Flow Chart	[2 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appE.pdf
APPENDIX F: <u>Federal Register</u> Announcement for CLASS Independence Advisory Council	[3 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appF.htm http://aspe.hhs.gov/daltcp/reports/2011/class/appF.pdf
APPENDIX G: Personal Care Attendants Workforce Advisory Panel and List of Members	[6 PDF pages]
Full Appendix	http://aspe.hhs.gov/daltcp/reports/2011/class/appG.htm http://aspe.hhs.gov/daltcp/reports/2011/class/appG.pdf
Ga: <u>Federal Register</u> Announcement for Personal Care Attendants Workforce Advisory Panel	http://aspe.hhs.gov/daltcp/reports/2011/class/appGa.pdf
Gb: Advisory Panel List of Members	http://aspe.hhs.gov/daltcp/reports/2011/class/appGb.pdf

APPENDIX H: Policy Papers Discussed by the LTC Work Group	[36 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appH.htm
	http://aspe.hhs.gov/daltcp/reports/2011/class/appH.pdf
APPENDIX I: CLASS Administration Systems Analysis and RFI	[10 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appI.htm
	http://aspe.hhs.gov/daltcp/reports/2011/class/appI.pdf
APPENDIX J: Additional Analyses for Early Policy Analysis	[150 PDF pages]
Full Appendix	http://aspe.hhs.gov/daltcp/reports/2011/class/appJ.pdf
Ja: A Profile of Declined Long-Term Care Insurance Applicants	http://aspe.hhs.gov/daltcp/reports/2011/class/appJa.pdf
Jb: CLASS Program Benefit Triggers and Cognitive Impairment	http://aspe.hhs.gov/daltcp/reports/2011/class/appJb.pdf
Jc: Strategic Analysis of HHS Entry into the Long-Term Care Insurance Market	http://aspe.hhs.gov/daltcp/reports/2011/class/appJc.pdf
Jd: Managing a Cash Benefit Design in Long-Term Care Insurance	http://aspe.hhs.gov/daltcp/reports/2011/class/appJd.pdf
APPENDIX K: Early Meetings with Stakeholders	[4 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appK.htm
	http://aspe.hhs.gov/daltcp/reports/2011/class/appK.pdf
APPENDIX L: In-Depth Description of ARC Model	[62 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appL.pdf
APPENDIX M: In-Depth Description of Avalere Health Model	[23 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appM.htm
	http://aspe.hhs.gov/daltcp/reports/2011/class/appM.pdf
APPENDIX N: September 22, 2010 Technical Experts Meeting	[61 PDF pages]
Full Appendix	http://aspe.hhs.gov/daltcp/reports/2011/class/appN.htm
	http://aspe.hhs.gov/daltcp/reports/2011/class/appN.pdf
Na: Agenda, List of Participants, and Speaker Bios	http://aspe.hhs.gov/daltcp/reports/2011/class/appNa.pdf
Nb: Presentation Entitled "Actuarial Research Corporation's Long Term Care Insurance Model"	http://aspe.hhs.gov/daltcp/reports/2011/class/appNb.pdf
Nc: Presentation Entitled "The Long-Term Care Policy Simulator Model"	http://aspe.hhs.gov/daltcp/reports/2011/class/appNc.pdf
Nd: Presentation Entitled "Comments on 'The Long-Term Care Policy Simulator Model'"	http://aspe.hhs.gov/daltcp/reports/2011/class/appNd.pdf
APPENDIX O: Actuarial Report on the Development of CLASS Benefit Plans	[47 PDF pages]
	http://aspe.hhs.gov/daltcp/reports/2011/class/appO.pdf

APPENDIX P: June 22, 2011 Technical Experts Meeting
Full Appendix

[77 PDF pages]

<http://aspe.hhs.gov/daltcp/reports/2011/class/appP.htm>

<http://aspe.hhs.gov/daltcp/reports/2011/class/appP.pdf>

Pa: Agenda and Discussion Issues and
Questions

<http://aspe.hhs.gov/daltcp/reports/2011/class/appPa.pdf>

Pb: Presentation Entitled "Core Assumptions and
Model Outputs"

<http://aspe.hhs.gov/daltcp/reports/2011/class/appPb.pdf>

Pc: Presentation Entitled "Actuarial Research
Corporation's Long Term Care Insurance
Model"

<http://aspe.hhs.gov/daltcp/reports/2011/class/appPc.pdf>

Pd: Presentation Entitled "The Avalere Long-
Term Care Policy Simulator Model"

<http://aspe.hhs.gov/daltcp/reports/2011/class/appPd.pdf>

Pe: Presentation Entitled "Alternative Approaches
to CLASS Benefit Design: The CLASS
Partnership"

<http://aspe.hhs.gov/daltcp/reports/2011/class/appPe.pdf>

APPENDIX Q: Table 2: Actuarial and Demographic Assumptions

[2 PDF pages]

<http://aspe.hhs.gov/daltcp/reports/2011/class/appQ.htm>

<http://aspe.hhs.gov/daltcp/reports/2011/class/appQ.pdf>

APPENDIX R: Figure 1: Daily Benefit Amount for Increased Benefit

[2 PDF pages]

<http://aspe.hhs.gov/daltcp/reports/2011/class/appR.pdf>