APPENDIX Pc:

PRESENTATION ENTITLED "ACTUARIAL RESEARCH CORPORATION'S LONG TERM CARE INSURANCE MODEL"

Actuarial Research Corporation's Long Term Care Insurance Model

June 22, 2011

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 procedures to determine earnings, "actively at work," and qualifications for benefits, and the effect of providing advocacy services
- Level premiums cannot be determined for benefits linked to an index (CPI), because future benefits are unknown at the time that premiums are calculated.
- Adequacy of premium cannot be guaranteed when premium levels are unknown such as would be the case if premiums bounce up and down with income.

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.

Assumptions

- Premiums are calculated such that there is no subsidy across years of issue or age at issue, as is typical of social insurance.
- Premiums are based on a set of assumptions:
  - Interest Rates
  - Mortality Rates
  - Lapse Rates
  - Expense Levels
  - Utilization Rates

Source for Assumptions

- All assumptions may be modified by the user.
- Interest rates and mortality rates are taken from the 2011 OASDI Trustees Reports.
- Lapse Rates are assumed to be 0.75% per year.
- Premium load for expenses is assumed to be 3%.
- Utilization comes from survey data with several adjustments.

Mortality Assumptions

- 2011 Trustees Report
- Mortality rates decline by roughly 0.8% per year
- Compared to 1994 GAM:
  - Male GAM rates are about 99% of TR rates in 2011
  - Male TR rates go below 1994 GAM in 2012
  - Female GAM rates are about 83% of TR rates in 2011
  - Female TR rates go below 1994 GAM in 2033

Utilization Assumptions:
Data Sources for Nursing Home Rates

- For NH prevalence rates, incidence rates, average length of stay, and continuance table: 1985 National Nursing Home Surveys (NNHS), trended to 2004 NNHS (generally about 20% to 40% reduction depending on age and sex).

Utilization Assumptions: Data Sources for Home Care Rates

- For HC ages 65+, incidence rates, average length of episode, and continuance table: 1982-1989 National Long-Term Care Surveys (NLTCS) as analyzed by Eric Stallard and Bob Yee, trended to 2004 by change in prevalence rates from the 1989 to 2004 NLTCSs (generally about 20% to 50% increase depending on age and sex).
- For HC ages <65, home care prevalence rates from the 2009 National Health Interview Survey (NHIS). Average length of episode is extrapolated from the over 65 (increased by 1% for each age, which is from about 3 1/2 years at age 65 to about 5 ¾ years at age 18). 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: Comparison of ARC Model Incidence Rates to SOA Data for 2+ ADLs

Age	ARC Model (before adjustments)*	SOA 2004 Intercompany Data	Ratio
45	.155%	.13%	1.2
55	.235%	.14%	1.7
67	2.20%	.47%	4.7
77	7.54%	2.81%	2.7
87	21.90%	9.62%	2.3

* Excluded adjustments are for selection, antiselection, trend, and ADL creep. Incidence rates are the sum of NH + HC incidence rates average of male and female.

Utilization Assumptions: Adjustments

- Utilization data are tabulated by age, gender, and ADL.
- Utilization of the under 65 are also tabulated by income level and definition of cognitive impairment.
- 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
  - NHIS data shows that ADL level of those that work ($1+ per year $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 – Two Methods

- Antiselection Factor (AF) – We model two different methods (and other methods are possible):
  - Formula based on a comparison of participation rates and prevalence rates
  - Estimate of additional 1st-year claims
- Additional First Year Claims

Formula Method of Antiselection

- A function of the participation rates and prevalence rates, assumed to diminish over a 20-year period.
- Starts by first calculating a factor that represents the maximum amount of antiselection and then dampens this factor.
- Maximum factor = 1/prevalence rate, if prevalence > participation.
- Maximum factor = 1/(prevalence / participation), if participation > prevalence.
- Different factor at each age and sex

Utilization Assumptions: Antiselection - Examples

- Example 1 - Male age 35 2+ ADLs: participation = 0.81% & prevalence rates = 0.13%
  - AF = 1/.0081 = 124 (perfect antiselection)
  - AF = 100^0.7 = 29.2 (imperfect antiselection)
  - AF(5) = 12.8 (interpolated value at duration 5)
- Example 2 - Male age 55: participation = 3.43%, prevalence = 0.24%
  - AF = 1/.034 = 29.2 (perfect antiselection)
  - AF = 29.2^0.7 = 10.6 (imperfect antiselection)
  - AF(5) = 6.0 (interpolated value at duration 5)

Additional First Year Claims Method of Antiselection

- Tabulate NHIS number of individuals that meet criteria for participation and benefit eligibility.
- Assume that they all receive benefits in 2017 possible.
- * All = Dementia, developmental disabilities, mental retardation, ADD, schizophrenia, bipolar.
- ** SRD = 1st 3 in list above

Income	All* Cognitive or 2+ ADLs (000)	All* Cognitive or 3+ ADLs (000)	SRD** Cognitive or 2+ ADLs (000)	SRD** Cognitive or 3+ ADLs (000)
$0+	2,651	2,005	1,865	1,589
$1+	623	571	480	428
$10k+	412	374	315	277

Policy Options That Can Be Modeled

- Earnings requirement (parameter in law)
  - 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

Assumptions That Can Be Modified

- Strength of antiselection
- Level of utilization
- Trend in utilization
- Lapse
- Interest
- Expense load
- Level of mortality
- Trend in mortality

Premium Sensitivity

- Final set of assumptions for calculating premiums have not yet been determined.
- Premiums are very sensitive to some assumptions:
  - Low Income Subsidy / Income requirements
  - Participation rates (1% to 4% decreases premiums by 13% to 18%)
  - Indexing of premium (20+% reduction in initial premium)
  - Interest (14% increase in premium for 4.7% interest vs 5.7% interest with no change in CPI)
  - Lapse (8% increase in premium for 0% lapse from 0.75%)
  - Trends in mortality (4.3% decrease in premium by changing annual trend from 0.75% to 0.25%) and morbidity

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: Federal Register 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: Federal Register 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: Federal Register 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 [77 PDF pages]

Full Appendix 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