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 3.5 years at age 65 to about 5.75 years at age 18). Continuance table is from the over 65. Incidence rates are derived from the formula:
  - \( PR = IR \times ALOS \), which is equivalent to \( IR = PR / ALOS \)
Utilization Assumptions: Comparison of ARC Model Incidence Rates to SOA Data for 2+ ADLs

<table>
<thead>
<tr>
<th>Age</th>
<th>ARC Model (before adjustments)*</th>
<th>SOA 2004 Intercompany Data</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>.155%</td>
<td>.13%</td>
<td>1.2</td>
</tr>
<tr>
<td>55</td>
<td>.235%</td>
<td>.14%</td>
<td>1.7</td>
</tr>
<tr>
<td>67</td>
<td>2.20%</td>
<td>.47%</td>
<td>4.7</td>
</tr>
<tr>
<td>77</td>
<td>7.54%</td>
<td>2.81%</td>
<td>2.7</td>
</tr>
<tr>
<td>87</td>
<td>21.90%</td>
<td>9.62%</td>
<td>2.3</td>
</tr>
</tbody>
</table>

* 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 = $1/\text{prevalence rate}$, if prevalence > participation.
  - Maximum factor = $1/(\text{prevalence} / \text{participation})$, 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%
  - $AF = \frac{1}{0.0081} = 124$ (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%
  - $AF = \frac{1}{0.034} = 29.2$ (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

<table>
<thead>
<tr>
<th>Income</th>
<th>All* Cognitive or 2+ ADLs (ooo)</th>
<th>All* Cognitive or 3+ ADLs (ooo)</th>
<th>SRD** Cognitive or 2+ ADLs (ooo)</th>
<th>SRD** Cognitive or 3+ ADLs (ooo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0+</td>
<td>2,651</td>
<td>2,005</td>
<td>1,865</td>
<td>1,589</td>
</tr>
<tr>
<td>$1+</td>
<td>623</td>
<td>571</td>
<td>480</td>
<td>428</td>
</tr>
<tr>
<td>$10k+</td>
<td>412</td>
<td>374</td>
<td>315</td>
<td>277</td>
</tr>
</tbody>
</table>
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]

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

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

APPENDIX C: Federal Register Announcement Establishing CLASS Office

[2 PDF pages]
http://aspe.hhs.gov/daltcp/reports/2011/class/appC.htm

APPENDIX D: CLASS Office Organizational Chart

[2 PDF pages]

APPENDIX E: CLASS Process Flow Chart

[2 PDF pages]

APPENDIX F: Federal Register Announcement for CLASS Independence Advisory Council

[3 PDF pages]
http://aspe.hhs.gov/daltcp/reports/2011/class/appF.htm

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

Ga: Federal Register Announcement for Personal Care Attendants Workforce Advisory Panel

Gb: Advisory Panel List of Members
APPENDIX H: Policy Papers Discussed by the LTC Work Group [36 PDF pages]
http://aspe.hhs.gov/daltcp/reports/2011/class/appH.htm

APPENDIX I: CLASS Administration Systems Analysis and RFI [10 PDF pages]
http://aspe.hhs.gov/daltcp/reports/2011/class/appI.htm

APPENDIX J: Additional Analyses for Early Policy Analysis [150 PDF pages]
Full Appendix

Ja: A Profile of Declined Long-Term Care Insurance Applicants

Jb: CLASS Program Benefit Triggers and Cognitive Impairment

Jc: Strategic Analysis of HHS Entry into the Long-Term Care Insurance Market

Jd: Managing a Cash Benefit Design in Long-Term Care Insurance

APPENDIX K: Early Meetings with Stakeholders [4 PDF pages]
http://aspe.hhs.gov/daltcp/reports/2011/class/appK.htm

APPENDIX L: In-Depth Description of ARC Model [62 PDF pages]

APPENDIX M: In-Depth Description of Avalere Health Model [23 PDF pages]
http://aspe.hhs.gov/daltcp/reports/2011/class/appM.htm

APPENDIX N: September 22, 2010 Technical Experts Meeting [61 PDF pages]
Full Appendix
http://aspe.hhs.gov/daltcp/reports/2011/class/appN.htm

Na: Agenda, List of Participants, and Speaker Bios

Nb: Presentation Entitled “Actuarial Research Corporation’s Long Term Care Insurance Model”

Nc: Presentation Entitled “The Long-Term Care Policy Simulator Model”

Nd: Presentation Entitled “Comments on ‘The Long-Term Care Policy Simulator Model’”
