

# *Combination Products*

## **Combo Product Pricing: Considerations for Various Plan Designs**

Monday, March 23, 2015 ~ 2:00 – 3:15 p.m.



**15th Annual Intercompany Long Term Care Insurance Conference**



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# Agenda



- Life/LTC Combination – 7702B
- Chronic Illness rider (Life/LTC combination – 101g)
- Annuity/LTC Combination

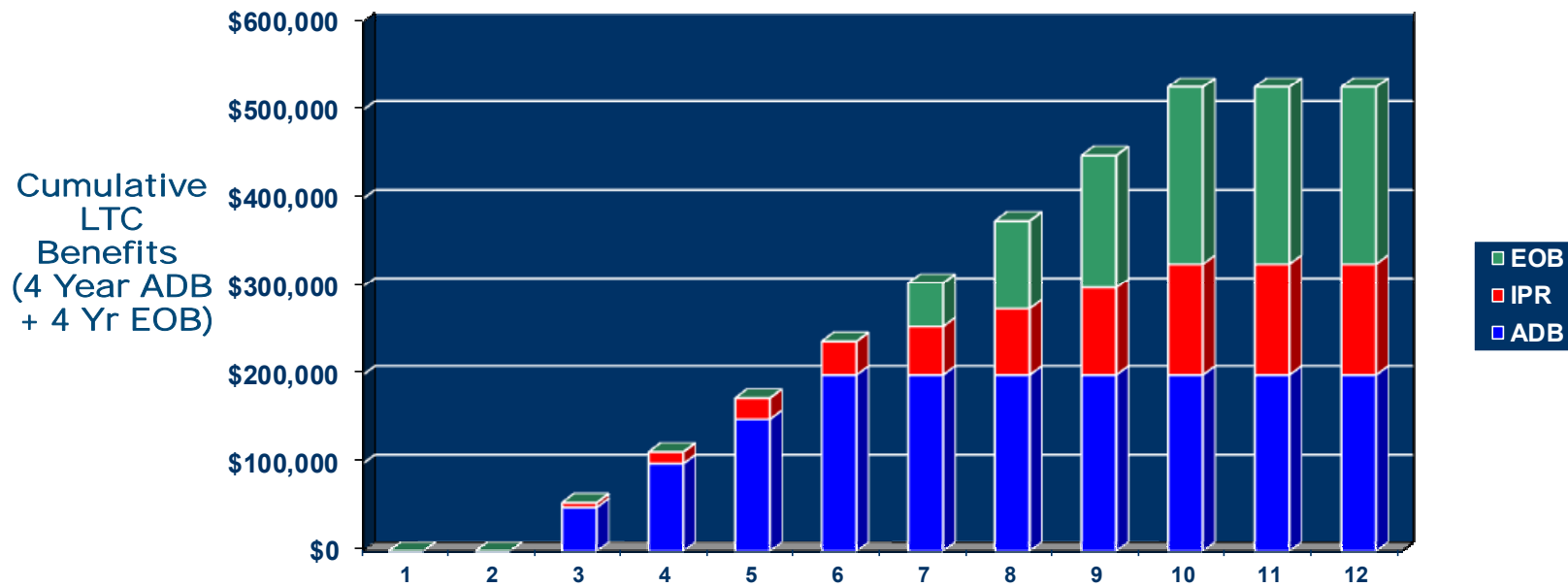
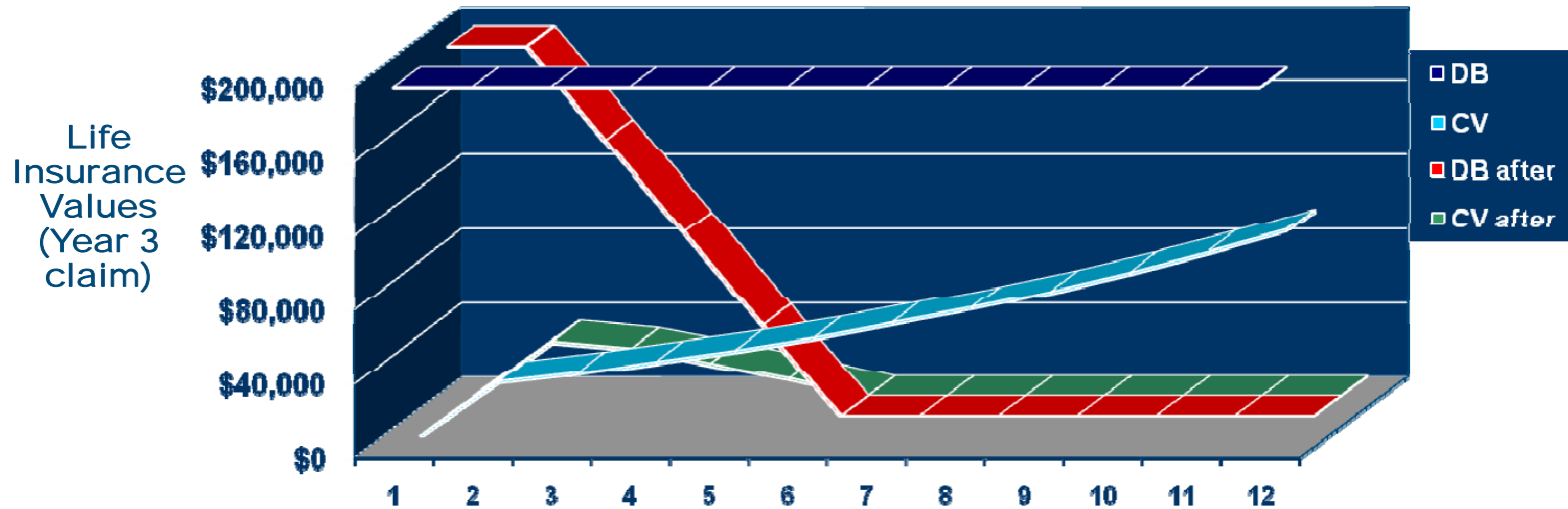
# Life/LTC Combo (7702B)

Linda Chow, FSA, MAAA  
Milliman, Inc.

- Accelerated Death Benefit LTC rider (ADB)
  - Pays out a specified portion of DB per month with a proportionate reduction to CV's
  - Can be funded by incremental premium or charge
  - Cost to insured is early payout of death benefit
  - ADB only rider accounts for 76% market share by number of policies per 2012 LIMRA Survey

- Extension of benefit (EOB)
  - Tail Design – extend the LTC benefit after the death benefit is completely depleted
  - Funded by insured premium
  - Asset re-positioning: Return assets, a multiple of assets (DB), or a multiple of DB (EOB)
  - Inflation option rounds out the coverage and addresses the comprehensive LTC need

# Life/LTC Product Basics



# Key Pricing Assumptions – Life/LTC combination product



- **Morbidity**
  - Claim frequency
  - Claim severity
  - Claim utilization
- **Mortality**
- **Lapse**
- **Investment Income**



# Morbidity assumption development – Items to consider



- LTC rider coverage
- Impact to the policyholder when the LTC rider is combined with a life policy – combination product adjustments
- Impact of underwriting

- Similar to Stand-Alone LTC
  - Benefit Trigger (7702B) – Tax qualified - 2 out of 6 ADLs or Cognitive Impairment
  - Covered Care

Home Care	Facility
Adult day care	Nursing homes
Home health aids	Assisted living facility
Homemaker and chore services	Bed reservation
Personal care services	
Hospice care	
Care from nurses and therapists	
Informal care	

- Different from Stand-Alone LTC
  - Limited Benefit options:
    - 1 Elimination Period
    - 2 - 3 Acceleration Benefit Period options
    - 3 - 4 Extension of Benefit Period options
  - HHC daily benefit is usually 100% of the NH daily benefit

# Underwriting and it's impact to morbidity



- Base product underwriting
- Acceleration only
  - Targeted Market
  - Simplified or full underwriting
  - Cognitive Screen
  - Rx database
- Acceleration and Extension of Benefit
  - True LTC risks
  - Mostly Full underwriting [Lincoln uses simplified]
- Underwriting selection factors may be higher or lower to reflect the effect of the underwriting protocols

# Impact to morbidity when combined with a base life policy



- Frequency (incidence of claims)
  - Accelerated benefit is cross-funded by the consumer
  - Tendency to preserve the money since the remaining death benefit is non-taxable
  - Therefore, frequency is lower than similar stand-alone LTC coverage
- Continuance
  - The insureds that do use the benefits tend to stay on claim longer than those with similar stand-alone LTC coverage

- Base Life Mortality assumptions are usually developed based on company experience reflecting the effect of the base policy underwriting
- Inclusion of the LTCl coverage helps to dampen the impact of increased mortality on the base plan
- Disabled Life mortality
  - Not enough industry experience to perform any robust analyses
  - Things to consider when developing the assumptions:
    1. Similar benefit triggers as those for stand-alone LTC
    2. Somewhat more simplified underwriting at issue
    3. Combination with the base policies alter the risk characteristics

# Policy Persistency



- Mostly driven by the base plan lapse rates
- Ultimate lapses are higher than those for stand-alone LTC

- Both stand-alone LTCL and combo plans are sensitive to investment returns
- New Money Rates



- Interactions of the cash flows - Important to capture the interactions of benefits and track the different cohorts of policyholders moving on and off ADB claims
  - Modeling the effects of LTC payments on an underlying Life contract
  - Keep track of the policy values for the different cohorts
    - Disabled lives
    - Recovered lives
    - Active lives

- Best approach to model incremental returns on ADB is to examine cash flows for life plus ADB, then for life only, and use the differences
  - The net effect will reflect ADB charges, ADB benefits, ADB reserves, reductions to future life benefits and charges, etc.
  - Premium income and benefits in later durations for life plus ADB will be less than premium income and benefits for life only, because of ADB claims
  - Incremental returns can show multiple sign changes and IRR anomalies, even with Becker method

- Extension of Benefit/Inflation benefits
  - Payment of these benefits does not directly affect underlying policy values
  - Usually layered on top as another increment
  - Can be priced in separate model but will complicate presenting an integrated picture of the cash flows and doing additional analysis
  - Residual Death Benefits need to be captured under either approach

- Preservation of mortality
  - Develop total mortality assumptions and disabled mortality assumptions; active life mortality is backed into
  - Develop active life mortality and disabled life mortality assumptions; total mortality is backed into

# Modeling Considerations



- Disabled Life Reserves
- Active Life Reserves

- IRR
- Pre-tax profit as a percent of premium
- Post-tax profit as a percent of premium
- Post-tax post capital profit as a percent of premium
- Loss ratios

# Income Statement Illustration



Income Statements			
Issue Age	65		
Product	Life Only	Life/LTC combo	Incremental cash flow
Present Value @ 5.25%	Lifetime		
Premium	\$514.02	609.79	95.77
Investment Income	<u>327.72</u>	<u>419.13</u>	<u>91.41</u>
TOTAL	\$841.75	1,028.92	\$187.17
Net Surrender Benefits	\$152.83	93.80	(\$59.03)
Total Death Claims	\$211.17	205.58	(\$5.59)
Cash payments for Base ADB Rider	\$0.00	71.51	\$71.51
Cash payments for Base EOB Rider	\$0.00	47.53	\$47.53
Commissions net of chargebacks	\$39.19	47.29	\$8.10
Expenses	\$45.71	67.00	\$21.29
Total Increase in reserve	\$314.52	403.29	\$88.77
TOTAL BENEFITS AND EXPENSES	\$763.39	936.04	\$172.65
PRE-TAX PROFIT @ 5.25%	\$78.35	92.88	\$14.53
PRE-TAX PROFIT AS A PERCENT OF PREMIUM	15.24%	15.23%	15.17%

- ADB not subject to a number of NAIC LTC requirements
  - Loss Ratio – some states, i.e., FL may still ask company to demonstrate the loss ratio results for ADB only benefit
    - An example of how we define the loss ratio when it's ADB only benefit:

Loss Ratio = Net Costs / Rider Charges

Net Costs = LTC payment + change of LTC claim reserves – death benefit savings

Death benefit savings = reduction in death benefit paid due to prior LTC payments

Rider Charges = LTC charges





- Inflation offer requirement
- Non-forfeiture options if charges are YRT
- Suitability and shopper's guide
- Other LTC model regulation requirements are generally assumed to apply to ADB, including agent licensing requirements
- EOB is subject to the NAIC LTC requirements

- Items that the Interstate Compact requires
  - Morbidity, Mortality and Lapse assumptions –
    1. Confidentiality can be requested
    2. Can provide sample cells
  - Loss Ratios – need to be provided for different payment plans
  - Average issue age and average premium
  - Comparison of premium schedules
  - Net to gross test



- Item that the Interstate Compact may request
  - A table of sample ages and coverages (including inflation and non-inflation) demonstrating the results of margin analysis

# Chronic Illness

Pam Schiz

Prudential Insurance Company

Payable when insured needs care due to either

- Physical limitations
  - Cannot perform at least 2 of 6 Activities of Daily Living (ADL)  
(Bathing, Continence, Dressing, Eating, Toileting, or Transferring)
- Severe cognitive impairment
  - Often Alzheimer's or Dementia
  - At risk of harming self or others without supervision

Exempt from Federal Income Tax

- Eligibility requirements defined by IRS Tax Code
  - Defines ADL and cognitive impairment standards
  - Requires duration of at least 90 days (definition of "chronic")

Either reimbursement or indemnity type

- Significant difference in potential claims
  - Majority of chronic care given in private residences

Two types of benefits regarding the relationship of the rider payout to the total benefit.

## “Pay Later”

- No extra premium required.
- Benefit = Discounted value of the death benefit.
- Interest Discount depends on current interest rates.
- Mortality Discount assumes disabled mortality

## “Pay Now”

- Extra premium required.
- Benefit = dollar for dollar reduction of the death benefit.
- This is the product which will be the primary focus of this presentation.

# Product for Further Discussion



Compliant with 101(g).

Assume a “Pay Now” version.

Uses standard benefit triggers- 2ADL or severe cognitive impairment

No waiting period/ No elimination period

Pays as a monthly benefit up to 2% of the death benefit up to IRS per diem limit. This benefit is also payable as an optional, discounted annual lump sum.

The death benefit is reduced dollar for dollar by benefits payable.

There is no condition that the person be receiving formal care. However, the condition must be expected to be permanent.

Charges are waived while on claim.

There is an extra monthly charge for the rider. The cost of any no lapse guarantee is also increased.

## New assumptions needed:

- Incidence Rates
- Disabled Life Mortality
- Rider termination rates (including recovery)
- Reserves

## The following assumptions may be modified:

- Lapse rates
- Expenses
- Population
- Reinsurance



Little or no experience studies for combination products.

This assumption is not as important for the “pay later” or discounted benefit, since that benefit provides an actuarial equivalent of the death benefit.

Possible sources of information - Long Term Care Stats, Internet, Consultants, Reinsurers.

Need to adjust for effects of life underwriting. Should rate vary by underwriting class?

When/ if the policyholder elects to collect the benefit is not simple

- This benefit is not “use it or lose it” benefit as long term care
- The rider is “just in case” and insureds want to preserve the insurance for
  - Gifts to children or grandchildren
  - Support of surviving spouse in widowhood
  - Funds to pay final expenses
- If funds are in the estate at time of death, they may have to pass through probate.
- On the other hand, why would I not want my money as soon as possible? (Especially if premiums are being waived.)

# Disabled Life Mortality



The cost of the rider is the time value of money (i.e. paying the benefit a few years early.)

The disabled life mortality assumption is important for both the “Pay Now” and “Pay Later” versions

May not be able to get disabled life mortality assumption from long term care. Cause of termination for Long Term Care policies is not always known. (Did people recover?)

Life expectancies for those on claim may not decrease as quickly as the base assumption as age of incidence increases. (For conditions like Alzheimer’s, life expectancy may be longer.)

Needs to be consistent with incidence rates and total mortality assumption.

We may never know if the disabled life mortality assumption was correct for insureds who die after the benefits have been paid. (They would not have to report their death to us if all benefits were already used.)

- To ensure reporting, it would require a product design where a small amount (e.g. 10%) of the death benefit be paid out only upon death.
- Social Security records could be another source for this mortality assumption. There have been problems in the past, but they are being corrected.

Conservation of deaths analysis important

Deaths for people who have received benefits +  
Deaths for people who have not received benefits =  
Base mortality assumption

If the first item is greater than your base assumption, something is not consistent.

- Could be an inconsistency on the effect of underwriting.

Verify that percentage dying while chronically ill is similar to expectations. The combination of the incidence rate and disabled life mortality rate needs to make sense. How many deaths occurred among people on claim vs. not on claim?

# Example of Conservation of Deaths



Assumptions	Conservation Example
<p><u>Year 1</u></p> <p>Overall Mortality = 0.0143                      Incidence rate = 0.01                      Mortality Rate if receiving benefits= 0.15</p> <p>1000 Lives</p>	<p>Expect 14.3 total deaths from the 1000 lives (<math>1000 \times 0.0143</math>)                      Expect 10 lives to receive benefits (<math>1000 \times 0.01</math>)                      Expect 1.5 of those lives who receive benefits to die (<math>10 \times .15</math>)</p> <p>The remaining 12.8 deaths (<math>14.3 \text{ total} - 1.5 \text{ who died while receiving benefits}</math>) must come from the 990 active lives (<math>1000 \text{ total} - 10 \text{ who received benefit}</math>).</p> <p>Mortality Rate for Active Lives = <math>12.8/990 = 0.0129</math></p> <p>This example makes sense and is consistent.</p>
<p><u>Year 6</u></p> <p>Overall Mortality = 0.036                      Incidence rate = 0.09                      Mortality Rate if receiving benefits= 0.15</p> <p>741.6 active lives remain at this point                      155.4 disabled lives remain at this point</p>	<p>Expect 32.3 total deaths (<math>(741.6+155.4) \times 0.036</math>)                      Expect 66.7 additional lives to receive benefits (<math>741.6 \times .09</math>)</p> <p>Mortality from lives receiving benefits = <math>(155.4 + 66.7) \times 0.15 = 33.3</math></p> <p>This value is greater than the total deaths expected. The active lives can not produce a negative number of deaths, so conservation of deaths is not proven here. This example is inconsistent and would indicate that assumptions do not tie together correctly.</p>

Even though the condition is expected to be permanent at time of claim, do we assume a certain number of lives recover?

Will these recovered lives have the better mortality of non-disabled lives?

Since this benefit requires an annual recertification, need to consider that some discontinued benefits might not be recoveries.

These conditions make the modeling more complicated.

## Lapse

- Will the lapse rates be lower than your base plan? Long term care has low lapse.
- If your product is lapse supported, this could be a problem.
- Assume no lapse while on claim

## Expenses

- Will additional underwriting be needed? (More cognitive testing)
- Is the cost of processing a claim more expensive? Will the company be just relying on a doctor's statement or will there be additional follow-up?

## Reinsurance

- Will your reinsurance rates go up because of this rider?
- Will your reinsurers be willing to pay early if someone goes on claim?

## Population

- Do you have a lower maximum issue age?
- Do you allow all substandard classes?
- Would there more females buying the rider/base policy than the policy alone?
- Will the average age of the policyholder be higher?
- Will the rider have a lower average size than the base policy due to the IRS per diem limit?

## Reserves

- Do you need to be holding disabled life reserves to reflect early payment of claim?
- Do you need to be holding any additional active life reserves?

# Pricing Considerations



“Pay Later” or discounted death benefit may require little or no modeling.

Will “Pay Now” rates have the same variation (i.e., number of rating classes/bands) as base policy?

For high face amount policies, will the charges be reduced to reflect lower payouts due to IRS Per diem limit?

Would you like the profit margin to be higher than the base policy due to more uncertainty in assumptions?



# Filing Considerations- Compact States

The actuary is required to certify the proposed accelerated death benefit (ACCD) incidental value and premium/cost of insurance relationship.

Specifically, the actuary must attest to items (1) – (4) below:

(1) The value of the benefits provided, on an aggregated basis, in respect of the filed ACCDB, determined according to the formula below applied over a range of underwriting classes and plans at which the benefit is being made available, is not in any case greater than 10%.

$$\frac{(NSP2 - NSP1)}{NSP1}$$

Where:

- (a) NSP1 and NSP2 are determined using an effective annual interest rate of 6%.
- (b) NSP1 is the net single premium for the base policy benefits assuming there is no accelerated death benefit.
- (c) NSP2 is the net single premium for the base policy benefits assuming that the full death benefit is paid at time of death or the occurrence of the non-death ACCDB trigger.

(2) In developing the assumptions, other than the interest assumption, used in calculating NSP1 and NSP2, I have complied with all applicable laws, regulations, and Actuarial Standards of Practice (ASOPs). The assumptions used represent anticipated experience factors, as defined in actuarial literature and by generally accepted actuarial practice.

(3) The assumptions, other than the interest assumption, used in calculating NSP1 and NSP2 will be reviewed at least annually by the Company to ensure that the value of the ACCDB provided, as defined in (1) above, continues to be incidental. If, after such review and while this ACCDB is being actively issued, the value of the benefits provided by this benefit are no longer incidental based on then current anticipated experience factors, the Company will discontinue offering the ACCDB which is no longer incidental.

(4) If a separate premium or cost of insurance (COI) charge is being charged for the ACCDB provided, the ratio of the present value of the ACCDB premiums or COI charges over the life of the policy to the present value of the policy premiums or COI charges exclusive of any riders, does not exceed 10%. The present values in this item (4) are determined using an effective annual interest rate of 6%.

# Filing Considerations - Florida



The requirements for Florida are similar to those of the compact states but wording varies slightly.

(7)(a) Forms that provide for the acceleration of the benefits of a life insurance policy that are incidental to the total life insurance coverage are not subject to the annual rate or ARC filing requirements of Section 627.410, F.S., or these rules. The insurer is required to submit an actuarial demonstration with the initial filing for approval demonstrating such incidental compliance.

(b) The acceleration is considered incidental if the value of the accelerated benefit is less than 10 percent of the total value of the benefits provided by the life insurance coverage. These values shall be measured as the present values of the benefits determined as of the date of issue, determined according to the formula  $(NSP2-NSP1)/NSP1$ , applied over a range of underwriting classes and plans at which the benefit is being made available, is not in any case greater than 10%, where:

1. NSP1 and NSP2 are determined using an effective annual interest rate of 6%.
2. NSP1 is the net single premium for the base policy benefits assuming there is no accelerated death benefit.
3. NSP2 is the net single premium for the base policy benefits assuming that the full death benefit is paid at time of death or the occurrence of the non-death accelerated death benefit trigger.

(c) If a separate premium or cost of insurance (COI) charge is the only charge being charged for the accelerated benefit provided, the ratio of the present value of the accelerated benefit premiums or COI charges over the life of the policy to the present value of the policy premiums or COI charges exclusive of any riders, does not exceed 10%, the present values shall be determined using an effective annual interest rate of 6%.

# Annuity/LTC Combo

Kevin Query, FSA, CERA, MAAA

Global Atlantic Financial Group (Forethought)

- Tail Design
  - Benefit payments are made from the account value first
  - Once exhausted, extended benefits commence
- Coinsurance Design
  - Independent payments and account value funded payments are made simultaneously
- Pool Design
  - Total benefit pool determined at issue generally as a percent of premium (for example 300%)
  - Benefit payments reduce pool and account value on a dollar-for-dollar basis

# Product for Discussion



- Tail Design: Extended Benefits are 2x Accelerated Benefits, Total Benefits are 3x Accelerated Benefits
- Reimbursement of expenses up to a maximum benefit per month
- LTC charges deducted monthly
  - Waived while on claim
- Optional Inflation Benefit Rider
  - Provides an increasing benefit for a cost
- Optional Nonforfeiture Benefit Rider
  - Provides some level of benefit even if the policy is surrendered

# Assumptions to Consider for LTC



- Incidence Rates
- Claim Termination Rates
  - Death
  - Recovery
- Disabled Mortality
- Benefit Utilization
- Expenses
- Reserves
- Capital



# Assumptions to Reconsider



- Persistency
- Investment Income
- Investment Spread
- Population
- Mortality of Active Lives
  - Conservation of Deaths

# Incidence Rate Considerations



- Minimal industry data for LTC combo products
- Gather data from other LTC combo products and stand-alone LTC products with adjustments:
  - Level of underwriting
  - Underwriting classes
- Resistance to use own money first

# Mortality Considerations



- Aggregate mortality would consider the base product with some adjustments.
- For disabled mortality data may need to be pulled from:
  - Industry studies
  - Reinsurers
  - Consultants
- Disabled mortality for annuity-LTC combo is not as clear as overall claim termination
- Disabled life mortality may be derived from other combo-LTC products or stand-alone LTC products, but industry experience is minimal

# Claim Termination Rate Considerations



- Consider both disabled mortality and recovery
- For claims on extended benefits may not be able to determine whether a termination is due to death or recovery
- During accelerated benefits a death benefit would be paid
  - Claim termination for death can be monitored
- During extended benefits a death benefit would not be paid
  - The lack of expenses to reimburse and a death benefit to pay makes termination by death or recovery less clear

# Persistency Considerations



- Higher surrender rate expected than stand-alone LTC
  - Annuity-LTC combo not as lapse supported as stand-alone LTC
- Surrender rates driven more by base contract
  - Surrender rates could be lower due to the addition of the added benefit
- Surrender rates while on claim
  - Could consider no surrenders to maximize use of LTC benefit
- Partial withdrawal impact on benefits

# Reserve Considerations



- Active Life Reserves
- Disabled Life Reserves
  - How do these interact with CARVM reserves on base policy?

- If persistency is perceived to be higher, then the duration of the product will increase which can lead to a higher investment income assumption
- How will the presence of the LTC rider affect:
  - Issue Age Distribution
  - Gender Distribution
- Single Insureds vs. Joint Insureds
- Administration of claims
- Determination of rider charges

# Modeling Considerations



- Aggregate mortality covers all policyholders
- Disabled mortality covers policyholders on claim
- Active life mortality covers policyholders not on claim
- Conservation of deaths states that active life deaths plus disabled life deaths equals aggregate deaths
  - Because disabled life mortality is not considering aggregate mortality there is a possibility of disabled deaths being larger than aggregate deaths
  - This would mean negative active life deaths
- Disabled deaths should be capped at claim terminations
  - Otherwise this would imply negative recoveries
- Claim terminations in excess of disabled deaths would be considered recoveries
  - Modeling policyholders who have recovered



# Profit Measures



- Priced in a package with the base product
- IRR
- ROA
- PV of Distributable Earnings
- PV of Profit
- Loss Ratios
  - May not be important for pricing but required for some state certifications

# Income Statements



Income Statements			
Product	Base	LTC Rider	Incremental
Present Value @5.25%	Lifetime		
Premium	\$950.12	\$950.12	\$0.00
Investment Income	\$309.46	\$425.33	\$115.87
Total Revenue	\$1,259.58	\$1,375.45	\$115.87
Net Surrender Benefits	\$409.31	\$146.62	(\$262.69)
Partial Withdrawals	\$166.82	\$37.95	(\$128.87)
Total Death Claims	\$147.39	\$204.52	\$57.13
Cash payments for AB	\$0.00	\$168.83	\$168.83
Cash payments for EB	\$0.00	\$95.04	\$95.04
Commissions net of chargebacks	\$60.53	\$60.51	(\$0.02)
Expenses	\$34.17	\$62.37	\$28.20
Total Increase in Reserves	\$347.68	\$474.87	\$127.19
Total Benefits and Expenses	\$1,165.90	\$1,250.72	\$84.82
Pre-Tax Profit @ 5.25%	\$93.68	\$124.73	\$31.05
IRR	12.0%	11.9%	

# Pricing for Inflation Benefit



- Benefit pool increases at  $x\%$  per year (i.e. 5%)
- Utilization rate
- Impact of partial withdrawals
- Charging for the benefit

# Pricing for Nonforfeiture Benefit



- Provides LTC benefits based on rider charges paid even though base contract is surrendered
- Utilization rate
- Administration of the benefit
  - Base contract is terminated, but a benefit persists
- Charging for the benefit

Questions?

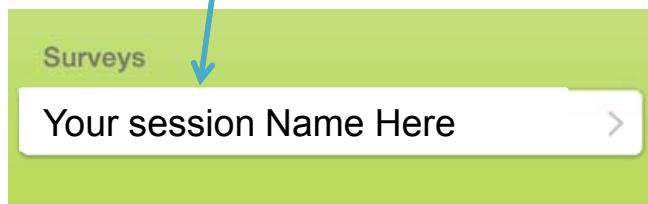
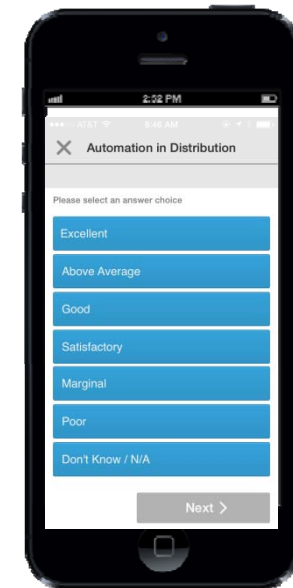
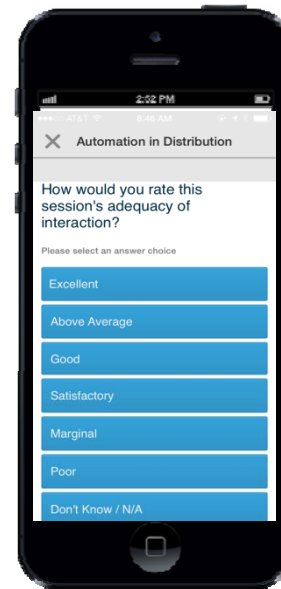
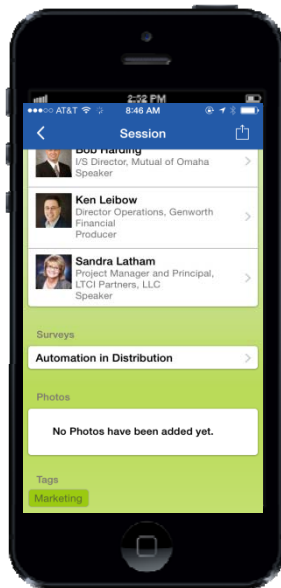
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