Pricing and Assumption Setting in the Current Environment

Session 15

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Producer/Moderator: Steve Schoonveld, FSA, MAAA

Panel

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- Roger Gagne, FSA, MAAA
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- Barry Koklefsky, FSA, MAAA
  - Vice President, GenRe
- Bob Hanes, FSA, MAAA
  - Manager, KPMG

Questions

- Inter-company studies, consultant claim cost manuals, morbidity improvement research, our own experience studies – What is going on?
- Assumption setting support – What are industry best practices? How should I demonstrate the validity of assumption selections?
- The questions posed by management are increasing in intensity – How can I keep up?
- How should I apply this to my own company projections, pricing activities and expectations?

Pricing in the Current Environment

Recent Claim and Pricing Assumption Trends

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Bad News Abounds…

- Continued rate increases
- More exits from the industry
- Great hesitation on the part of potential newcomers
- Morbidity goes up; lapse rates/mortality come down; investment earnings go down

Effect on new business pricing assumptions:

CONSERVATIVE!*

(as long as you can still produce rates that are less than the rest of the industry)

Trends in Pricing Assumptions to be Discussed:

- Morbidity assumptions (frequency, continuance, claim cost slope, “benefit richness” factors, marital factors, selection factors by issue age)
- Mortality/lapse rates
- Morbidity/mortality improvement
- Provisions for Adverse Deviation

Morbidity Trends

- Measured by reviewing changes in experience from Milliman 2002 LTC Cost Guidelines to 2009 LTC Cost Guidelines
- 2002 Guidelines: $1.2 billion of claims experience
- 2009 Guidelines: $6.0 billion of claims experience
- Significant differences from company to company…accounted for by differences in selection factors, benefit richness, etc.

Frequency

Ratio* of 2009 frequencies to 2002 (0-day EP) – before benefit richness factor adjustment and before adjustment for exposure difference:

Attained Age	NH	HHC	Total
Males			
45	105.6%	91.2%	96.6%
55	103.0%	90.5%	95.4%
67	94.7%	84.6%	88.2%
77	79.5%	64.1%	70.2%
87	74.6%	62.4%	68.3%
97	79.0%	68.3%	75.0%
Females			
45	102.4%	86.3%	91.6%
55	102.3%	84.6%	89.7%
67	90.2%	83.0%	85.3%
77	77.1%	61.5%	67.7%
87	76.4%	62.2%	70.3%
97	79.4%	68.2%	76.1%

Average Length of Stay

Ratio of 2009 LOS to 2002 LOS (0-day EP, 5-year BP):

Attained Age	NH	HHC	Total
Males			
45	91.5%	113.8%	104.3%
55	87.5%	105.9%	97.6%
67	91.7%	104.8%	99.6%
77	107.5%	139.4%	124.1%
87	121.2%	177.1%	141.5%
97	128.9%	171.9%	140.7%
Females			
45	78.9%	73.5%	77.1%
55	80.3%	86.0%	85.1%
67	101.5%	94.5%	97.8%
77	132.0%	134.3%	137.6%
87	133.5%	164.4%	145.1%
97	125.2%	173.7%	134.7%

Total Claim Cost (before richness adjustments)

Ratio of 2009 CC to 2002 CC (0-day EP, 5-year BP) – before exposure adjustments and benefit richness adjustments:

Attained Age	NH	HHC	Total
Males			
45	**96.6%**	**103.8%**	**100.7%**
55	**90.1%**	**95.8%**	**93.2%**
67	**86.8%**	**88.7%**	**87.8%**
77	**85.5%**	**89.4%**	**87.2%**
87	**90.5%**	**110.6%**	**96.7%**
97	**101.8%**	**117.3%**	**105.5%**
Females			
45	**80.8%**	**63.4%**	**70.6%**
55	**82.1%**	**72.8%**	**76.3%**
67	**91.5%**	**78.4%**	**83.4%**
77	**101.8%**	**82.6%**	**93.2%**
87	**102.0%**	**102.3%**	**102.0%**
97	**99.5%**	**118.5%**	**102.4%**

Changes in Benefit Richness Factors

Benefit richness factors reflect different utilization based on benefit structure chosen

- 2002 Guidelines – used 1.0 factor for 0-day EP and .86 factor for 90-day
- 2009 Guidelines – switched to .9 factor for 90-day. 0-day showed increased selection - factor went to 1.13.

Benefit Period Richness Factors

- 2002 Guidelines used .96 factor for 2-year BP, .975 factor for 5-year and 1.15 factor for lifetime
- 2009 Guidelines used .86 factor for 2-year, 1.0 factor for 5-year and 1.4 factor for lifetime
- Lifetime factor could have been even higher, based on experience reviewed
- Factor for BP affects continuance curves in addition to frequencies; implies need for continuance curves varying by BP

Net Impact on Claim Costs

- Increased slope; younger ages lower and older ages higher
- Higher claim costs for richer benefit plans (0-day elimination, lifetime benefit period)
- Higher claim costs for “loose” underwriting
- Pricing for typical age distribution, using “moderate” underwriting, showed virtually unchanged profit (though increased age slope)

Single Selection Factors

- Very few companies qualified as “tight” underwriters (requiring medical records at all ages)
- Most were closer to “moderate” or even “loose”
- Moderate selection factors – went to slightly higher level in 2009 Guidelines at younger ages, but slightly lower level at older ages
- Loose selection – went to higher ultimate level at older ages

Marital Selection Factors

- Reflect combination of underwriting effect and “marital wear-off”…i.e., married population changing into single population over time, due to death and divorce
- Assumption is that married factors start out at about 60% of single and grade up to single factors over the lifetime
- Married discounts are due to difference in selection factors and in mix of M/F

Disability or Indemnity Models

- Claim costs have both higher frequency rates and longer lengths of stay
- Disability model: frequency rates reflect greater (earlier) usage of benefits, payment of full daily benefit for 7 days/week, and malingering while on claim. Anti-selection factor applied.
- Typical practice is to provide for married discounts on disability model, but much of effect is removed with anti-selection factor.

Issue Age Selection

- Different issue ages go to different ultimate claim cost levels!
- Set of ultimate claim costs created: look at actual to expected ratios by issue age
- Person issued at age 65 and in 20th duration has different (lower) claim costs than someone issued at age 75 and in 10th duration.

Morbidity Improvement

- Well documented in population data (Duke University studies)
- Latest report shows 1.87% per year improvement in age-adjusted prevalence rates over 20-year period
- If used, must also use mortality improvement

Trends in Mortality

- SOA reports continue to show mortality being significantly lower than '94 GAM or Annuity 2000 tables
- But, deaths aren't fully reported
- Need for better LTC mortality studies (lapses cross-referenced to SS death tapes)
- Mortality improvement is lower at older ages, but has significant impact on LTC projections…only assume if also assuming morbidity improvement?

Trends in Lapse Rates

- Most lapse studies assume given mortality rate (with selection?) and back into voluntary lapse
- If mortality table used is too high, could produce low or even negative lapse rates…requires adjustment to underlying mortality
- Ultimate rates being used in pricing today – generally 0.5% to 1.5%.
- Sometimes lower rates used for inflation option
- Rates are higher for multi-life, especially for employer paid

Trends in Investment Income

- Recent new money rates have sometimes been lower than what many companies have used in their pricing (which is generally 5 to 6%)
- Use of hedging strategies
- Pricing is supposed to reflect expectations over the lifetime of the policy
- If lower rates are used, possibility of future "windfall" for company?

Provisions for Adverse Deviation

- More states are asking to see them, as part of rate stability filing
- PAD's can be included at aggregate level in profit margin, or at detail level by padding each assumption
- Generally expressed as (example):
  - 10% increase in morbidity
  - 50% reduction in lapse rates
  - 25% reduction in mortality
  - 1 point reduction in investment income
  - Expressed singly (not in combination)

Good news…

- Lapses have ceased to become major factor for rate increases on new business priced using “current assumptions”
- Variations of 0.5% or 1.0% in lapse rate level are usually within tolerance level for adverse deviations
- Would pricing using current new money rates be conservative over lifetime?
- Pricing without morbidity improvement or claims management improvement…

Findings of the 6th SOA Intercompany LTC Experience Study

Roger Gagne, FSA, MAAA
Assistant Vice President, John Hancock

Barry Koklefsky, FSA, MAAA, CFA
Vice President, Gen Re

Agenda

- Data and Sources
- Claim Incidence Rates
- Claim Continuance
- Cause of Claim
- Home Health Care Policies
- Mortality Rates
- Voluntary Lapse Rates
- Total Termination Rates
- Summary

Data and Sources

Report	# of Companies	Policies (000)	Exposure (000)
1984-1991	10	800	2,000
1984-1993	14	1,300	3,000
1984-1999	18	2,700	7,400
1984-2001	21	3,900	12,800
1984-2004	24	6,500	25,700
1984-2007	35	9,300	44,100

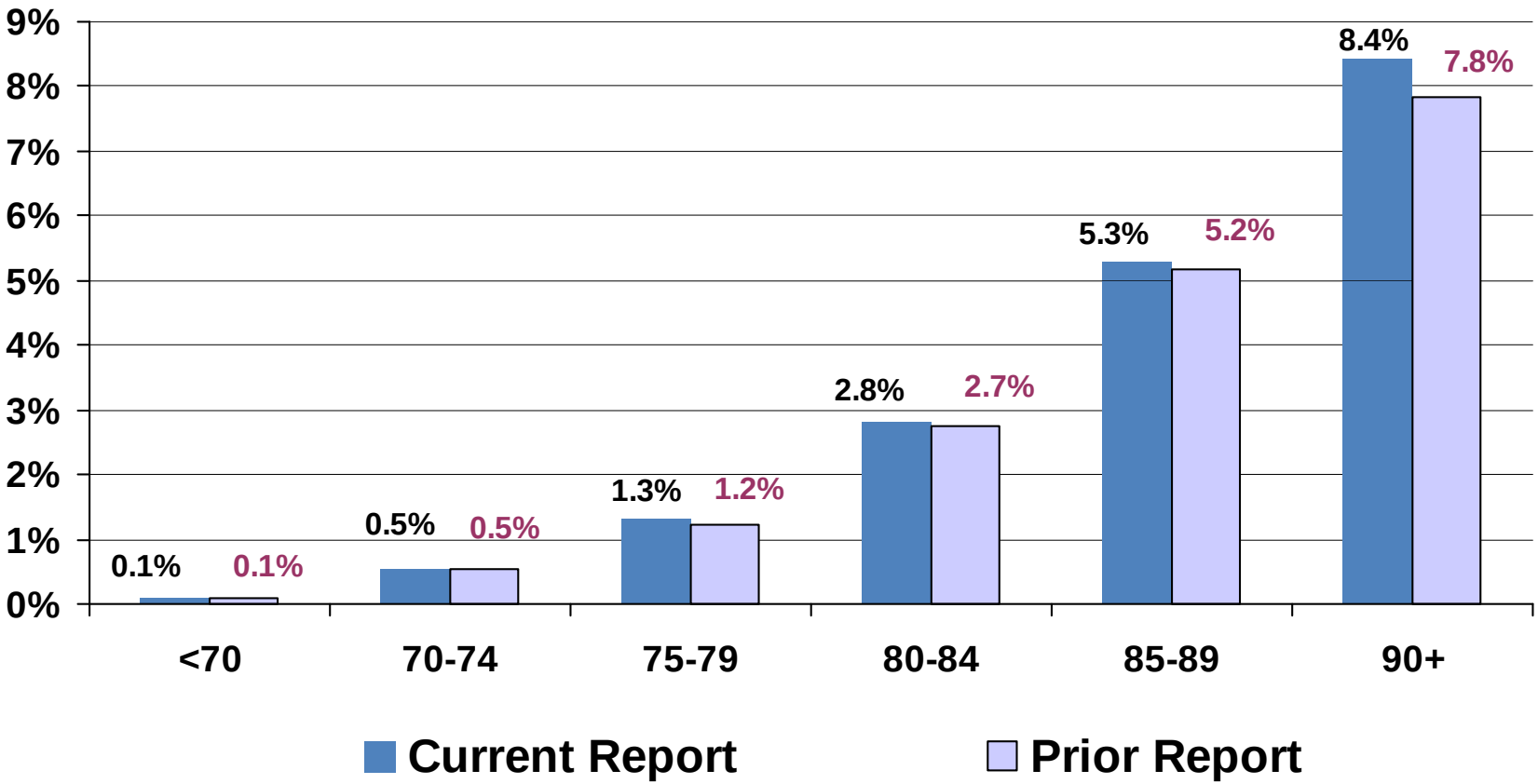
Data and Sources

Data (000)

Report	Lapses	Deaths	Total Terminations*	Claims
1984-1991	210	14		14
1984-1993	341	24		21
1984-1999	624	79	703	51
1984-2001	915	119	1143	95
1984-2004	1170	138	1739	175
1984-2007	1764	316	2179	288

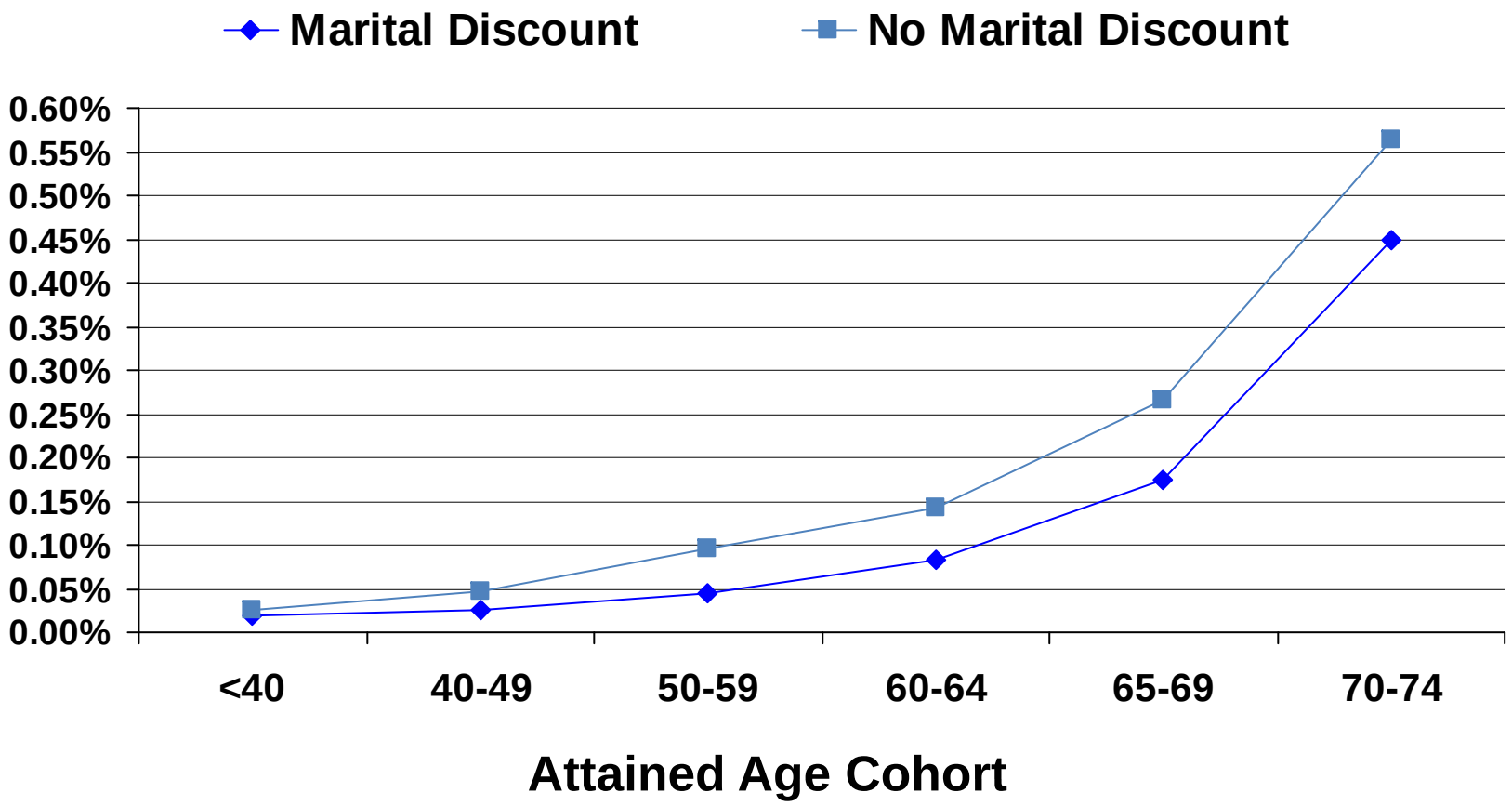
*includes data from companies that did not distinguish between lapses and deaths

Claim Incidence Rates



Claim Incidence Rates

Individual Only by Presence of a Marital Discount



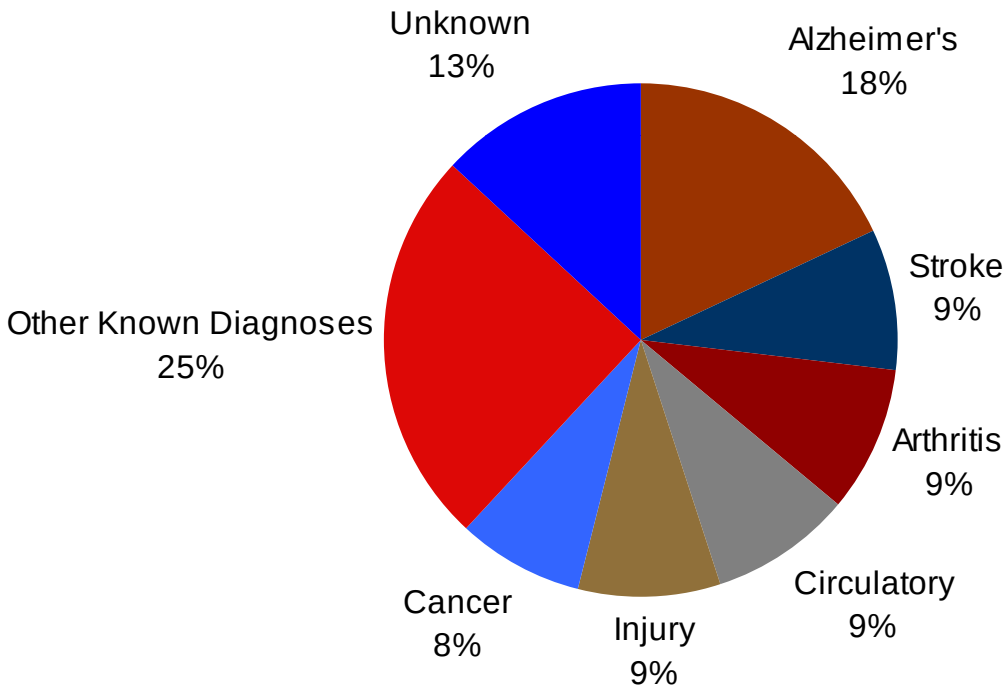
Claim Continuance

Claim Continuance for “n” Days

Days (n) from Incurral Date	Current Report	Prior Report
20	93%	92%
30	89%	89%
60	81%	81%
90	76%	76%
120	70%	72%
180	64%	65%
365	50%	52%
730	34%	35%

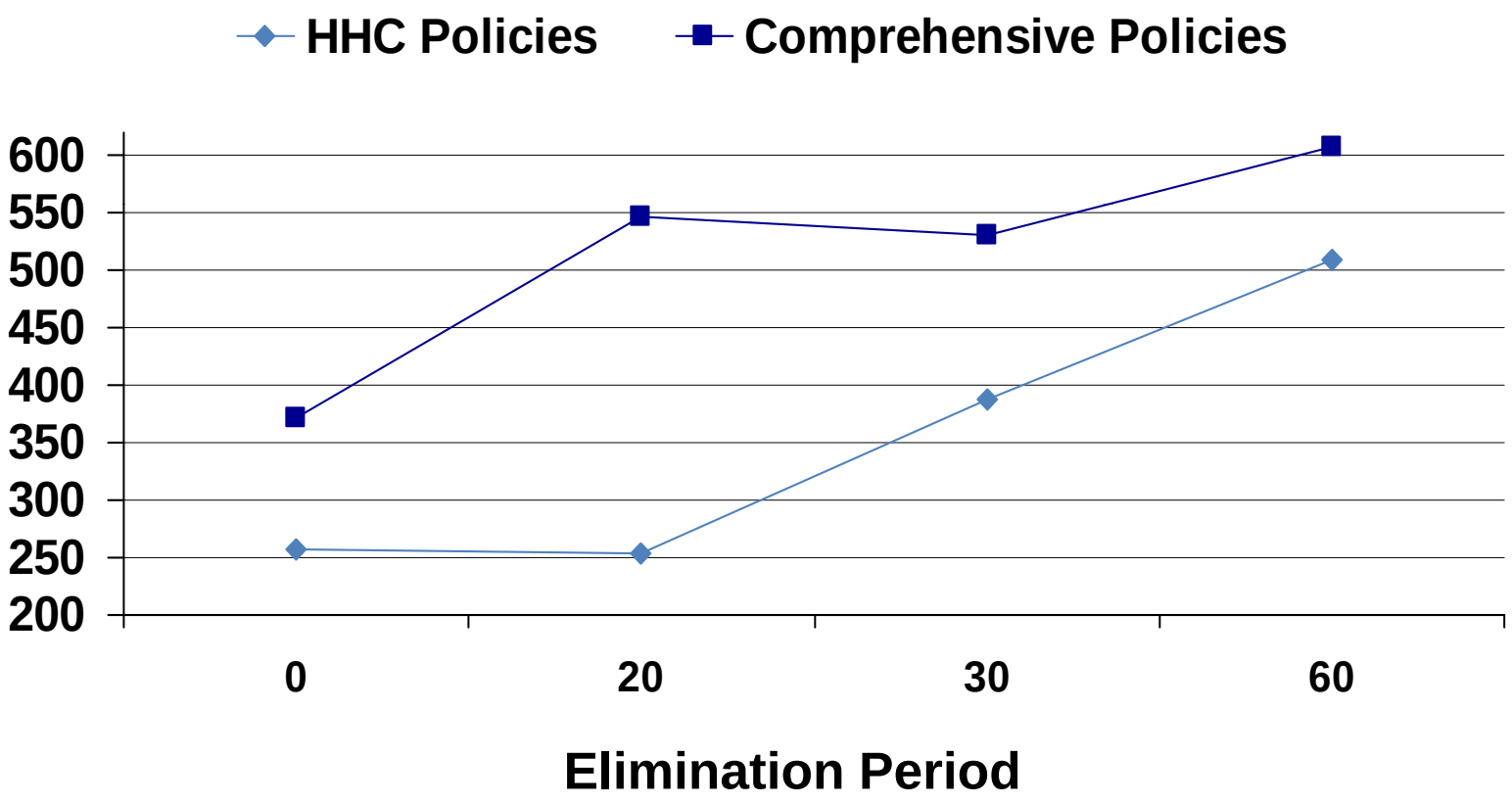
Cause of Claim

Total Claims - Counts by Diagnosis



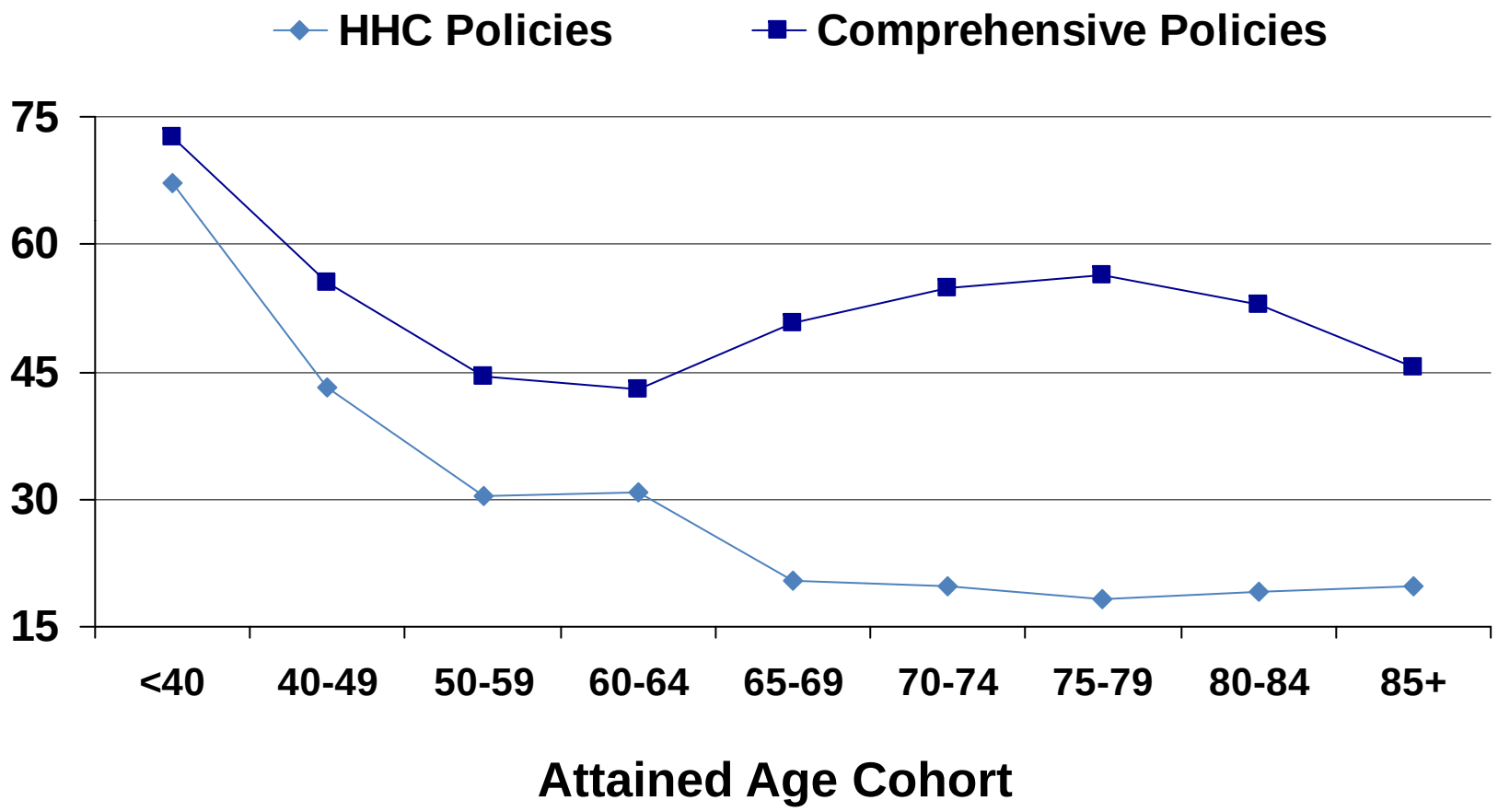
Home Health Care Policies

Average Days of Benefits For HHC & Comprehensive Policies



Home Health Care Policies

Average Cost of Claim ($000's)



Mortality Rates

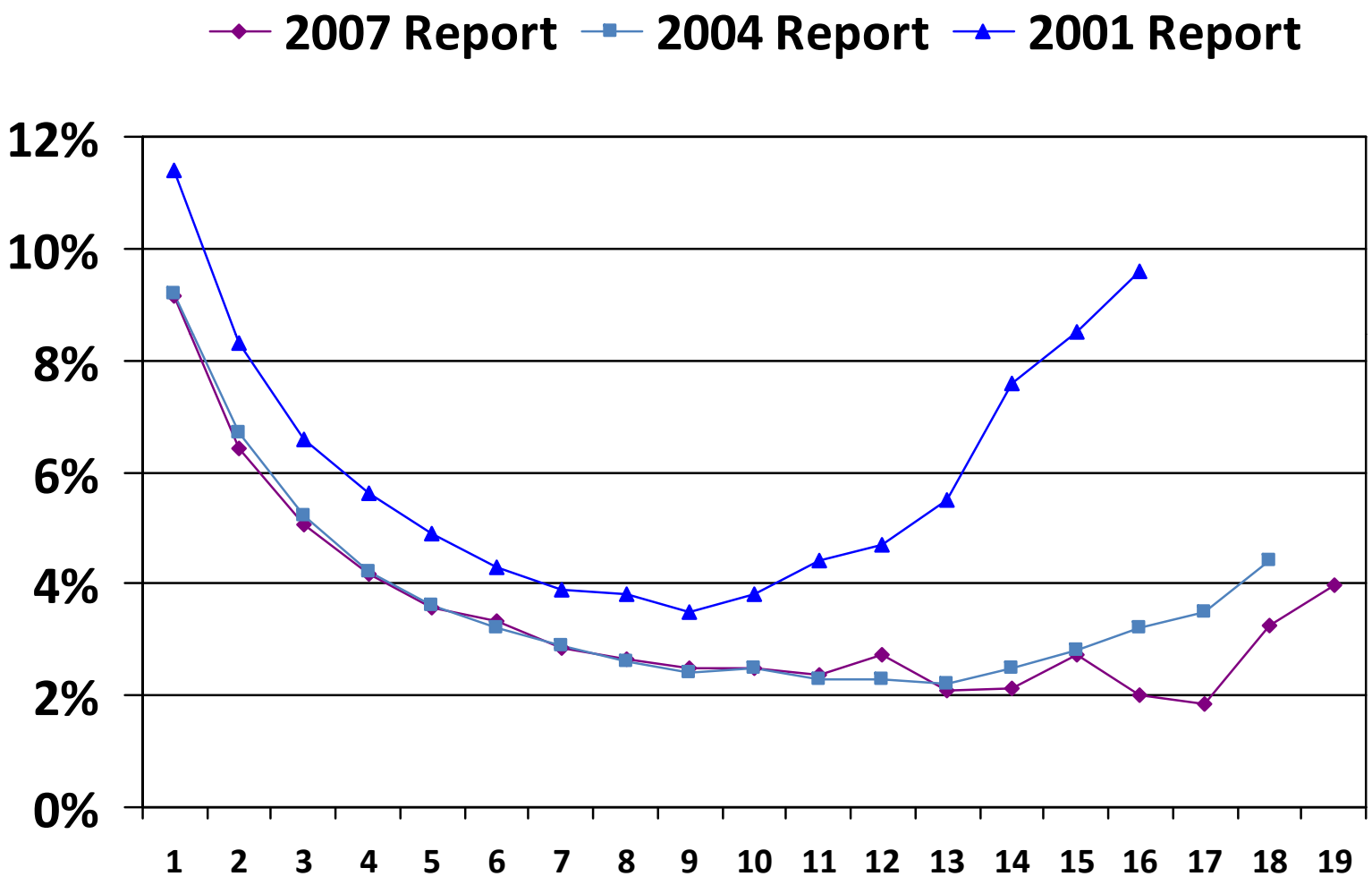
- Overall rate of 1.0% is same as last report
- Male rates are about 33% higher than female rates
- Some evidence of a 15-20 year select period
- Those with a marital discount have lower rates than those without one
- Rates are considerably lower than the rates in the 94GAM, A2000, 2001 VBT, and 2008 VBT tables

Mortality Rates

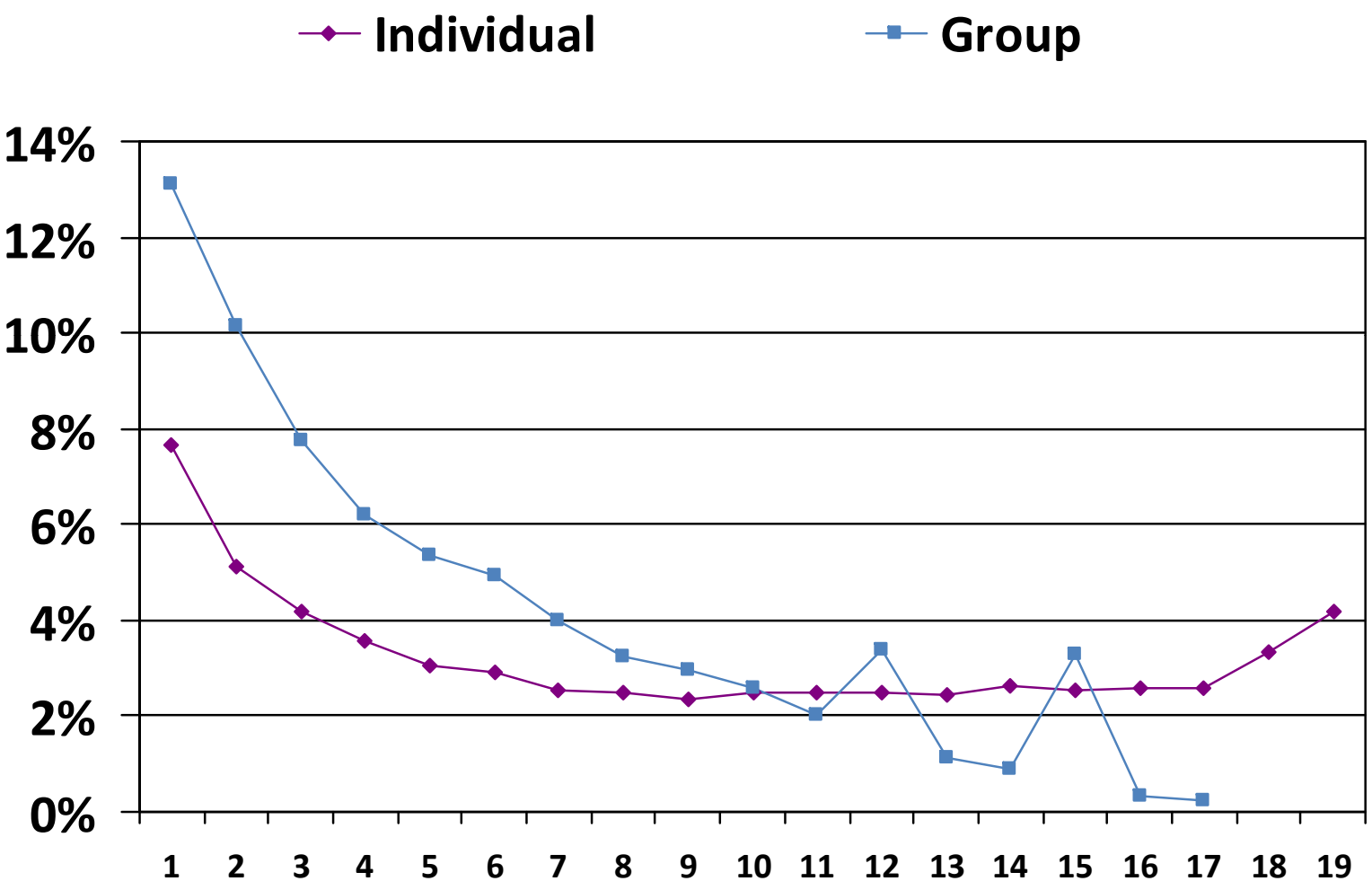
Comparison to Industry Tables

Attained Age Cohort	1994 GAM	A2000	Ultimate 2001 VBT	Ultimate 2008 VBT
0 - 29	32%	32%	22%	26%
30 - 39	45%	51%	34%	39%
40 - 49	49%	47%	34%	38%
50 - 59	42%	42%	29%	36%
60 - 69	38%	52%	34%	42%
70 - 79	49%	64%	46%	49%
80 - 89	61%	77%	59%	61%
90+	83%	101%	85%	84%
Total	**52%**	**67%**	**49%**	**53%**

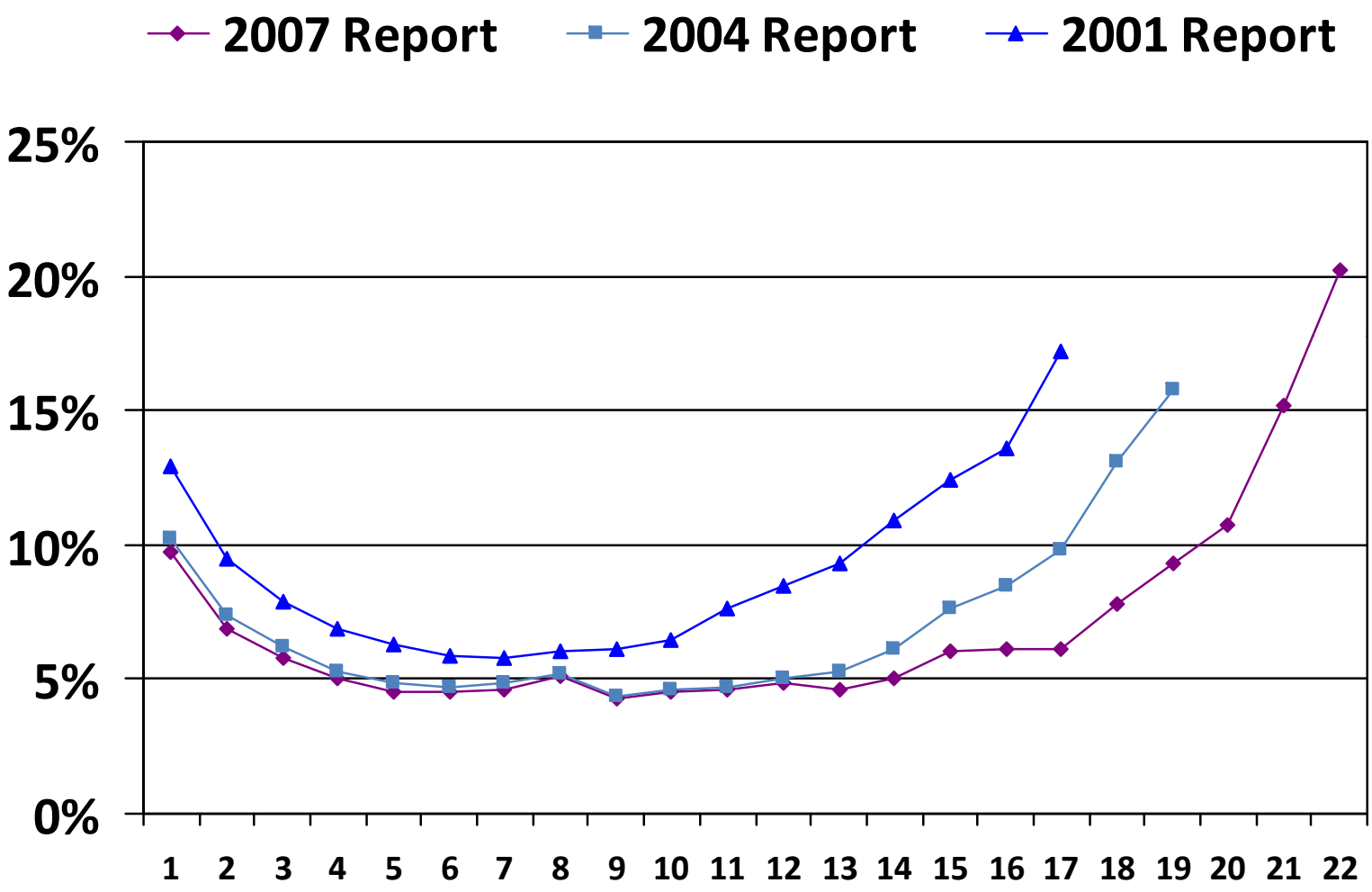
Voluntary Lapse Rates - by Duration



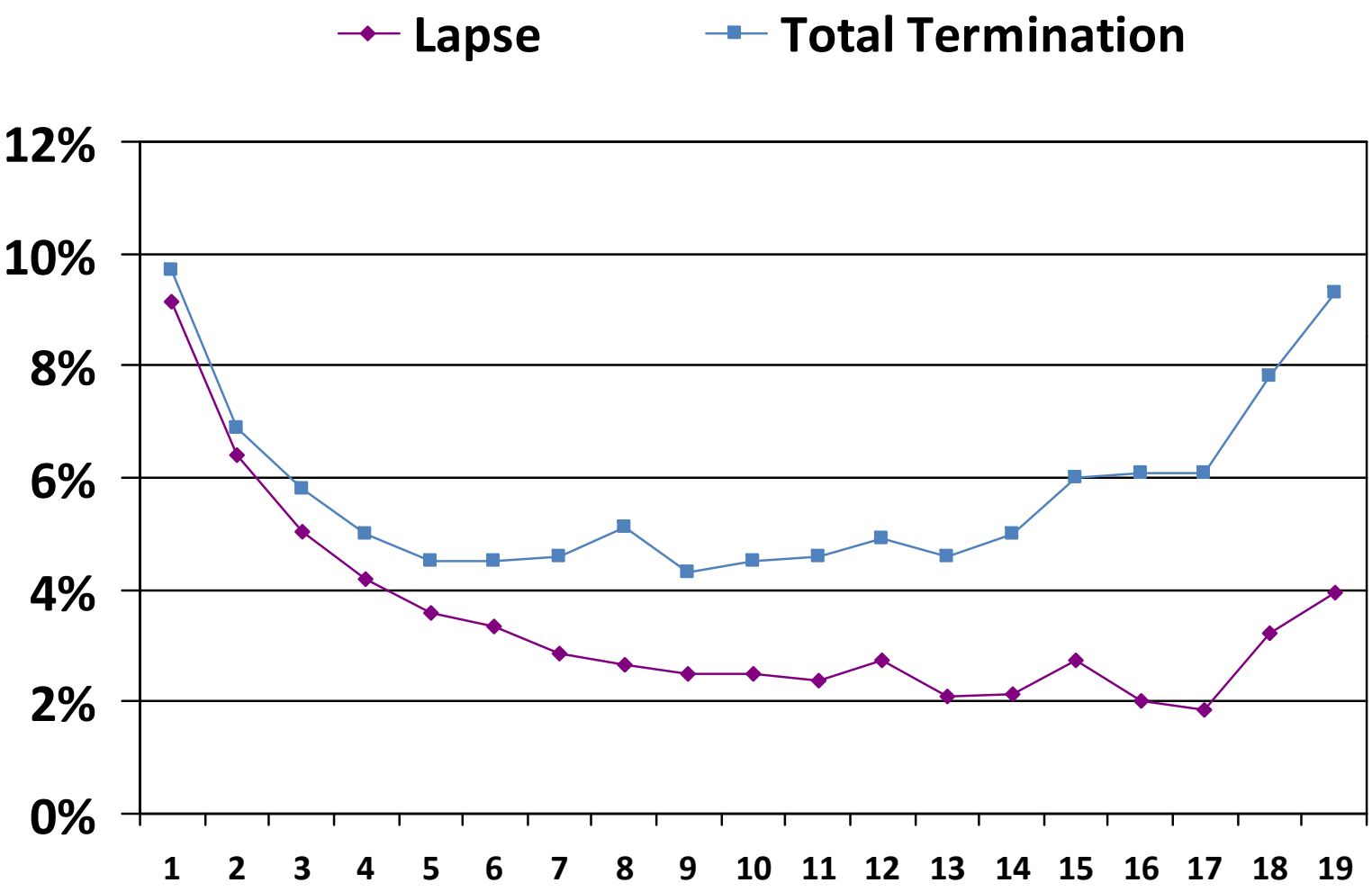
Voluntary Lapse Rates - by Policy Type



Total Termination Rates



Lapse and Total Termination Rates



Summary

	Favorable/Unfavorable
• Data and Sources	Growing Steadily
• Claim Incidence Rates	Increased
• Claim Continuance	Stable
• Cause of Claim	Alzheimer's
• Mortality Rates	Decreased
• Voluntary Lapse Rates	Decreased
• Total Termination Rates	Decreased

For More Information

SOA Website: (www.soa.org)

- Research Tab
- Completed Experience Studies
- Long-Term Care

For More Information

Committee Members

Gary Corliss – data issues, Report introduction

Cathy Ho – total terminations

Barry Koklefsky – claim continuance

Ronald (Jake) Lucas – cause of claim

Eric Perry – home health care policies

Marianne Purushotham – voluntary lapse

Maureen Shaughnessy – claim incidence

Susan Oberman Smith – mortality

Roger Gagne - chair

Pricing and Assumption Setting in the Current Environment

(From the Audit Point-of-View)

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THE ELEVENTH ANNUAL INTERCOMPANY LONG TERM CARE INSURANCE CONFERENCE
ILTCI

- Observations are based on audits of GAAP and statutory active and disabled life reserves for LTC

- Remarks will cover:
  - Auditor's focus
  - Assumption setting and re-setting
  - Monitoring suggestions

Key areas of focus during an audit

1. Valuation and projection system conversions or enhancements
   - Trend is from homegrown to vendor package
   - For ALR, DLR, cash flow projections for LRT, CFT, etc.
   - Should-haves: Written narrative regarding the conversion/enhancement (What, why, how, when?), valuation assumption and SOX documentation, input validations, parallel (before-and-after) and detailed reserve testing results.
   - Timing of implementing in production

2. Data Extracts "Clean-ups"
   - Could be part of #1 above
   - LTC particularly vulnerable to mis-coded or mis-interpreted fields
     - E.g., Table look-ups for gender, benefit inflation options (BIO), rider type
     - Good to confirm data stream:
       - Policy form to Policy Admin extract to Valuation extract
     - Sentinels
       - A/E – E.g., selling BIO but none appear on the extracts
       - Detailed reserve and data testing – requires advance planning. Test major plans every 2-3 years.

3. Methodology Changes

- ALR: From claim costs to incidence, continuance, severity
  - If a conversion or enhancement, verify no inadvertent unlocking occurred to prior periods
- ALR while on claim or not?
  - Depends heavily on how ALR assumptions developed
    - Healthy only or Healthy + Impaired
    - Recovery from impaired status

4. Product features to include. Examples:
   - ROP – persistency, on death
   - Premium Waiver – Include in ALR already?
   - Benefit Inflation
5. Regulatory requirements
   - MAE
   - NY's Special Considerations
   - Pooling in FL

6. Premium rate increase considerations

- Prospective unlocking no longer permitted in most circumstances
- Can be reflected in loss recognition testing as long as supported by evidence and company's intention to file
- If loss recognized, reserve factors can be unlocked and premium rate increases can be reflected
- Extensive testing suggested
- HC reform impacts

7. LTC Valuation Assumptions

- GAAP, Stat, CFT, loss recognition testing
  - Morbidity: Incidence, termination, utilization, transfer, improvement?
  - Mortality: Active and disabled, improvement?
  - Voluntary Lapses: expected and shock
  - Interest: net portfolio rate – one rate or vector?
  - Benefit Exhaustion: Data captured?
  - Claim recovery: Data credibility
  - Reinsurance impacts
- IFRS
  - Local GAAP, for now
  - Projection system – in place?

Desired additional supporting data for audit

- A/E studies – Total terminations, morbidity
- Claim reserve hindsight studies
  - Track several valuation dates
- Loss recognition testing
  - Document assumptions used and results
- Premium rate increase documentation and status reports

Tools

- Prospective A/E – Claim incidence, continuance, utilization, business mix
- SS Database scrub to identify unreported deaths
- Sensitivity tests
- Regression models to identify reserve drivers
- Stochastic models – Principles Based Approach
- Reinsurance