
# Session 061: What Industry Data Tells Us About Policyholder Behavior

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# Session 061:What Industry Data Tells Us About Policyholder Behavior

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# What industry data tells us about policyholder behavior

1. Introduction
2. Data Sources
3. Anti-selective Behavior
4. Term Lapse Insights
5. Post Level Term Behavior

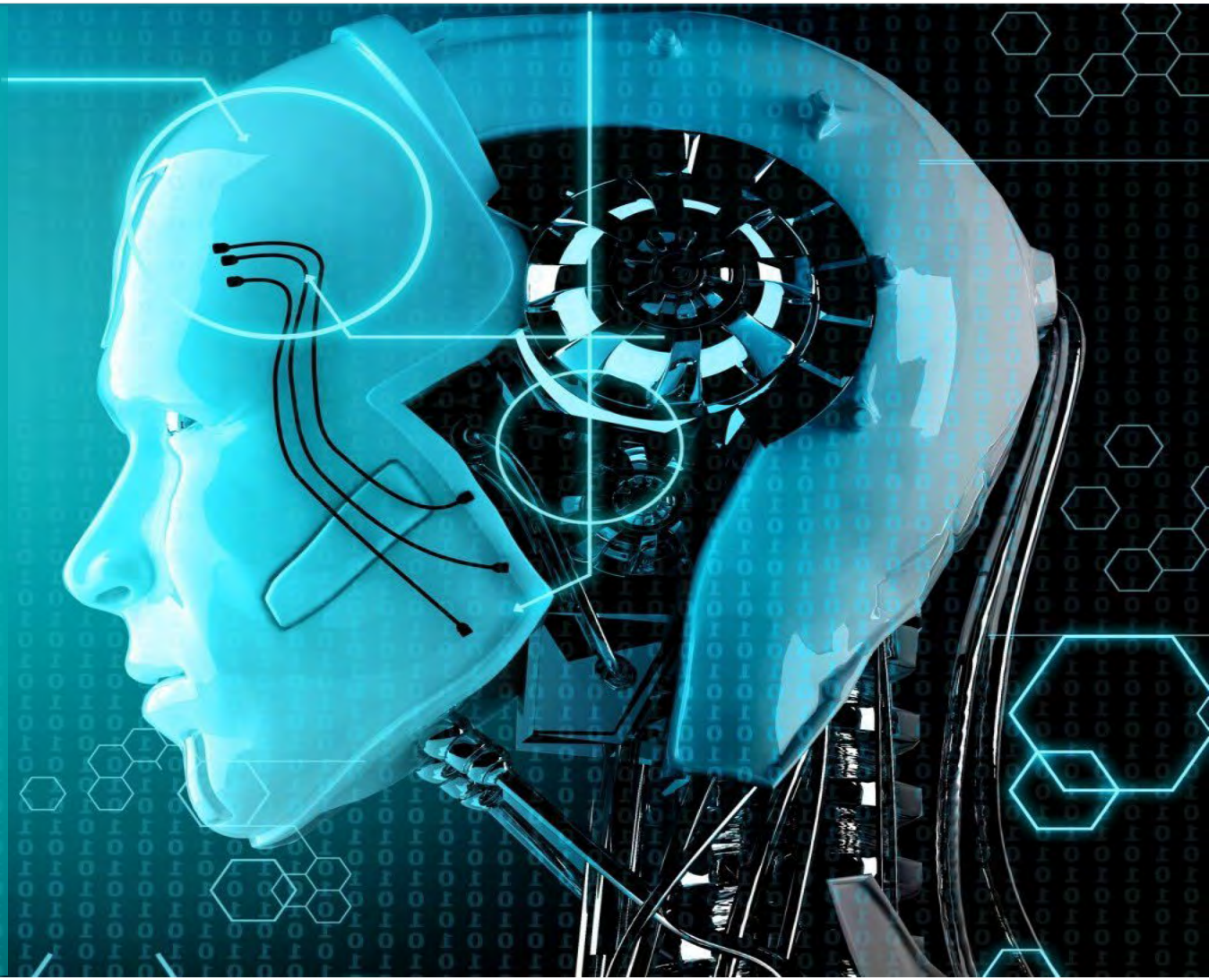
# Introduction to Policyholder Behavior Analysis

**Understanding the human behavior behind the lapse data!**

**Setting Lapse assumptions**

**Retention Management**

**Behavioral Science**



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# Data Sources

- SOA Individual Life Experience Committee (ILEC) Experience studies covering 2003-2015
- Munich Re's proprietary studies
- Munich Re Publications:

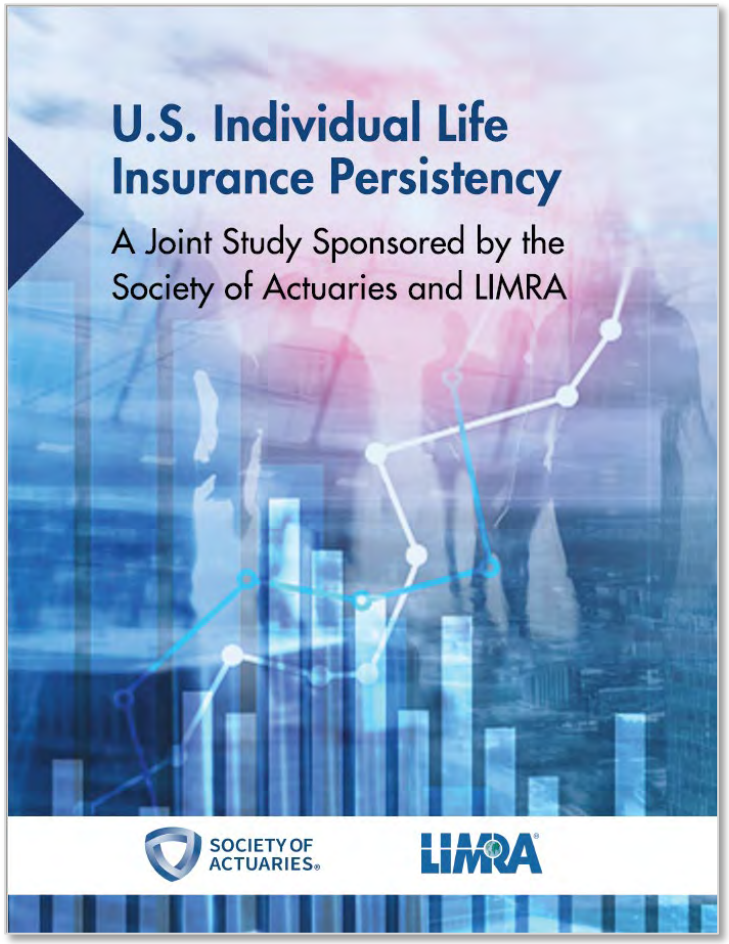

ILEC Observations
Whole Life vs. Universal Life


The Preferred Experience Dynamic – Observations from ILEC 2009-2013

# Data Sources (2/3)

SOA LIMRA 2009-2013 Individual Life

Insurance Persistency Study




Seeing Beyond Risk Canadian Institute of Actuaries Institut canadien des actuaires Voir au-delà du risque

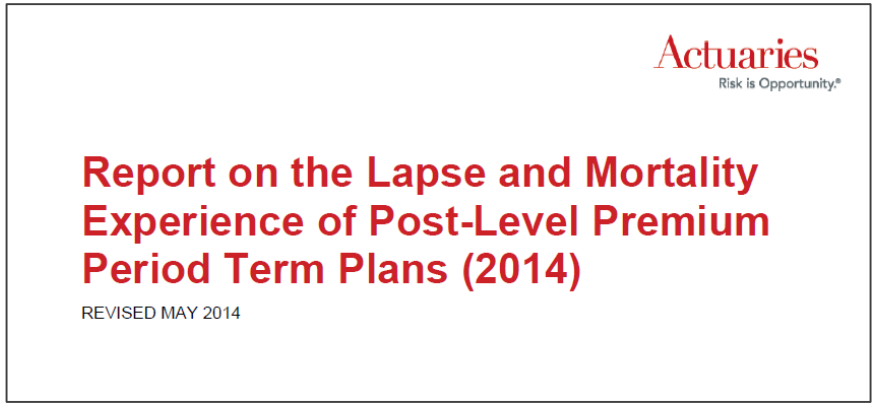
CIA T10 Lapse Study

# Data Sources (3/3)


[Modelling Behavior]

[SCOR Publications]

[Analysing Post Level Term]


Actuaries
Risk is Opportunity.®

**Report on the Lapse and Mortality Experience of Post-Level Premium Period Term Plans (2014)**

REVISED MAY 2014

[SOA 2014 Post Level Term]

[Lapse & Mortality Report]

# What industry data tells us about policyholder behavior

1. Introduction
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# Topics Covered

1 First Generation Universal Life Products

2 Tobacco-Distinct Classes

3 Preferred Class Structures

# First Generation Universal Life Products

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# The Rise of Universal Life

- High interest rates in 1970s & 1980s
- New investment rates > portfolio rate on Whole Life cash values
- Whole Life replaced with Term
- Concerns about liquidity and solvency pressures
- UL was created in early 1980s to address these concerns
- Illustrated high returns with competitive premiums

Universal Life was created in the early 1980s to address liquidity and solvency pressures

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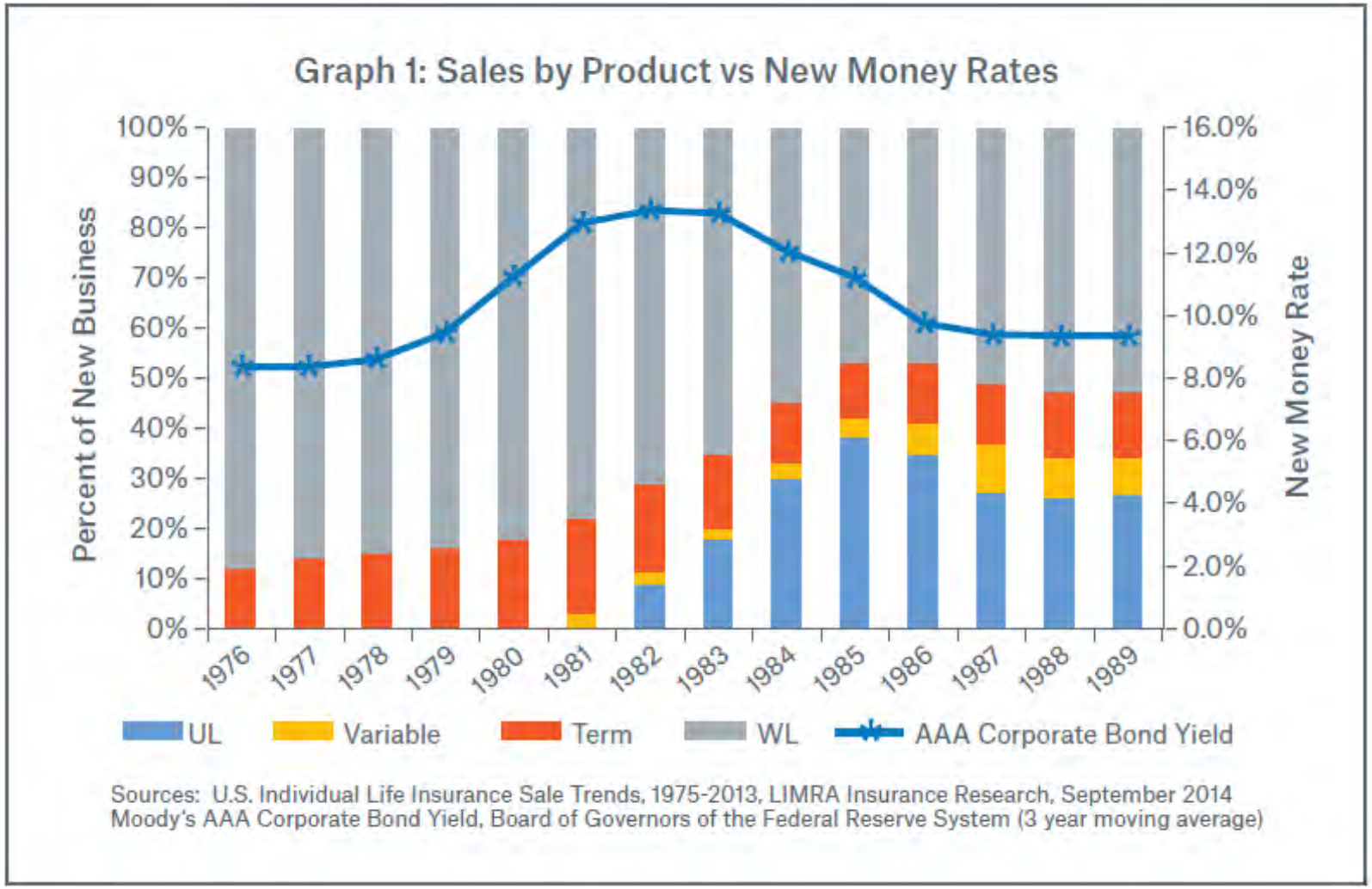
# US Life Sales by Product vs New Money Rates



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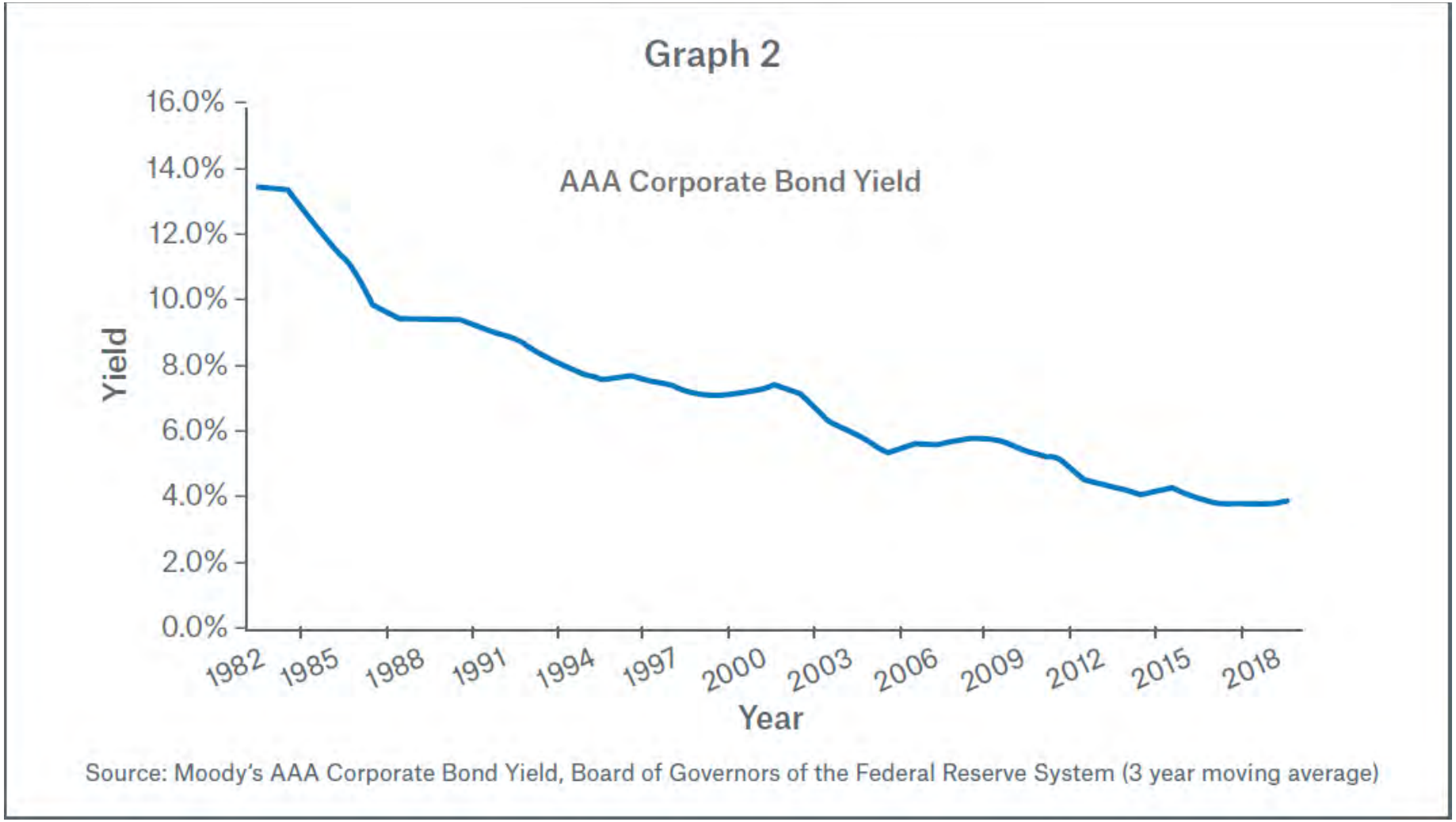
# AAA Corporate Bond Yield



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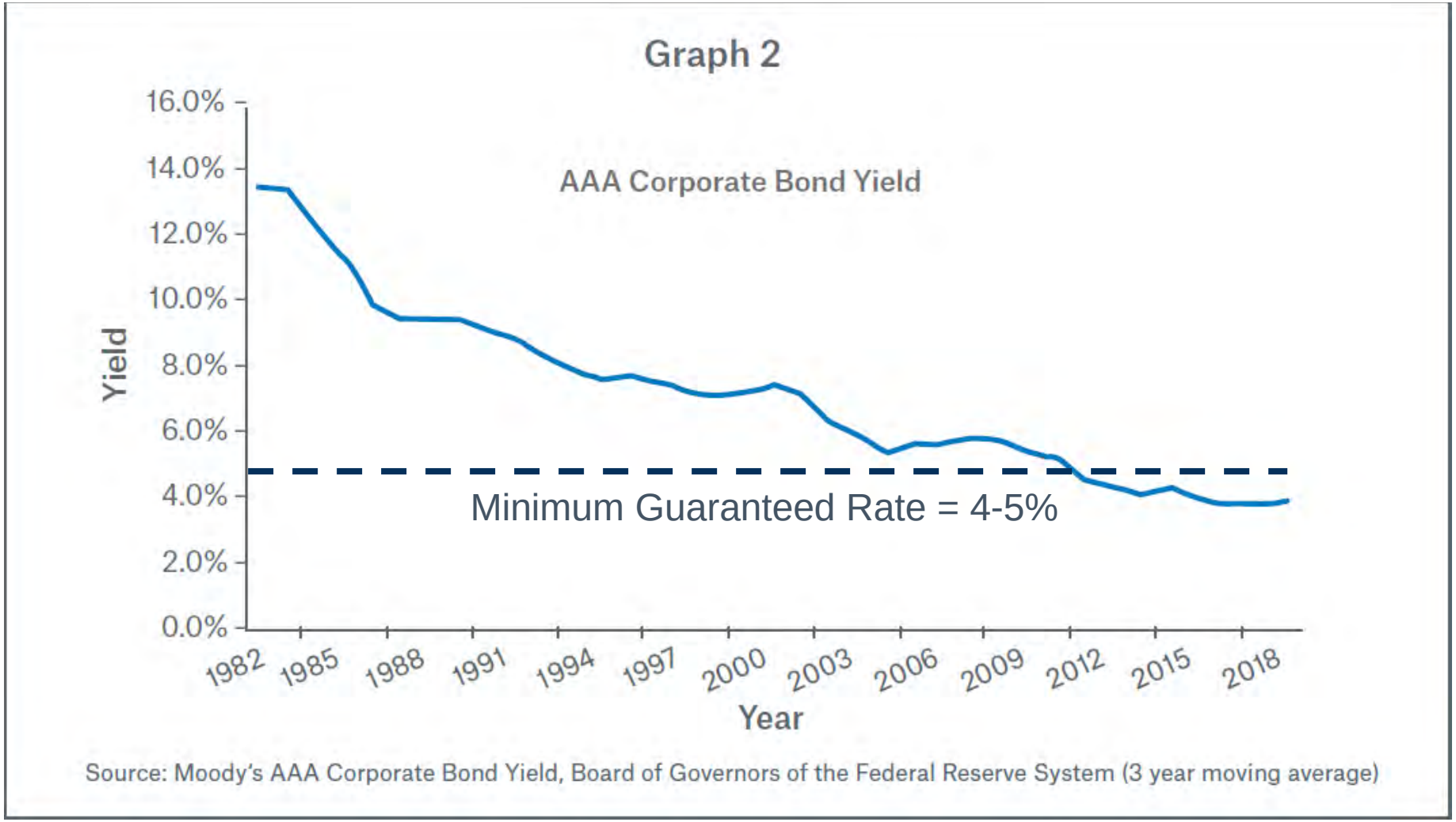
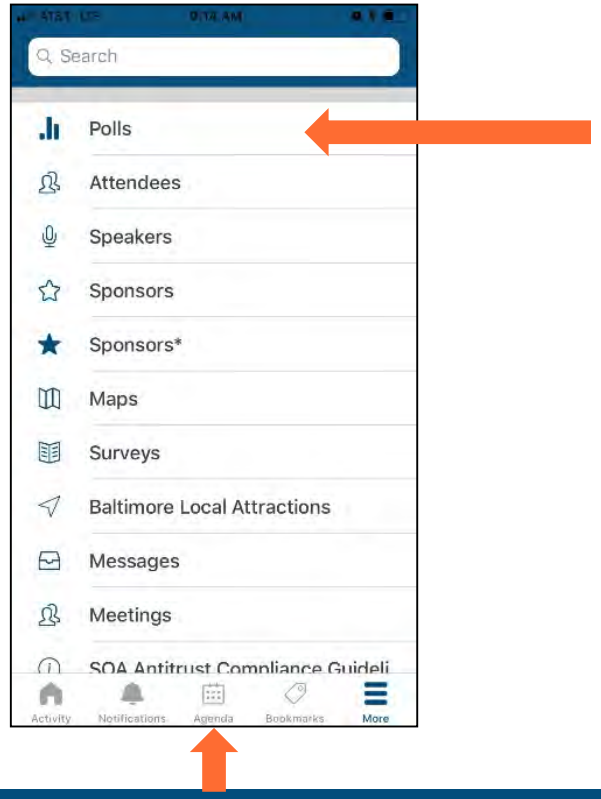
# AAA Corporate Bond Yield



# To Participate, look for Polls in the SOA Event App or visit **annual.cnf.io** in your browser

Find The Polls Feature Under **More** In The Event App or Under This Session in the Agenda




or

Type **annual.cnf.io** In Your Browser

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# Poll: How might policyholder behavior impact lapse and mortality in a lowering interest rate scenario for the later durations of first generation UL products?

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# Fallout from declining rates

- Policyholder disappointment
- Individual and class action lawsuits
- Lapsation
- Mortality deterioration

This behavior led to a significant mortality impact on first generation UL experience

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# Industry experience

- In our proprietary studies & ILEC we saw higher lapses for UL vs WL sold in the 1980/90s in later durations despite being similar at duration 10 once surrender charges end

- These higher lapses led to mortality deterioration consistent with Dukes McDonald methods
  - anti-selective lapses = excess of UL over WL
  - effectiveness assumption = 100%

**Excess UL lapses in the 1980/90s created mortality deterioration still observed today**

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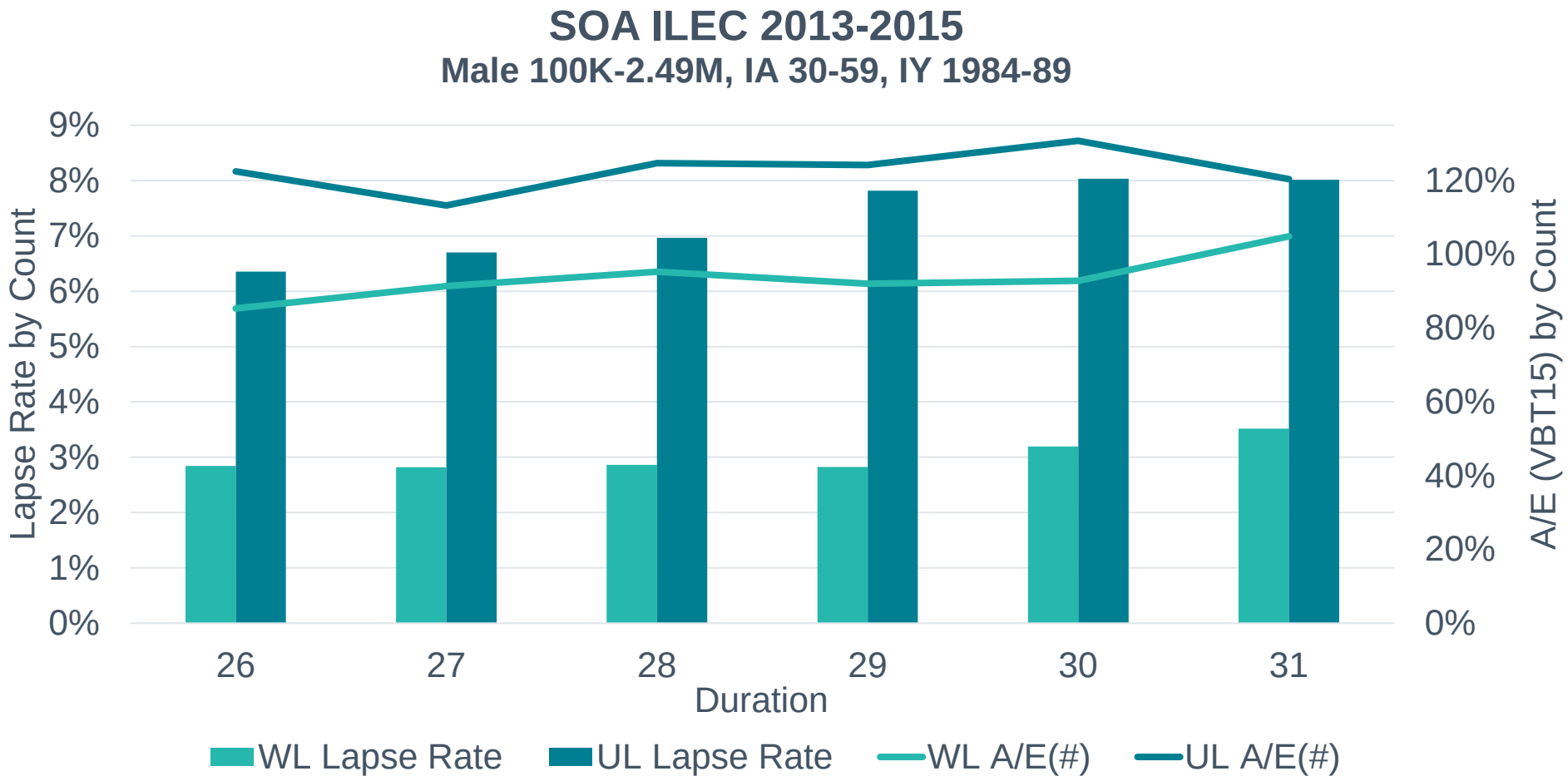
# UL vs. WL Lapse and Mortality




Note: Lapses were approximated by using the change in exposure and were consistent with our proprietary studies

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# Industry response and today

- New innovative designs such as the no lapse guarantee
- New more strict illustration regulation
- Current guaranteed minimum earned rates around 1%

While history provides valuable insight, it is only one factor to take into account when setting assumptions going forward

# Tobacco-Distinct Classes

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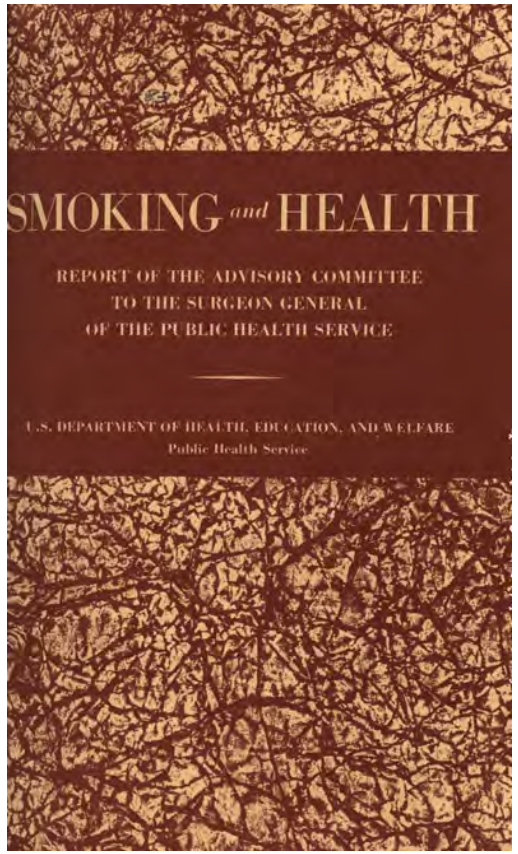
# The Beginning

- Through history there were reports linking tobacco use with higher mortality
- One of the most influential was Smoking and Health: Report of the advisory committee to the Surgeon General of the United States in 1964
- After its release, the health impacts from smoking began to reach widespread consciousness




Life Insurers moved to tobacco-distinct rates in the early 1980s

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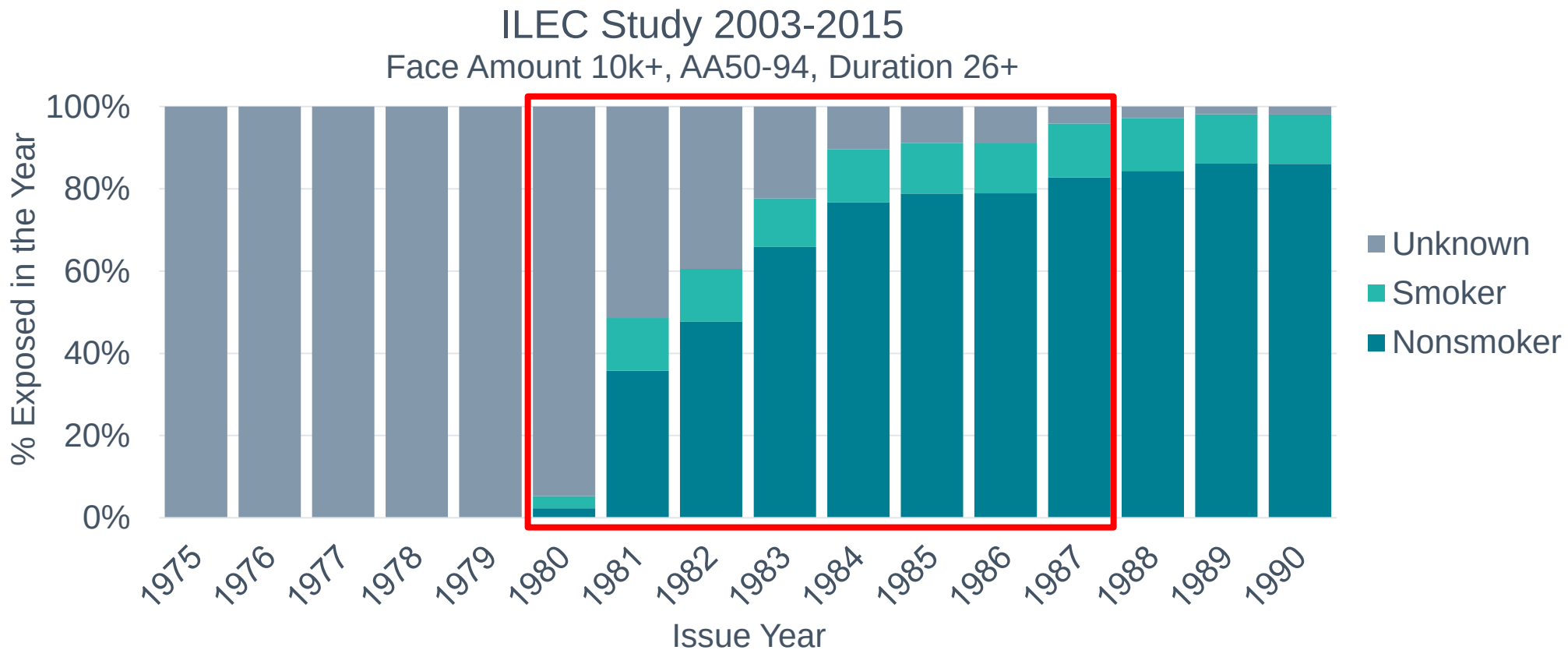
# Exposure Count by Smoking Status & Issue Year




New business became almost entirely tobacco-distinct by 1987

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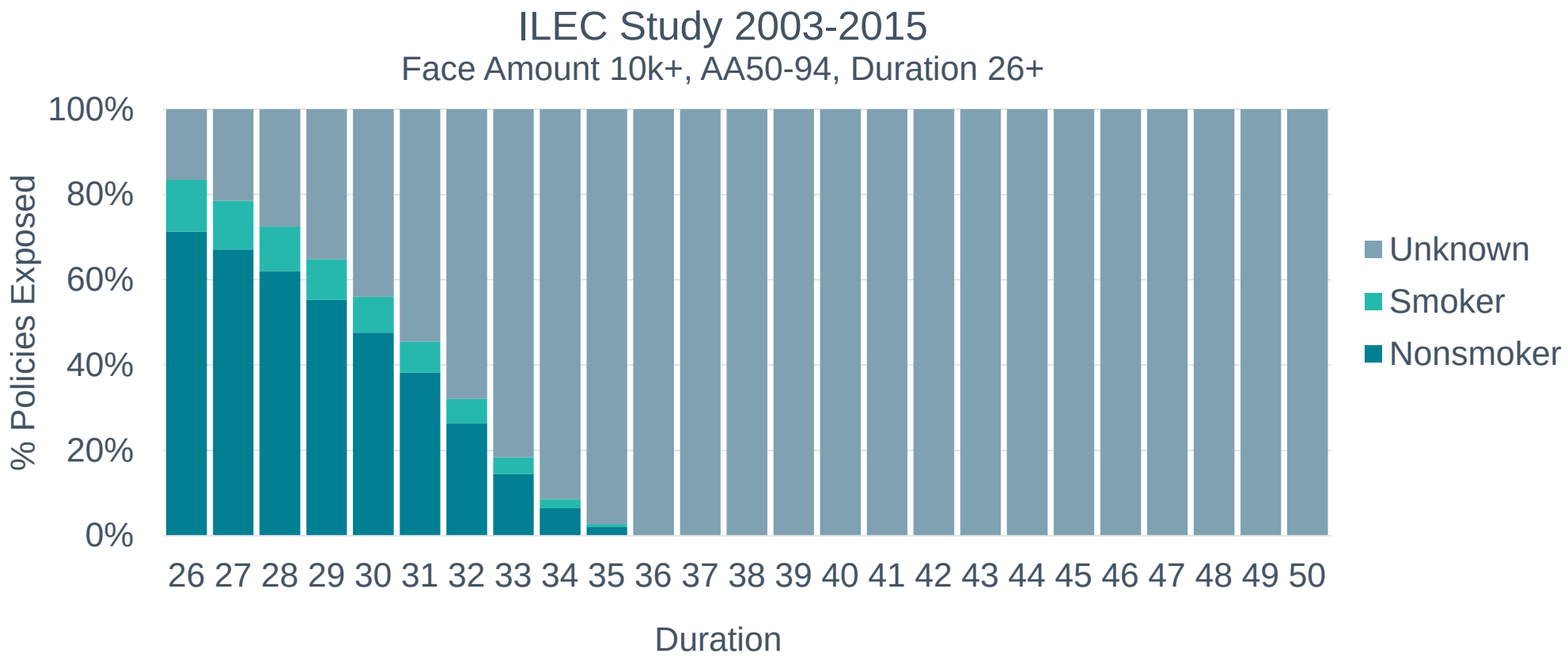
# Ultimate Mortality




Later durations dominated by Unknown Smoker Status

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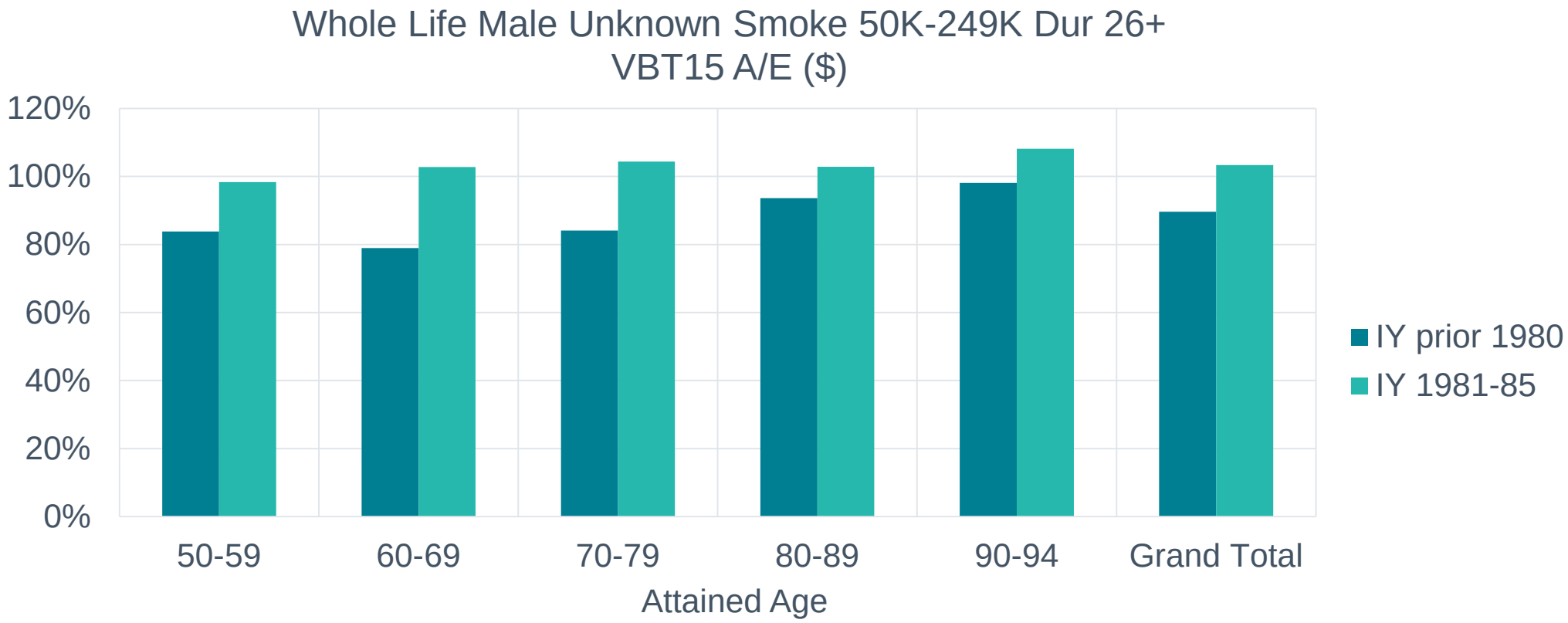
# Poll: How would composite (unknown smoker) whole life ultimate mortality change once tobacco-distinct rates are introduced?

# ILEC 2003-2015




Male mortality A/E worsens by close to 15% overall

# Preferred Class Structure

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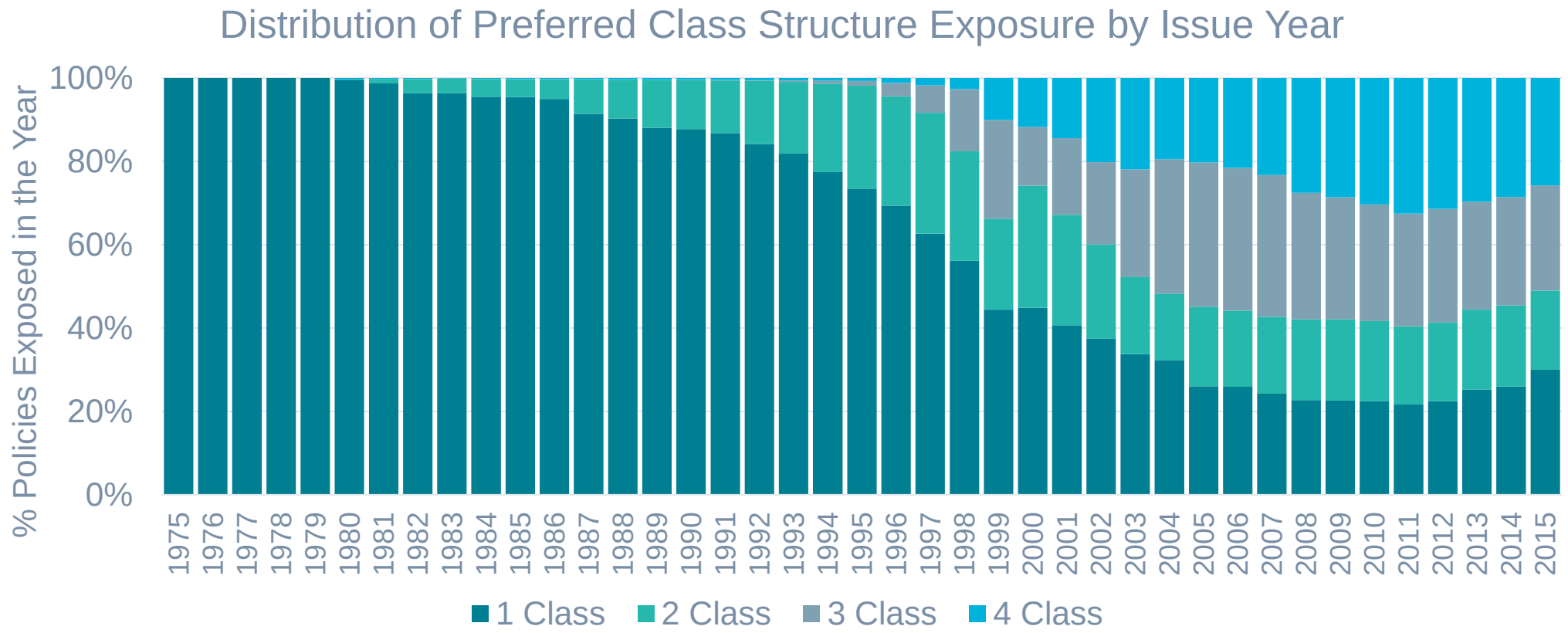
# Preferred Class Structure Exposure (CY 2003-2015)




2-Class enters in 1980s and 3 & 4 in late 1990s / early 2000s

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# Subset of SOA ILEC 2003-2015

- Term 10, 15, 20 defined as:
  - Anticipated Level Term Period = 10, 15, 20; or
  - Anticipated Level Term Period = Unknown and Guaranteed Level period = 10, 15, 20
- Non-smoker only
- 100k – 2.49M
- Issue ages 30-59
- Issued in 1990 or later
- Common Company Indicator = 1
- 2015 VBT by amount as Expected

Does experience vary by preferred class structure?

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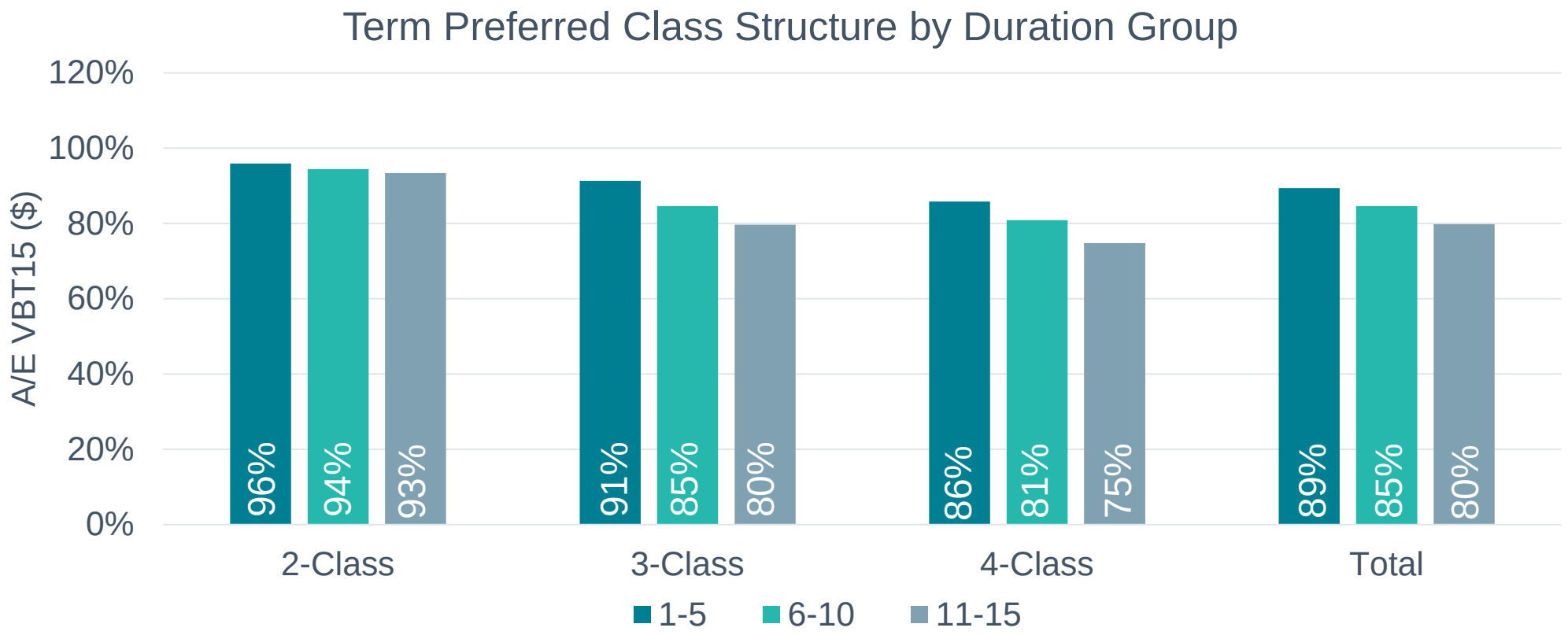
# Term A/E by Preferred Structure and Duration




Mortality improves with increasing # of classes

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# What happened?

## 01 Healthy? More insurance!

- Higher proportions of healthy lives chose to purchase more life insurance
- This is attractive due to low premiums in the best classes in the 3 & 4 class structures

## 02 Healthy? There is a better class for you!

- Savvy policyholders / agents realized they could get better rates (if healthy)
- Opportunity for a new commission and benefits the policyholder as well
- Policyholders lapsed their 2-class preferred policy for lower rates in 3 and 4-class systems

# Key Takeaways

# Key Takeaways

## 01 First Generation UL Products

- Illustrations and external factors impacting UL rate guarantees had unintended consequences
- High lapse, litigation and mortality deterioration

## 02 Tobacco-Distinct Classes

- Policies shifted to tobacco distinct rates in the 1980s
- Carriers that didn't move experience deterioration as they were anti-selected by smokers

## 03 Preferred Class Structure

- New approaches to UW enabled further discrimination
- A higher proportion of healthier lives may have bought insurance, improving the better classes
- Healthier 2 or 3-class lives lapse for better premiums in 3 or 4 class structures, deteriorating the inforce

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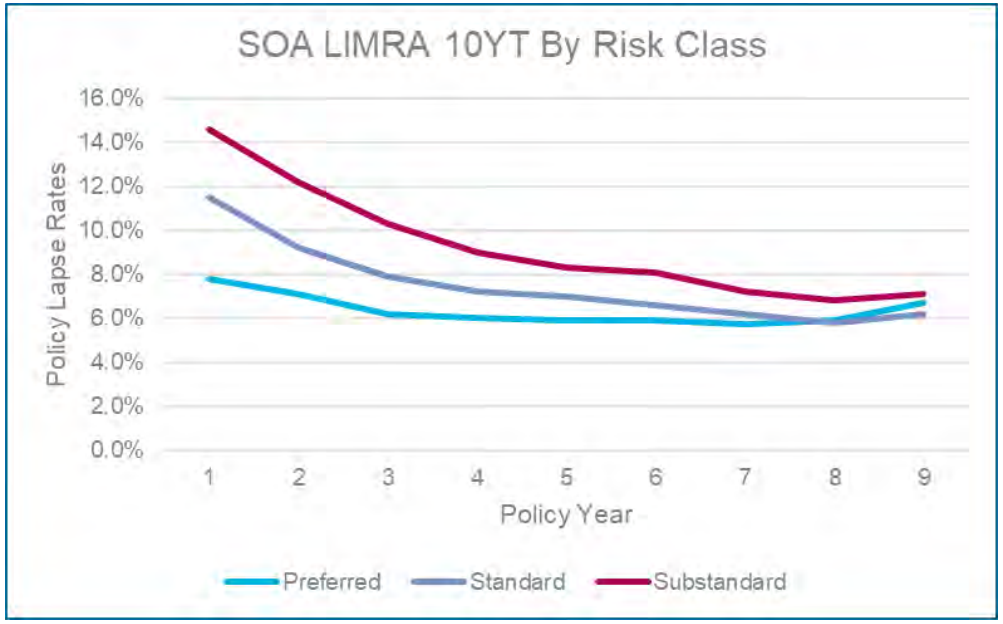
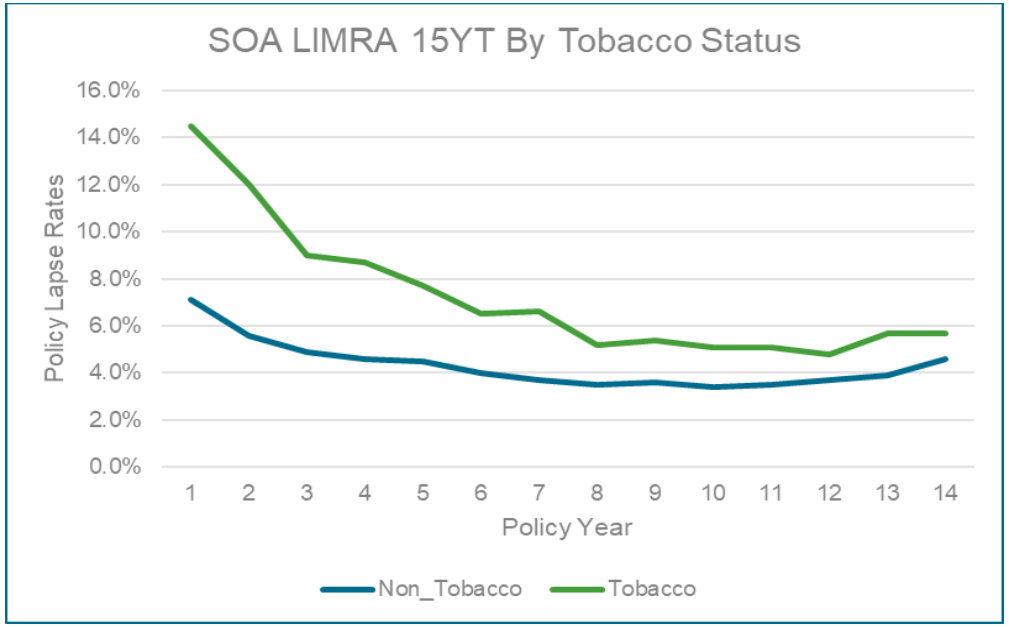
# Term Lapses from SOA LIMRA Study

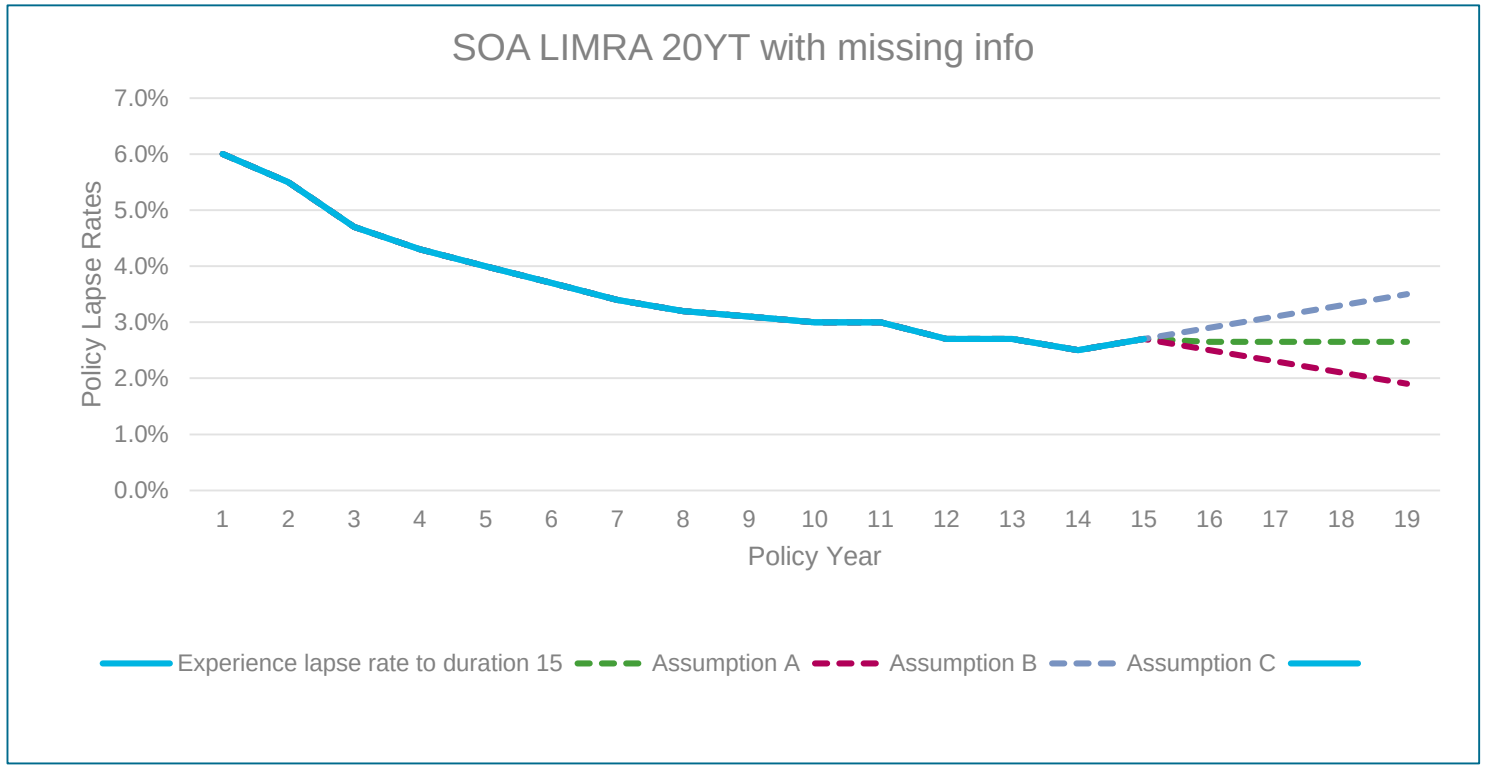



- SOA LIMRA study results published in 2019; Data 2009-2013
- Analysis by Risk Class and Tobacco Status
- Differences in lapse behavior vary by policy year
- GLM with interaction terms could capture this effect

# Term Lapses nearer the end of term – Prediction Poll

**Which do you think is the best assumption?**




Assumption A : Lapses level out and remain the same to the end of term

Assumption B : Lapses continue to decrease and are lower just before the end of term

Assumption C : Lapses increase before the end of term

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# Poll: Which do you think is the best assumption?

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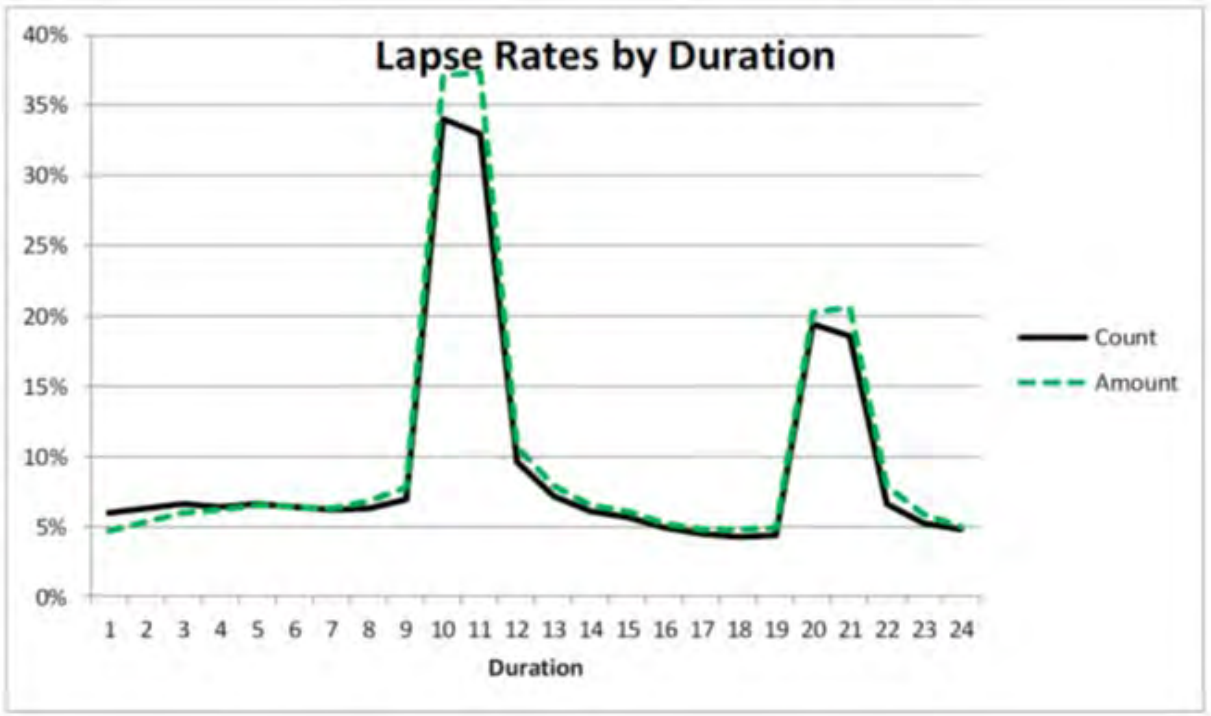
# 2014 CIA T10 Canadian Lapse Study

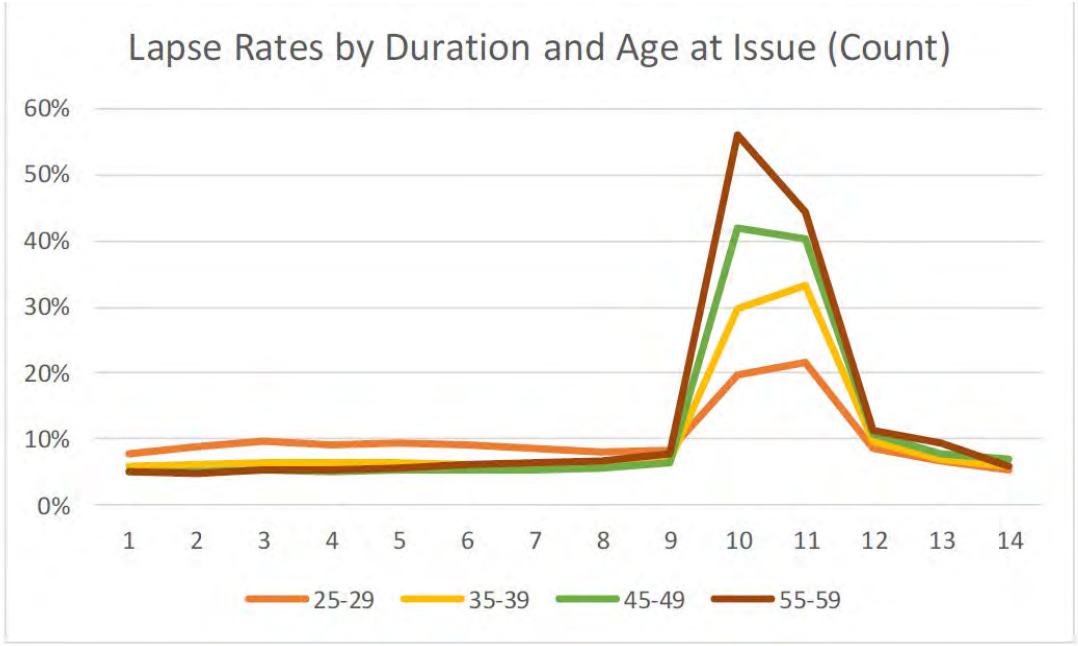
## CIA T10 Lapse Study Results by Duration




## Reaction to premium increase

- Renewal structure or Jump to New Level
- Shock lapse when premium increases
- Return to “normal”
- Most significant spike - in or just after premium increases
- Shock lapse higher on amount basis than count basis

# 2014 CIA T10 Lapse Data by Age




- Shock lapse varies by issue age
- Consider premium increases at each age
- Big increases after 10 years at older ages
- Age variation somewhat driven by difference in premium increase

**Age variation is significant**

**No longer need insurance**

**Children grown; Mortgage repaid**

**20% Vs 55%...**

**How do premium increases compare?**

# Further Analysis to fully understand behavior

## How could industry data be used to set future assumptions?

- Premium increases underlying the experience are unknown
- How relevant is industry experience for a specific portfolio?

**Unknown, because missing key information**

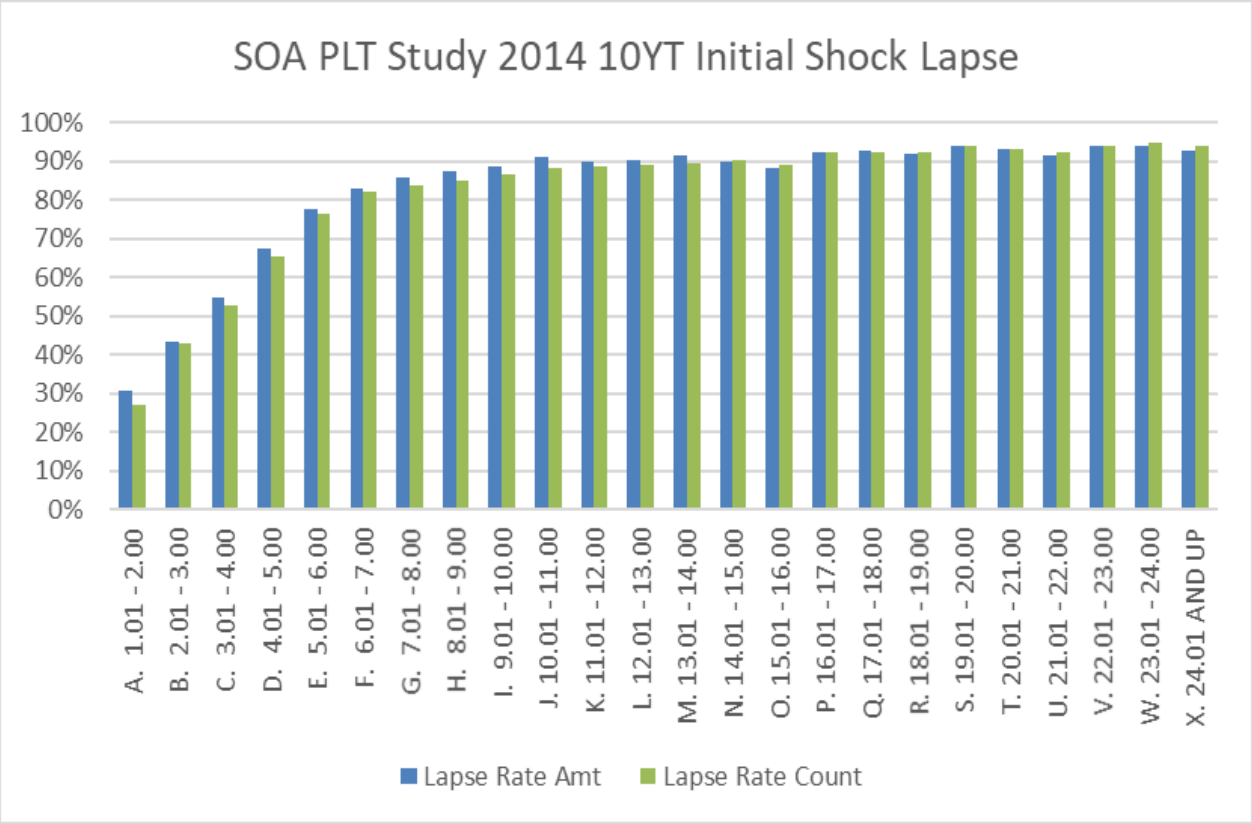
- Premium increases are higher on recently issued business

**Lapse study only**

- Persistency is only part of the story
- Anti-selective mortality expected after a shock lapse
- Related mortality experience needed to complete the assumption setting

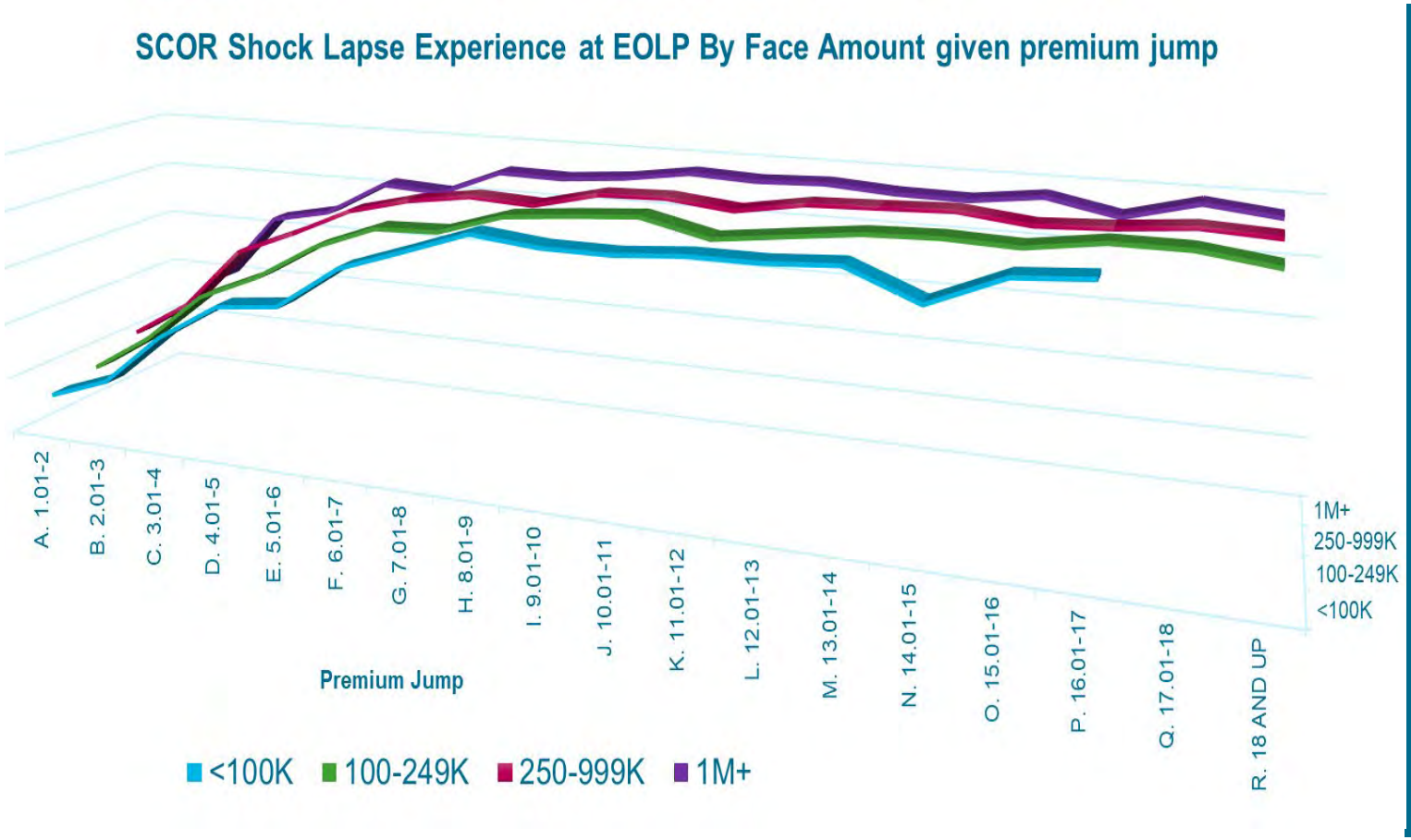
**CIA/SOA Joint Study Canadian PLT coming soon…**

# 2014 SOA US PLT Study – Shock Lapse by Premium Jump




- Jump to ART
- SOA data split by premium jump ratio group
- Size of increase impacts lapse rates
- Shock lapse: **30-95%**
- Suggests higher lapses for higher face amount policies

# SCOR PLT Study Analysis – Shock Lapse & other Risk Factors

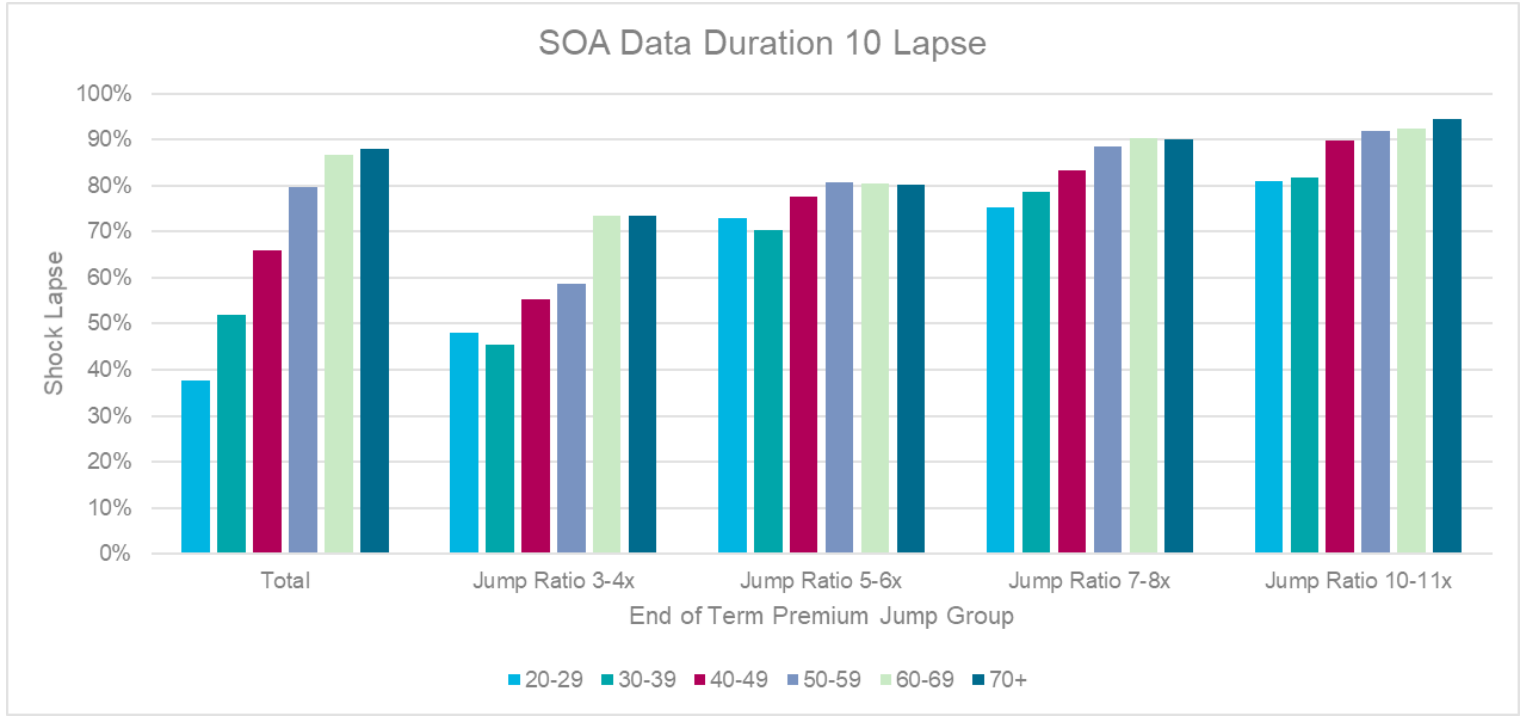


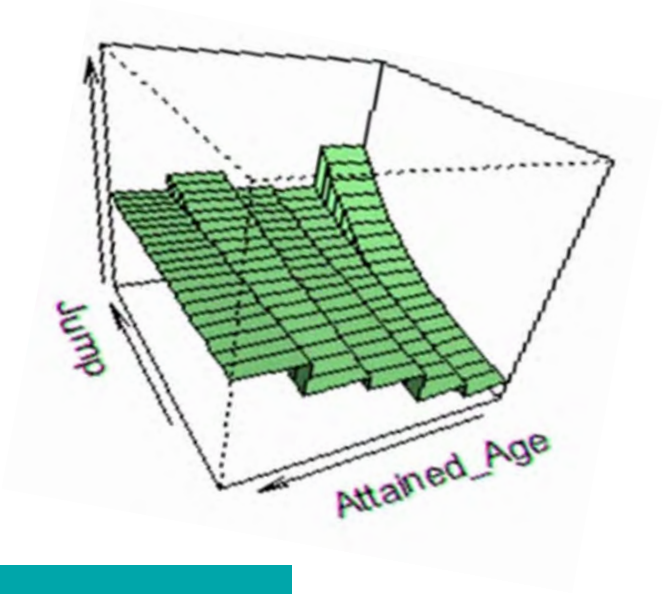

## SCOR Shock Lapse Modelling

- Premium increase & shock lapse highly correlated
- No other variable provides as much explanatory power
- Additional variables vital for reliable model
- Face amount variation is noted especially at lower jumps

**Behavior: A reaction to a higher premium jump in $ terms**

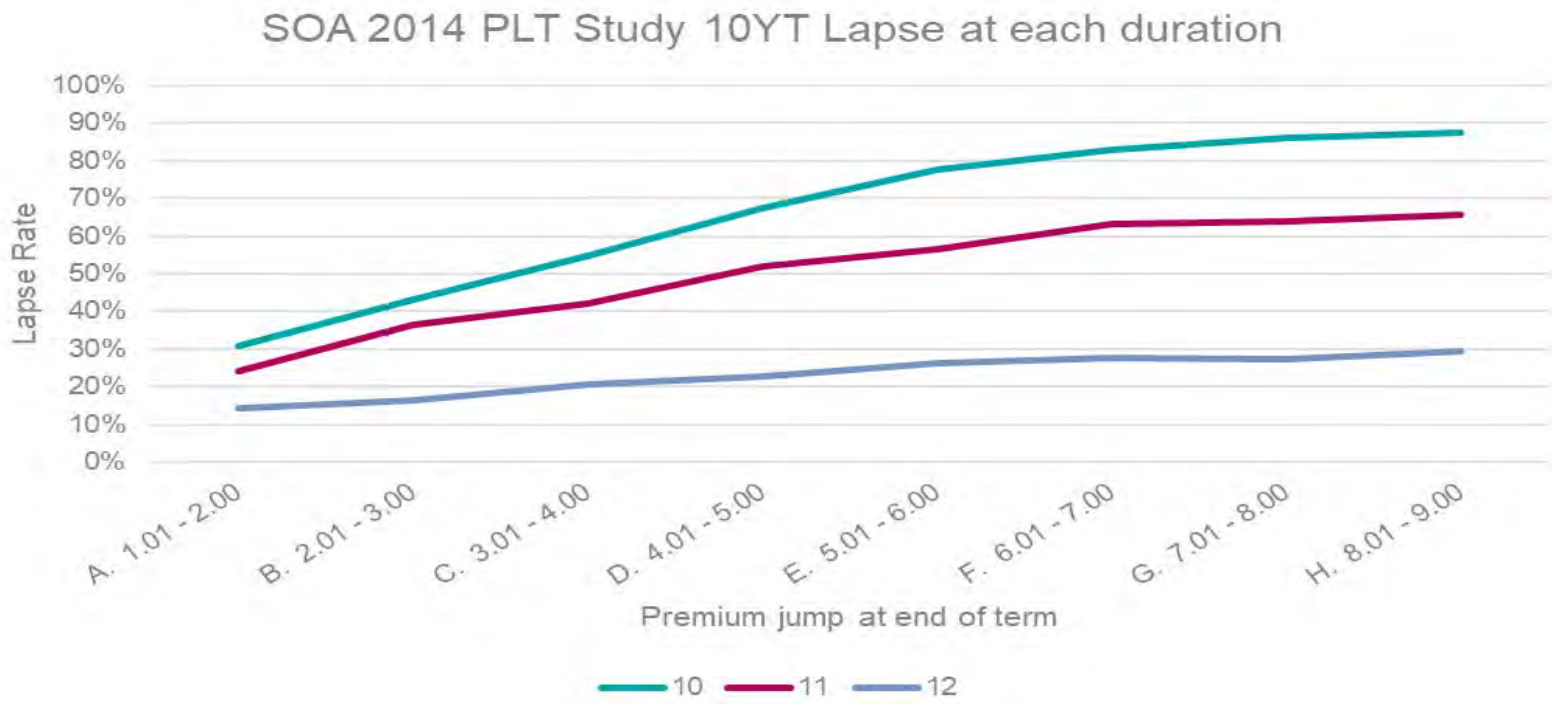
# 2014 SOA PLT Lapse Data by Age



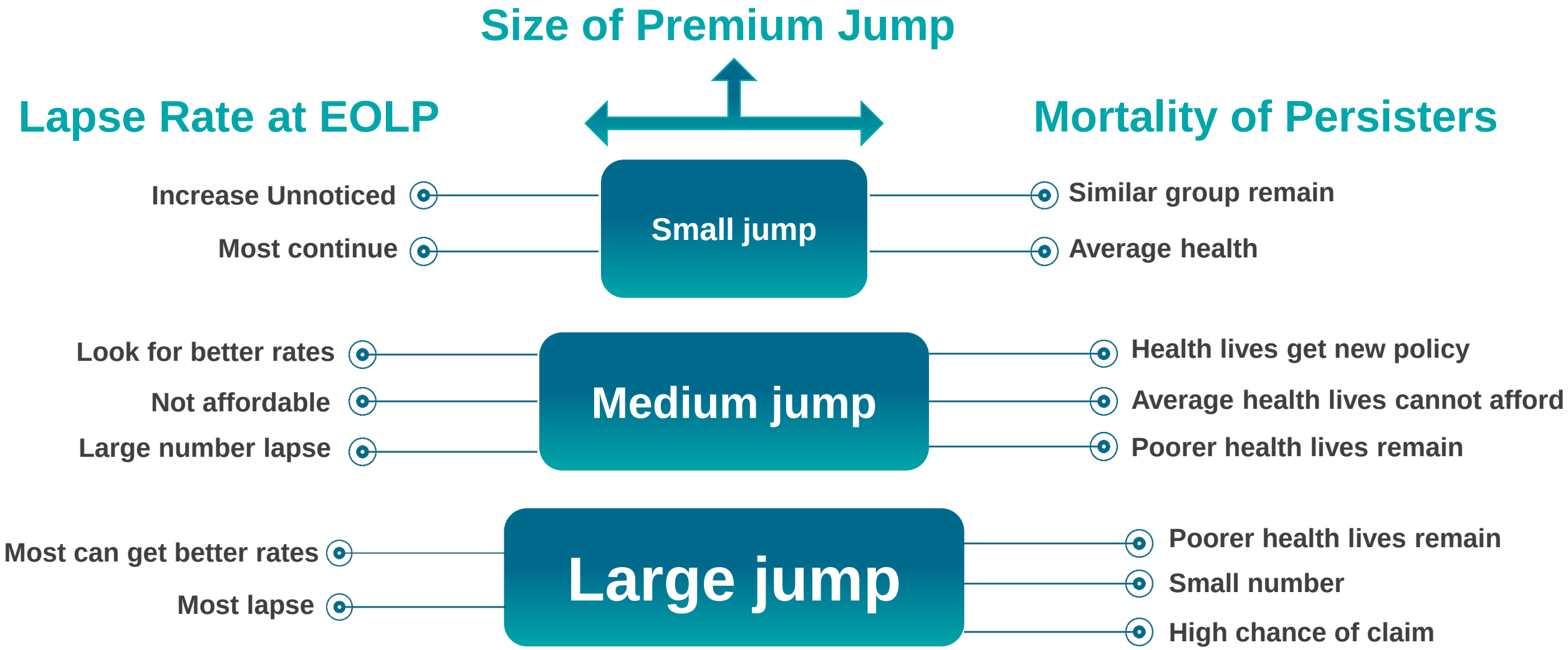

- Increasing pattern by age prominent in total
- Less variation after splitting by premium jump ratio
- Age variation most pronounced for lower premium jump ratios
- Interaction term between age and premium jump to model the relationship

# Later duration lapses in PLT – Jump to ART structure

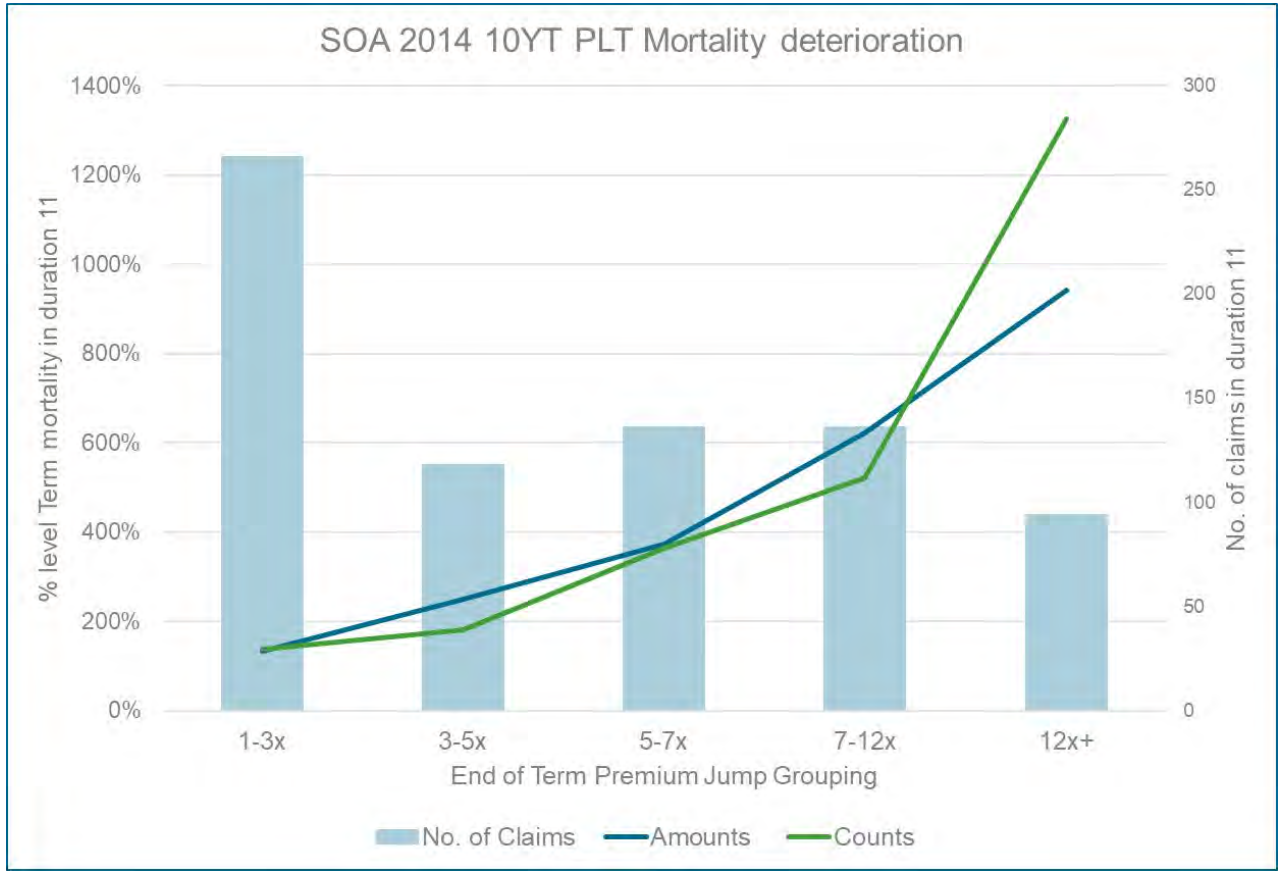



- Duration 10: shock lapse varied by premium jump as seen earlier
- Premium jump is predictor of duration N+1 (11) lapse
- Duration 12: less pronounced but variation is significant –15%-30%
- Premium dominated by the large increase at end of term

# Theory of Behavior at EOLP

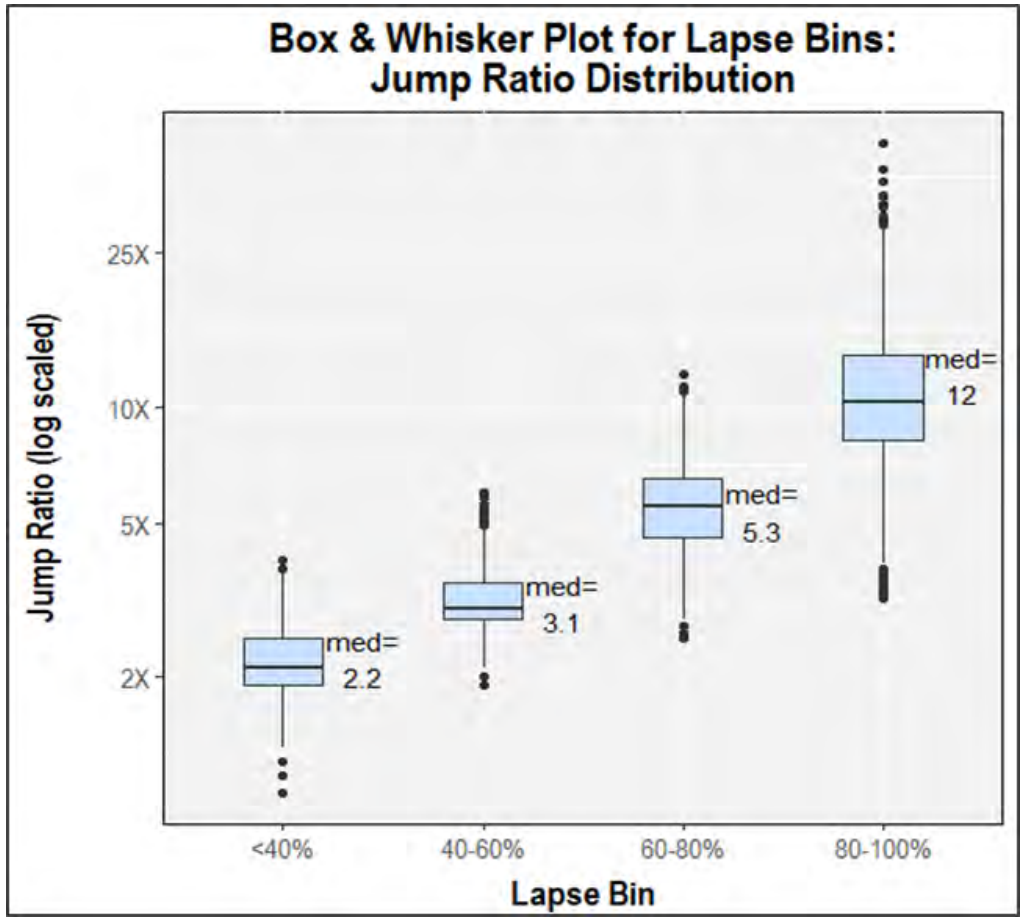


# Mortality Experience Data by Premium jump




- Increasing PLT mortality with premium jump
- Experience is scarce, especially at higher premium jumps
- When 80-90% lapse, few remain to analyse mortality
- Premium jump groupings are arbitrary – chosen to achieve credible segments

# SCOR Mortality Study Analysis – Results by Shock Lapse




## SCOR Mortality Modelling

- Group by shock lapse to **improve credibility**
- More shock lapse splits possible Vs premium jump groups
- Improves credibility at later durations in PLT to analyze anti-selection wear-off
- Capture variation by other factors e.g. higher shock lapse at older age
- Mortality varies by shock lapse

**Review mortality experience by PLT duration and shock lapse**

# US PLT Analysis

## Recap on key insights

- Jump to ART PLT structure data can be studied for 10YT and 15YT products
- Key relationship: premium jump, shock lapse and mortality
- Premium Jump is the most important driver of shock lapse
- Other factors also have an impact – e.g. age, face amount

Reaction to $ premium jump

- Subsequent lapses in PLT also vary by initial shock lapse
- PLT mortality experience data is scarce especially at higher premium jumps
- Reviewing mortality experience by shock lapse improves credibility

**Next SOA US PLT Study coming soon…**

# 2020 PLT studies – Expectations Poll

**What are you most interested to find out from the 2020 PLT studies?**

**One word**

**A short phrase**

**Key words**

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# Poll: What are you most interested to find out from the 2020 PLT studies?

# Takeaways

- Look beyond the **rational reason for lapse behavior**
- **Fully understand experience** before setting assumptions
- **Identify multiple factors** driving lapse behavior and the interactions
- Knowing the true driver helps **improve modelling of behavior**
- **New studies on PLT coming in 2020**

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- **Do not** discuss what you or other entities plan to do in a particular geographic or product markets or with particular customers.
- **Do not** speak on behalf of the SOA or any of its committees unless specifically authorized to do so.
- **Do** leave a meeting where any anticompetitive pricing or market allocation discussion occurs.
- **Do** alert SOA staff and/or legal counsel to any concerning discussions
- **Do** consult with legal counsel before raising any matter or making a statement that may involve competitively sensitive information.

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