Background on Preferred Mortality

Donna R. Claire, Chair of the
Preferred Mortality Oversight Group

Update on Mortality Tables

- Are expected to be finalized September 2007
- Expect to have 3-10 tables for Male Non-Smoker
- Will be based on Underwriting Criteria Score

Output from the Joint Academy/ SOA Preferred Mortality Project

- Mortality Tables without margins
- Mortality Tables with margins
- Tool to assist in the process of selecting a mortality table without margin

Science and Art

- Applying underwriting rules scoring algorithm to underwriting rules used to underwrite the business being valued.
- Score will not point to a single table but to a group of tables.
- Actuarial judgment and actual mortality experience will play a role in table selection.

Underwriting Criteria (and Weights)

- Cholesterol (3)
- Personal medical history (2)
- Alcohol/drug use (1)
- Build (2)
- Blood pressure (3)
- Family history (3)
- Driving (2)
- Tobacco use (2)
- Aviation, avocations, citizenship, foreign travel, hazardous activities, residence (1)

Example — Personal Medical History

- One of easier criteria to score
- 100 if:
  - No ratable impairments, but history of diseases not included
- 67 if:
  - No ratable impairments and no history of cancer, cardiovascular, diabetes
  - Non-medical substandard flat extras are allowed
- 33 if:
  - Same as 67, except non-medical substandard flat extras are not allowed
- 0 if:
  - Same as 33, except mention of at least two more diseases in addition to cancer, cardiovascular and diabetes

Preferred Valuation Basic Table Development

Joint AAA/SOA Preferred Mortality Project

Valuation Basic Table Team

Mary Bahna-Nolan, FSA, MAAA, Chair

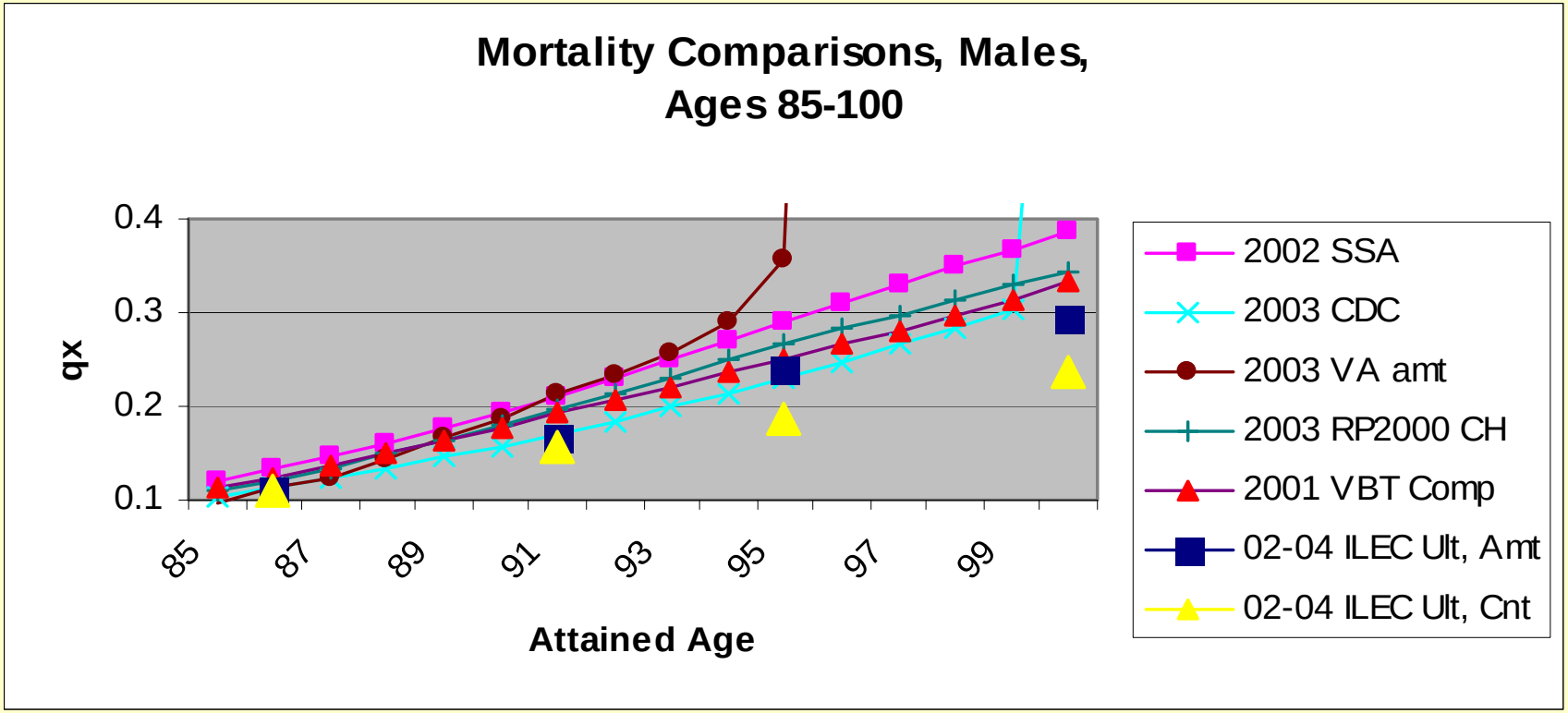
Experience Data

- ILEC 2002-2004 Data
  - Based on experience data from 35 contributing companies
  - $7.4 trillion exposure by amount
    - Before adjustments
  - Select experience varies significantly by face amount
  - Limited credibility at older issue and attained ages as well as for female and smoker experience
  - Will grade to population experience at later attained ages
- Will not incorporate experience from current data call

Population Data

- Reviewed multiple sources; feel SSA data most credible, although highest amongst all sources reviewed
- SSA experience based on Medicare death records at older attained ages in 2002, projected to 2003
- Credible to age 95
- Blend to 0.45 constant rate at attained age 110
  - Will not have an omega age/rate = 1.000
  - Rate and age based on various published research papers

SSA v. Other Experience



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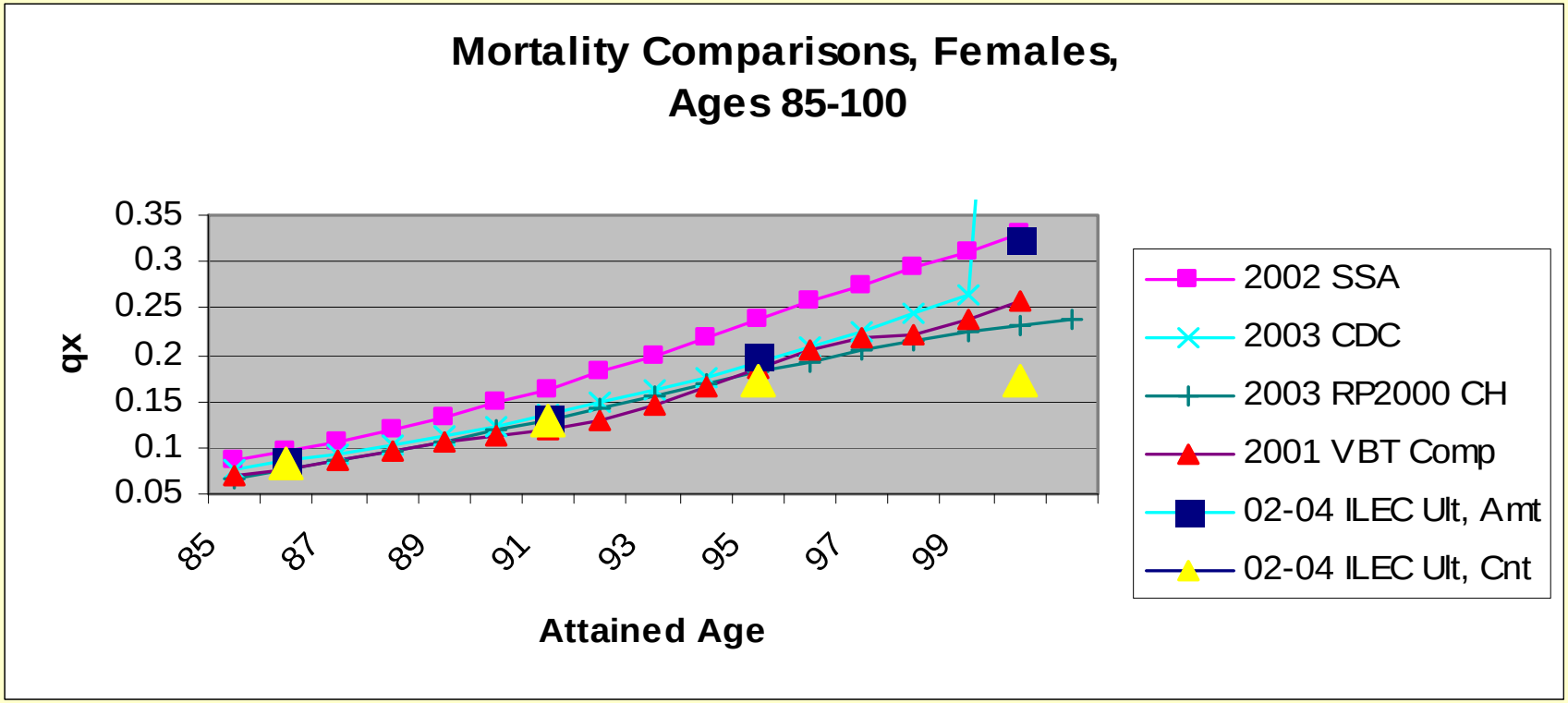


Preferred Data

- Based on experience data and underwriting guidelines from 28 contributing companies
- Scoring mechanism used to generate Underwriting Criteria Scores (UCS)
- UCS ranged from 26 to 141/142
  - Where 141 and 142 represent residual standard nonsmoker and smoker, respectively

Adjustments to Experience Data

- Removing experience for face amounts < $10,000
- 5% adjustment to experience in durations 11-15, grading to 0% by the end of the select period to account for:
  - Additional mortality in the underlying experience from term plans beyond duration 10 (i.e., the end of the level premium period)
  - Differences between the level of underwriting done today versus that performed on some of the underlying experience in later durations

Table Development

- 3 aggregate tables (for each combination of male/female and smoker/nonsmoker)
  - $10,000 - $49,999*
  - $50,000 - $99,999*
  - $100,000 - $2,499,999
    - Claims capped at $2.5 million
  - Will provide descriptions for what type of data the underlying experience represents

* Know some of the underlying experience in this amount band based on more simplified underwriting where no blood or fluid testing was performed.

Significant Variation in ILEC Experience by Face Amount

Select Period A/E by Amount for Various Face Amount Ranges *(E = 2001 VBT ANB SM/NS, M/F Distinct)*					
Amount Band	Aggregate	MNS	MSM	FNS	FSM
$10,000 – $49,900	90.4%	89.7%	100.4%	79.3%	94.6%
$50,000 – $99,999	78.6%	77.7%	88.6%	71.9%	84.3%
$100,000 - $2,499,999	67.3%	65.4%	78.6%	65.2%	85.2%

Aggregate Table Development

- Issue ages 0-90
- ANB basis
- Equal number of tables for males and females
- 25-year select period
  - Will be shorter for older issue ages such as, 25-years or to attained age 90, whichever is sooner, but never less than 2 years
    - Attained age 90 and 2-year period not yet finalized
- Ultimate mortality will not vary significantly by size

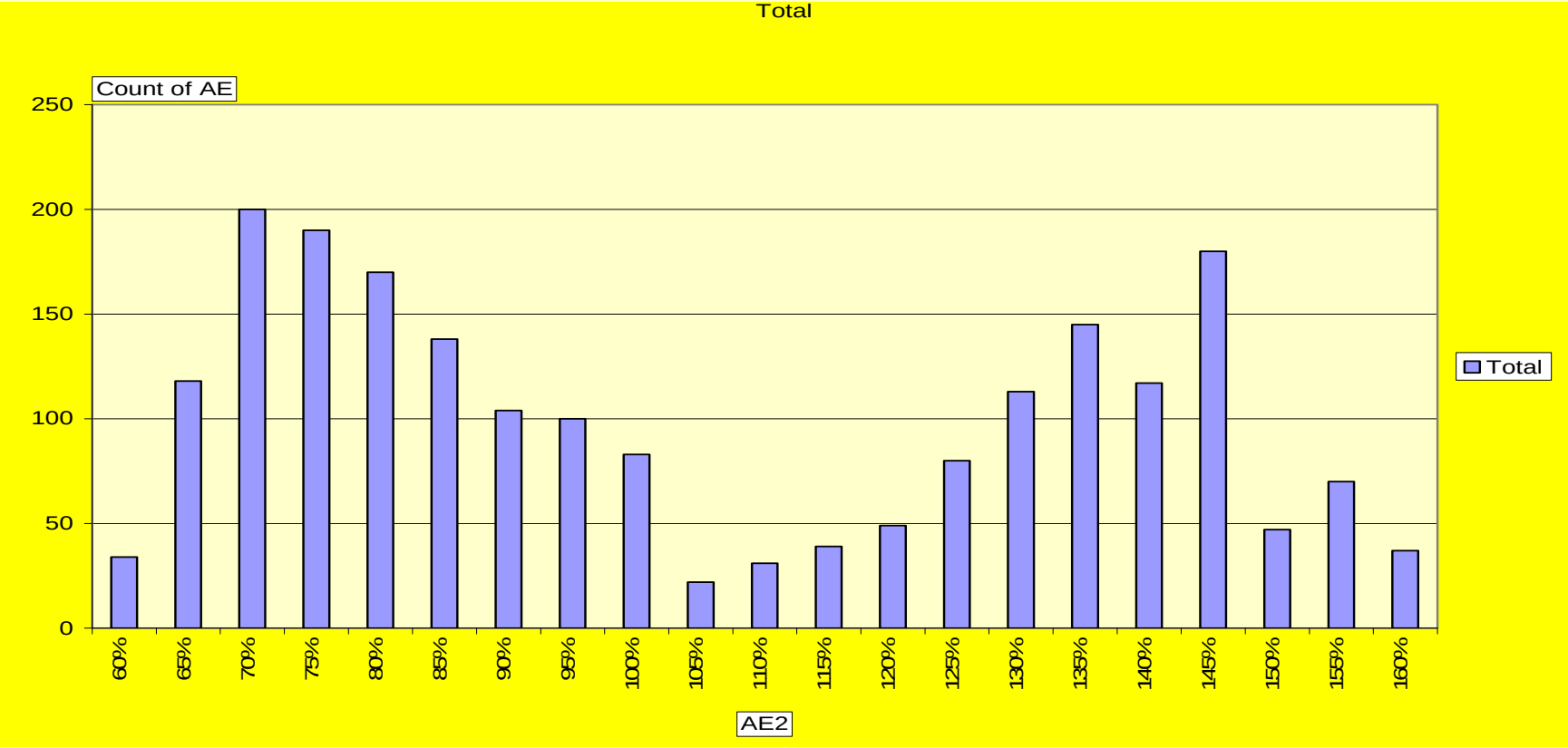
Aggregate Table Development

- Will begin to grade into population mortality for attained ages in the 80s (exact age still to be determined) to 100% population data at some attained age
  - Methodology developed based on conservation of total deaths principle to determine age where insured data equals population data
- Final tables will be improved to 2008
- Whittaker-Henderson method used to graduate tables

Preferred Table Development

- For $100,000-$2,499,999 table only
- Using UCS data based on Relative Risk (RR)
  - Will provide a Relative Risk generator based upon UCS score
- Number of tables same for male and female but will vary between nonsmoker and smoker

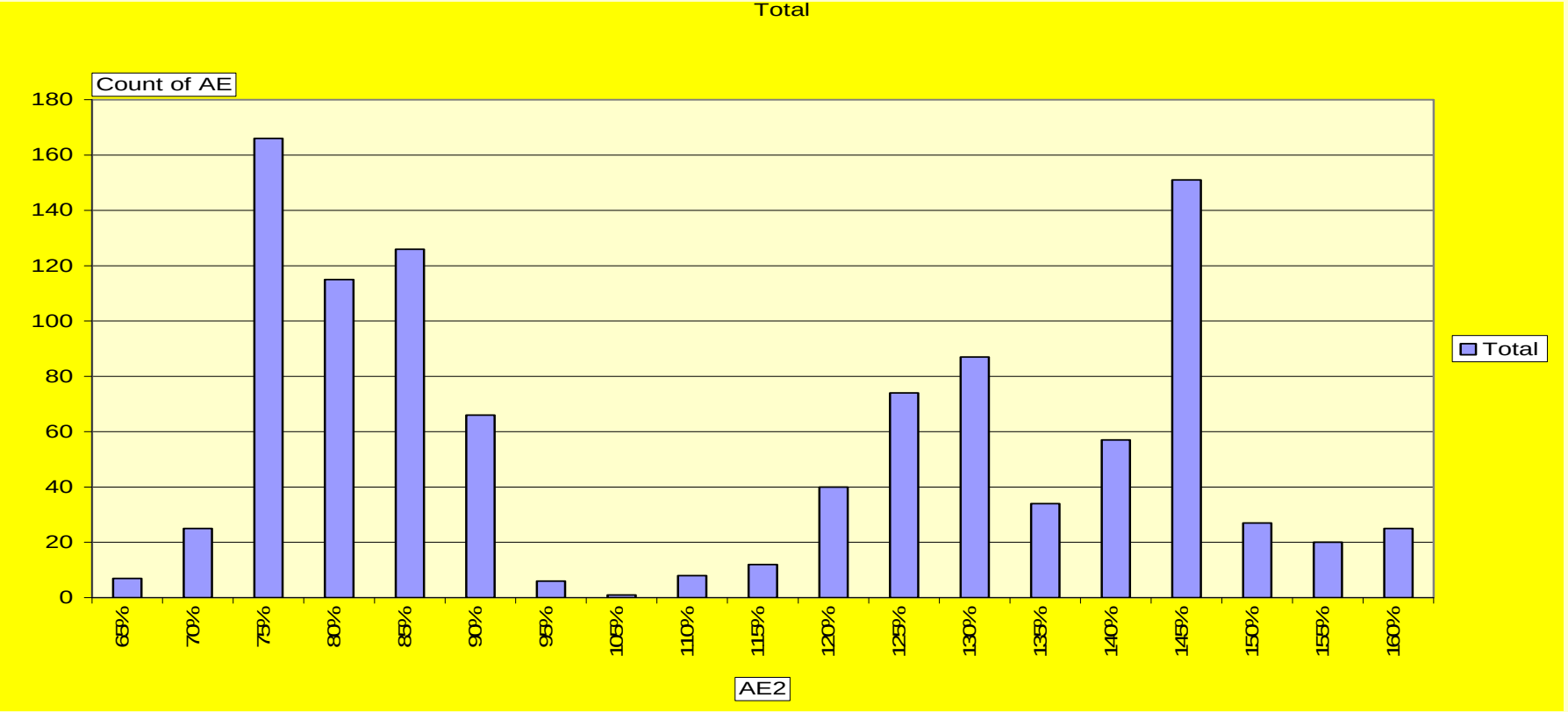
Preferred Table Development Range of Relative Risks (NS)



Preferred Table Development *Nonsmokers*

- 10 nonsmoker tables (for male and female each)
- Minimum RR = 70, increments of 10, maximum RR = 160

Preferred Table Development Range of Relative Risks (SM)



Preferred Table Development
Smokers

- 4 smoker tables (for male and female each)
- Minimum RR = 75, increments of 25, maximum RR = 150

Wear-off of Preferred Underwriting

- Developed a methodology to reflect the wear-off of preferred underwriting
- Based on industry and clinical experience
- Attained age and duration based
- Pattern is similar to but somewhat different than that used in the recently adopted Preferred Structure Tables for the 2001 CSO

Wear-off of Preferred Underwriting

(Current Proposal)

Issue Age	Dur 1	Dur 6	Dur 11	Dur 16	Dur 21	Dur 26	Att.Age
25	0%	0%	0%	0%	0%	2%	50
30	0%	0%	0%	0%	0%	4%	55
35	0%	0%	0%	0%	2%	8%	60
40	0%	0%	0%	0%	6%	14%	65
45	0%	0%	0%	4%	12%	22%	70
50	0%	0%	2%	10%	19%	32%	75
55	0%	0%	8%	16%	28%	45%	80
60	0%	6%	13%	25%	43%	62%	85
65	0%	10%	25%	43%	62%	81%	90
70	0%	20%	40%	60%	80%	100%	95
75	0%	25%	50%	75%	100%	100%	100
80	0%	33%	67%	100%	100%	100%	105
85	0%	50%	100%	100%	100%	100%	110
90	0%	100%	100%	100%	100%	100%	115

Open Issues

- Determine wear-off of select underwriting for older issue ages
- Finalize aggregate tables
  - Finalize factors for preferred underwriting wear-off
  - Determine female and smoker adjustments due to lack of credible experience
- Graduate for fit or smoothness
- Determine improvement factors to project experience to 2008

Timetable

- Primary aggregate tables and UCS tables developed by end of June
  - Focusing first on $100,000-$2,499,999 tables
- Rerun ILEC experience with new tables as expected basis
  - July
- Deliver final tables to Valuation Table Team
  - July
- Table documentation finalized
  - July/August

Areas Seeking Input from LHATF

- Table variation by amount
- Fit v. Smoothness (e.g., duration 3 spike)

Duration	Aggregate A/E for Face Amounts $10,000 - $2,499,999		# Deaths
	By Count	By Amount	
1	81%	59%	1,863
2	89%	69%	2,546
3	96%	77%	2,990
4-5	89%	73%	7,853
6-10	86%	70%	24,137