

# Mortality Update

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## Southeastern Actuaries Conference

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June 20, 2003

*Tillinghast - Towers Perrin*

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## **In this update I plan to cover briefly several topics related to life insurance underwriting and mortality**

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- US population mortality improvement
- SARS
- SOA preferred risk surveys
- SOA survey on mortality improvement assumptions
- Mortality slope controversy
- Status of SOA experience studies
- Future issues in underwriting / mortality

## Good News...

# U.S. Life Expectancy Reaches All-Time High

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Posted on Friday, March 14, 2003

Associated Press

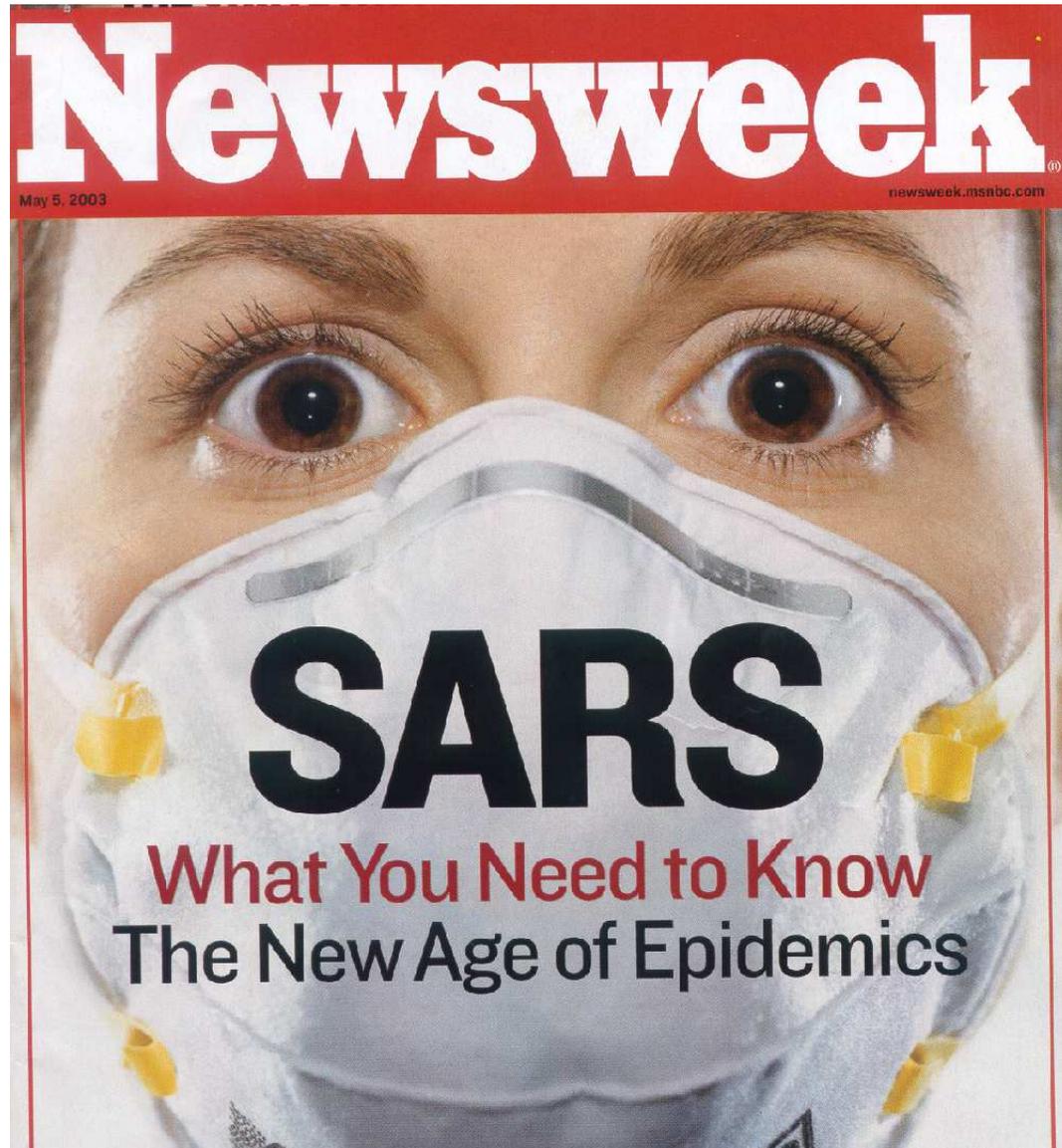
**ATLANTA** - Life expectancy for Americans reached an all-time high of 77.2 years in 2001, federal officials said Friday.

The Center for Disease Control and Prevention said life expectancy increased two-tenths of a year from 2000. A drop in major causes of deaths such as heart disease, cancer and stroke contributed to the increase.

For men, life expectancy rose from 74.3 years in 2000 to 74.4 years in 2001. For women, it went from 79.7 years to 79.8 years for the same period. The CDC analyzed more than 97% of all state death certificates issued in 2001.

**Bad News...**

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## Annual Mortality Improvement — U.S. Population

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<b>Annual Mortality Improvement - US Population</b>				
		<b>1997-01</b>	<b>1987-01</b>	<b>Scale G</b>
<b>Males</b>	<b>25-34</b>	<b>3.0%</b>	<b>1.6%</b>	<b>0.5%</b>
	<b>35-44</b>	<b>1.4%</b>	<b>0.7%</b>	<b>2.0%</b>
	<b>45-54</b>	<b>0.2%</b>	<b>1.0%</b>	<b>1.8%</b>
	<b>55-64</b>	<b>2.7%</b>	<b>1.7%</b>	<b>1.5%</b>
	<b>65-74</b>	<b>2.0%</b>	<b>1.3%</b>	<b>1.4%</b>
	<b>75-84</b>	<b>0.7%</b>	<b>1.1%</b>	<b>1.2%</b>
<b>Females</b>	<b>25-34</b>	<b>0.6%</b>	<b>0.7%</b>	<b>1.0%</b>
	<b>35-44</b>	<b>-2.4%</b>	<b>-0.7%</b>	<b>2.2%</b>
	<b>45-54</b>	<b>-0.5%</b>	<b>0.9%</b>	<b>2.0%</b>
	<b>55-64</b>	<b>1.6%</b>	<b>1.1%</b>	<b>1.8%</b>
	<b>65-74</b>	<b>0.6%</b>	<b>0.6%</b>	<b>1.8%</b>
	<b>75-84</b>	<b>0.3%</b>	<b>0.5%</b>	<b>1.5%</b>

Population mortality rates are from the National Center for Health Statistics.

## Is SARS another 1918 Influenza Pandemic In Waiting?

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Part 1: Some scary facts about 1918-1919 pandemic:

- It occurred in 3 “waves” — the second 2 waves were worse than the first. Troop movements at end of WWI accelerated the spread.
- In US: 28% of population infected, 2.5% death rate (.7% of population)
  - Worldwide, 20-40 million people estimated to have died
- Although popularly known as “Spanish flu”, it is thought to have originated in China, like SARS

## Is SARS another 1918 Influenza Pandemic In Waiting?

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Part 2: Some basic information about SARS:

- Severe Acute Respiratory Syndrome is a respiratory illness caused by a previously unrecognized coronavirus
- Primary spread is by close person-to-person contact, e.g., touching skin or other contaminated objects
- First phase symptoms include fever, chills, headache and muscle aches. Within a week, most develop dry cough and breathing difficulty
- There is no cure or vaccine. Scientists have sequenced the genome, a major step toward developing treatments.
- Case count as of June 6:
  - Worldwide                    8,404 cases, 779 deaths
  - Canada                        219 cases, 31 deaths
  - US                                68 cases, 0 deaths
  - US has additional 311 suspect cases

## Is SARS another 1918 Influenza Pandemic In Waiting?

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Part 3: SARS puzzles:

- Conflicting evidence about transmission: in some cases, one individual infects dozens; in another, no family members are infected.
- Death rate commonly reported to be 5-15%, but rate in US is zero.
- Unlike most influenzas the very young (under 24) have been largely exempt from serious illness.
- Cases seem to be tapering off, but many viruses taper off in warm weather — the real puzzle is what will happen next winter.

## SOA Preferred Risk Surveys

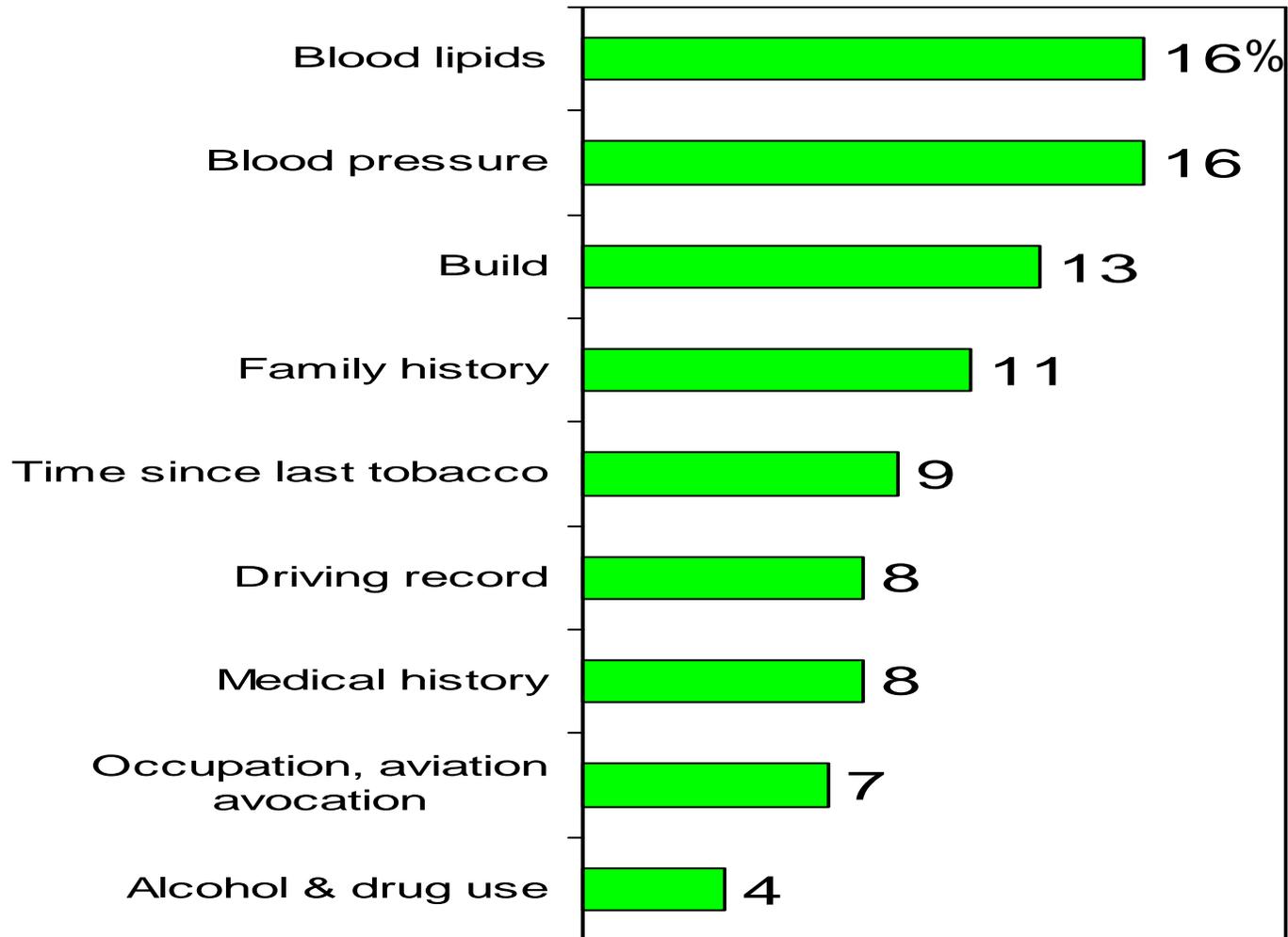
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- SOA recently conducted 2 surveys - one of direct writers and one of reinsurers
  - Reinsurer survey is complete and will be issued early this summer
  - Direct survey still being analyzed — expected late this summer
- Survey covered practices as of 2002 for direct and 2001 for reinsurers
- Primarily, surveys asked about criteria to qualify for preferred status, but also asked about percentage who qualify and mortality assumptions
- Preliminary survey results were presented at May SOA meeting (session #51)
  - Slides should be available on SOA website

## SOA Preferred Risk Surveys (Continued)

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Reinsurer Importance of Criteria (Nonsmoker)



## SOA Preferred Risk Survey (Continued)

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How do companies arrive at mortality assumptions?

	<u>Direct</u>	<u>Reinsurer</u>
Internal UW recommendations	42%	93%
Mortality study experience	39	93
Mathematical formula	36	80
Industry experience	16	33
Educated guess	14	60
Reinsurer input	91	NA
Client input	NA	47

## SOA Survey on Mortality Improvement in Pricing

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- 67 direct writing companies responded to survey about the use of mortality improvement assumptions for pricing in 2000
- 35% projected recent experience up to current date (most said experience table already up-to-date)
- 25% project future improvement (although 52% thought it was appropriate)
  - Average rate was .89% in first 10 years; half grade to zero in later years
  - In contrast, the reinsurance preferred risk survey shows 87% of reinsurers used future improvement
- Reasons for not using improvement
  - Creates problem with illustration certification (62%)
  - Company believes not appropriate (56%)
  - Creates problems with X factors (36%)
  - Company believes not needed (28%)
- Survey results are available on SOA website

## The Mortality Slope Controversy

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- Recent articles have noted that the mortality slope in recent tables (e.g., 1990-95 or 2001 VBT) is more steep than 1975-80
  - Some believe that mortality assumptions as a flat percentage of 1975-80 are too aggressive in later durations
  - Others argue that the more recent tables are based on non-homogeneous data
- The AAA has formed a working group (The Illustration Working Group) to explore whether mortality improvement is implicitly being utilized in late durations, which is prohibited by regulation for Illustration Certification
- More information on this is available in Product Development Section newsletters (July 2003, April 2002 and November 2002 issues)

## SOA Mortality Experience Studies

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- SOA experience studies have gotten farther behind (latest published results through 1995) and includes fewer companies (only about 10 companies have submitted data for more recent years)
- SOA intends to push out the current studies
  - 1996 this Fall
  - 1997-2000 next Spring
- They have sent a joint request with LIMRA for 2001-2002 data
  - Hope that LIMRA participation, more flexible data acceptance, and regulatory pressure will improve participation
  - Regulators, especially New York, are threatening to force data submission

## **Future Issues in Underwriting/Mortality**

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- Continued scrutiny of mortality slope, especially for preferred risk
- Quicker (instant) issue programs utilizing recently developed technology
- Genetic testing
- Older issue ages
- Payout annuity mortality