IAA Mortality Working Group - October Review from UK

The Continuous Mortality Investigation (CMI) has produced a set of unisex rates for statutory money purchase illustrations. These are available here.

“Analysing recent socioeconomic trends in coronary heart disease mortality in England, 2000-2007: A population modelling study” Bajekal, M; Scholes, S; Love, H; Hawkins, N; O’Flaherty, M; Raine, R; Capewell, S (2012) was published in PloS Med. This is of interest because coronary heart disease (CHD) is the leading cause of death in the UK, resulting in 2 in 5 of all deaths, and CHD death rates have fallen by about 66% between 1981 and 2007. However, the falls have been accompanied by widening relative inequalities. The authors asked whether the falls can be attributed to better lifestyles or better healthcare?

The findings are featured in an article: “Signs of maturity” Bajekal, M (2012) in The Actuary , October 2012.

A paper: “Mortality improvements by socio-economic circumstances in England (1982 to 2006)” by Lu, J L C; Wong, W; Bajekal, M., was discussed at Staple Inn on 24 September 2012. A recording of the discussion is here.

A presentation: “On the modelling and forecasting of socio-economic mortality differentials: an application to deprivation and mortality in England” by Andres M. Villegas and Steven Haberman of Cass Business School was made at Longevity 8, in Waterloo, Canada. The study, which is closely related to the work of Lu et al (above), applies recent developments in the stochastic modelling of mortality in multiple populations in the analysis of the association between socio-economic circumstances and mortality in England for the period 1981-2007.

International readers may find it interesting to compare the above findings with those from Olshanksy el al: “Differences In Life Expectancy Due To Race And Educational Differences Are Widening, And Many May Not Catch Up”. This paper explores disparities in life expectancy in the US population from 1990 to 2008, covering those of different race and education level. Hispanics appear to have the highest reported life expectancy at birth among the three main racial or ethnic categories (but see the article for caveats). Over the time period the gap between Hispanics and whites increased, and the difference between whites and blacks decreased. However, education (and its socioeconomic status correlates of income and wealth) was seen to have powerful associations with duration of life for both sexes and all races, at all ages. Within racial and ethnic groups, the difference in life expectancy at birth between those with the most and those with the least education in 2008 was 10.4 years for white females, 6.5 years for black females, 2.9 years for Hispanic females, 12.9 years for white males, 9.7 years for black males, and 5.5 years for Hispanic males.

In the light of the revised population estimates to be published by the Office of National Statistics (ONS) following the 2011 Census, the CMI has postponed the release date of its 2012 Mortality Projections Model. Detail on this proposal can be found here. The possible impact of the 2011 census results on high age mortality projections will be of particular interest.

Richard Willets discusses the ramifications for mortality-improvement rates of a revision to the population estimates for England & Wales here.

Iain Currie looks at when you can - and cannot - ignore parameter correlations for mortality projections here.

Gavin Ritchie examines the practicalities of extracting mortality-experience data from an annuity or pension administration system here.
Stephen Richards, Iain Currie and Gavin Ritchie have written a paper on putting longevity trend risk into a value-at-risk framework. It will be presented in November at two meetings of the Institute and Faculty of Actuaries in the UK. The paper can be accessed here. An extensive list of resources to support the paper is here.

Papers from the Mortality and Longevity seminar 2012 are as follows

- Index-based swaps - are they a viable alternative?
- How much do we really know about future longevity?
- Sex equality - health inequality
- Longevity de-risking in action
- Longevity de-risking in action. A Reinsurance Perspective
- Current CMI research
- Putting medical and behavioural insights into practice
- Emerging mortality and longevity research
- Making sense of the highly uncertain
- Putting medical and behavioural insights into practice
- CMI update


The IAA Mortality Working Group Information Base is developing. It can be accessed here.

The Institute and Faculty of Actuaries page on the work of its Mortality Research Steering Committee is here.

And of course the CMI news page is here.

A couple of useful websites are mentioned below.

- The Longevitas website gives news and resources here.
- The Legal and General Longevity Science information base is here. There is a wide-ranging list of links to other sources of information here.

Issue 4 of Longevity Bulletin, written by Carol Jagger and due for publication in November, is on the topic of healthy life expectancy. Once available, it should be here.

As usual, please let me know of any other items of news you feel should be included.

With best wishes

Brian Ridsdale
With thanks to all the contributors of this information
br2@ridsdale.com
28 Oct 2012
Mortality Working Group UK Update Oct 2012

- Unisex rates
- Differences in Life Expectancy Due To Race And Educational Differences in the US
- Generic quality of life predicts all-cause mortality in the short term
Consumers urged to buy insurance now to save thousands

A ban on sex-based pricing is expected to push some life and critical illness premiums up by 25pc.

Costs for a wide variety of insurance could increase by 25pc later this year as a result of a ruling from the European Court of Justice and changes to British taxation of insurers.

Experts predict that the combined effect will be to add thousands of pounds to the cost of long-term life assurance and critical illness cover. The British Insurance Brokers' Association (Biba) estimates that the changes will increase costs by more than £300m a year for motor cover alone.

Women look set to be the biggest losers

- 2 out of 5 deaths in England due to CHD
- CHD mortality rates falling fast
  - 66% from 1981 to 2007
- Contributed ½ increase in life expectancy from 1950 to 2000
- Lifestyle or healthcare?

- Courtesy M Bajecal: *Accelerated falls in coronary heart disease mortality accompanied by widening relative inequalities: better lifestyles or better healthcare?*
Age standardised CHD mortality rates by deprivation, 1982-2006

M Bajecal - see earlier slide

Figure 2: Risk factor and treatment contributions to coronary heart disease deaths prevented
2007, England

Risk factors worse
- BMI (increase) +9%
- Diabeties (increase) +7%

Risk factors better
- Smoking -43%
- Cholesterol -35%
- Blood pressure -29%
- Physical inactivity -1%
- More fruit and veg -5%

Treatments uptake better
- Heart attack -62%
- Post heart attack prevention by drugs -31%
- Stable angina -13%
- Heart failure -9%
- Hypertension therapies -4%
- Lipid lowering (statins) -14%

Calculations based on ONS mortality and population data

Unexplained 14%
Differences In Life Expectancy Due To Race And Educational Differences in the US

Olshansky et al: Differences In Life Expectancy Due To Race And Educational Differences Are Widening, And Many May Not Catch Up

Life Expectancy At Birth, By Years Of Education At Age 25, By Race And Sex, 2008

Source: Authors’ analysis of data from the National Vital Statistics System and the Census Bureau (Notes 24-26 in text).
Generic quality of life predicts all-cause mortality in the short term

Netuveli G et al.

- Control, Autonomy, Self-realisation, and Pleasure (CASP) predicted 5-year all-cause mortality significantly.
- Improvement in the quality of life reduced the probability of death.
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