

UK Mortality and Longevity Update

March 2014 Brian Ridsdale

Themes this time might be:

- Office of National Statistics' new central population projections are projecting longer expectations of life, but are we seeing a slowdown in mortality improvements?
- New research brings together hospital in-patients' records, socio-demographic information and much more. Work of this type could be of great value for health, demographic and medical research, but will it be allowed to continue?
- Are we over-worried about the effects of obesity on mortality?

Note: the referenced articles come from a variety of sources in the UK and elsewhere, and I have included them because I think they are interesting. Thanks to all the people who have contributed. If you have any comments or further news, please email me – address at bottom.

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1. CMI

[CMI Working paper 70](#) was published in October 2013. This paper provides a brief commentary on the all-offices **annuity data and experience** for the 2007-2010 quadrennium using data mainly collected in a special data collection exercise in 2012.

The CMI has published [Working paper 71](#), the final "S2" graduations of the CMI Self-Administered **Pension Scheme (SAPS) Mortality experience** for 2004 to 2011.

Note: both the above papers are available to [Authorised Users](#) only. For further details see [here](#).

However, a visual comparison between the S2 and the older S1 tables is given here:

<http://www.longevitas.co.uk/site/informationmatrix/s2mortalitytables.html>

And some comparison life expectancies and annuity factors are given here:

http://www.richardsconsulting.co.uk/new_tables.html

2. Office of National Statistics

The **new Historic and Projected Data** from the Period and Cohort Life Tables, 2012-based:

<http://www.ons.gov.uk/ons/rel/lifetables/historic-and-projected-data-from-the-period-and-cohort-life-tables/2012-based/index.html> The pages cover the new projections, along with notes on the methodology, assumptions, etc.

Office of National Statistics **Topic guide to: Population Projections**

<http://www.statistics.gov.uk/hub/population/population-change/population-projections>

Compendium of **UK Statistics, Population and Migration**: <http://www.ons.gov.uk/ons/guide-method/compendiums/compendium-of-uk-statistics/population-and-migration/index.html>

England: Department of Health business plan indicates that **Life expectancy for men at 75 did not increase** in 2012, for the first time since 1999, and **Life expectancy for women at 75 dropped** in 2012, for the first time since 2003:

<http://www.hsj.co.uk/topics/public-health/dh-acknowledges-first-fall-in-life-expectancy-since-2003/5067862.article>

The **21st Century Mortality Files** are a record of mortality in England and Wales from 2001 onwards. They are designed to complement the [20th Century Mortality Files](#), which are a record of mortality in England and Wales from 1901 to 2000. The files consist of an aggregated database of deaths by age-group, sex, year and underlying cause, and include populations for England and Wales.

<http://www.ons.gov.uk/ons/rel/subnational-health1/the-21st-century-mortality-files/2001-2012/index.html>

Leading causes of death by age and gender: <http://www.ons.gov.uk/ons/rel/vsob1/mortality-statistics--deaths-registered-in-england-and-wales--series-dr-/2012/sty-causes-of-death.html>

Inequality in healthy life expectancy at birth by national decile areas of deprivation: England 2009-11: http://www.ons.gov.uk/ons/dcp171778_356031.pdf

The new **Scotland's Census Website**: <http://www.scotlandscensus.gov.uk/>

The population of Scotland on census day in 2011 was estimated to be 5,295,403 - the highest ever and a 4.6 per cent rise since 2001. (Scotland's population in mid-2012 is estimated at just under 1/10 of England's population.)

Scotland: effects of inequalities in mortality (but mainly age <65) from the Scottish Office:

http://www.scotpho.org.uk/downloads/scotphoreports/scotpho131018_whatwouldittake_report.pdf

3. Institute and Faculty of Actuaries

Longevity Bulletin no 5 from the Institute and Faculty of Actuaries: Jan 2014. Discusses **the role gender plays in life expectancy**. It highlights the gender gap from an international perspective and illustrates the policies and trends that actuaries must address.

<http://www.actuaries.org.uk/research-and-resources/documents/longevity-bulletin-issue-05>

Exhibition: “Life Beyond Measure: A Short History of Longevity”, hosted by The Institute and Faculty of Actuaries in collaboration with the Royal Society at The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, Tel. +44 (0)20 7451 2500. March – June 2014. Admission is free.

<http://www.actuaries.org.uk/research-and-resources/pages/longevity-exhibition-royal-society>

<http://royalsociety.org/events/2014/longevity/>

International Mortality and Longevity Conference 15 – 17 September 2014

This conference, in Birmingham, England, will provide a multi-disciplinary forum for the exchange of information on the latest research, and an opportunity to exchange knowledge, all with the aim of better understanding and managing this complex yet critical subject.

<http://www.actuaries.org.uk/events/residential/international-mortality-and-longevity-symposium-2014>

Extending the Critical Path: Paper to SIAS Dec 2013. It covers Critical Illness Insurance rather than mortality but the methodology and use of external data sets is fascinating, as are the insights into morbidity by cause and by socio/geodemographics:

http://www.sias.org.uk/view_paper?id=SIASDec2013Paper

The paper has caused somewhat of a media furore with inaccurate initial reporting alleging that “data covering all hospital in-patient stays was used to advise insurance companies, resulting in increased premiums”. The Institute and Faculty of Actuaries’ response is at:

<http://www.actuaries.org.uk/news/press-releases/articles/telegraph-article-rebuttal> and it also stressed that the data received did not allow the re-identification of individuals.

4. International

Living to 100: Insights on the Challenges and Opportunities of Longevity, Florida Jan 2014, a complete set of abstracts: <http://livingto100.soa.org/pdf/2014-abstracts.pdf>

The abstracts are indexed by author and are well worth a visit.

Literature review and **assessment of mortality improvement rates in the United States population**, from the SoA: <http://www.soa.org/files/research/exp-study/research-2013-lit-review.pdf>
Includes:

- An overview of common mortality improvement projection models and a more detailed analysis of the U.K. CMI model
- Opinions regarding a long-term estimate of mortality improvement in the United States

- The extent and interaction of age, period and year-of-birth cohort effects in U.S. mortality improvement
- External factors that might be correlated with variations in mortality improvement, such as socioeconomic status and lifestyle

Forecasting Mortality Trends allowing for Cause-of-Death Mortality Dependence by Séverine Arnold (-Gaille) & Michael Sherris (2013) in the *North American Actuarial Journal*:
<http://www.tandfonline.com/doi/abs/10.1080/10920277.2013.838141#.UxRjYF5qfQw>
 Needs subscription.

Following an award-winning poster at the 2011 Warwick Mortality and Longevity symposium, Michael Ortmann's paper: **Computerised detection and stochastic forecast of age, period and cohort effects** is published here: <http://link.springer.com/article/10.1007/s12297-013-0242-6>

5. Articles and presentations

Nations

Modelling mortality by cause of death and socio-economic stratification: an analysis of mortality differentials in England <http://www.soa.org/library/proceedings/arch/2014/arch-2014-iss1-villegas-haberman-presentation.aspx>

Deaths in England and Wales exceed 500,000 in 2013 as **mortality rates barely improve**, Towers Watson: <http://www.towerswatson.com/en/Press/2014/01/Deaths-in-England-and-Wales-exceed-500000-in-2013-as-mortality-rates-barely-improve>

A Glaswegian ponders the "**Glasgow effect**" for mortality:
<http://www.longevity.co.uk/site/informationmatrix/ataleofthreecities.html>

USA

Women in Parts of Rural America Face Worsening Mortality Rates, UW Population Health Institute Study Finds: <http://pophealth.wisc.edu/wibcerp/research-news/2013-03-12-0>

Obesity

Interesting website factsheets from the Overseas Development Institute (ODI), subtitled: "**Should the world go on a diet in 2014?**"
<http://www.odi.org.uk/future-diets>

Article based on this from the Guardian: "**Obesity soars to 'alarming' levels in developing countries**"
<http://www.theguardian.com/global-development/2014/jan/03/obesity-soars-alarming-levels-developing-countries>

Sam Gutterman in the “Living to 100” abstracts (see above), addresses **the so-called obesity mortality paradox**, where mortality experience is lower for those individuals who are overweight and in some cases obese than that for those who are in normal weight categories.

Longevity assumptions

Are we being too optimistic regarding life expectancy? <http://www.partnership-group.com/media/news/company/2014/partnership-ilc-uk-life-expectancy.aspx>

Richard Willets highlights the fact there are 30,000 (or 15%) fewer people aged in their 90s than estimates based on previous censuses might suggest. This trend has also been noticed in America where the 2004 US Census projected that there would be 114,000 centenarians in 2010 but in actuality, there were only 53,364.

Is **another step change in life expectancy assumptions** just around the corner?

http://www.clubvita.co.uk/SiteCollectionDocuments/Vitamins_WP64_final.pdf

Putting longevity assumptions into context, from Club Vita:

[http://www.clubvita.co.uk/SiteCollectionDocuments/131108_Longevity_report_FINAL%20\(2\).pdf](http://www.clubvita.co.uk/SiteCollectionDocuments/131108_Longevity_report_FINAL%20(2).pdf)

Pensioner mortality

“Later retirees tend to live longer” from Club Vita:

http://www.clubvita.co.uk/SiteCollectionDocuments/VitaMins_June%202013_Live%20longer%20-%20retire%20later_FINAL.pdf

Practical aspects

How to create mortality tables for your own portfolio:

http://www.richardsconsulting.co.uk/2013_11_11_EICC.pdf

How risk factors vary with age:

<http://www.longevitas.co.uk/site/informationmatrix/mindthegap.html>

How a simple statistical technique uncovers data-quality problems missed by an A/E comparison:

<http://www.longevitas.co.uk/site/informationmatrix/spottinghiddendataqualityissues.html>

How a statistical model can reduce uncertainty when measuring mortality:

<http://www.longevitas.co.uk/site/informationmatrix/reducinguncertainty.html>

Difficulties when trying to interpret parameters in complex models:

<http://www.longevitas.co.uk/site/informationmatrix/theperilsofparameterinterpretation.html>

Articles from RMS Life Risks:

http://static.rms.com/email/documents/liferisks_monitor_october2013.pdf

Include:

- One Step Closer to Significant Life Extension
- Liver Disease Deaths on the Rise in England
- MERS-CoV – Lethal Virus with Unknown Source of Infection

6. Resources

Ageing, longevity and demographic change: A Factpack of statistics from the International Longevity Centre-UK:

http://www.ilcuk.org.uk/index.php/publications/publication_details/ageing_longevity_and_demographic_change_a_factpack_of_statistics_from_the_i

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This is a note **for** the UK Actuarial profession and others, and **for** the International Actuarial Association. The last six-monthly report is here: <http://www.actuaries.org.uk/research-and-resources/documents/international-actuarial-association-uk-mortality-update-october-201>

For the most recent UK version of the report **from** the IAAMWG, see:

<http://www.actuaries.org.uk/news/articles/international-actuarial-association-mortality-working-group-iaamwg-second-report>

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