Overview of the IAA Mortality Working Group
Hong Kong, May 10, 2012

Bill Horbatt
Vice Chairman
IAA Mortality Working Group
IAA MWG: why are we here?

- Social Security – old age income support
- Health care resources – public and private
- Defined benefit pension fund solvency
- Adequacy of defined contribution schemes
- Life insurers solvency
- Pricing of long term mortality risk products
- Ageing population – workplace reforms, new industries and infrastructures
IAA MWG: Vision

Whenever insights are required in respect of mortality and trends in mortality, the body of knowledge produced by the IAA Mortality Working Group is sought for its valued and authoritative coverage.
IAA MWG: Terms of Reference

- To **monitor data collection** efforts internationally and to facilitate continuous improvement
- To **coordinate** the work done by different Sections and Committees of the IAA in the area of mortality, especially **cooperation** with other international bodies.
- To **extend** the body of **knowledge** of the international actuarial community in respect of mortality:
  - promote research, conferences, communication
  - web
IAA Mortality Working Group: website

- Object: extend the body of knowledge of the international actuarial community in respect of mortality: regardless of whether it’s “ours” or not
- And as a resource for others

- Access from www.actuaries.org/mortality
- Member log-in gives enhanced content
Mortality (Working Group)

Information Base

Insights about the level of mortality rates around the world, and the trends of future rates of mortality, have never been more important. While mortality rates are declining in most countries, in other countries they are stable and in some instances are even increasing. Rates of mortality affect many aspects of society.

The following pages provide information about areas of investigation by the Working Group.

Areas of investigation

- Overview
- Sources of mortality data worldwide
- Society of Actuaries’ International Mortality Experience Study
- Mortality trends and uncertainty
- Pandemics
- Social and demographic stratification
- Mortality by cause of death
- Projection techniques
- Mortality of disabled people
- Mortality-related financial products
- Underwriting
- Mortality assumptions used in pensions and annuity reserving
- Other sources of information

Contact us

The members of the IAA Mortality Working Group are listed on the IAA web site www.actuaries.org/Mortality. Please feel free to contact any member of the Working Group with any requests for information by emailing iaamwg@actuaries.org

We would be particularly interested in receiving advice of any papers, research or studies that you consider worthy of inclusion in our information base.
IAA Mortality Working Group: areas of interest

- Overview
- Sources of mortality data worldwide
- Society of Actuaries’ International Mortality Experience Study
- Mortality trends and uncertainty
- Pandemics
- Social and demographic stratification
- Mortality by cause of death
- Projection techniques
IAA Mortality Working Group: areas of interest 2

- Mortality of disabled people
- Gender differences
- Mortality-related financial products
- Underwriting
- Mortality assumptions used in pensions and annuity reserving
- Healthy longevity
- Other sources of information
Collection of global data bases

- SOA Table Manager
- Human Mortality Data Base (HMD)
- Continuous Mortality Investigation (CMI) Library
- World Health Organisation
Two approaches to mortality projections and uncertainty

- Spread Adjusted International Trend (SAINT) – Use of multiple geographies to eliminate “noise” in past short term mortality levels and trends of a single country
- Distinguish between short term trend and long term trend and combine both in the model. Long term effects can include expert opinion about future life expectancy
Divergent Lee-Carter projections from separate analyses
Long term trend versus short term trend

$e(x)$

Last observation year
Long term trend versus short term trend
Mortality is critically influenced by:

- Social class
- Income
- Education
- Ethnicity
- Location
Mortality is critically influenced by Social class. Trends in male period life expectancy at age 65, 1972-2005, England and Wales

Mortality by cause of death

Overall mortality by major cause for males – England and Wales, 1911-2005 age-standardised

Source: BAS based on ONS figures
IAA MWG: Underwriting

Used in risk selection and premium rating …
for insurances, pensions and annuities

Types of underwriting vary substantially around the world

- Availability of online medical information
- Improved understanding of sociodemographic information
- Development of “preferred” and “substandard” classes of business
- Automated underwriting processes and expert systems

Objects:

- Document, examine and share best practice
- Create evidence base
### Mortality (Working Group)

#### Members

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<tr>
<th>Chairperson</th>
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<td>Co-Vice-Chairpersons</td>
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<td>John Stephen Armstrong</td>
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<td>Zhenghui Zhen</td>
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#### Interested Persons

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<td>Francis Ruyg</td>
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