

# **INTERNATIONAL ACTUARIAL ASSOCIATION**

## **Mortality Working Group (MWG)**

**October 16-17, 2015**

**Westin Bayshore Hotel, Vancouver BC, Canada**

### **Minutes**

#### Present:

Paul Lewis – Chairperson  
Al Klein – Co Vice chairperson  
Brian Ridsdale – Co Vice chairperson  
Séverine Arnold  
Assia Billig  
Dieter Gaubatz  
Sam Gutterman  
Bill Horbatt  
Jose Mendinhos  
Ermanno Pitacco  
Lars Pralle  
Adam Reese  
Martin Stevenson  
Marc Tardif  
Henk van Broekhoven  
Hiroshi Yamazaki

#### Absent:

Ayse Arik  
Rikard Bergstrom  
Bridget Browne  
Chresten Dengsøe  
Michael Eves  
Eduardo Martinez  
Hans de Mik  
Ksenia Novikova  
Hans Michael Overgaard  
Paul John Sweeting  
Benoit Laurent Yerna  
Peter Ying  
Zhaolan Zhan

Observers:

Morteza Aalabaf-Salbaghi	Eurasia & Middle East Subcommittee; PIWG
Bob Beuerlein	American Academy of Actuaries
Niel Fourie	Actuarial Society of South Africa
Jean-Claude Menard	International Social Security Association
Jari Niittuinperä	Suomen Aktuaariyhdistys
Thierry Poincelin	Institute des Actuaires
Phil Simpson	Association of Consulting Actuaries
Olivier Steiger	Association Suisse des Actuaires
Akio Tokuda	Japanese Society of Certified Pension Actuaries

Guest speaker:

Magali Barbieri	Human Mortality Database
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The Chairman welcomed all members and observers present. The meeting included two sessions with a combined length of 8 hours over the two days.

**1. Ricardo Frischtak**

Paul Lewis opened the meeting by recognizing the passing away of Ricardo Frischtak, a Brazilian member of the MWG for several years. He recognized his contributions to this group. A memorial card from the MWG will be sent to Ricardo's family. There was a moment of silence in memory of Ricardo.

**2. Minutes of the prior meeting**

The minutes of the prior meeting in Zurich, Switzerland required a correction of the date of the meeting to April 10-11, 2015, instead of April 10-11, 2014 (*corrected*). The document links on the MWG website should be checked to ensure that they are working.

**3. New members / retiring members**

A document describing the participation expectations of working group members has been created. This document, in the form of a letter, will be sent to all new members when they join the group. A copy of the document is attached. ([file 1.1](#))

Six new members have joined the working group including: Ayse Arik, Rikard Bergström, Assia Billig, Sam Gutterman and Eduardo Martinez.

For the interim, Paul Lewis will be taking over the duties of coordinating the administration of the Working Group's new and retiring members until another person can officially take this task over.

**4. Human Mortality Database (HMD) (Magali Barbieri)**

Magali Barbieri, Associate Director - HMD, provided an overview of the workings of HMD ([file 2.1](#)). The HMD effort is a joint collaboration between Max Plank Institute for Demographic Research in Rostock, Germany and the University of California, Berkley, California (Dept of Demography). She described the database ([file: 3.1](#)) and provided insights on HMD's work protocols ([file 3.2](#)). Currently in 2015, the mortality data of 38 countries is provided free of charge through the HMD. HMD database has been referenced in a broad range of articles, books, theses, official government reports, technical reports and scientific working papers.

In closing, she indicated that HMD is seeking participation in an advisory group and open to collaborations. Funding is also an issue as the data is provided free of charge to users. As heavy users of the database, financial support would be appreciated from insurance organizations. Currently the HMD conducts joint projects with other organizations and receives some funding from them. The Society of Actuaries is one of those. However, current longer term funding levels are insufficient. The MWG will look for ways to assist the financing of the continuation of this valuable service provided by the HMD to the insurance industry. If they feel it appropriate, members will raise the issue of funding with their own professional organisations.

HMD data can be obtained from the website [www.mortality.org](http://www.mortality.org).

#### 5. MWG Website update (Brian Ridsdale)

Brian Ridsdale reported that we were not able to get a full update of the website usage because of changes which the IAA is currently making to the system. This is a temporary issue and it is expected that regular updates will be reinstated beginning at the next meeting.

#### 6. MWG website tour (Adam Reese)

Adam provided a PowerPoint slide deck which can be used to present the MWG website. It was created jointly by Adam and Brian Ridsdale. The presentation includes comments about the purpose of the MWG and the contents of the website. ([file 12.1](#))

#### 7. Country reports

Japan Hiroshi Yamazaki ([file 13.1 Country Report Japan doc/pdf](#))  
Demographic information was updated as of 1/1/2015. New general population mortality tables, as of 2014, have been published. They indicate that male life expectancy in Japan is 80.5 years. Only Hong Kong and Iceland have higher male life expectancies. For females, the life expectancy of 86.8 years is the highest in the world. Insurance statistics were updated to include the calendar year 2013.

Current status Paul Lewis ([file 13.1 IAA mortality.xlsx](#))  
Paul Lewis discussed the conditions of the current country reports. He indicated that information is missing on a large proportion of the regions around the world. There is a wide range in the quality of the various documents currently stored on the MWG website. Paul asked that more work be put into increasing the quality of the reports included.

#### 8. UK research update ([paper attached-UK Mortality and Longevity](#)) (Brian Ridsdale)

Brian discussed the highlights of his UK Mortality and Longevity Update of September, 2015 ([presentation attached-IAA MWG Vancouver Update](#)). The presentation included a bulletin on the impact of pandemics on longevity (hyperlink here: <http://www.actuaries.org.uk/learn-and-develop/research-and-knowledge/our-journals-and-research-publications/longevity-bulletin-2>) and a discussion on the accuracy of past mortality rate forecasts in the light of a substantial increase in the death rate in the UK in 2015. An item of particular interest is the sudden drop in female general population life expectancy in the UK in 2012 for ages 60 and older. He also mentioned the upcoming International Mortality and Longevity Symposium taking place on September 7-9, 2016 at the University of London, UK. There is

currently a call for presentation papers, and MWG members are invited to submit papers and to attend. ([file 14.1](#)) A number of reference links are provided in the [file 14.2](#).

## 9. Ongoing MWG projects

- a. Underwriting around the world (Al Klein)  
Al reported that the report will be updated with any new information from countries already included in the report and for practices of several additional regions. ([file 11.1](#))
- b. Insured / population / annuity mortality rate comparisons (Marc Tardif)  
The project is just be being set up. It is expected that there will be a presentation at the next meeting for 3 or 4 countries, as a test to determine whether the overall project is worthwhile.
- c. Old age mortality (Al Klein)  
The initial effort will be to uncover sources of current “older age” mortality, hopefully up through ages 105 or 110. ([file 21.1](#)) Also, Ermanno Pitacco presented some materials on this topic later in the meeting, described in section 12 below.
- d. Mortality improvements at older ages (Sam Gutterman)  
Sam indicated that a literature search needed to be done. He discussed a couple of theories, perhaps working against each other, that need investigation, survival of the strongest and that improvements at the younger ages result in less strong older survivors. He also commented that it appeared that many models do not seem to fit the Gompertz curve. End of life issues, such as life span and voluntary end of life, also need to be considered. ([file 26.1 Older age Mort improv](#)). A paper ([file 26.1 SMWGSept2015AA](#)), by Ayşe Arik, summarizing the various opposing views on older age improvements is also available.
- e. Long term drivers of mortality (Al Klein)  
Al indicated that the plans for this project included compiling a list of items that impact future mortality and quantify potential impacts. The goal is to provide the list of items and references at the next meeting. ([file 23.1](#))
- f. Project expectations  
Paul Lewis and the chairs of the project groups will have a teleconference meeting to discuss more concrete and timely presentation expectations, even if just preliminary.

## 10. Mortality modelling with limited data availability (Henk van Broekhoven)

Henk gave a presentation on an approach to create mortality assumptions when only limited data is available. The main technique is to use data from other countries, or from a basket of other countries which have similar life expectancies.

## 11. Heterogenous population mortality (S everine Arnold)

S everine discussed research regarding mortality improvement over time and the compensation effect. The compensation effect is known to be when countries with a lower general level of mortality experience a faster increase of mortality over ages. This would imply that even if developed economies tend to have lower mortality rates, their

mortality rates at older ages would be approximately equivalent in every country, converging to a specific value. A question is whether sub-populations each follow Gompertz Law when broken out from the overall population and if the compensation effect is observed for these subpopulations. A conclusion reached by the researchers is that a portion of the past change in mortality is due to changes in the population compositions (the fractions of each sub-population are changing over time) and that the compensation effect is indeed observed at the sub-population level. ([file 17.1](#))

12. **Frailty and mortality at old ages** (Ermanno Pitacco)  
Ermanno provided preliminary remarks on older age mortality and frailty. The paper is not yet complete. The material provided references to several older age mortality papers. ([file 22.1](#))
13. **Japanese population mortality rate construction methodology** (Hiroshi Yamazaki)  
Hiroshi provided information on the creation of the Japanese population 21<sup>st</sup> Complete Life Tables (2010). This included an overview of the methods of construction, graduation and extrapolation used for the older ages. ([file 34.1](#))
14. **Life Expectancy gender gap calculator** (Bridget Browne)  
Although Bridget was not able to attend and no presentation was given on the calculator, she provided the utility ([file 3.4](#)) and a description document ([file 3.3](#)). The calculator determines the variation in mortality improvement rates over time, gender and age for many countries. The HMD database provides the mortality rates used in the calculator.
15. **Feedback from other committees/working groups**
  - a. **Scientific Committee** (Martin Stevenson)  
Martin provided a brief summary of the mortality items discussed by the SC ([file 37.2](#)). This included a presentation on the micro-insurance working group ([file 37.1](#)). Discussions on the International Experience Studies project were deferred to the next meeting.
  - b. **Populations Issues** (Sam Gutterman / Assia Billig)  
This group focuses population issues impacting insurance. Sam discussed its current focus on Long Term Care. It will probably have some need for disabled life mortality.
  - c. **Health Care committee** (Mika Makinen)  
Mika provided an overview of the purpose of this new working group. Most topics are similar to those in the mortality area, with a slightly different focus. Genomics is one of the interesting issues being discussed.
  - d. **Climate Change** (Sam Gutterman)  
This working group is just beginning. Sam requested interaction/participation from the MWG. At this time, Paul Lewis will be the MWG contact with this group
16. **2016 strategic plan (Paul Lewis)**  
Paul Lewis provided a preliminary set of MWG goals. ([file 18.1](#)) He will complete the goals based on the discussions. Once completed, they will be submitted to the Scientific Committee.

### 17. Other association meetings – Geneva (Lars Pralle)

Lars represented MWG at two Geneva conferences held by the International Social Security Association and the International Labour Association (associated with the United Nations). Social Security is looking for assistance in helping third world countries set up mortality tables. The MWG needs to decide what assistance it can provide before the MWG's next meeting.

### 18. Website editorial committee (Brian Ridsdale)

Brian presented a proposal to set up an editorial committee to monitor and maintain the contents of the MWG website. ([File 30.2](#)) The goal is to ensure that its contents remain relevant, fresh and up-to-date. Morteza Aalabap volunteered to join this group Brian also provided a document describing the purpose of the website. ([File 30.1](#))

The paper was agreed. Volunteers were requested for the roles of Chair and Secretary. In the absence of a volunteer for chair, Brian volunteered to continue for a limited period. Mortaza volunteered to take the role of Secretary and was elected with pleasure.

### 19. Issues Advisory Group (Al Klein)

Due to the number of current items, no further issues are being entertained at this time. Al asked for any ideas for future projects to be forwarded to him.

### 20. Next meeting

Next year's IAA committee meetings will be held in

- St. Petersburg, Russia (May 25-29, 2016) and
- Cape Town, South Africa (November 18-21, 2016).

### 21. To-do items

- HMD financial support (#4) (Paul L.)
- Papers for International Symposium (#8) (all)
- MWG website editorial committee (Brian – w/ Morteza Aalabap, Bridget Browne, Dieter Gaubatz, Ermanno Pitacco, Eduardo Trigo Martinez)
- Create a speakers list (Paul Lewis)
- Presentations at next meeting
  - Mortality rate comparisons (#9b) (Marc)
  - Old age mortality (#9c) (Al)
  - Mortality improvements at old ages (#9d) (Sam)
  - Long term drivers of mortality (#9e) (Michael)
- Project expectations (#9f) (Paul)
- International Experience Study proposal to Scientific Committee update (#15a) (Dieter)
- Climate change participation (#15d) (Paul)
- 2016 Strategic Plan (#16) (Paul)
- Third world mortality table construction assistance (#17) (Paul)
- Editorial Committee setup (#18) (Brian)

### 22. Completed to-do items from last meeting

- Seminar for Vancouver (Paul Lewis)
- Created a "Country Report" status list (Paul Lewis)



## Appendix – list of papers / presentations / reports

1. [Minutes of Zurich meeting \(#2\)](#)
2. [New member letter \(#3\)](#)
3. Human mortality database (#4)
  - a. [Overview of workings of HMD \(2.1\)](#)
  - b. [HMD database description \(3.1\)](#)
  - c. [HMD protocols \(3.2\)](#)
4. [MWG website tour presentation \(#6\) \(12.1\)](#)
5. Country report (#7) ([13.1 Country report Japan... pdf version only](#))
6. Country reports quality status (#7) ([13.1 IAA mortality file](#))
7. UK research update (#8)
  - a. [Summary of symposium \(14.1\)](#)
  - b. [Document with reference links \(14.2\)](#)
8. [Old age mortality project slides \(#9c\) \(\(21.1\)](#)
9. Mortality improvements project slides (#9d)
  - a. [Presentation \(26.1 – Old age Mort improve\)](#)
  - b. [Paper \(26.1 – SMWG\)](#)
10. [Long term drivers of mortality \(#9e\) \(23.1\)](#)
11. [Heterogenous population mortality \(#11\) \(17.1\)](#)
12. [Frailty and mort at old ages \(#12\) \(22.1\)](#)
13. Japanese table construction (#13) ([34.1 ... pdf version only](#))
14. Life expectancy gender gap calculator (#14)
  - a. [Utility \(3.4\)](#)
  - b. [Documentation \(3.3\)](#)
15. Scientific Committee (#15)
  - a. [Agenda \(37.2\)](#)
  - b. [Micro-insurance \(37.1\)](#)
16. [MWG goals \(#16\) \(18.1\)](#)
17. MWG website (#18)
  - a. [Purpose of website \(30.1\)](#)
  - b. [Proposal for editorial committee \(30.2\)](#)