



QUANTIFYING RISK, ENABLING OPPORTUNITY

Assured lives mortality investigation

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May 2018

Agenda

CSI Committee Update

IAA Mortality Working Group

Feedback on assured lives mortality investigation

CSI Committee Update

What's Going Well

- Ongoing commitment from contributing companies
- Annual Data Collection Process

What is Still a Challenge

- Data cleaning and review process slow to protect confidentiality
- Volunteer time
- How to structure the committee to achieve more efficiency

Studies

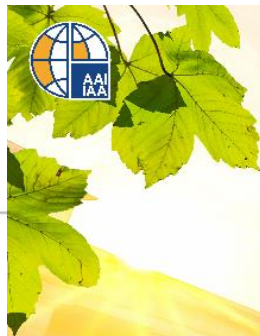
- Pensioner Study – first study however unlikely to be an easy one to repeat
- Annuitant Study – data cleaning and queries
- Mortality Study – review of results and graduation
- Lump Sum Disability – to progress
- Critical Illness – discussion on the value of this given differences in products

IAA Mortality Working Group

- 37 members representing 26 countries
- Meeting twice a year with other IAA meetings
- Building network and sharing research between experts around the globe
- Country Reports
- Information Base
- Projects
- Guest Speakers
- Mortality and Population Issues Seminar

Link to MWG webpage:

https://www.actuaries.org/index.cfm?lang=EN&DSP=CTTEES_TFM&ACT=INDEX



Berlin, Germany

IAA Council and Committee Meetings

30 May - 3 June 2018

IAA Mortality Working Group

Mortality Working Group (*Topic Session*), **Wednesday, May 30, 2018**

	Business	Speaker
1	Introduction and Overview of MWG (10min)	Brian Ridsdale
2	ICA Presentations and MWG Projects (35min) - Climate Change and Mortality * (Sam Gutterman) - MWG Project - E-cigarettes (Sam Gutterman) - MWG Project – Older Age Mortality (Sam Gutterman) - Underwriting Around the World (Allen Klein) - Long Term Drivers of Future Mortality (Allen Klein) - Actuarial Perspectives on Inequality * (Assia Billig) - An International Look at Recent Trends in Longevity (Brian Ridsdale)	Presenters
3	Research in Mortality (UK and US) (20min)	Brian Ridsdale Dale Hall
4	Interactive Session (25min) - Future Research Topics	
5	Close	Brian Ridsdale

Assured lives mortality 2003 - 2013

- Previous report
- Scope
- Overview
- Comparison to SA85-90
- Rating factors
- Trends
- Next steps

Assured lives mortality 2003 – 2013

Previous report

- Investigation period 2003 – 2010
- Report published, but subsequently retracted
 - Errors in how data was interpreted
 - Only picked up when presented to individual companies
 - Error estimated to have >5% impact

Assured lives mortality 2003 – 2013

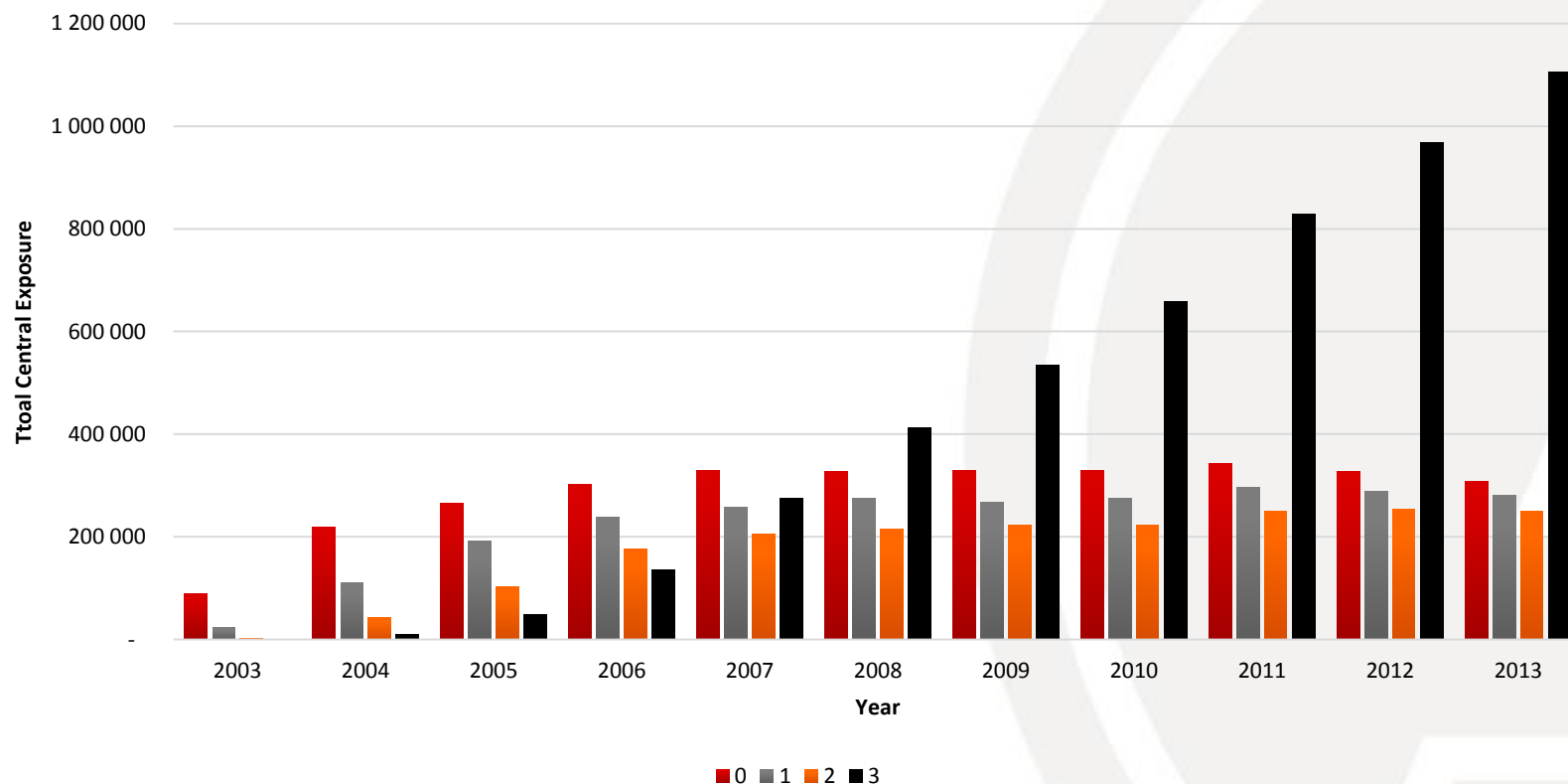
Scope

- New Generation Products (pure risk products)
 - No investment portion, No surrender value
 - Whole Life Assurance and Term Assurance
 - Level premium or Risk-related increases
 - Full underwriting with HIV test
- Contributing Companies
 - Discovery, Liberty, Metropolitan, Momentum, Old Mutual and Sanlam

Assured lives mortality 2003 – 2013

Overview

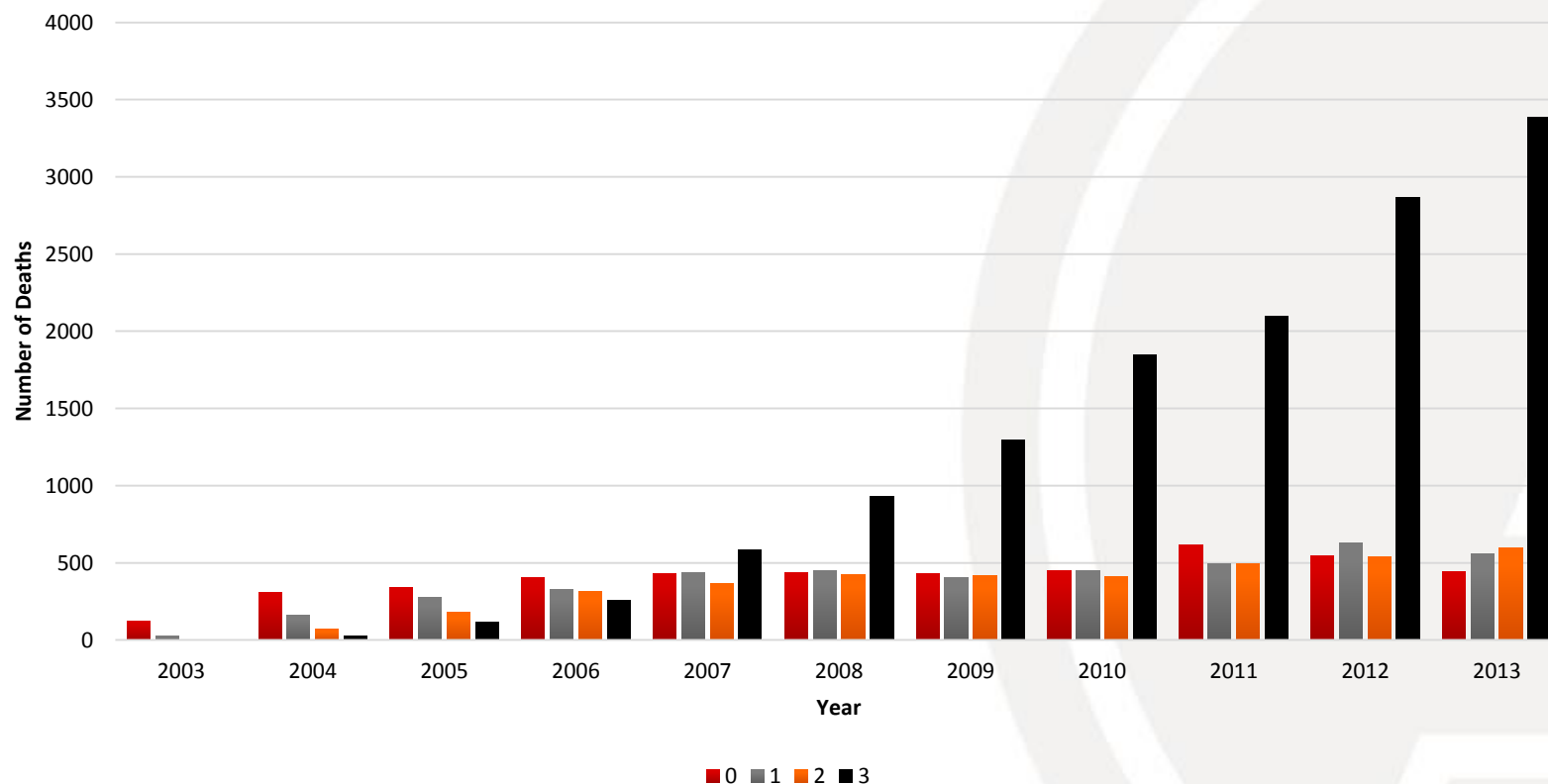
Total Exposure by Year and Duration (3 year select period)



Assured lives mortality 2003 – 2013

Overview

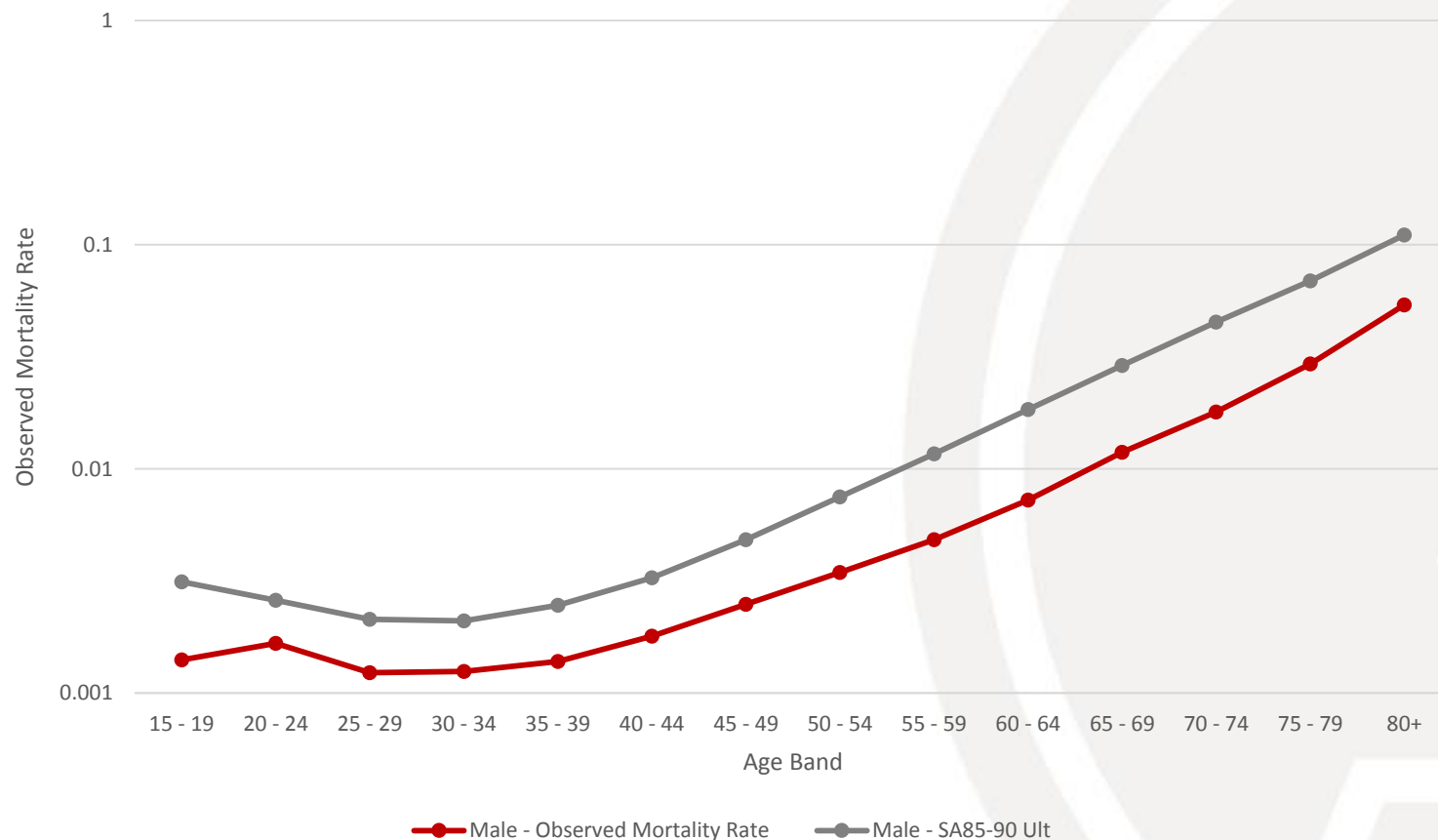
Total Deaths by Year and Duration (3 year select period)



Assured lives mortality 2003 – 2013

Comparison to SA85-90

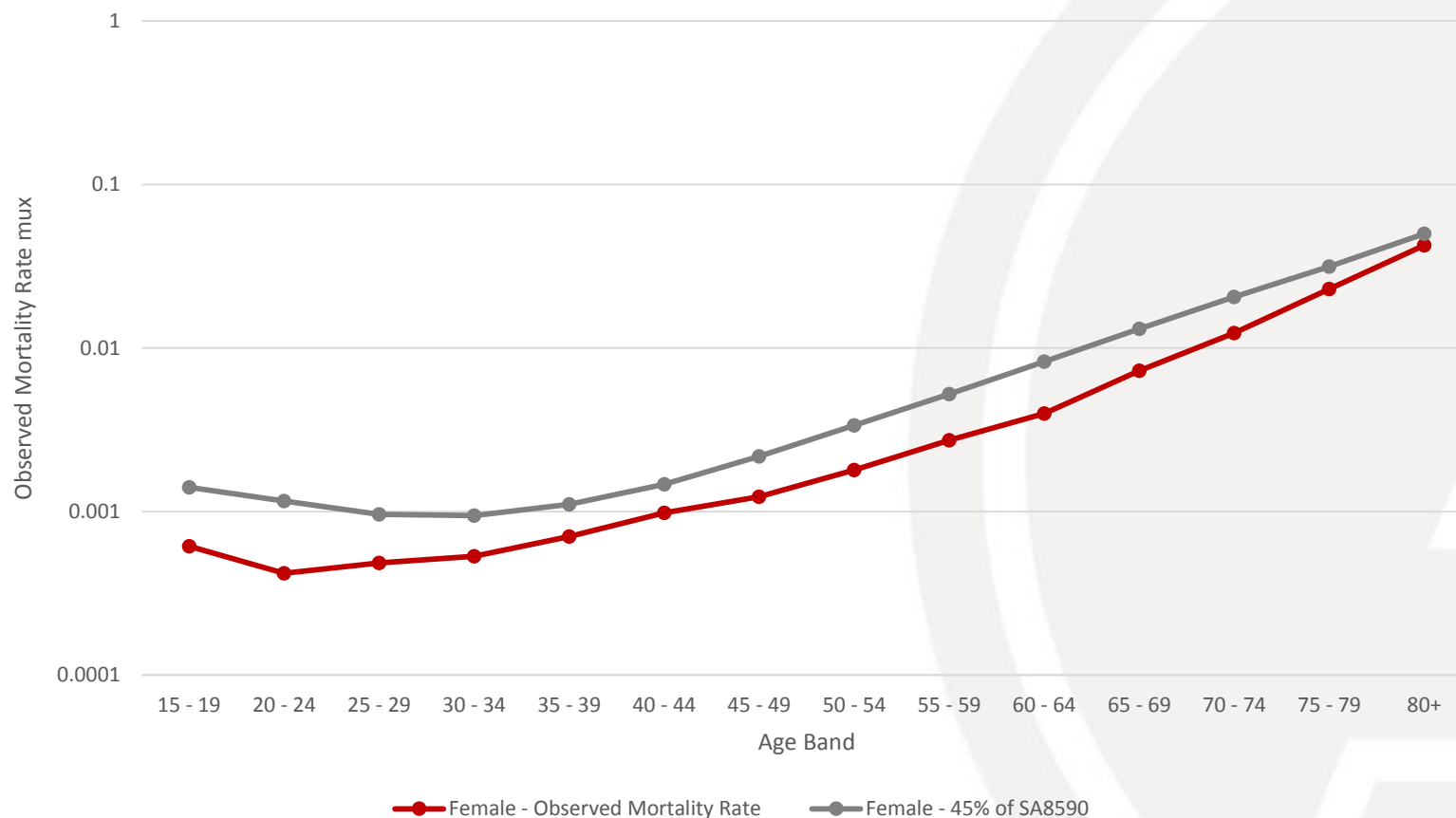
Comparison of Male Observed Rate to SA85-90 Ult



Assured lives mortality 2003 – 2013

Comparison to SA85-90

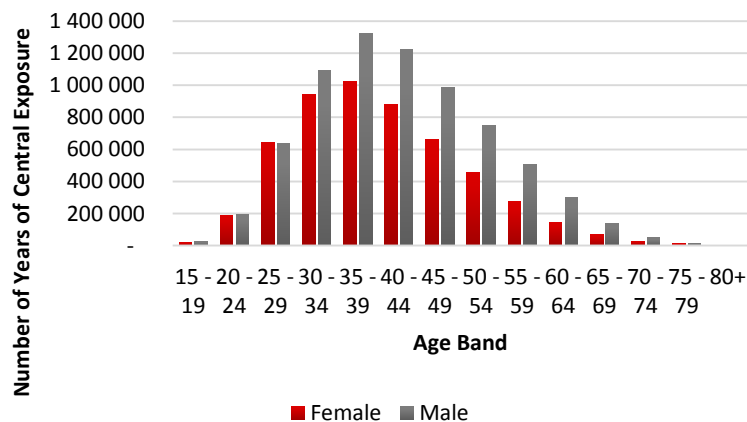
Comparison of Female Observed Rate to 45% of SA85-90 Ult



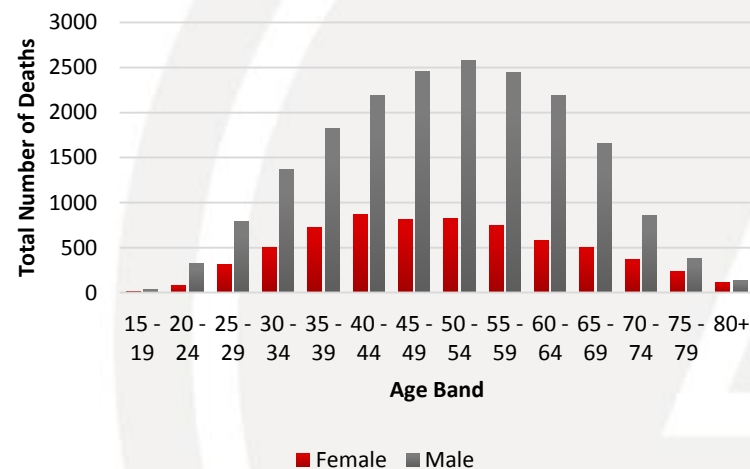
Assured lives mortality 2003 – 2013

Rating factors: gender

Number of Years of Central Exposure by Age and Sex



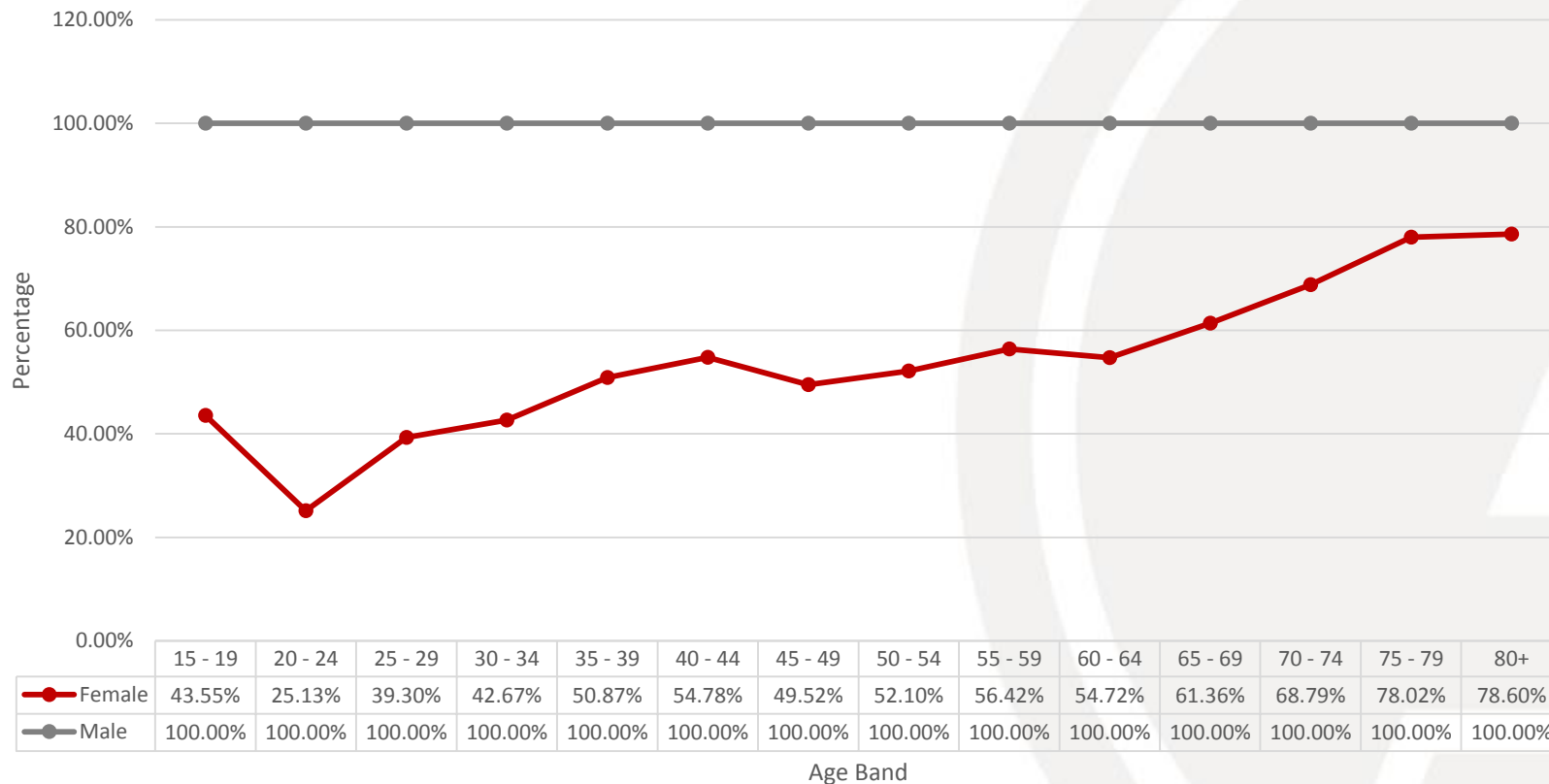
Number of Deaths by Age and Sex



Assured lives mortality 2003 – 2013

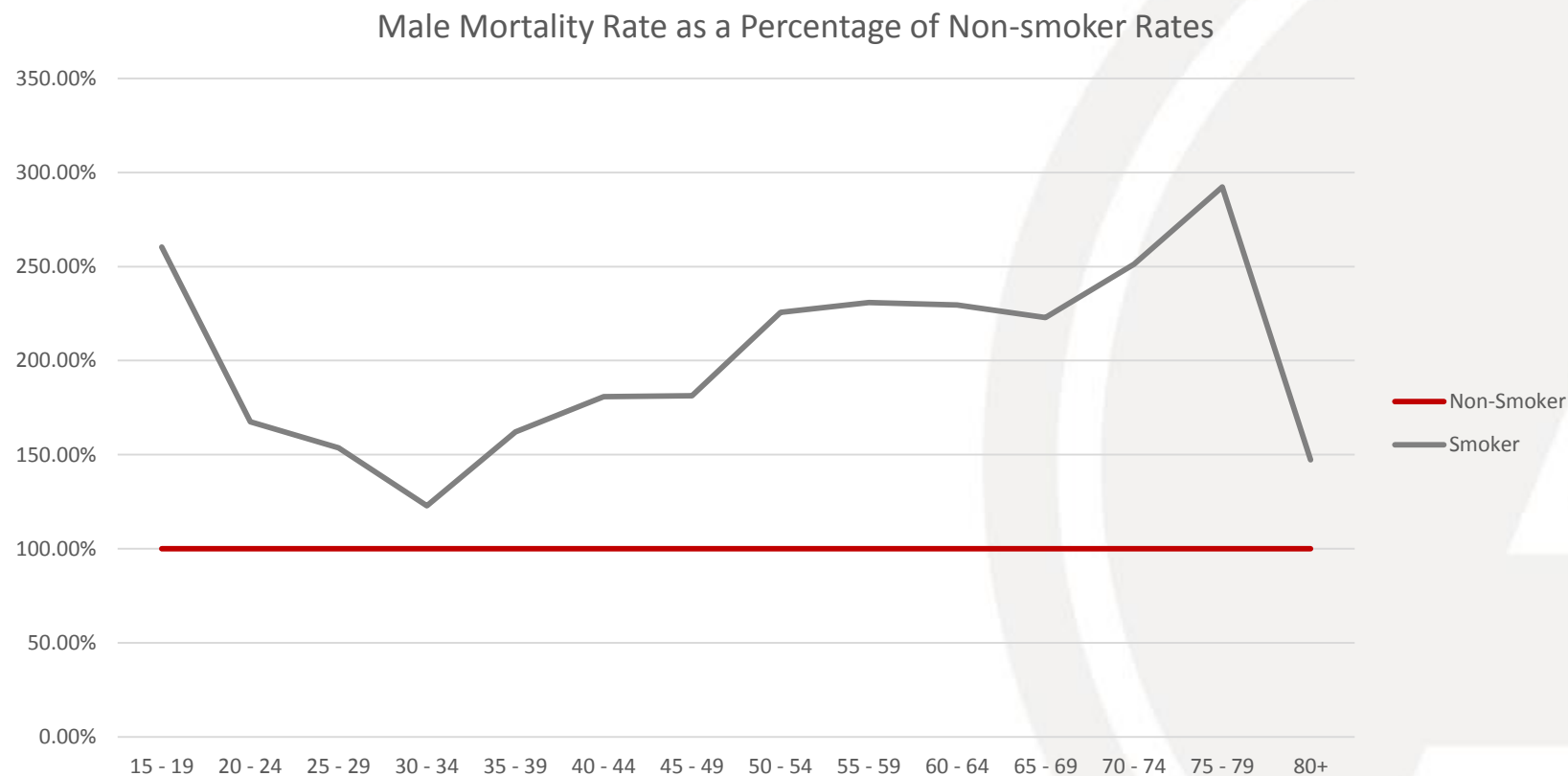
Rating factors: gender

Observed Mortality Rate as a Percentage of Male Rates



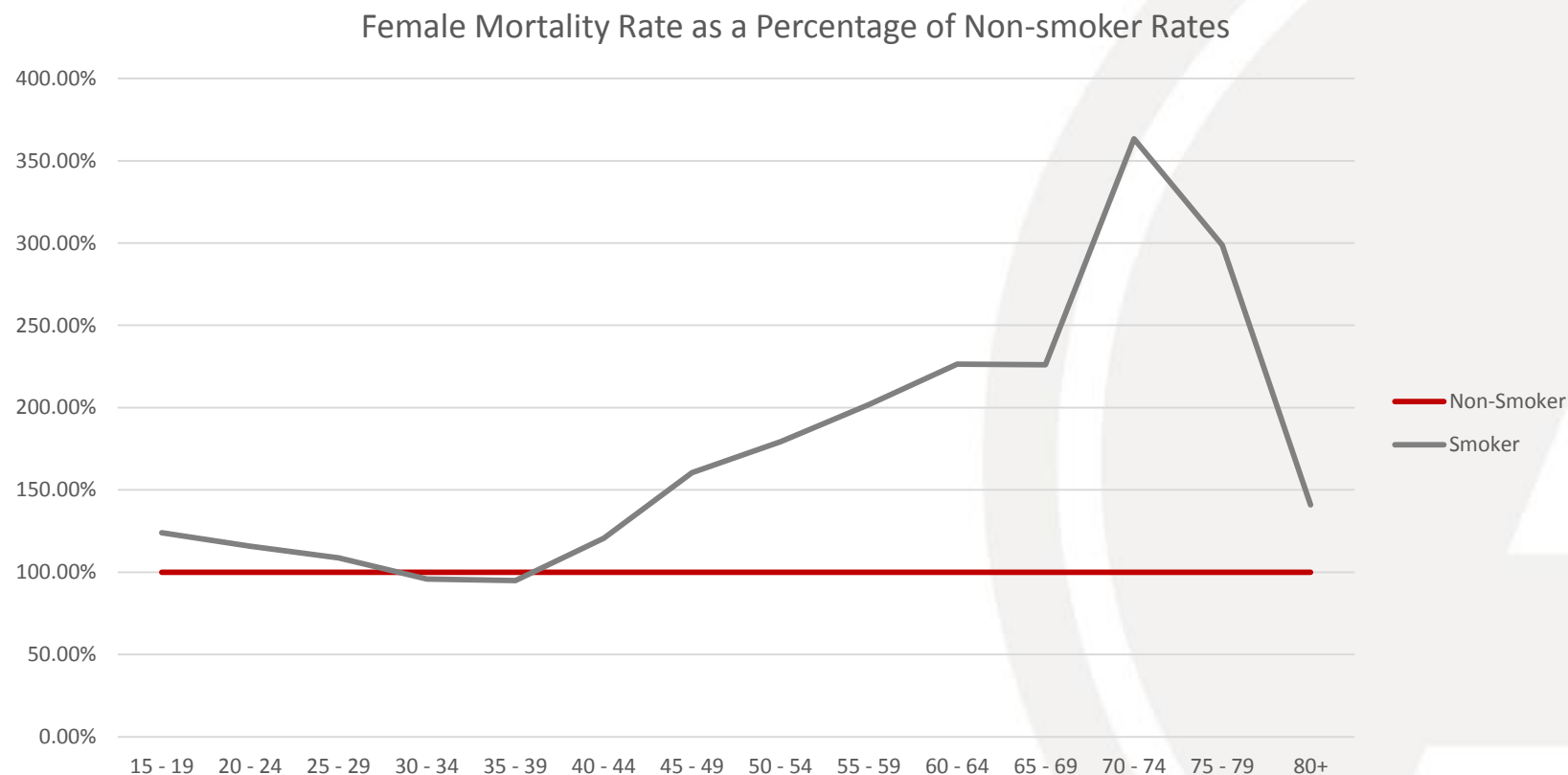
Assured lives mortality 2003 – 2013

Rating factors: smoker status



Assured lives mortality 2003 – 2013

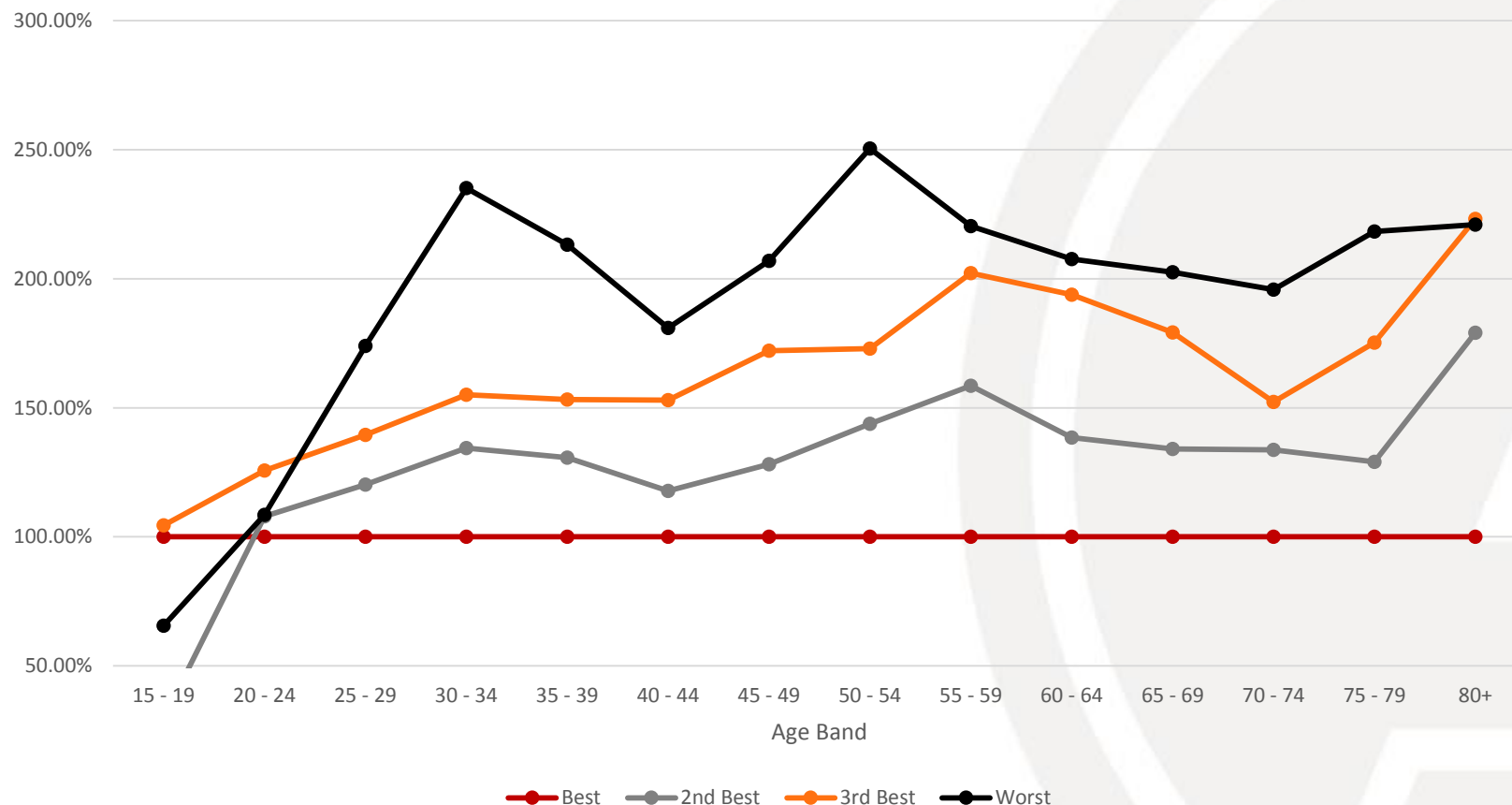
Rating factors: smoker status



Assured lives mortality 2003 – 2013

Rating factors: socio economic class

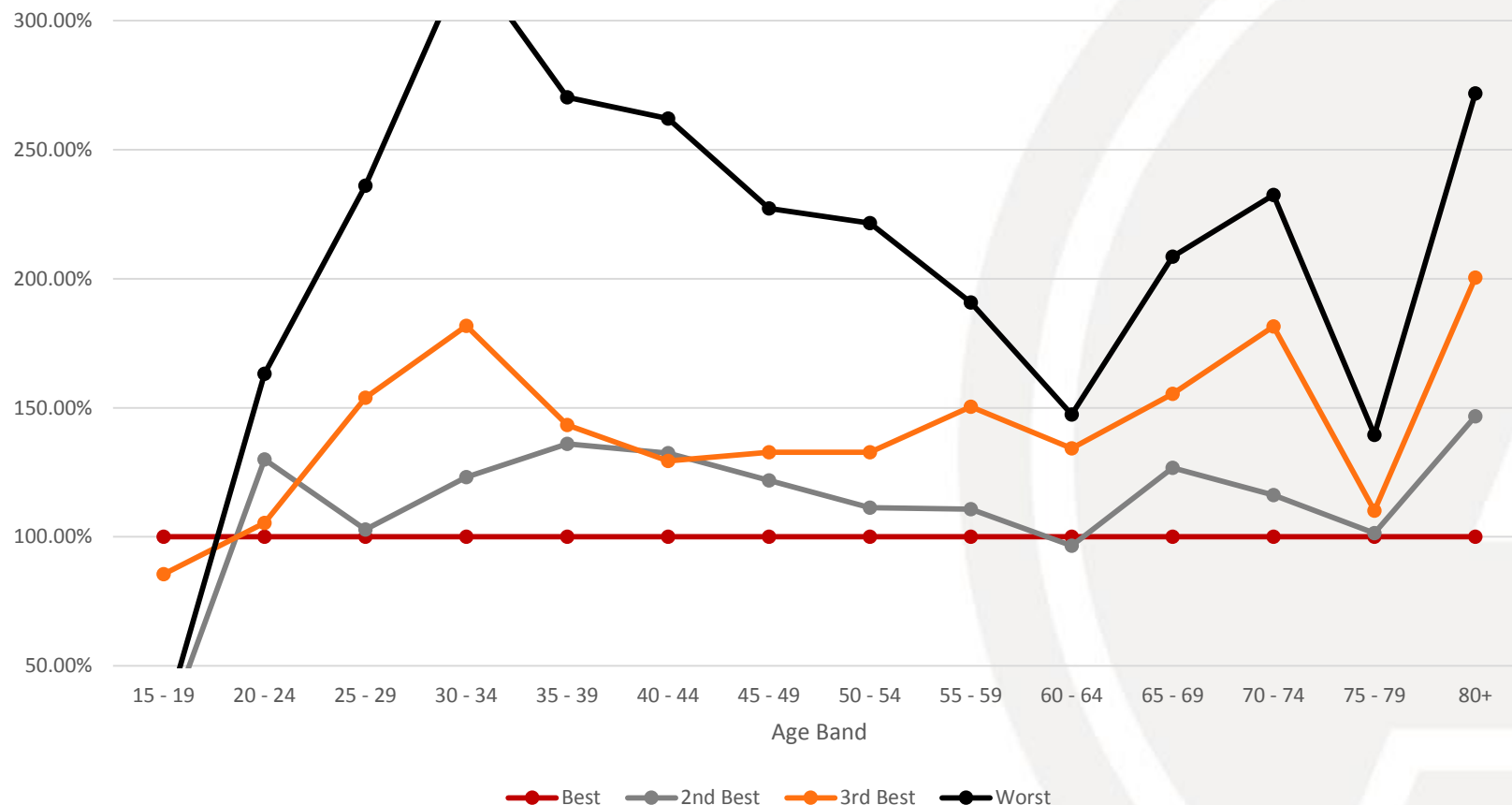
Mortality as a Percentage of the Best Socio-Economic Class: Males



Assured lives mortality 2003 – 2013

Rating factors: socio economic class

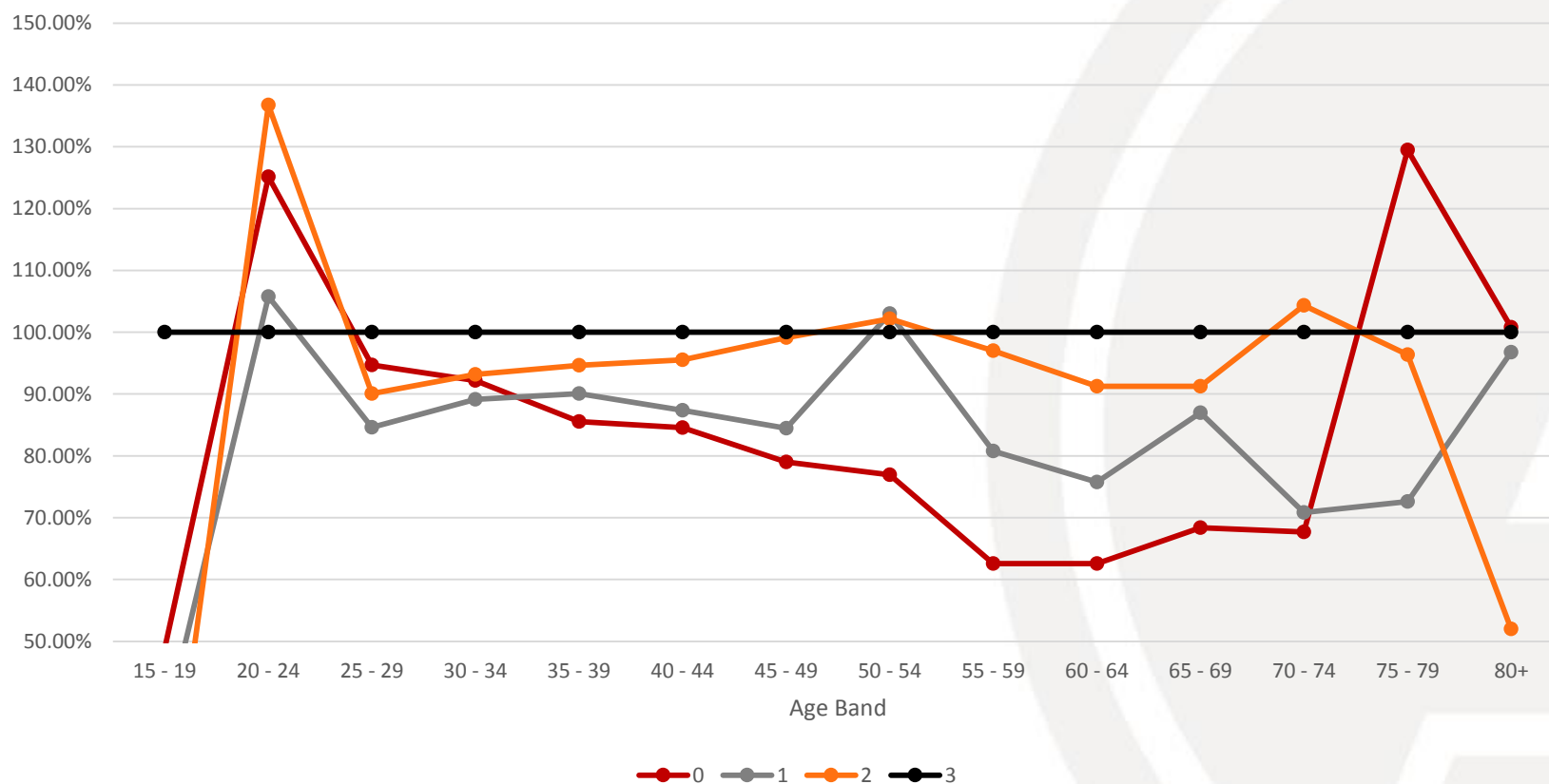
Mortality as a Percentage of the Best Socio-Economic Class: Females



Assured lives mortality 2003 – 2013

Rating factors: duration

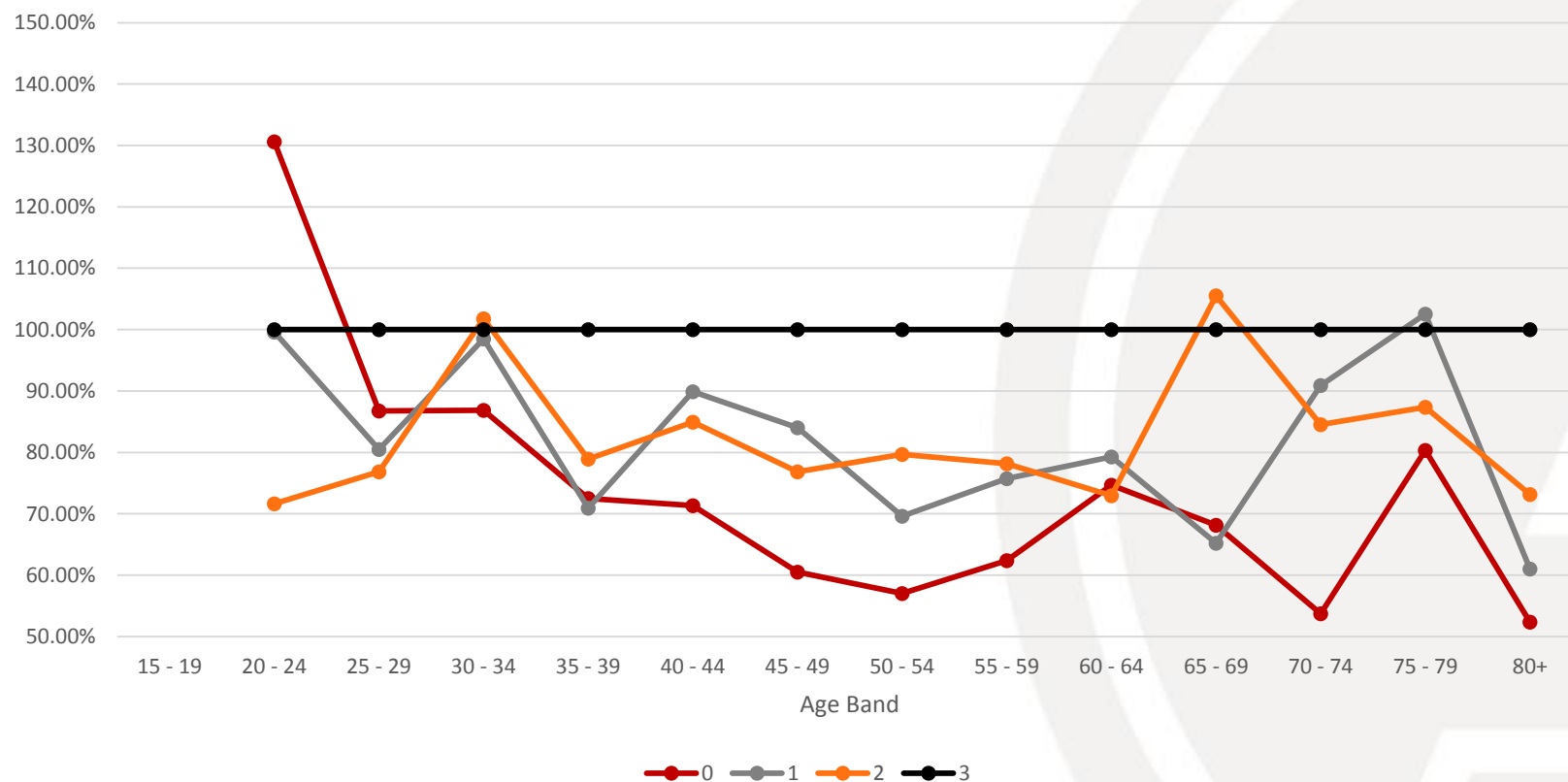
Male Mortality Rates as a Percentage of Ultimate Rates by Duration



Assured lives mortality 2003 – 2013

Rating factors: duration

Female Mortality Rates as a Percentage of Ultimate Rates by Duration



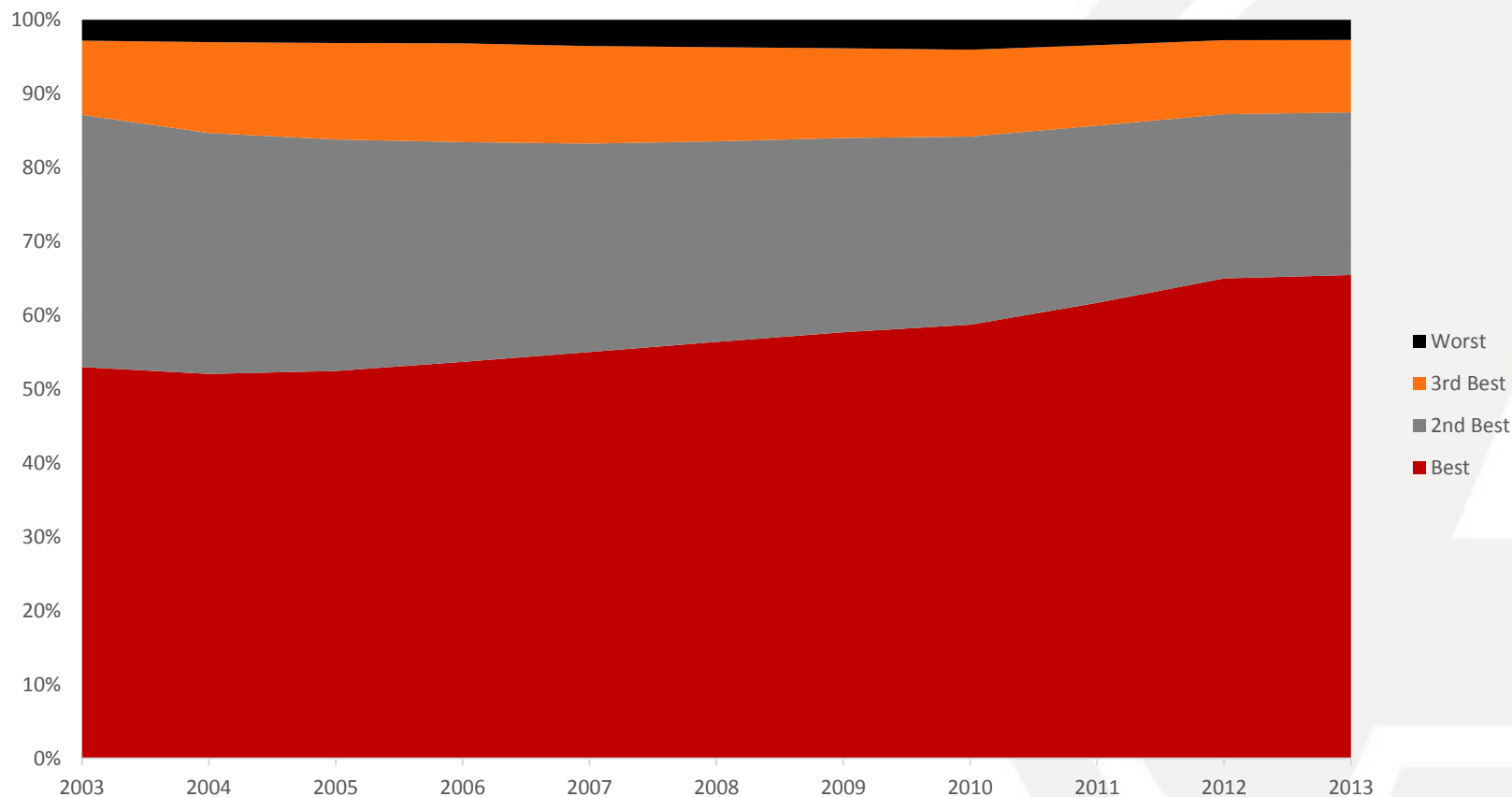
Assured lives mortality 2003 – 2013

Trends: smoker status

Year	Male NS	Male S	Male Total	Female NS	Female S	Female Total
2003	42.80%	17.55%	60.35%	31.84%	7.81%	39.65%
2004	42.82%	18.04%	60.85%	31.38%	7.77%	39.15%
2005	42.94%	17.80%	60.73%	31.57%	7.70%	39.27%
2006	42.80%	17.44%	60.24%	32.18%	7.58%	39.76%
2007	42.53%	16.91%	59.44%	33.07%	7.49%	40.56%
2008	42.50%	16.21%	58.71%	33.99%	7.31%	41.29%
2009	42.47%	15.42%	57.89%	35.05%	7.06%	42.11%
2010	42.34%	14.64%	56.98%	36.14%	6.88%	43.02%
2011	42.31%	14.12%	56.43%	36.93%	6.64%	43.57%
2012	42.23%	13.50%	55.72%	37.84%	6.44%	44.28%
2013	42.25%	12.95%	55.20%	38.52%	6.28%	44.80%
Total	42.43%	15.04%	57.47%	35.60%	6.93%	42.53%

Assured lives mortality 2003 – 2013

Trends: socio economic class



Assured lives mortality 2003 – 2013

Trends: mortality

- At the moment nothing conclusive can be drawn from the data
- Class creep could distort views

Assured lives mortality 2003 – 2013

Next steps

- Writing report
- Graduation of data