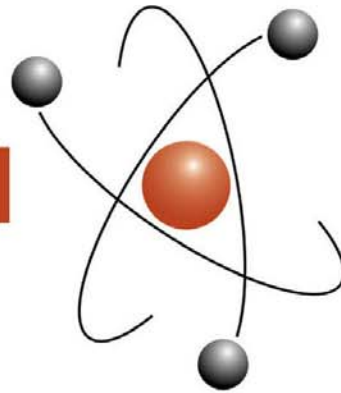


S U S T A I N



A B I L I T Y

ACTUARIES AND THE FUTURE

**Are substandard lives charged
appropriate loadings?
A mortality experience study**

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Overview

- Introduction and overview
- Features of substandard policies
- Method of analysis
- Comparison of substandard experience with loadings charged
- Conclusions and future work



Introduction and overview



Purpose of the study and caution

- To assist:
 - underwriters, in setting loadings
 - actuaries, in determining profitability
 - legislators and insurance companies, in ensuring compliance with the *Disability Discrimination Act*
 - consumers, by helping to ensure that loadings are fair
- Adds to information about insured lives
- Results should be interpreted with caution



Overview – scope of study

- Based on Personal Business Insured Lives Investigation overseen by IAAust LRIC
- Covers Death Only policies
- Covers substandard policies charged premium loadings (not exclusions etc.)
- Covers all non-annuity policy types
- Data is from nine insurance groups



Overview – size of study

- Covers 1995-2000 (previous study 1990-94)
- Substandard lives are 3% of exposed-to-risk

		Exposed-to-risk	Claims
1995-2000	Standard	9,317,449.5	41,732
	Substandard	285,912.5	1,214
	Total	9,603,362.0	42,946
1990-1994	Standard	12,704,119.5	56,279
	Substandard	301,415.5	1,503
	Total	13,005,535.0	57,782



Features of substandard policies

Substandard loadings

- Individual loadings recorded since end 1994
- A little over half rated at 50% exactly
- Average loading: 60% (policies), 75% (SI)
- There is some tendency for higher loadings to be linked with higher sums insured
- Males have somewhat higher loadings



Features of substandard policies

- Compared with standard lives:
 - more likely to be medically underwritten
 - older on average
 - weighted more toward the shorter durations
 - more likely to be of policy type “temporary insurances with reviewable premiums”
 - higher average sums insured (males only)
 - more likely to be smoker-rated



Method of analysis

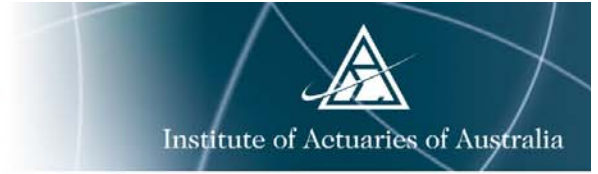


Actual to weighted expected ratio

- Most results are presented as the ratio of actual to weighted expected deaths, ie.

$$\frac{\sum_{\text{policyholders}} \text{actual deaths}}{\sum_{\text{policyholders}} (1 + \text{loading}) \times \text{ETR}_x \times q_x^{IA95-97}}$$

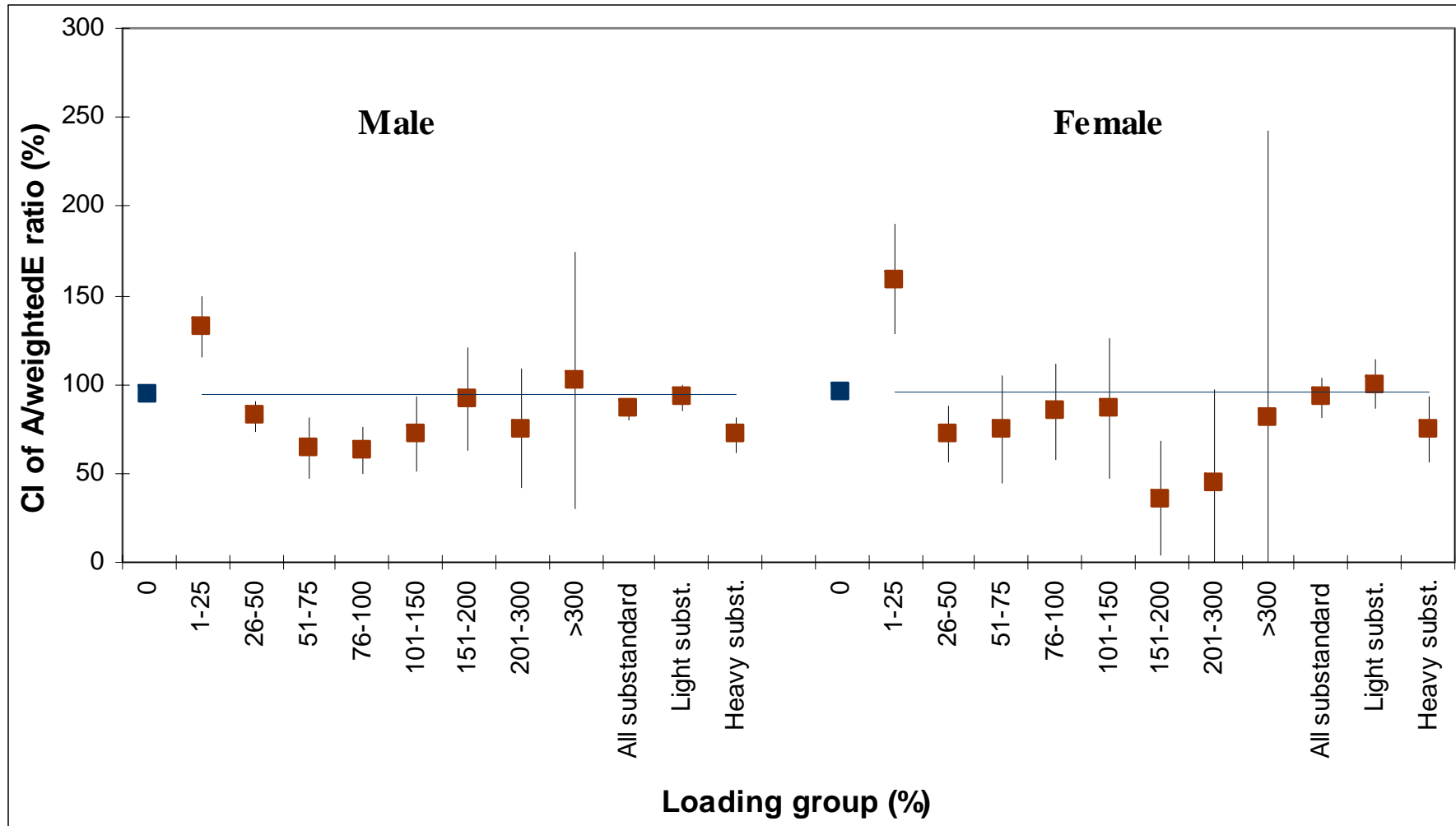
- Female/male and smoker/non-smoker comparisons are a ratio of two actual to weighted expected ratios (same expected)



Comparison of substandard experience with loadings charged

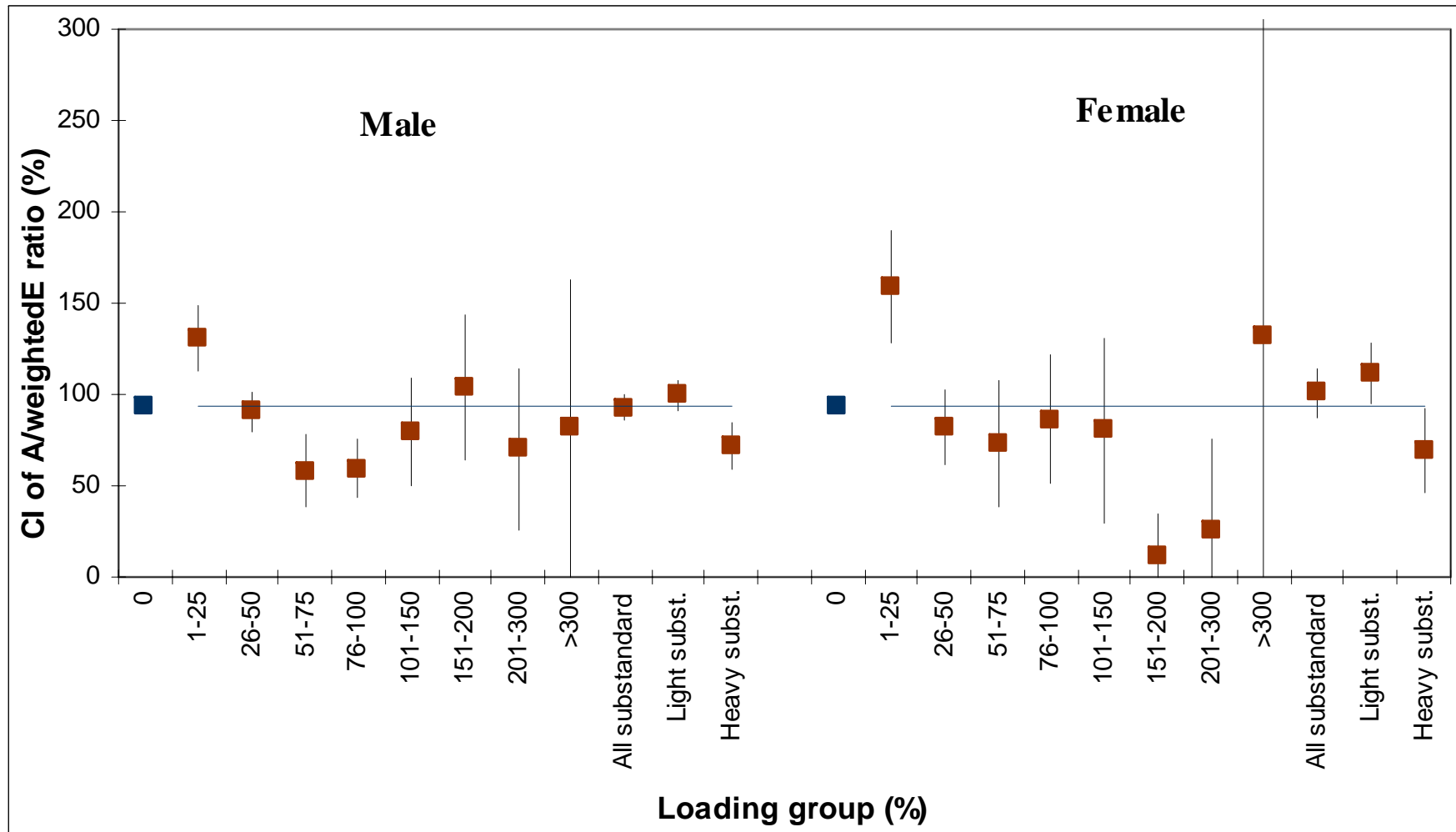


Substandard mortality by loading



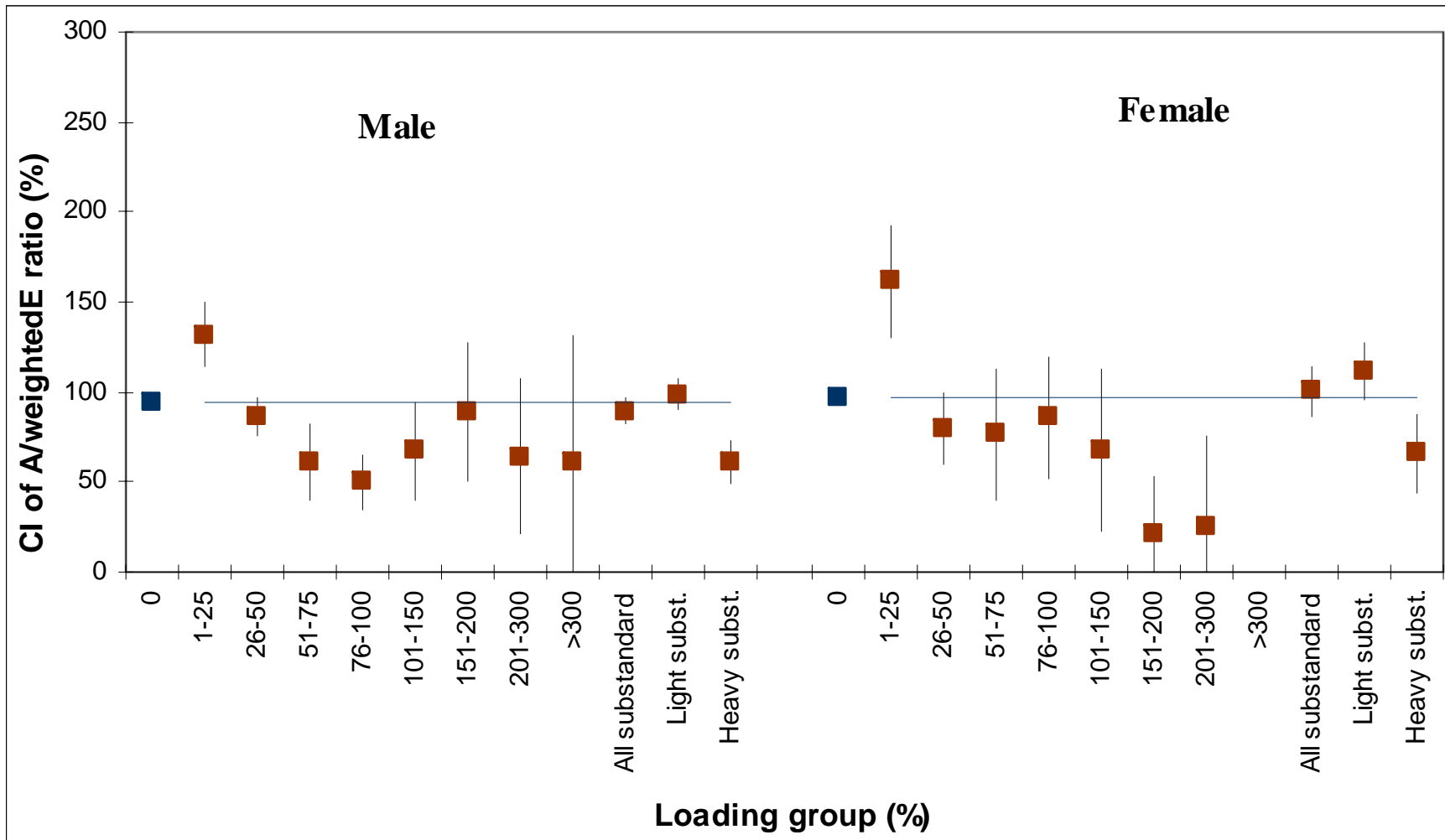


Substandard mortality by loading, 10+



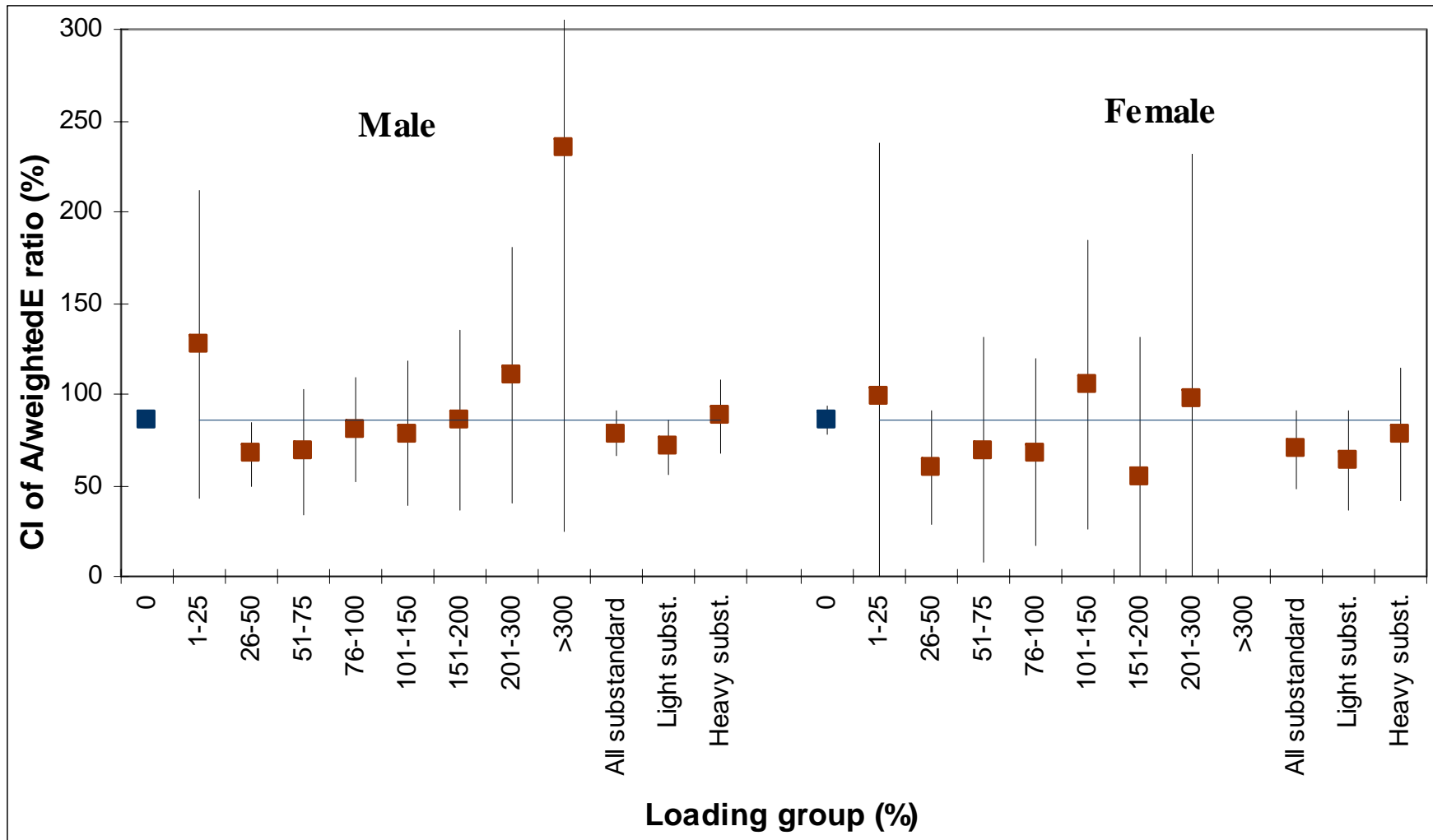


Whole of life and endowment policies





Reviewable temporary policies





Substandard experience by underwriting

Male lives

Underwriting	Standard	Light Subst.	Heavy Subst.
Non-medical	85 (1)	82 (13)	85 (17)
Medical	79 (1)	76 (4)	65 (6)
Unknown	108 (1)	153 (10)	91 (14)
All	94 (0)	93 (4)	71 (5)

- Caution required - variations in company mix



Within substandard comparisons

- Ratio of female to male mortality:
 - substandard: 69% (5%)
 - standard: 66% (1%)
- Ratio of male smoker to male non-smoker mortality:
 - substandard: 179% (33%)
 - standard: 190% (10%)



Conclusions and future work



Conclusions and future work

- Substandard mortality experience:
 - Overall, substandard loadings in line with experience
 - Short duration substandard mortality is light
 - Heavy substandard mortality is light (overall and in many subgroups including medically underwritten)
 - Very light substandard mortality is heavy
 - Female / male 69%: Smoker / non-smoker 179%
- Significant variations by company
- Future work – TPD / Trauma experience



Thank you