First Iberian Congress of Actuaries Lisbon

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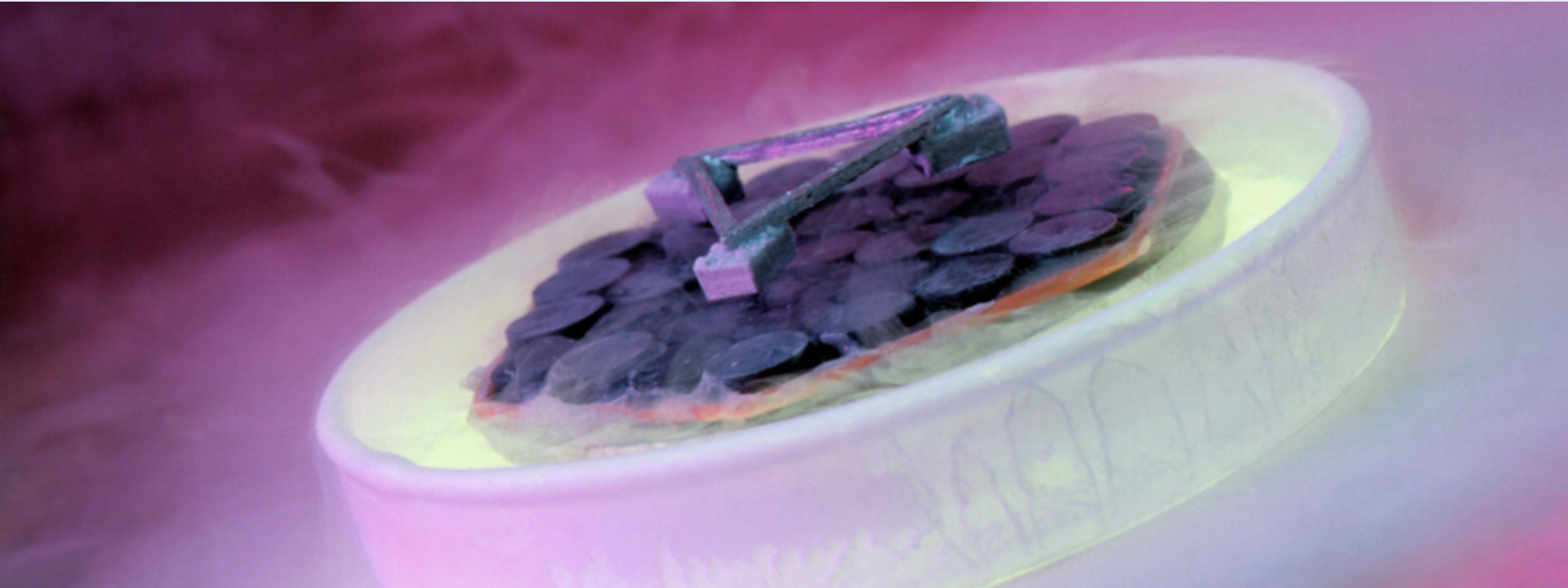
Münchener Rück
Munich Re Group

Agenda

- Facts & figures of the claims study

- Actuarial results

- Premium examples

Facts & figures of the claims study

Objective

Derivation of „best-estimate" calculation bases for

- Incidence rates
- Mortality of active lives
- Mortality rates of LTC claimants
- (Recovery rates)

On-going representative claims study about LTC claimants from 1995 (and before) until 2003

Currently: 3rd revision

Characteristics

|	
767,000 insureds (as at 12/31/2003) and more than 23,000 claimants	Representative for compulsory private LTC insurance
Data from compulsory private LTC insurance congruent with the target group of ordinary life insurance	Data on insureds
14 % of current LTC have a history of care prior to 1995	Long-term effects covered in a representative way
71 % of claimants are home-care patients	Place where care is provided (at home / in-patient) taken into account in a representative way

Descriptive statistics

Age distribution of insureds
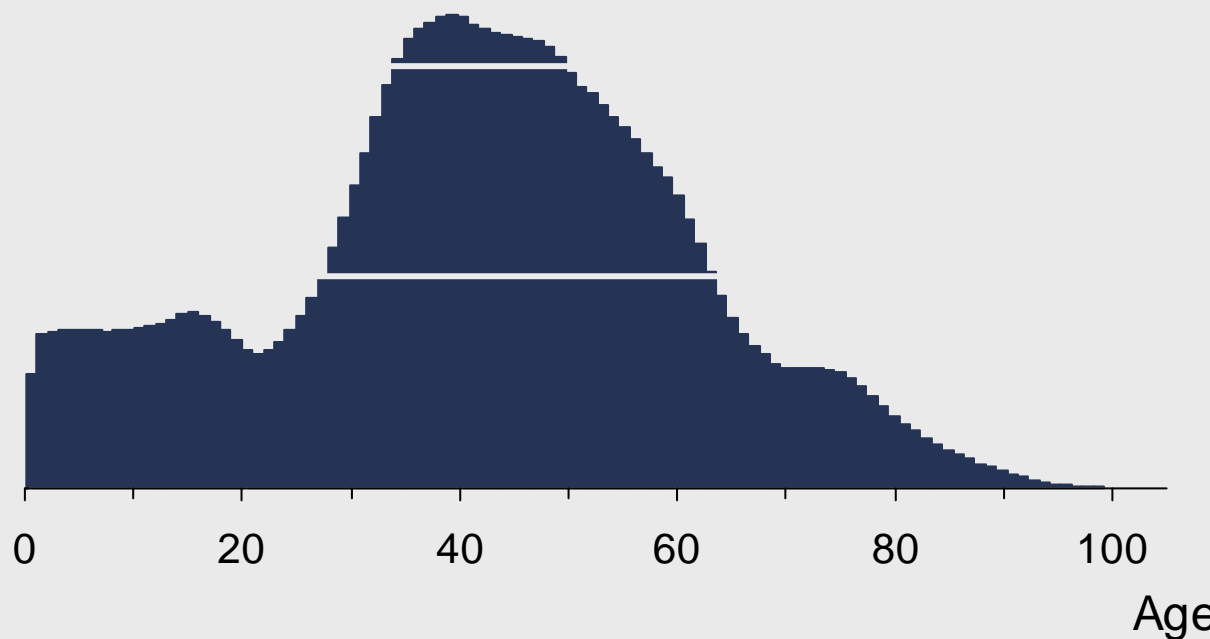
3rd quartile	54
median	42
1st quartile	30
60+	16%
80+	2%

Descriptive statistics

Age distribution of claimants at commencement of claim

Portion
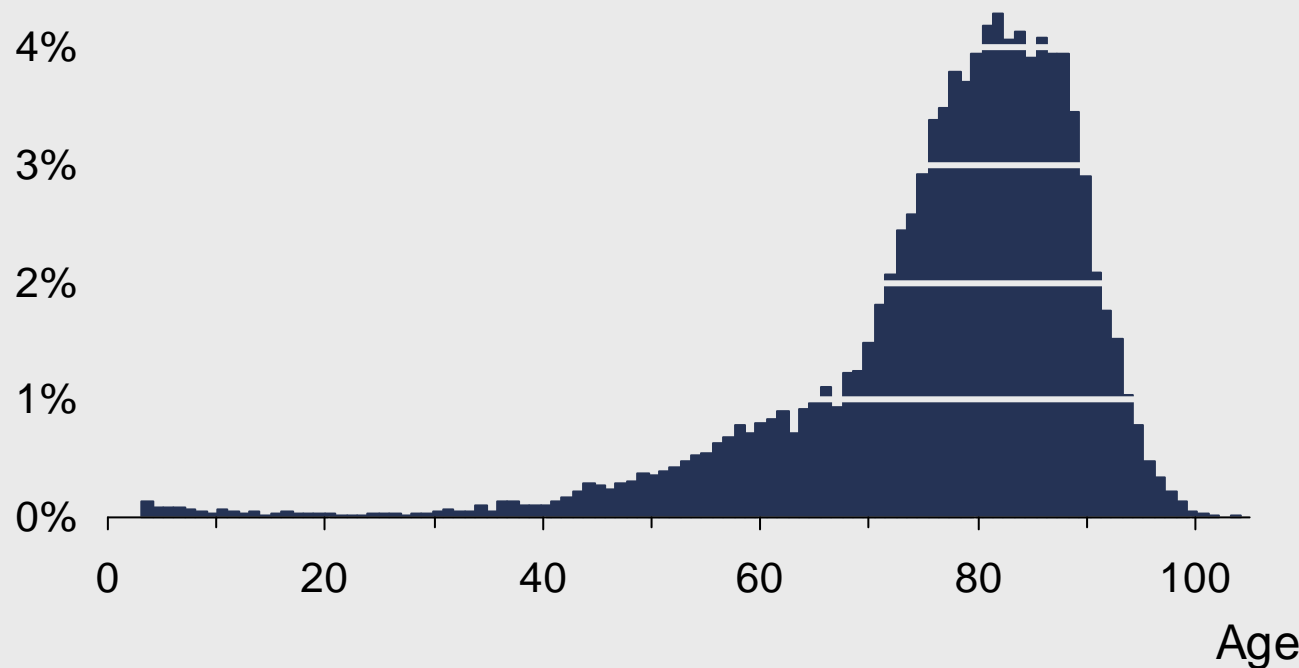
3rd quartile	85
median	79
1st quartile	72
60+	89%
80+	48%
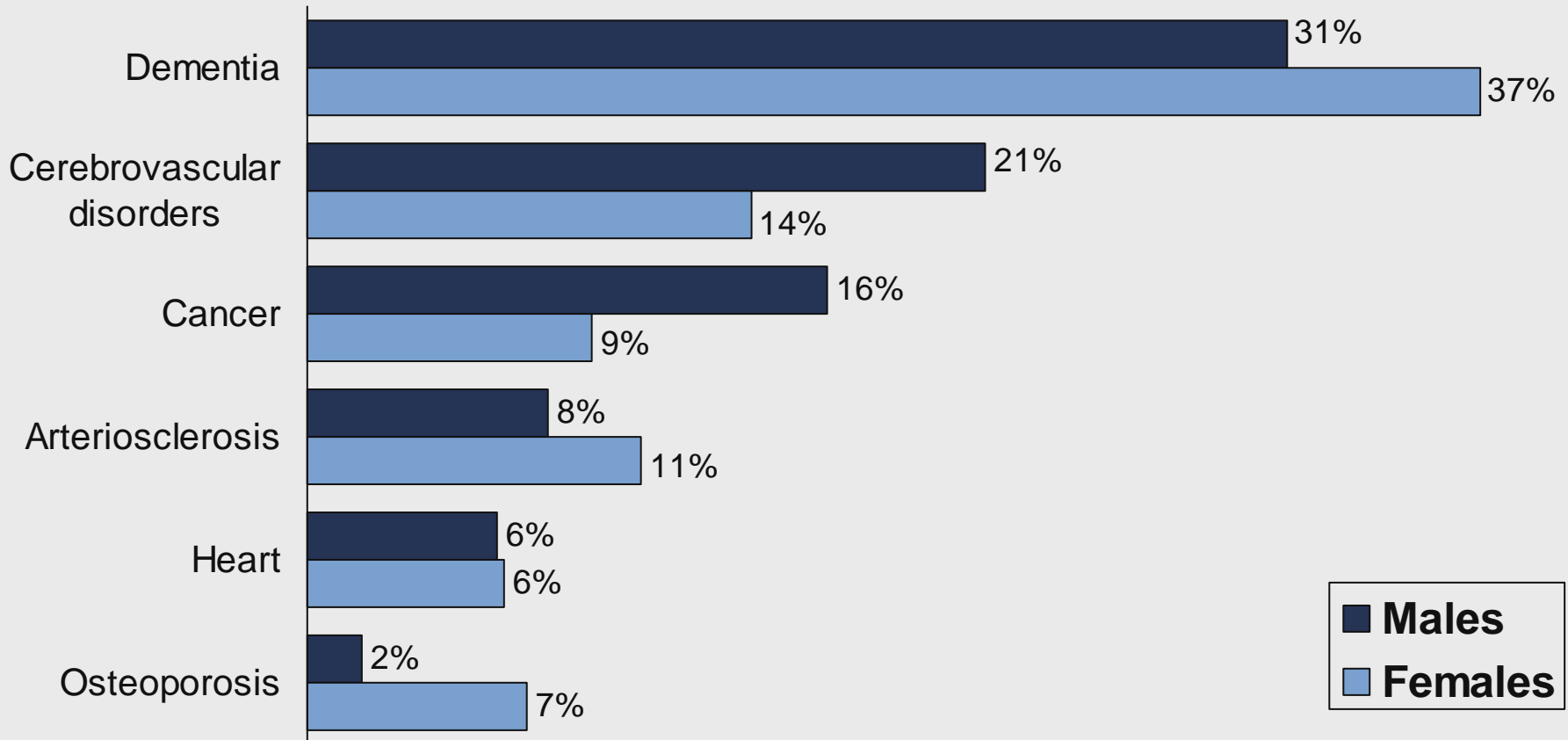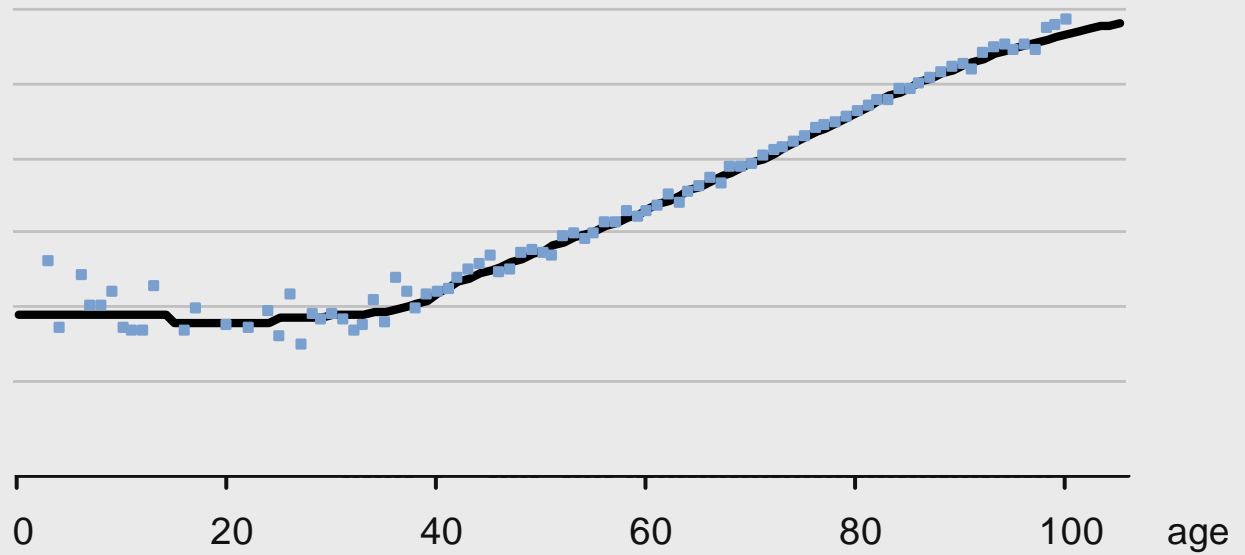
Descriptive statistics

Top 6 primary diagnoses

Diagnosis	Males	Females
Dementia	31%	37%
Cerebrovascular disorders	21%	14%
Cancer	16%	9%
Arteriosclerosis	8%	11%
Heart	6%	6%
Osteoporosis	2%	7%

Males
Females

Actuarial results

Incidence rates

Males

log(i_x) in ‰

0   20   40   60   80   100   age

Claims

300
150
0

Smoothing

Extrapolation
(reference table)

Whittaker-Henderson

Extrapolation
(constant 2nd diff.)

Mortality of active lives

Males

log(q_x^a) in ‰

age

Deaths

400
200
0

Smoothing

Extrapolation
(reference table)

Whittaker-Henderson

Extrapolation
(reference table)
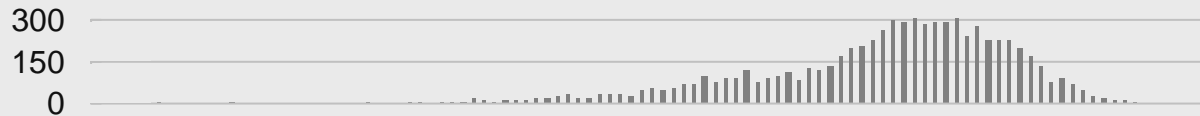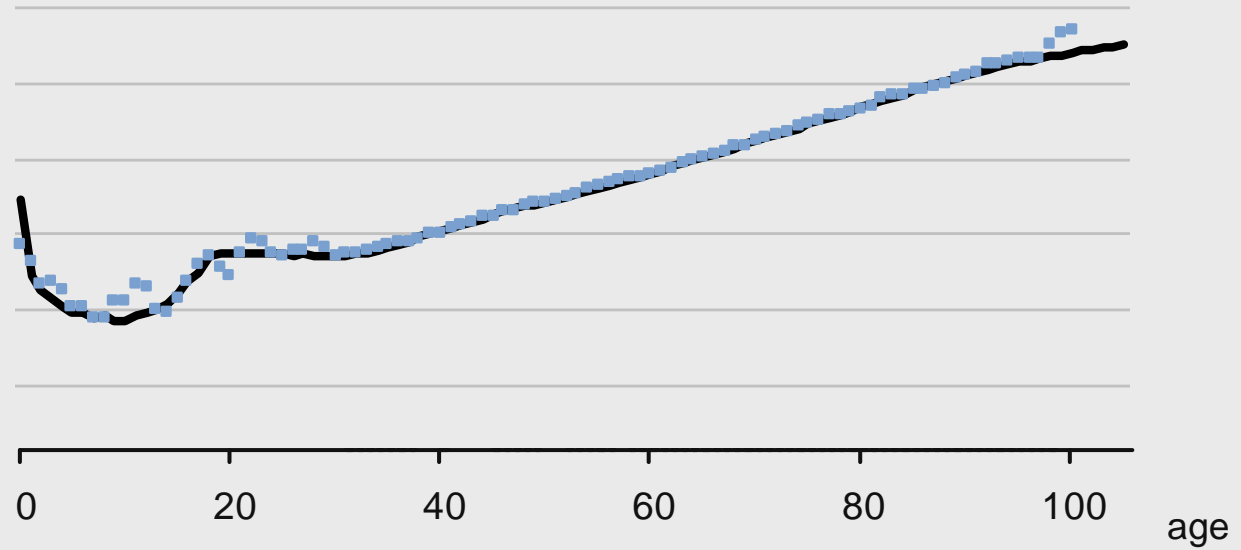
Mortality of LTC claimants

Males

$\log(q_x^i)$ in ‰

age

0   20   40   60   80   100

Deaths

200
100
0

Smoothing

Extrapolation
(reference table)

Whittaker-Henderson

Extrapolation
(constant 2nd diff.)
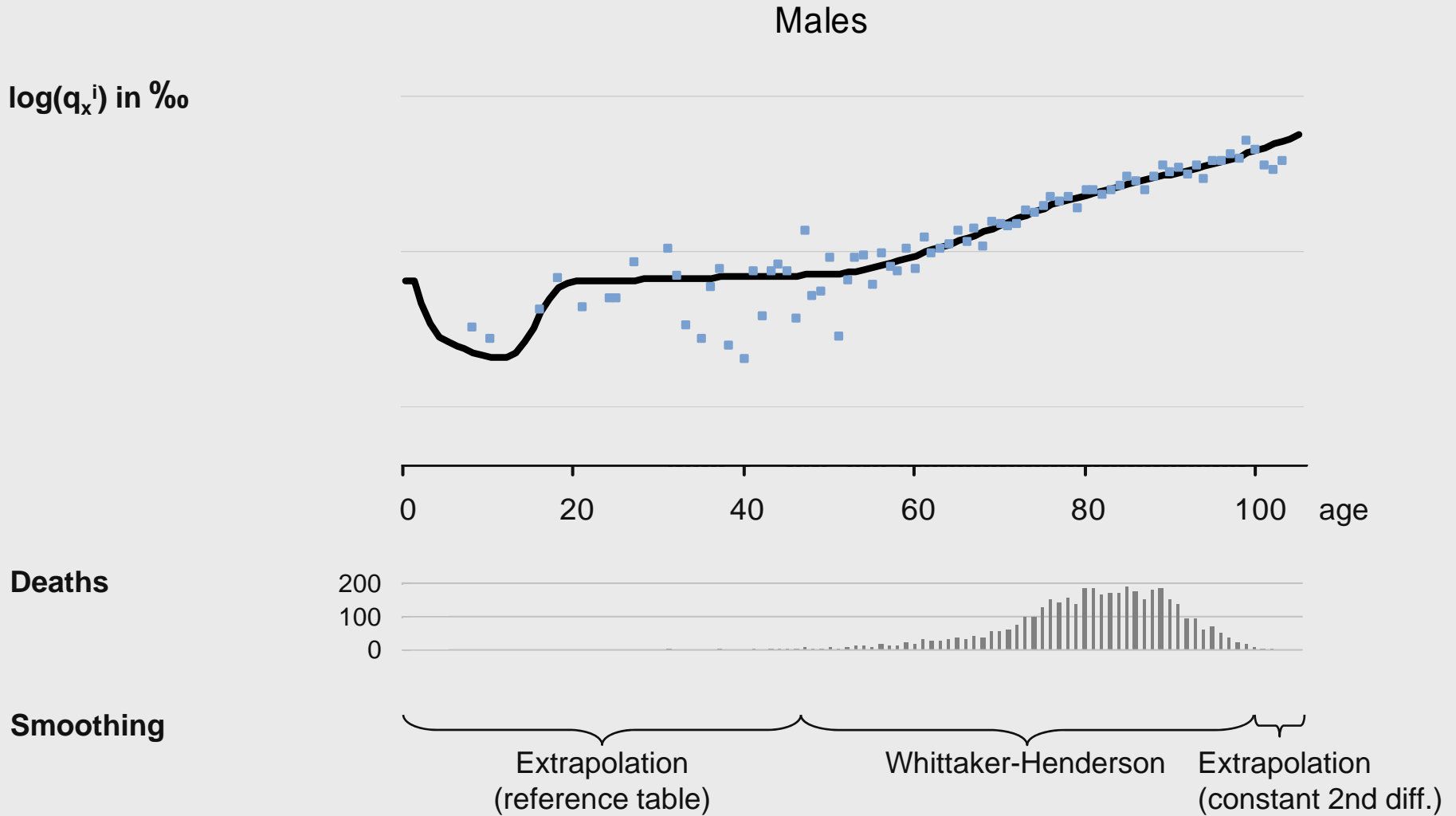
International calculation basis

Product-specific basis

National basis

German basis

International basis
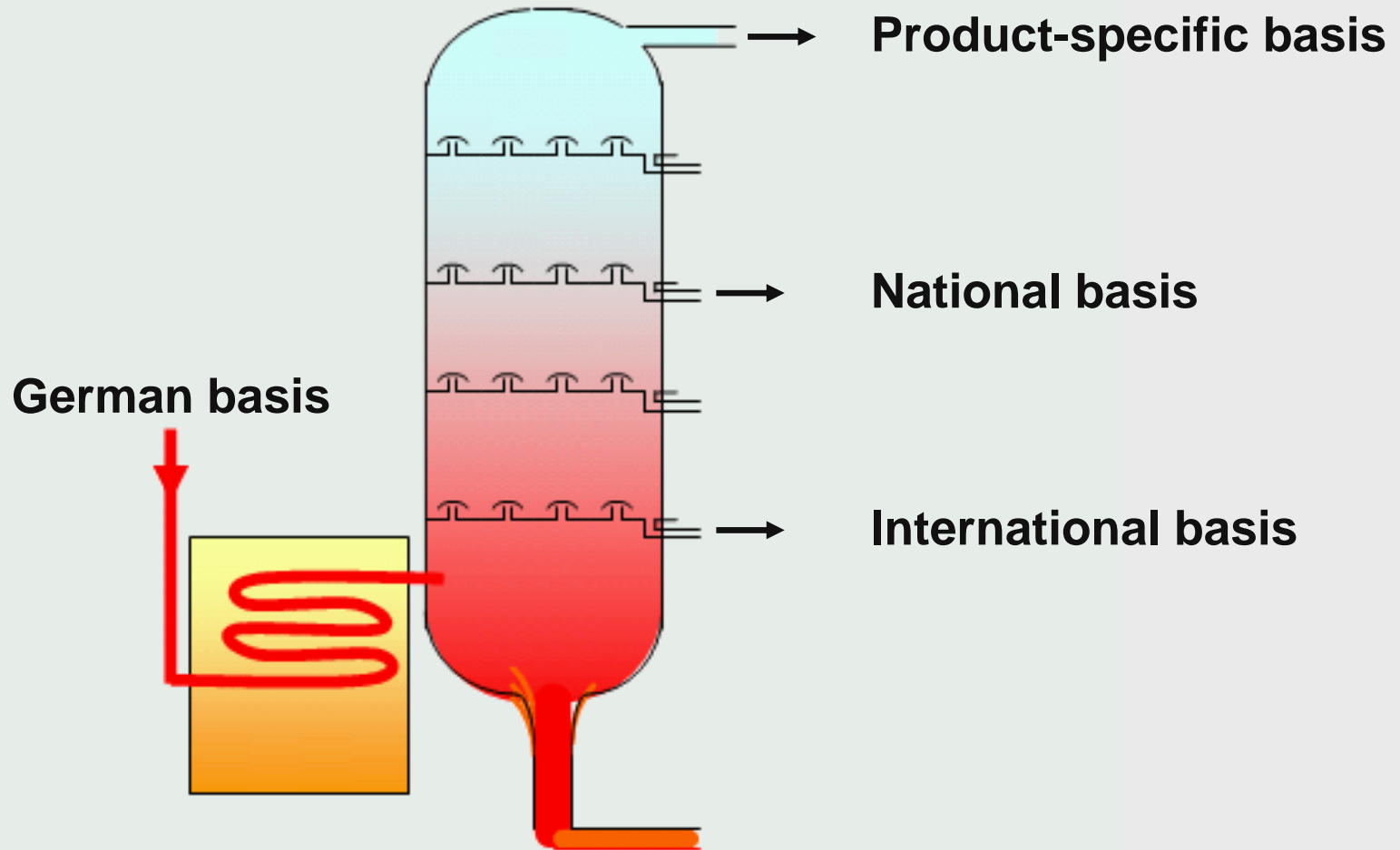
Source: Wikipedia

Premium examples
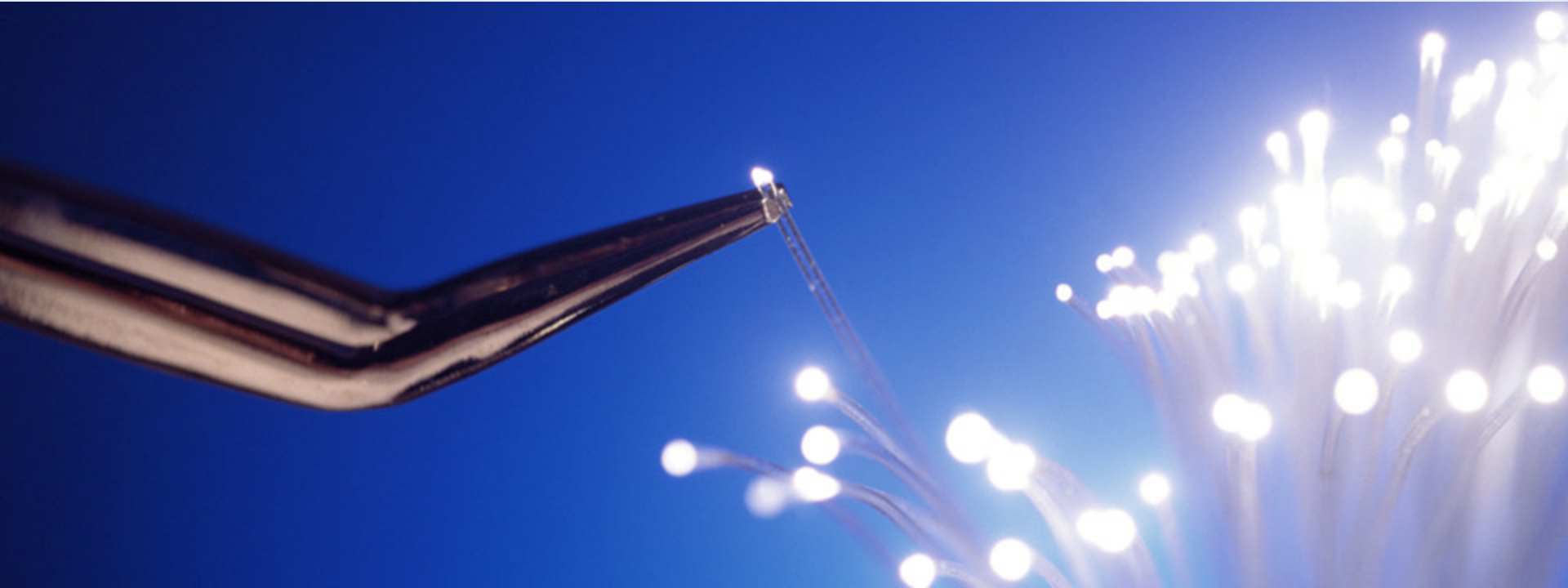
Product examples

	Standard Model	Catastrophic Model	Deluxe Model
Coverage	at home/ in an institution	only care in an institution	at home/ in an institution
Dementia s.a.	yes	no	yes
Benefit Trigger	3 ADLs: 50% 4-5 ADLs: 75% 6 ADLs: 100%	5 ADLs: 50% 6 ADLs: 100%	100% from 2 ADLs
Deferment Period	3 months	12 months	1 month
Waiting Period	no	12 months (accidents:0 month)	no
WOP	yes	yes	yes
Benefit Pay.Period	liefelong	3 years	lifelong

Product examples

	Standard Model	Catastrophic Model	Deluxe Model
Prem. Pay. Period	lifelong	lifelong	lifelong
Extensions	no	no	**Initial LS**: 6 mtl ann.* **Good Health Bonus**: from age 75 every 5 years 3 mtl ann. **Preventive Benefit**: 3 mtl ann. **Death benefit**: 12 mtl ann. **Infl. Prot**: 3% from policy issue

interest rate: 3%, MR 2006+ international basis

no safety margins built in, i.e. best estimate calculation

* mtl ann. = monthly annuity

The Influence of the country modifier

Annual level premiums per 1000 € monthly (**Standard Model**)

Comparisons

Entry Age	Comparison (in %)			
	Columbia/MR		Greece/MR	
	Male	Female	Male	Female
20	79 %	76 %	120 %	105 %
40	79 %	76 %	121 %	106 %
60	80 %	76 %	121 %	108 %
80	79 %	73 %	124 %	116 %

Impact of Product Parameters on Premiums

Comparison of annual net level premiums (in %)

(in relation to the **Standard Model**)

Entry Age	Catastrophic Model		Deluxe Model	
	Male	Female	Male	Female
20	8 %	9 %	1621 %	1414 %
40	8 %	9 %	938 %	811 %
60	7 %	8 %	569 %	483 %
80	7 %	7 %	408 %	328 %

Thank you very much for your attention.

Sabine Miesen