



Joint Colloquium of the IACA, PBSS and IAAHS Sections of the International Actuarial Association

Westin Copley Place Hotel, Boston, U.S.A. – 4-7 May 2008

Critical Illness – an update on UK & Irish claims experience

Sue Elliott

Principal, Watson Wyatt Limited



Agenda for today

- **UK critical illness:**
 - Market background
 - Current drivers and issues:
 - Summary
 - Long-term premium guarantees
 - Experience update (up to 2004)
- **Irish critical illness:**
 - Experience update (2001 to 2003)
- **UK versus Irish critical illness experience**
- **Questions and discussion**

UNITED KINGDOM

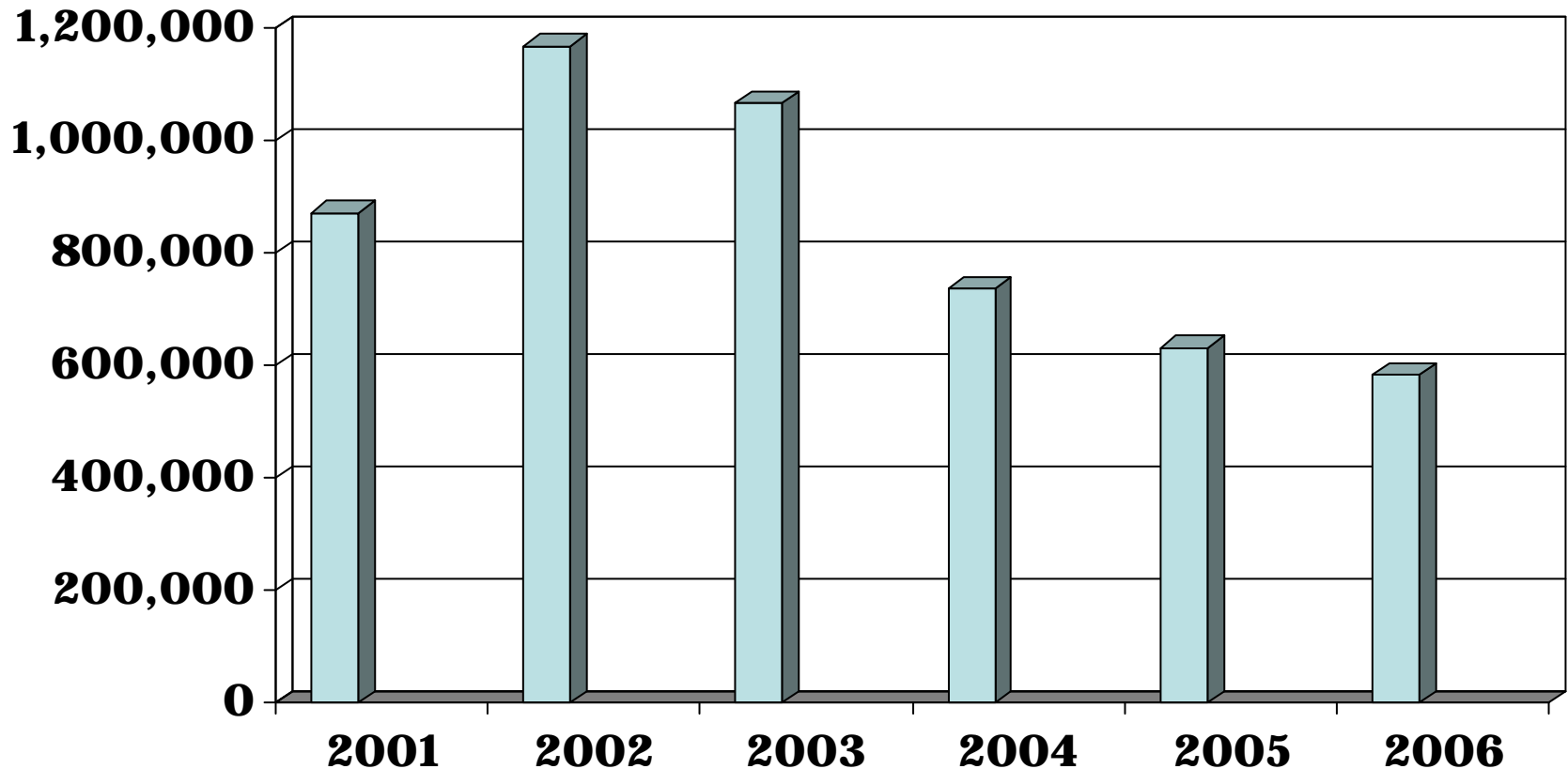


Joint Colloquium of the IACA, PBSS and IAAHS Sections
Westin Copley Place Hotel, Boston, U.S.A. – 4-7 May 2008

Market background

- One of the UK insurance industry's success stories
- Appeal – simplicity, "perceived" need, "windfall" element
- New sales peaked in 2002
- New sales declined since then:
 - Slowing mortgage market
 - Wider concerns about the viability of the product in its present form
 - Premium increases
 - Generally negative comment around entitlement to, and payment of, claims
- Time will tell if new definitions introduced from April 2007 will improve consumer understanding about the cover they have
- Currently profitable
- Heavily reinsured

New business sales (number of policies)



Source: Swiss Re Term & Health Watch 2007; Accelerated & Stand Alone CI

Current drivers and issues

Drivers:

- Changing reinsurance capacity and capital availability
- Changes to ABI SOBP (eg introduction of "future-proofing")
- Changing consumer attitudes and expectations
- Product developments and new initiatives e.g. HSBC, PruProtect
- EU Gender Directive
- FOS – changing stance
- Regulatory change (eg ICA)
- Market forces (eg reduced link to mortgage market)

Issues:

- Potential impact of medical advances
- Long-term premium guarantees
- Reviewable CI – how reviewable is reviewable?
- Robustness of definitions against legal challenges
- TPD

Current drivers and issues

Drivers:

- Changing reinsurance capacity and capital availability
- Changes to ABI SOBP (eg introduction of "future-proofing")
- Changing consumer attitudes and expectations
- Product developments and new initiatives e.g. HSBC, PruProtect
- EU Gender Directive
- FOS – changing stance
- Regulatory change (eg ICA)
- Market forces (eg reduced link to mortgage market)

Issues:

- Potential impact of medical advances
- Long-term premium guarantees
- Reviewable CI – how reviewable is reviewable?
- Robustness of definitions against legal challenges
- TPD

Long-term premium guarantees

- Background
- Allowance for guarantees
- Reviewable rates as an alternative?

Background (I)

- Simple product in concept but some difficult issues emerging (eg potential financial impact of medical advances):
 - Largely beyond the control of the insurance industry
 - Need to be kept abreast of and factored into pricing decisions/product development (especially with respect to long-term premium guarantees – explicit or implicit)
- High degree of uncertainty in estimating current level of morbidity for CI risk and predicting future trends

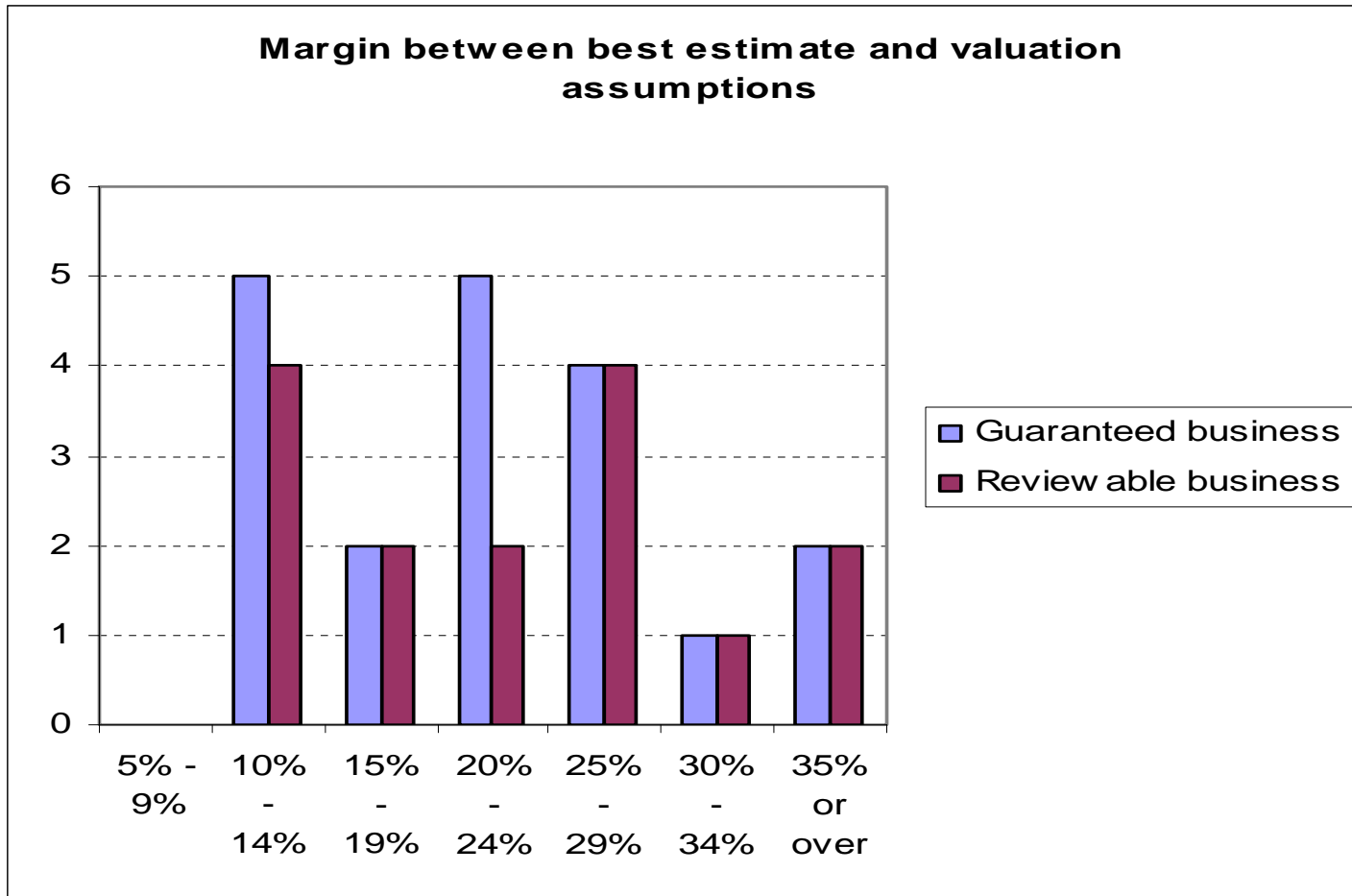
Background (II)

- Policy conditions (eg CI definitions) cannot be changed?
- Premium rates guaranteed?
- Many stakeholders – policyholders, intermediaries, insurers, reinsurers, regulator etc
- Balance between consumer demands and shareholder needs
- When is it appropriate to offer guarantees?
- Consumer awareness and understanding with respect to guarantees?

Background (III)

- High degree of uncertainty estimating current level of morbidity for the CI risk
- Also in predicting future trends largely due to the uncertain impact of recent and future medical advances
- Potential medical advances need to be considered for each of the core medical conditions which make up the bulk of the insurance risk cost
- Greater prevalence of screening will potentially have an adverse impact on claims costs
- Introduction of troponins and cardiovascular interventions into ABI heart attack definition will potentially lead to increased medical diagnoses of heart attack which could subsequently be denied by the insurance industry (if claimant doesn't satisfy other criteria)
- Differences in definitions between the medical profession and the insurance industry could potentially lead to the payment of ex-gratia claims not priced for

Allowance for guarantees (I)



Source: IoA Healthcare Reserving Survey, May 2007

Allowance for guarantees (II)

- Appropriate allowance needs to be made in the pricing and reserving for guarantees reflecting **extent of guarantee**
- Offices need to consider whether their current **guarantee loadings are sufficient**
- If not, would appropriate loadings make the coverage **unaffordable and unmarketable?**
- **Definitions** under ABI SOBP "**virtually**" **guaranteed** for current contracts, so consideration must be given to the potential impact of medical advances and changing consumer attitudes and expectations.

Allowance for guarantees (III)

- A number of things to consider when determining appropriate allowance for premium guarantees, eg:
 - Extent of guarantee
 - Assessment of risk level and volatility:
 - Initial level (credibility and appropriateness)
 - Effects of trends
 - Effects of shocks
 - Methodology to be used - deterministic or stochastic?

Reviewable rates as an alternative? (I)

- Reviewable terms bring their own issues, eg degree of reviewability:
 - Do commercial pressures and PRE create implicit guarantees?
 - Are rate increases delayed due to claim reporting lags?
 - Explicit or implicit guarantees?
- Worth considering early reviews of rates/premiums to minimise impact of later reviews and establish "review philosophy"
- Even for theoretically "fully reviewable" policies, commercial pressure may make it difficult to review in practice
- Consider TCF and potential selective lapsation following review

Reviewable rates as an alternative? (II)

- **ABI statement "Advice on Practical Aspects of Unfair Contract Terms for Non-investment Protection Policies with Reviewable Premiums":**
 - Overview:
 - Guidance on reviewable premium business
 - Sets out practical steps to reduce risk of not complying
 - Also takes into account legal advice received and FSA's Statement of Good Practice
 - Scope:
 - Covers new and existing business
 - Insurers responsible for their books of business and seeking own legal advice
 - FSA and FOS unlikely to consider a review clause "fair" if it does not specify any valid reasons
 - ABI stressed guidance is of little legal authority retrospectively
 - Implications:
 - Guidance may have large capital and EV implications for existing books of reviewable premium protection business

Update on UK claims experience

- Development of UK CI claims experience
- Key challenges
- "Grossing up factors"
- Results

Development of UK CI claims experience (I)

- "A Critical Review" (published in 2000):
 - Report of the Critical Illness Healthcare Study Group
 - Presented at the Staple Inn March 2000 by Dinani et al
 - The first UK CI insured experience study
 - Covered experience from 1991-97

Development of UK CI claims experience (II)

- Continuous Mortality Investigations ("CMI") – experience investigations:
 - Results for 1999, 2000, 2001, 2002 and quad released in May 2005
 - 2003 results released in April 2006
 - "Revised" 2003 results released in April 2007
 - 2004 results released in April 2007
 - 2005 results to be released shortly
 - Future analysis to include: amounts, sales channel, product type, commencement year, office, etc

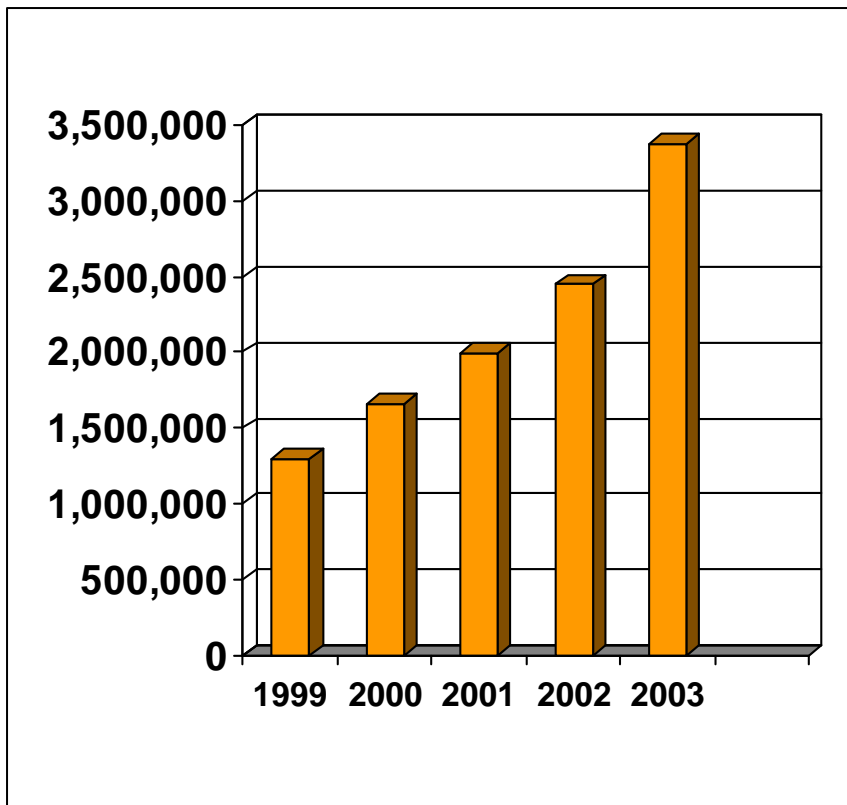
Notes: Results released to contributing offices only

Development of UK CI claims experience (III)

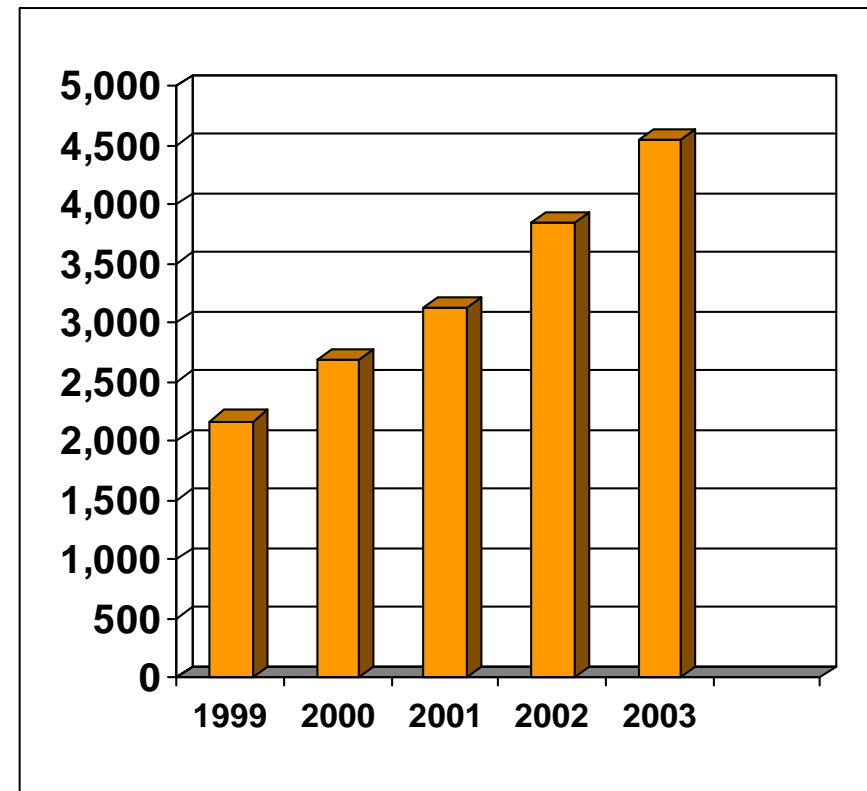
- Continuous Mortality Investigations ("CMI") – Other activity:
 - Working Paper 14 – detailed methodology underlying 1999-2002 results and estimate of overall "grossing up factor"
 - Working Paper 18 – response to feedback on Working Paper 14
 - Working Paper 19 – "per-policy" data submission
 - Health Claims Forum guidelines (for "date of diagnosis") published in November 2006 with adoption date 1 January 2007
 - Working Paper 28 published in July 2007 – explanation of new methodology for "grossing up factor"

Key challenges - growing exposure 1999-2003

Exposure



Settled claims

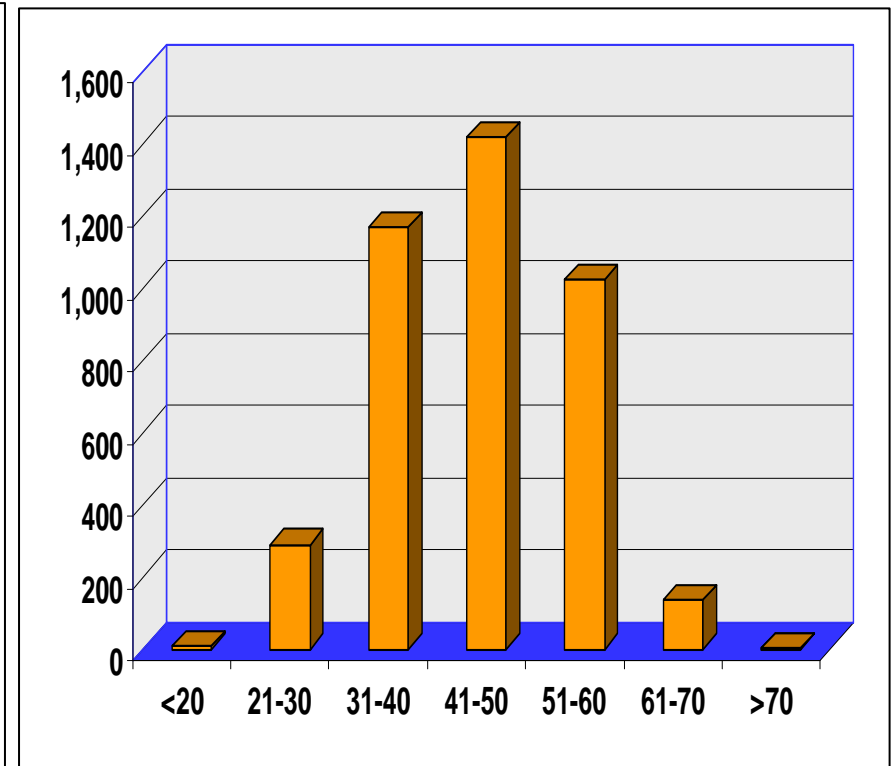
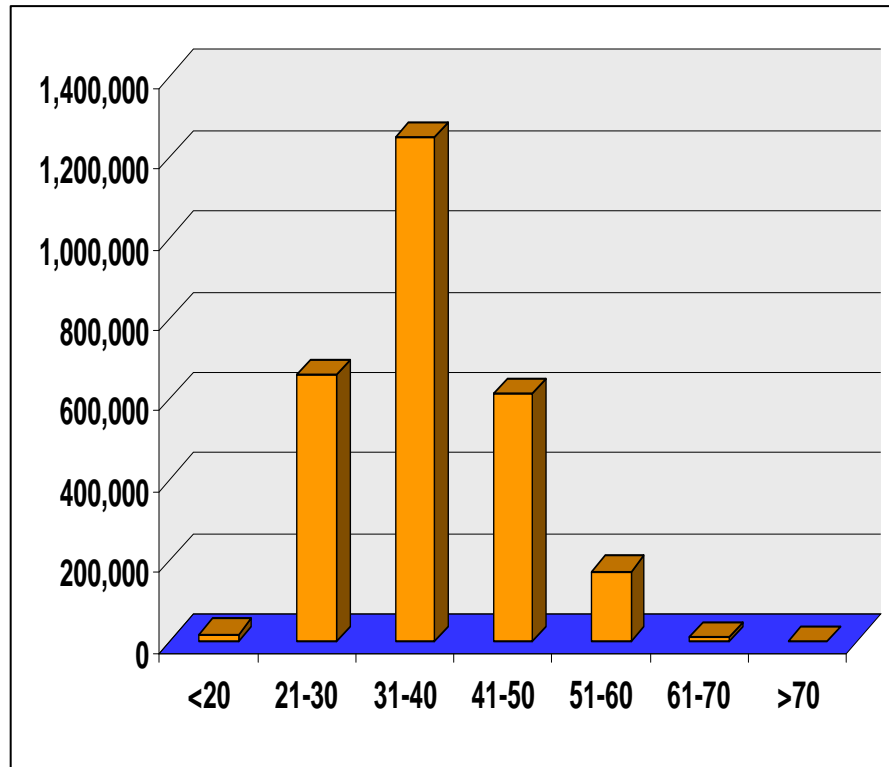


Key challenges – immature experience (by age)

Exposure

2003

Claims



Key challenges – claim dates

- CMI request 4 dates for each claim:
 - Date of diagnosis
 - Date of notification
 - Date of admittance
 - Date of settlement
- Date of diagnosis matches exposure and the risk incurred by the office, but:
 - The claims received are those settled in the period
 - Offices only supply date of diagnosis for some claims
 - In other cases estimate from the dates provided (see below)

	1999-2002	2003	2004
Actual Date of Diagnosis	56.3%	64.3%	74.9%
Estimated from Date of Settlement	42.3%	35.4%	23.5%
Estimated from Date of Admittance	1.2%	0.0%	0.1%
Estimated from Date of Notification	0.4%	0.3%	1.5%

Key challenges – date of diagnosis

- Consultation with "Health Claims Forum"
- Definition:
 - The date of diagnosis is the "date at which the critical illness definition was fulfilled"
- Key points:
 - Interpretation specified for April 2006 ABI definitions
 - Companies asked to adapt these for older and non-ABI definitions:
 - Where there is a clear event – use that (eg heart attack)
 - Where it is a degenerative disease then allow for permanence to be established
 - Adoption date – 1 January 2007

Estimation of grossing up factors ("GUF")

- Using development patterns derived from data from 1999-2003, overall GUF for 1999-2002 estimated to be 15.9%
- Using development patterns derived from data from 1999-2002, overall GUF for 1999-2002 estimated to be 17.8%
- Using development patterns derived from data from 1999-2003, overall GUF for 2003 estimated to be 14.3%
- Corresponding GUF for 2004 is just 1.9% due to a significant downturn in business volumes
- BUT ...
 - Are GUF's too unstable?
 - Is there a better way?

Grossing up factor – new methodology (I)

- The key challenge facing the CI investigation is that we collect "settled claims", but we want to measure experience in terms of "date of diagnosis"
- Grossing up factors attempted to allow for this, but:
 - They were difficult to interpret as there was a mix in business growth and claim development
 - They were difficult to apply to subsets of data, and
 - The new approach makes better use of the data available

Grossing up factor – new methodology (II)

- Start with:
 - Known in force data 1 January 1999 to 1 January 2003
 - Known settled claims 1999 to 2002
- Step 1: estimate prior year's in force data (and hence exposure)
- Step 2: estimate diagnosed claims in each year (at each age and duration) using an initial set of claim rates
- Step 3: estimate settled claims in each year by applying a claim development distribution to estimated diagnosed claims
- Step 4: compare estimated settled claims to known settled claims to release more accurate results. Equating estimated settled claims with known settled claims will generate a set of diagnosed claim rates

Grossing up factor – new methodology (III)

- Initial findings from parametric modelling:
 - Little variation by most risk factors – may imply a single claim distribution can be used within the new methodology at the "all causes" level
 - Significant variation by cause:
 - Death shorter, stroke longer
 - Can apply new methodology at a "cause specific" level and derive "cause specific" claim rates

Claims experience – Accelerated CI

Segment	1991-97	1999-02	2003	2004
Male non-smoker	42%	38%	33%	34%
Male smoker	63%	69%	57%	59%
Male aggregate	46%	44%	37%	39%
Female non-smoker	40%	45%	42%	43%
Female smoker	55%	57%	58%	57%
Female aggregate	43%	47%	45%	45%

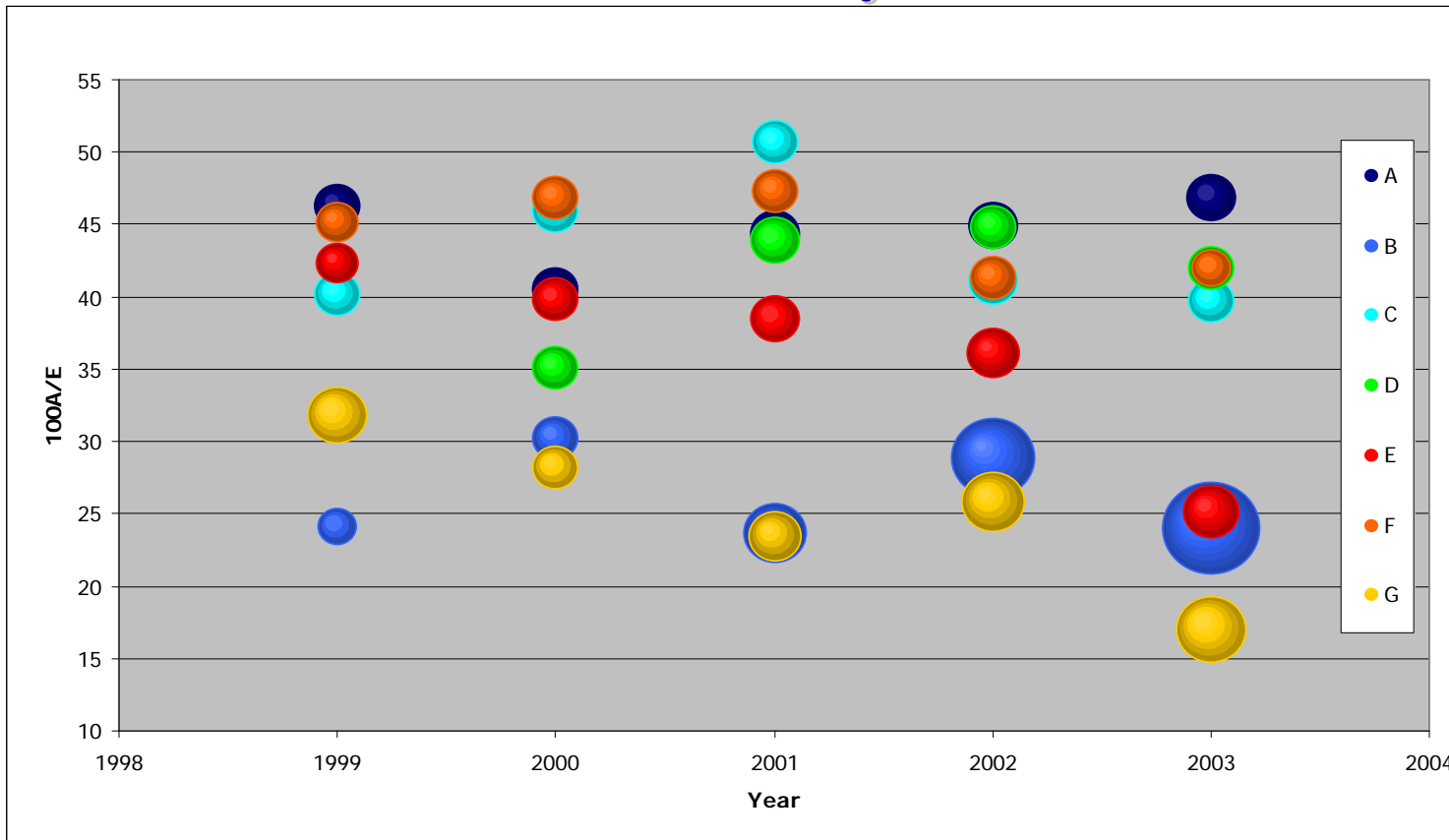
Note: expressed as a % of CIBT93; lives basis; before grossing up factor

Claims experience – Stand Alone CI

Segment	1991-97	1999-02	2003	2004
Male non-smoker	42%	n/a	47%	54%
Male smoker	60%	n/a	130%	77%
Male aggregate	44%	49%	56%	57%
Female non-smoker	45%	n/a	59%	47%
Female smoker	78%	n/a	81%	65%
Female aggregate	49%	52%	62%	49%

Note: expressed as a % of CIBT93; lives basis; before grossing up factor

Results - by office



1. Graph shows $100 \times A/E$ for 7 largest data contributors from 1999-2003 original + a large new contributor from 2003-4.
2. The size of each ball reflects its relative growth – all balls are equal size in 2000, except "new" office which takes base value in 2003.

Results – issues and learning points

- Consistency of data - data from "new" offices, data not received from "quad" offices
- Data issue with 2003 results for one substantial office resolved
- Importance of "date of claim"
- Nature of claim delays
- Impact of growth rate on "grossing-up factors"
- Trends in results may be due to changes in business mix
- Need to consider "grossing-up factors" before interpreting results

IRELAND



Joint Colloquium of the IACA, PBSS and IAAHS Sections
Westin Copley Place Hotel, Boston, U.S.A. – 4-7 May 2008

Update on Irish CI experience

- Terms of reference for working party
- Investigation details and data requirements
- Adjustments to results – IBNS and IBNR
- Results

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Terms of reference for working party

- Compare the critical illness experience of insurance offices selling within the Republic of Ireland with relevant published tables and analyse the data for trends
- Determine whether the production of an Irish insured lives critical illness table is appropriate and if so, produce one
- Survey current reserving bases for critical illness of Irish insurers and make recommendations

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Investigation details

- All offices that had participated in the 1995-2000 investigation were invited to submit data
- Only 2 of these offices were unable to participate
- All of the comparisons in the main body of the report were done against the CIBT93 base table
- Further analyses also provided by main causes of claim and by sales channel

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Data requirements

- Data required for each investigation year:
 - In-force on 1 January in year n
 - Claims in year n (date of diagnosis, date of notification, date of admission and date of settlement)
 - In-force on 1 January in year $n + 1$
- Rated cases excluded

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Adjusting results

- Claims diagnosed prior to (but settled in) the investigation period must be removed
- An estimate must be made for claims diagnosed during the investigation period but not yet settled, i.e. Incurred But Not Settled ("IBNS")
- Offices calculating reserves will have access to all the reported claims so will only need to add a reserve for not reported, i.e. Incurred But Not Reported ("IBNR")

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Average claim delays (I)

Analysis of settlement delay by claim type (2001-2003):

	Number	Mean	Standard Deviation	Median
Critical illness	1,605	238	328	142
Death	226	221	280	136

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Average claim delays (II)

- Average delay increased by 12 months for death and CI claims since 1995-2000
- On death claims, 65% of the delay is post-notification
- For CI claims, on average, almost 60% of the delay is before notification
- UK mean delay is 176 days, Irish claims development is significantly longer

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Average claim delays (III)

- Heart disease and cancer show broadly similar means
- Stroke has seen a significant increase in delays from a mean of 143 to a mean of 277
- Multiple sclerosis is the slowest of all causes to develop
- 4 cases where the delay was greater than 5 years (2 cancer, 1 CABG and 1 stroke)
- One cancer claim was over 7 1/2 years

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Duration and delays

Claim in policy year	1	2	3	4	5	6+
Cancer	275	247	154	191	234	151
Heart disease	193	164	203	193	202	177
CABG	126	120	364	213	180	192
Multiple sclerosis	292	382	261	233	265	256
Stroke	294	406	133	335	216	264
Other	586	356	387	381	314	233
Total	357	279	253	270	259	189

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

IBNS factors

Calendar year	1995-2000	2001-2003
End year 1 to ultimate	1.8930	2.0198
End year 2 to ultimate	1.1023	1.1431
End year 3 to ultimate	1.0461	1.0774
End year 4 to ultimate	1.0235	1.0539
End year 5 to ultimate	1.0116	1.0419
End year 6 to ultimate	1.0000	1.0289
End year 7 to ultimate	n/a	1.0191
End year 8 to ultimate	n/a	1.0111
End year 9 to ultimate	n/a	1.0000

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Adjusted experience

- 1,961 claims settled 2001-2003
- 1,616 after excluding prior year diagnosis
- Increase to 2,151 after allowing for IBNS
- Average adjustment factor of plus 10% but has to be looked at in categories to get sensible results

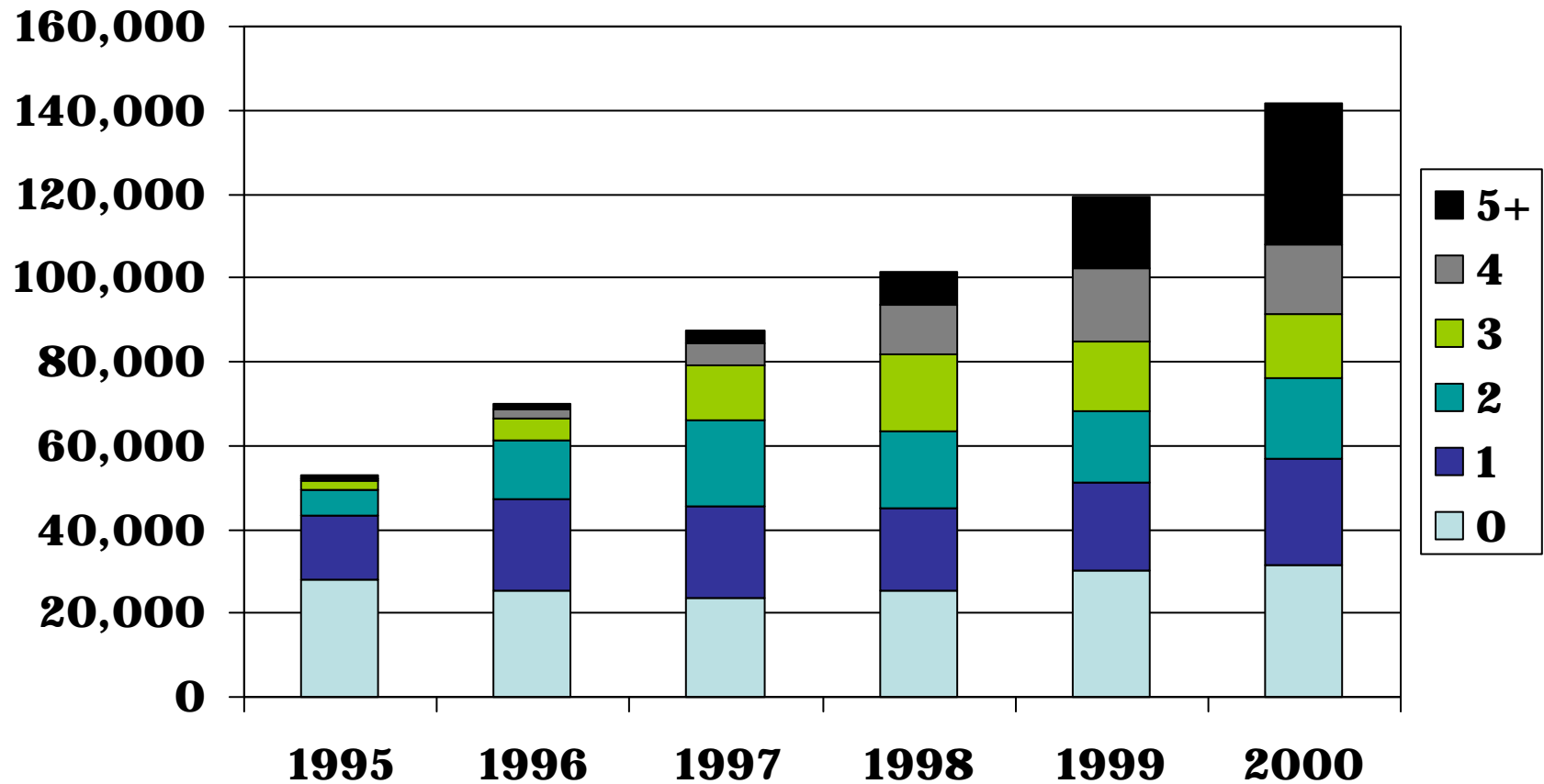
Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Previous claims run-off

- Using 1995-2000 data and factors we expected 298 claims settled in 2001-2003 at a cost of €12.5m
- Actual claims settled was 341 at a cost of €15.8m
- 15% more claims at a 27% higher cost
- Main causes are additional claims on years previously assumed to be run-off and the overall increase in IBNS delays

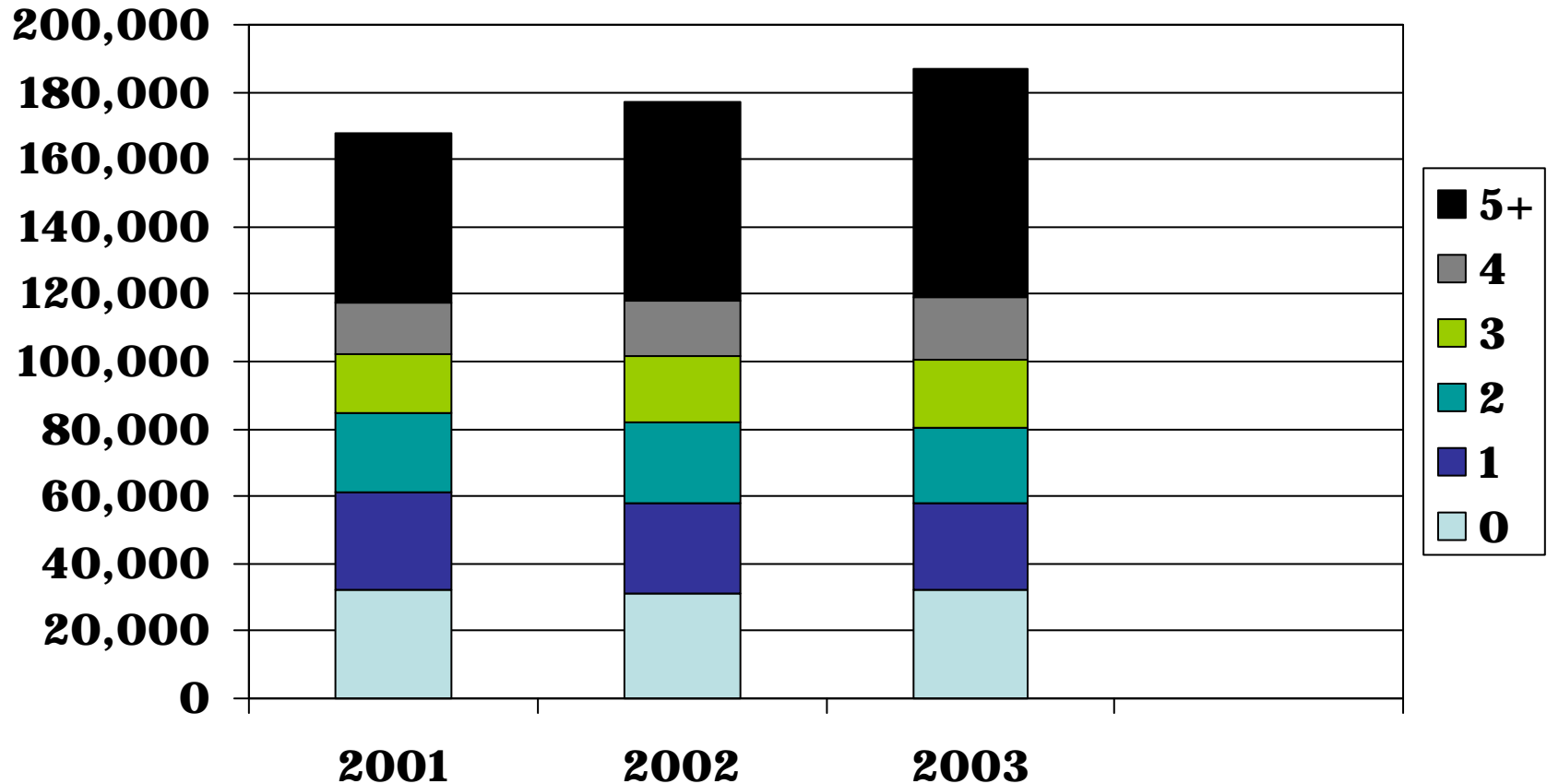
Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Exposure by calendar year & duration – accelerated CI



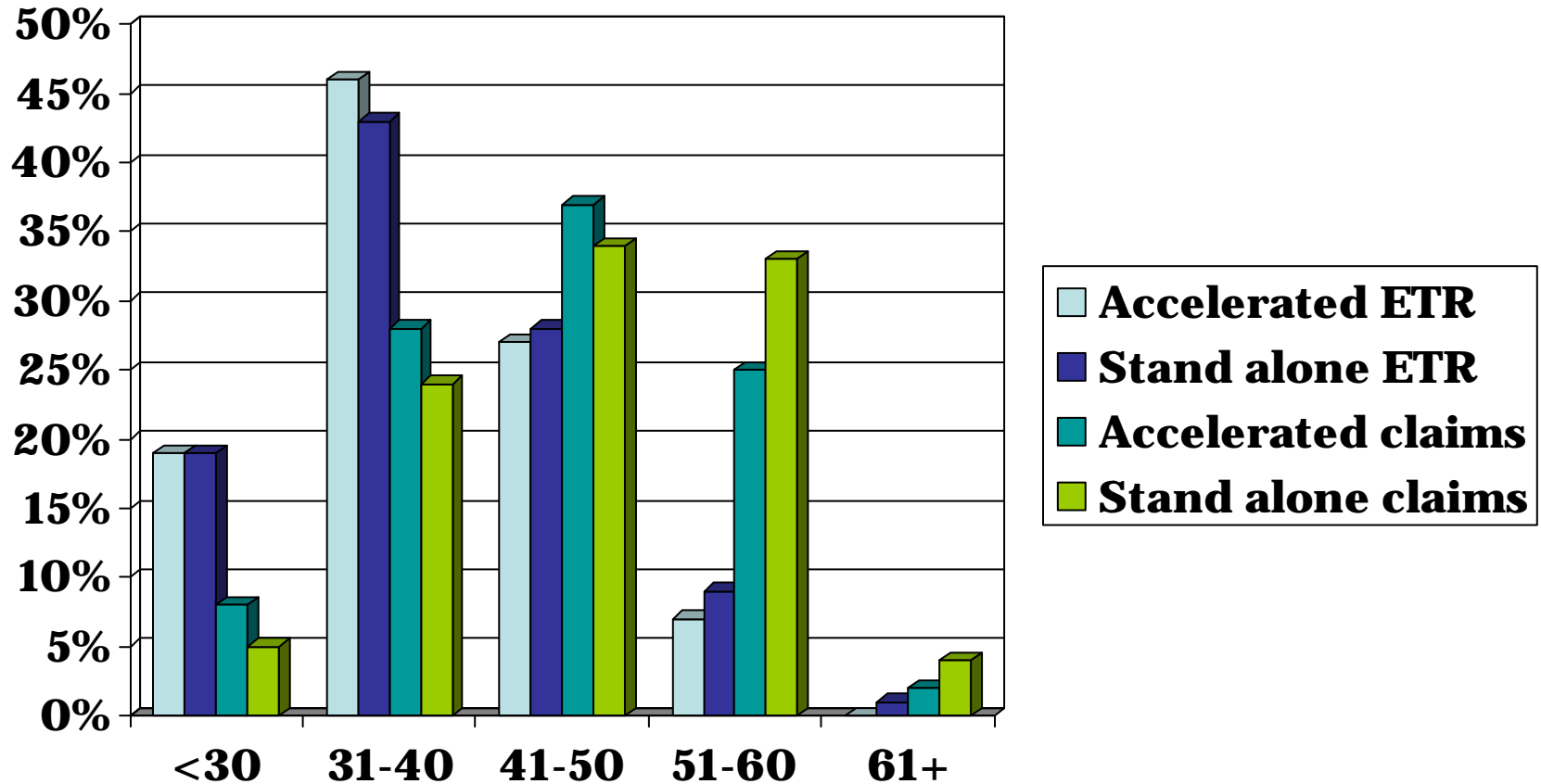
Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Exposure by calendar year & duration – accelerated CI



Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Distribution of claims exposure by age



Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Exposure by distribution channel

Distribution channel	Previous report (1995-2000)	Current report (2001-2003)
Bancassurer	18%	21%
Direct sales	44%	39%
IFA	35%	35%
Other/unknown	3%	6%

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Results adjusted for IBNS

Segment	Current study			Previous study		
	NS	SM	All	NS	SM	All
Acc CI (all claims) male	40%	87%	51%	46%	91%	57%
Acc CI (all claims) female	52%	77%	58%	52%	72%	57%
Acc CI (excluding deaths) male	44%	88%	53%	48%	86%	56%
Acc CI (excluding deaths) female	50%	72%	55%	49%	68%	54%

Notes: expressed as a % of CIBT93

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

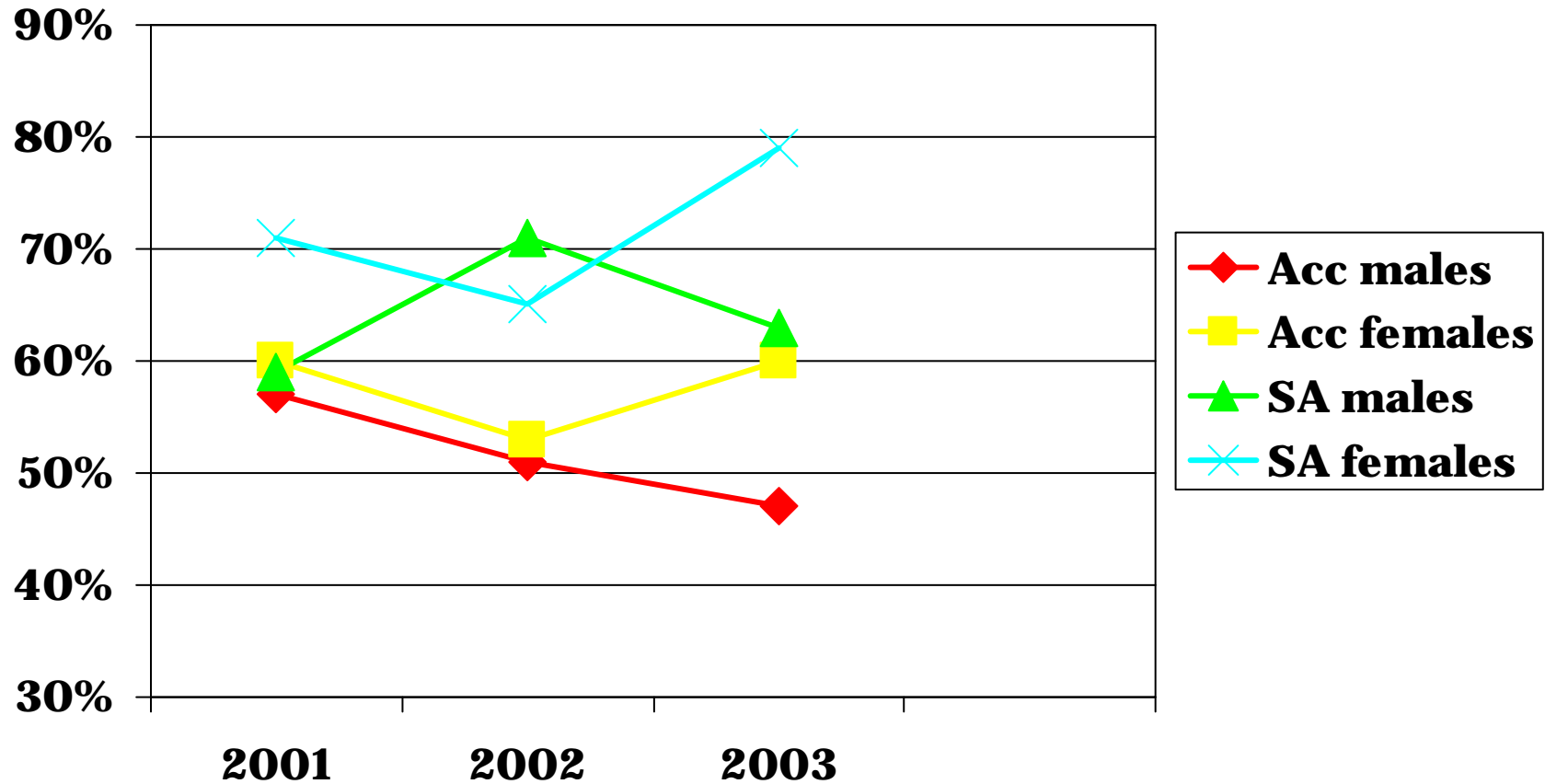
Results adjusted for IBNS

Segment	Current study			Previous study		
	NS	SM	All	NS	SM	All
Stand alone CI male	57%	93%	65%	55%	80%	60%
Stand alone CI female	69%	87%	72%	57%	83%	64%

Notes: expressed as a % of CIBT93

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

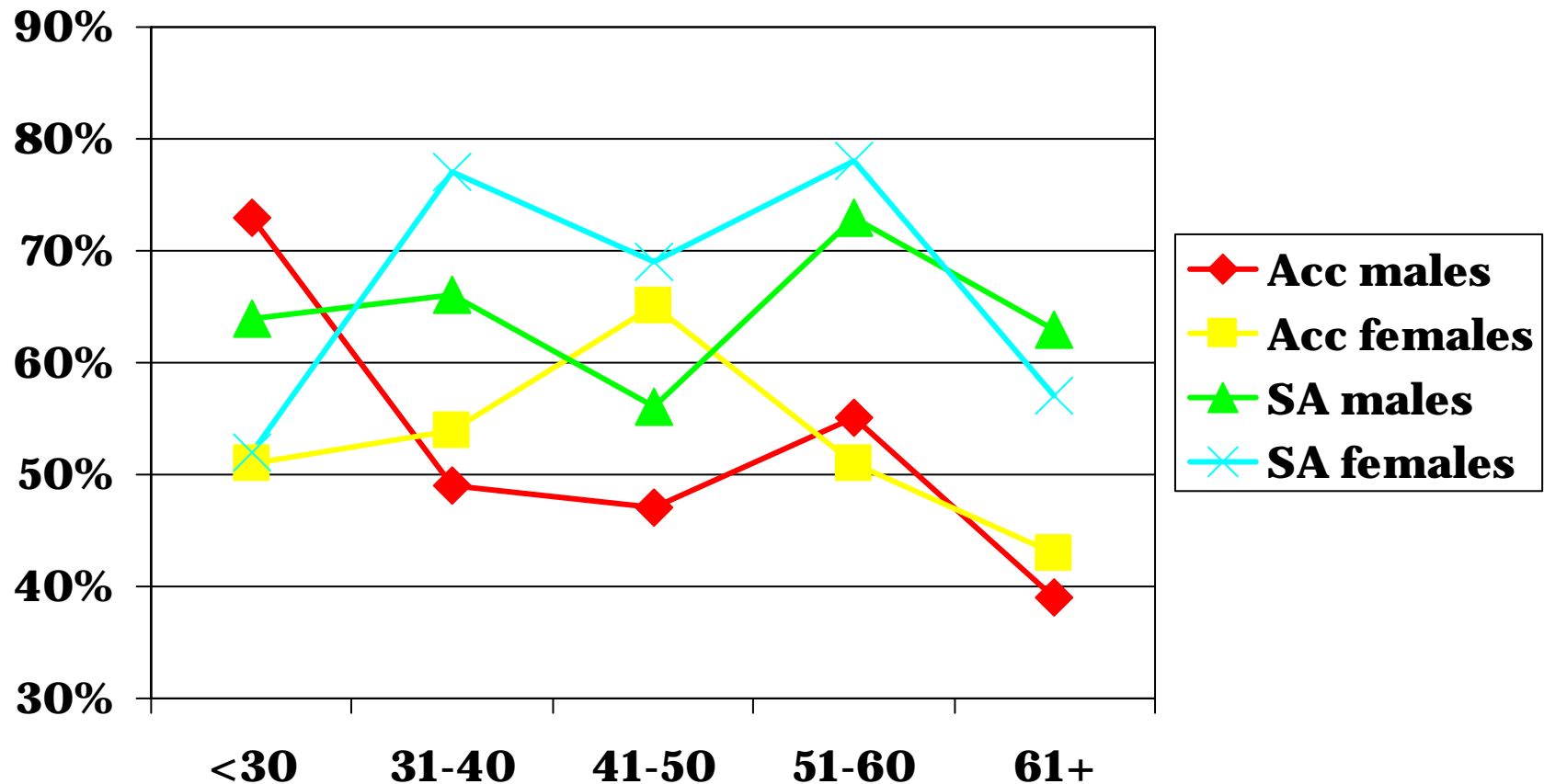
Results by calendar year



Notes: expressed as a % of CIBT93

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Results by age



Notes: expressed as a % of CIBT93

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Recommendations – proportion of table

Table	Segment	Male NS	Male SM	Female NS	Female SM
CIBT93	Accelerated CI	45%	90%	55%	80%
CIBT93	Stand alone CI	60%	95%	70%	90%
ICA94	Accelerated CI	70%	150%	80%	115%
ICA94	Stand alone CI	100%	165%	105%	130%

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Recommendations – other

- Margin for variation 25 to 35% still appropriate
- Deterioration 1% to 3% p.a. for accelerated
- Deterioration 2% to 4% p.a. for stand alone
- Reinsurance rates need to be checked for prudence
- IBNS deterioration: 0.5% to 1.5% p.a.
- IBNR deterioration: 0.0% to 0.25% p.a.

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

UK versus IRELAND



Joint Colloquium of the IACA, PBSS and IAAHS Sections
Westin Copley Place Hotel, Boston, U.S.A. – 4-7 May 2008

Experience versus CIBT93

Segment	Ireland 2001-2003	UK 1999-2002
Male non-smokers	37-55%	35-49%
Male smokers	72-99%	58-78%
Female non-smokers	43-63%	39-58%
Female smokers	59-84%	24-70%

Notes: covers accelerated and stand alone; no allowance for IBNS

Source: Irish CI experience 2001-2003, SOA Ireland, 29 May 2007

Questions & discussion

Joint Colloquium of the IACA, PBSS and IAAHS Sections
Westin Copley Place Hotel, Boston, U.S.A. – 4-7 May 2008



Joint Colloquium of the IACA, PBSS and IAAHS Sections of the International Actuarial Association

Westin Copley Place Hotel, Boston, U.S.A. – 4-7 May 2008

Critical Illness – an update on UK & Irish claims experience

Sue Elliott

Principal, Watson Wyatt Limited

sue.elliott@watsonwyatt.com

