



**Actuaries
Institute**

Pricing Terminal Illness – Is there no cost?

Francis Burgess & Brendon Gerding



Agenda

- Terminal Illness – UK vs Australia
- UK Survival Study
- Adapting the results to 24 Month TI

Hasn't the cost of TI always been immaterial?

- When TI was initially introduced the proportion of death claims was approximately 5% and rate guarantees were typically 3 years or longer.
- Assumption was that overlap with TPD was extremely high.
- Cost mainly perceived as lost interest and lost premiums.
- Typically priced at less than 1% of death premiums in a market that was increasing member benefits.
- TI proportion of death claims and contract terms are very different now!

Terminal Illness

UK vs Australia

What is Terminal Illness?

Medically

- An advanced disease state from which there is **no expectation of recovery**
- Hospital studies show clinicians typically **overestimate survival**

Life Insurance (UK Retail)

- The illness either has no known cure or has progressed to the point where it **cannot be cured**; and
- In the opinion of the **attending Consultant**, the illness is **expected** to lead to **death within 12 months**.
- Over/under-estimation??

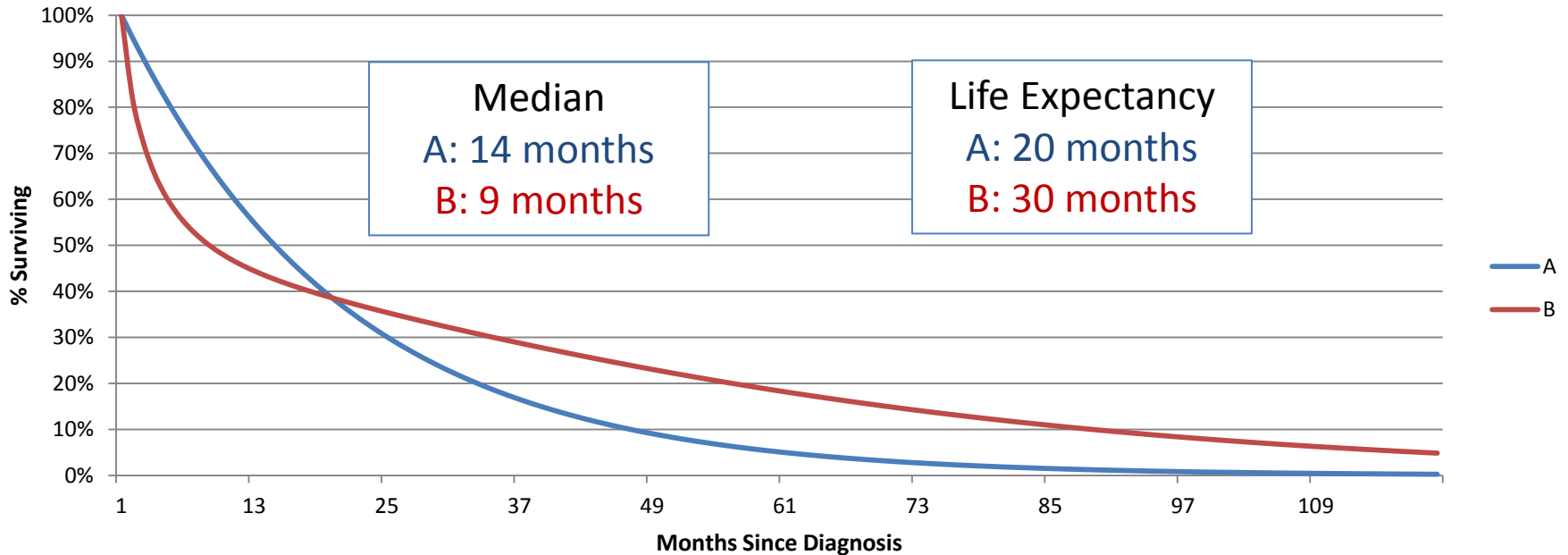
What is Terminal Illness?

Australia SIS Release (shortened)

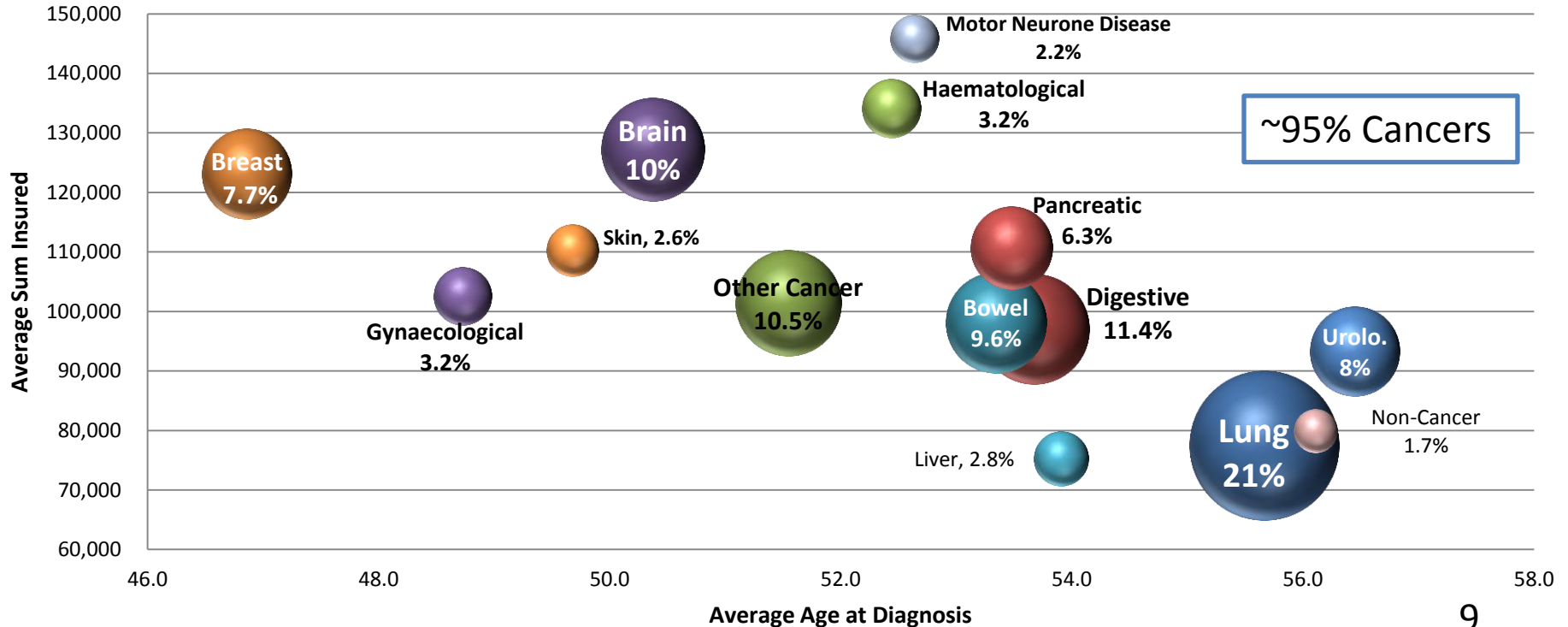
- **Two registered medical practitioners** have certified jointly or separately, that the member suffers from an illness that is **likely** to result in the member's **death within 12/24 months** of the date of certification
- At least one must be a specialist in the related area
- Some require insurer agreement

What does expected mean?

Hypothetical Survival Curves – Condition/Disease A & B

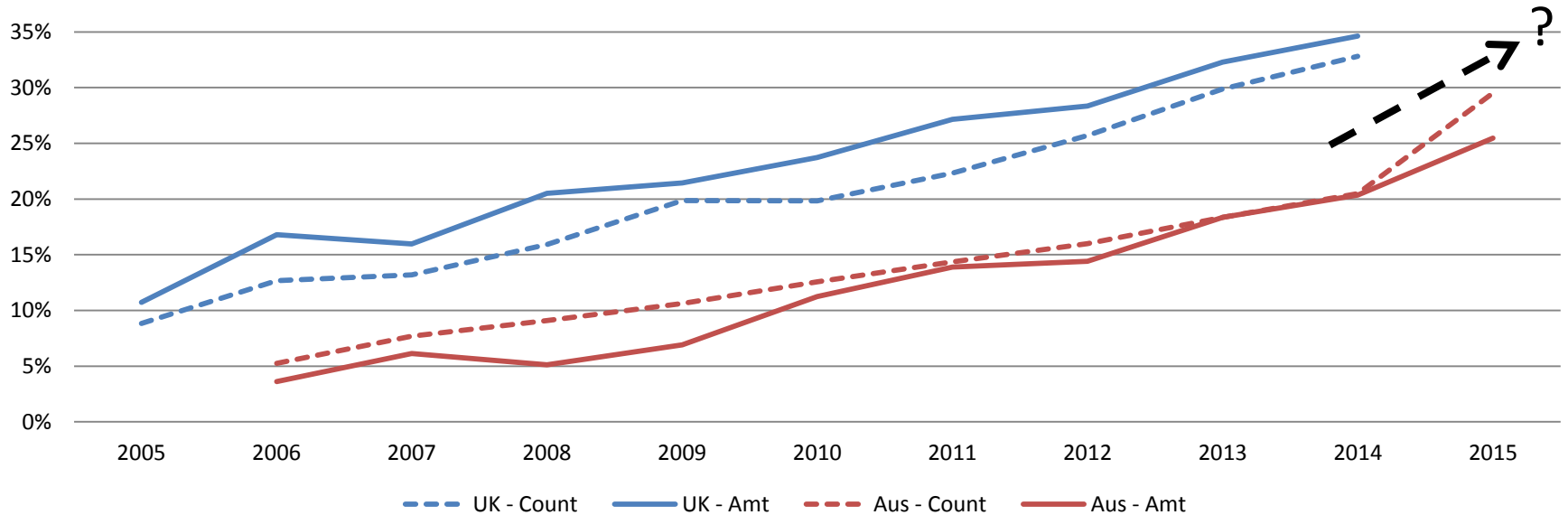


Terminal Illness Claim Causes (UK, 12 Month)



Terminal Illness Trends

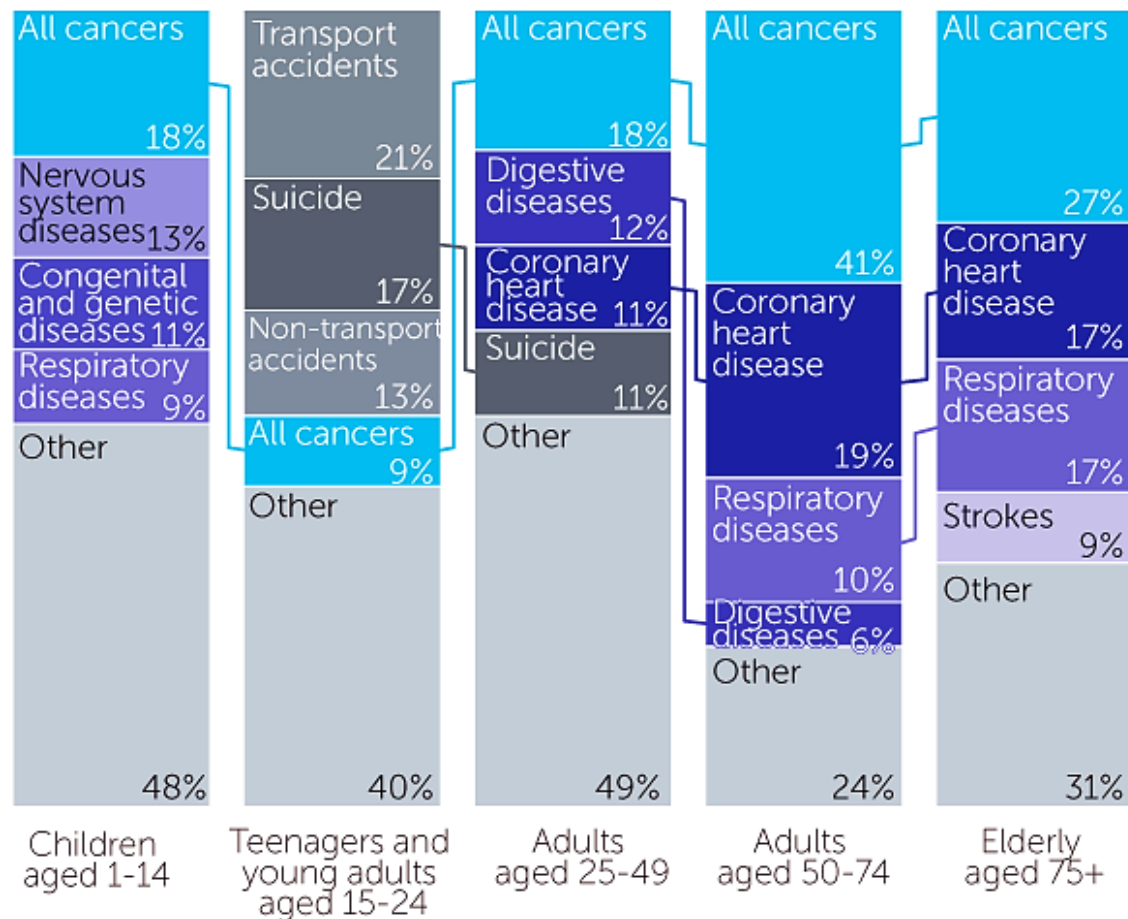
TI % of Death & TI Claims by Year of Claim (UK Retail vs Aus Group)



- Clear upwards trend over time (based on highly credible datasets)
- Broker/doctor involvement, change to claims administration procedures
- What is the upper limit?

Upper limit depends on:

- Age mix (due to cancer prevalence)
- Scales
- Occupation profile
- Gender mix
- Doctor involvement (potential for many more non-cancers to be introduced)



The Cost of Terminal Illness

As TI becomes more prevalent, cost becomes material:

- “New” claims - survivors to end of term or new insurer
- Higher benefit levels (DTA, Benefit Scales)
- Transfer from TPD (if lower scale)
- Foregone premiums/Interest lost on reserves
- Claims expenses

UK Survival Study

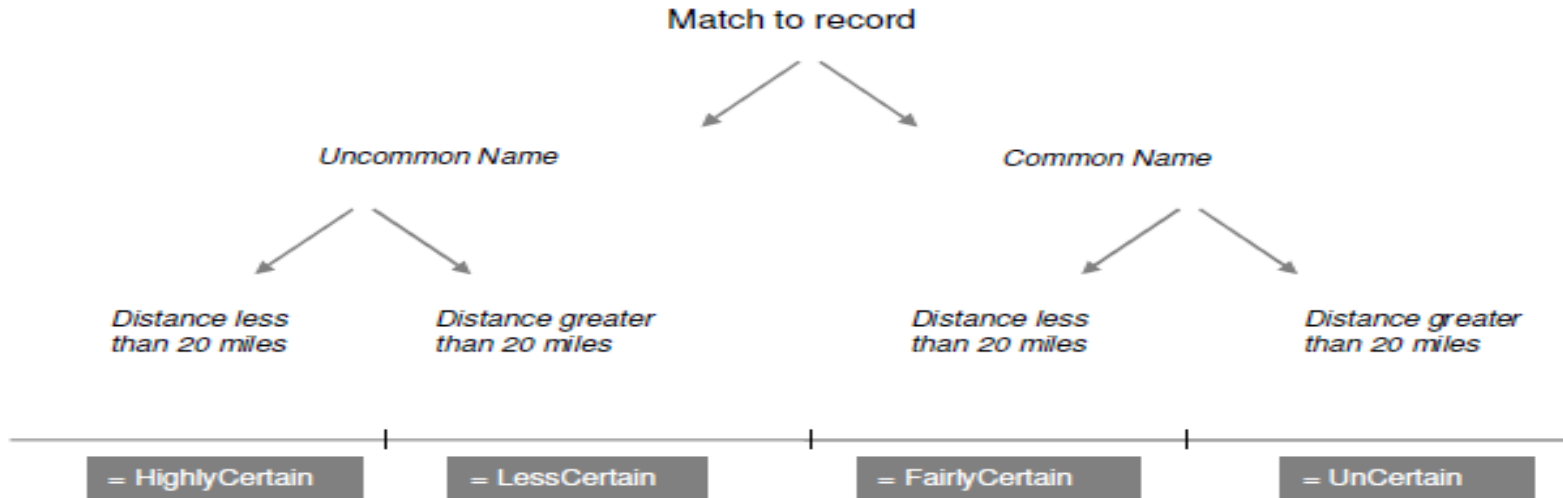
Study Overview

- Given the increasing trends, we wanted to find out what was happening post-claim
- TI Claims data sourced from leading UK retail companies (12 month definition)
- ~3,500 TI claims over ~10 years
- Tracing exercise performed using our longevity tracing systems

Tracing TI Claimants

April 2014 - Claimants are traced using Capita Tracing

- 1) Requires match to death records by **Surname, Forename, DoB, Gender**
- 2)



Tracing TI Claimants

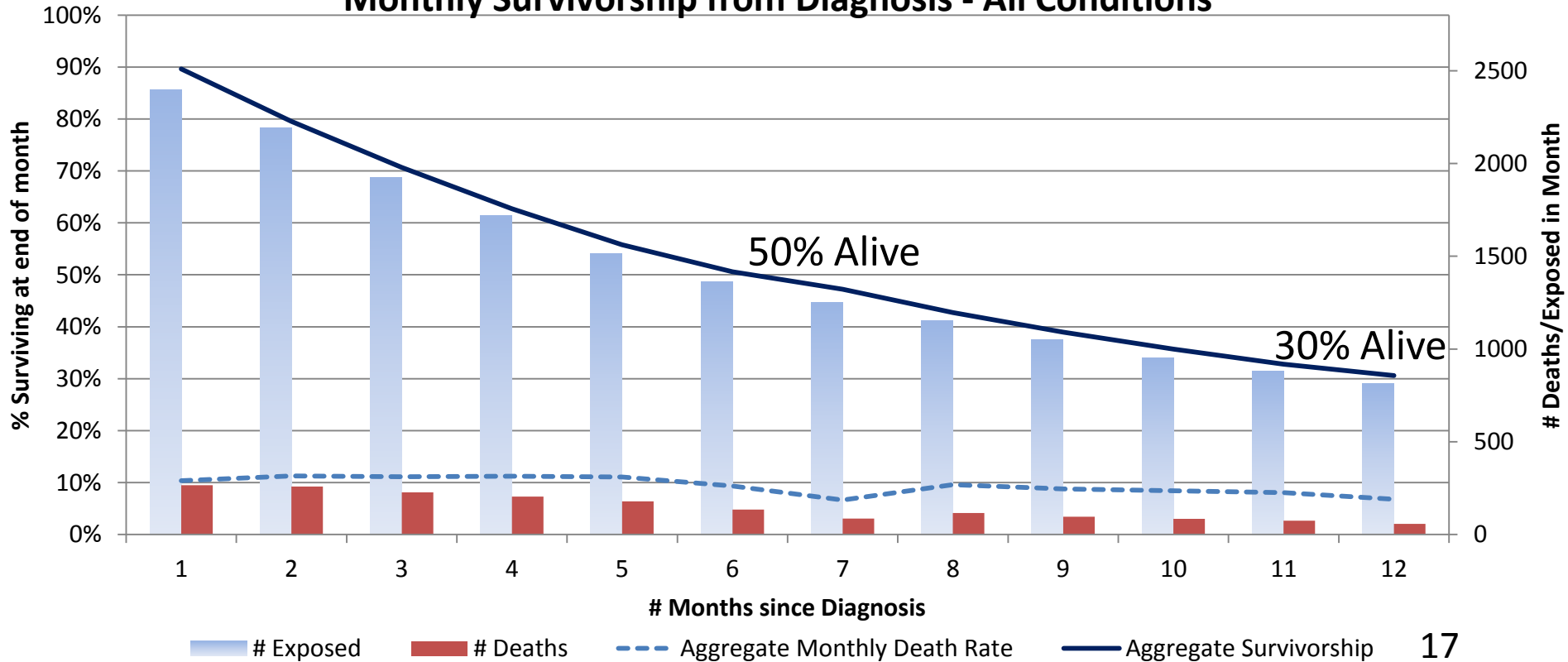
Results of Tracing Exercise:

Trace Result	# Claims	% Claims
Highly Certain Death	2,704	80%
Fairly Certain Death	30	1%
Less Certain Death	45	1%
Uncertain Death	105	3%
Still Alive	517	15%
Grand Total	3,401	100%

These results don't tell us much about **when** someone is expected to die, or how long those **still alive** have been alive for...

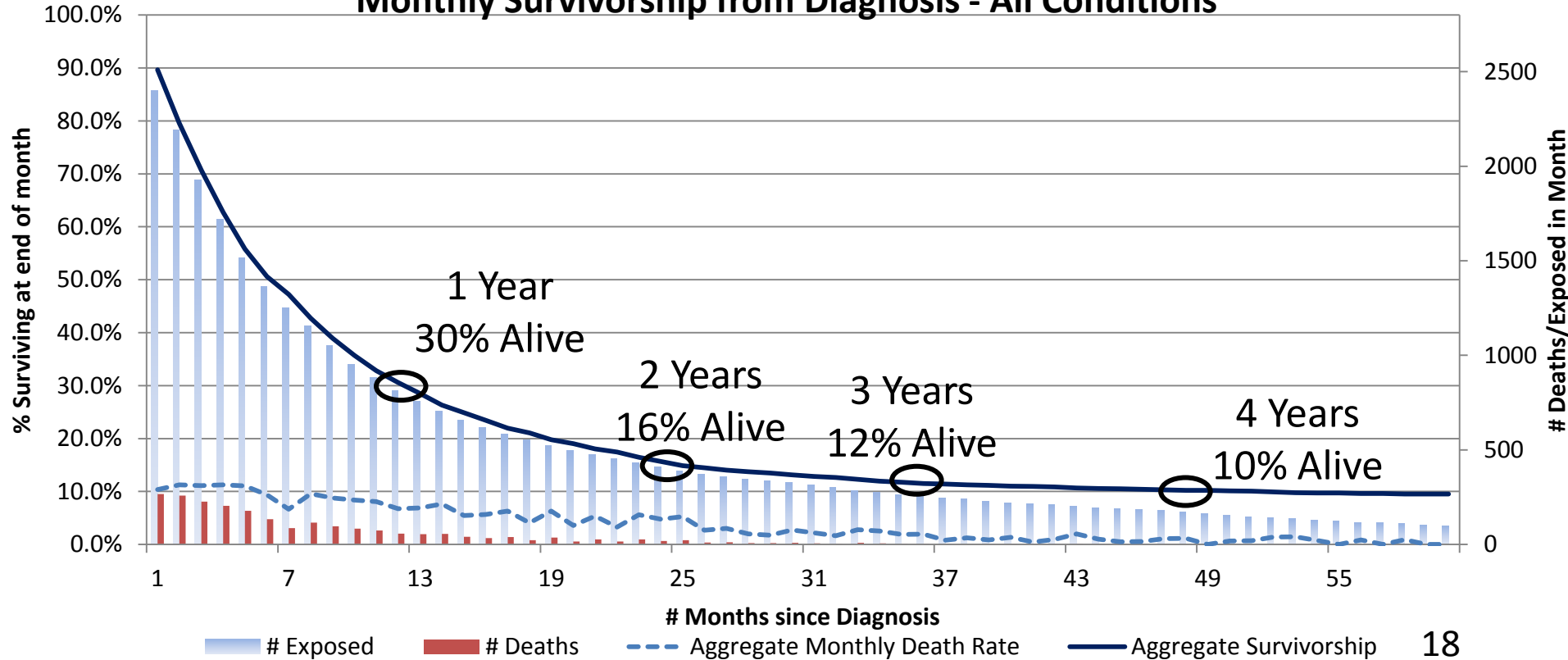
Survivorship Results – 12 Month Definition

Monthly Survivorship from Diagnosis - All Conditions



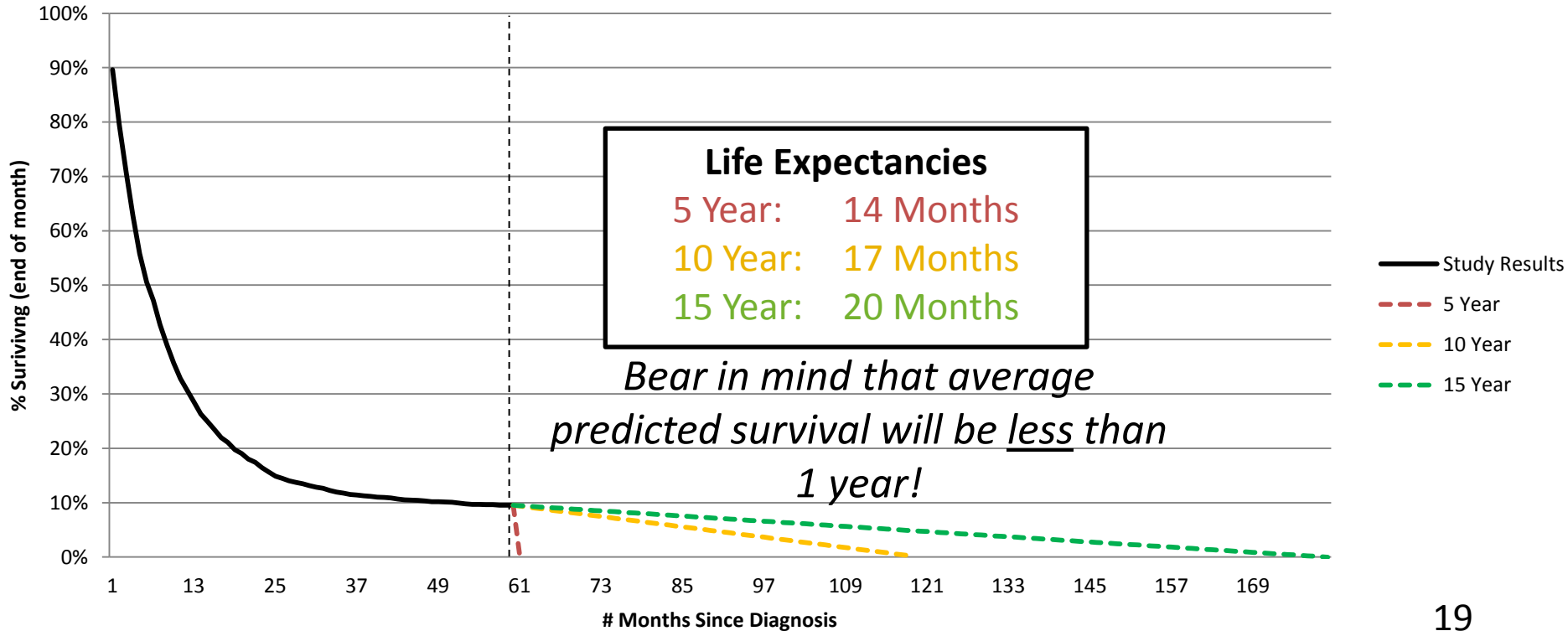
Survivorship Results – 12 Month Definition

Monthly Survivorship from Diagnosis - All Conditions



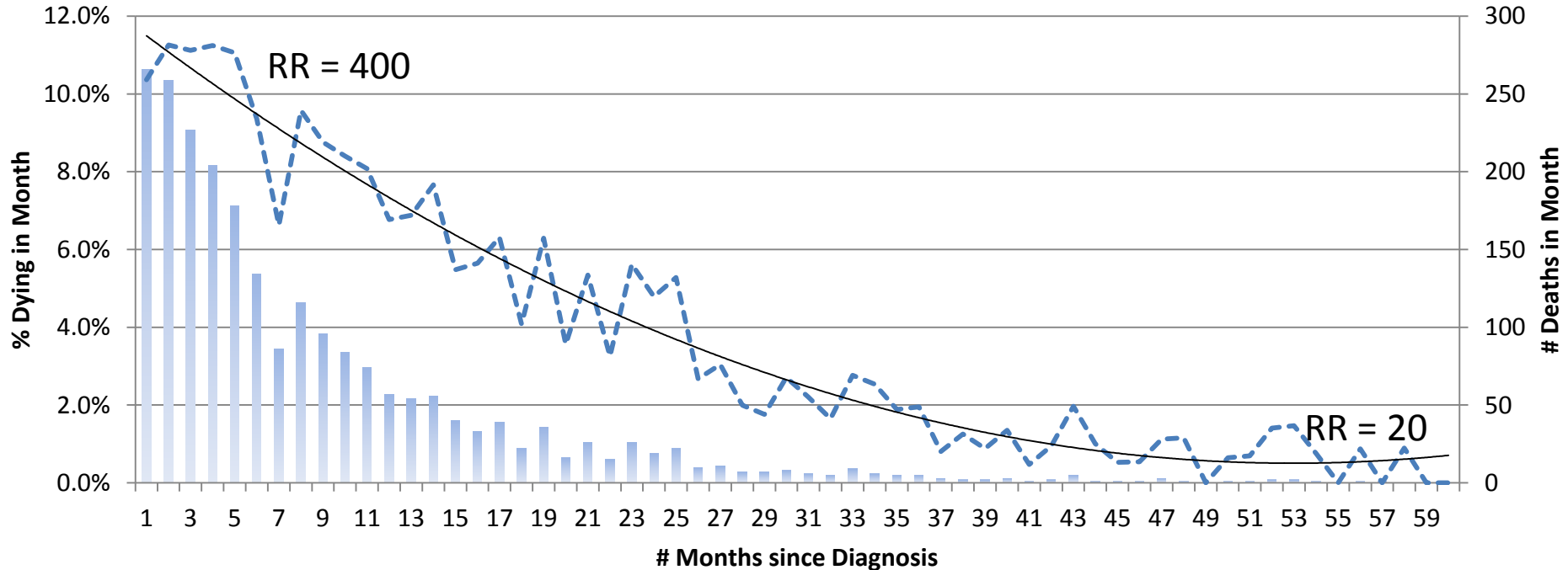
Survivorship Results – 12 Month Definition

Future Survival Possibilities



Survivorship Results – 12 Month Definition

Monthly Death Rate - All Conditions



Aggr. # Deaths

Aggregate Monthly Death Rate

Poly. (Aggregate Monthly Death Rate)

Condition specific survival

Note: "Other cancer" includes gynaecological, liver and skin cancer

	Number Still in Study										
Duration since Dx	Lung	Digestive	Brain	Bowel	Urological	Breast	Pancreatic	Haem.	Other Cancer	Other Diseases	All Conditions
At start	541	294	252	245	192	195	164	84	488	100	2,555
12 Months	166	69	101	85	58	81	44	22	130	52	807
24 Months	71	24	44	37	35	48	23	15	69	41	407
	Survival Rates										
Duration since Dx	Lung	Digestive	Brain	Bowel	Urological	Breast	Pancreatic	Haem.	Other Cancer	Other Diseases	All Conditions
12 Months	29%	23%	39%	33%	30%	39%	24%	26%	26%	51%	31%
24 Months	13%	8%	17%	15%	18%	25%	13%	18%	14%	38%	16%
36 Months	10%	5%	13%	9%	13%	19%	11%	18%	11%	27%	12%

Highest survivorship (1yr): Brain, Breast, Non cancers

Lowest survivorship (1yr): Digestive, Pancreatic, Other Cancer

Highest survivorship (2yr): Urological, Breast, Haematological, Non cancers

Lowest survivorship (2yr): Digestive, Lung, Brain, Bowel, Pancreatic

Key Takeaway – UK Study

- **TI Claims have increased materially**, and no immediate sign of respite
- In the UK, **people are living longer than predicted**, with 1 in 10 still alive after 5 years
- **Life expectancy** (mean) is a more sensible measure of “expected”, but **median is the more common approach**



"Seriously?! No one saw this coming?!"

Adapting the Results

24 Month TI

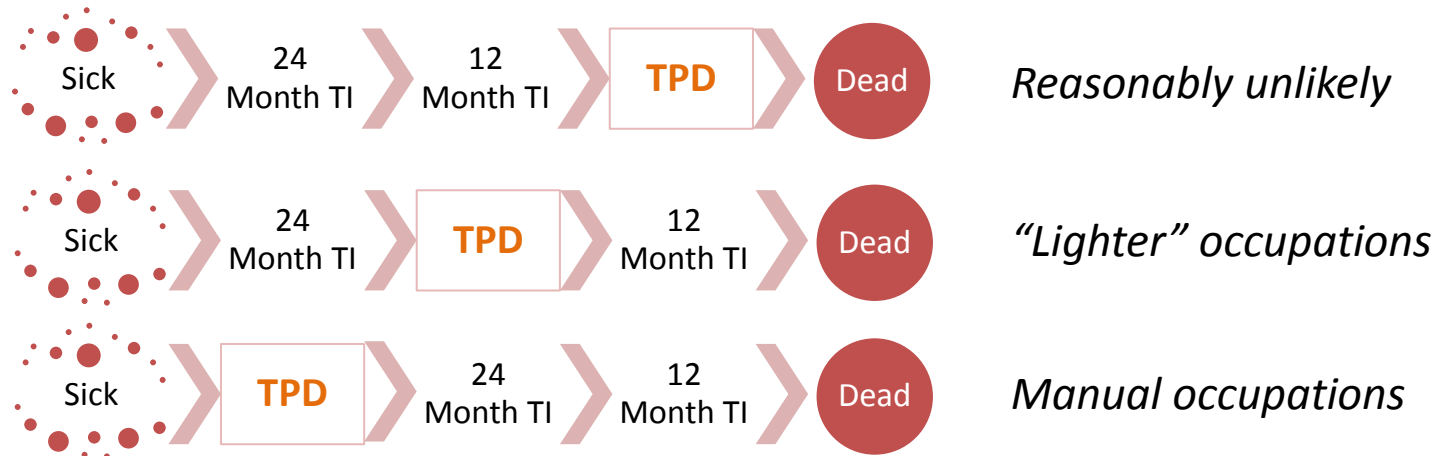
Adapting the Results

Key Assumptions Needed:

- Proportion TI Claims (over time)
- TI Survival Rates
- Policy Length
- TPD Conversions

Adapting the Results – Proportion TI Claims

Interaction with TPD (possible eligibility progression):



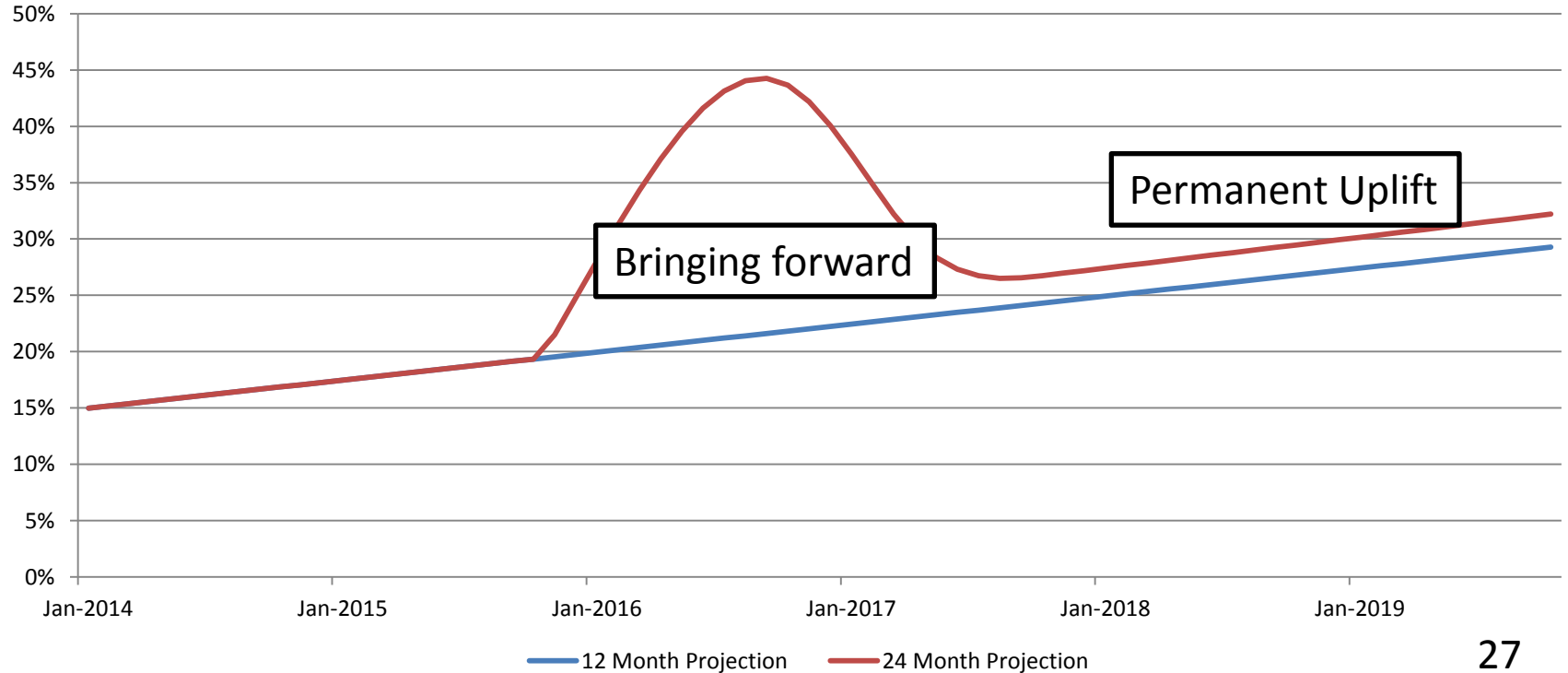
But, also need to consider notification delays...

Adapting the Results – Proportion TI Claims

- Day 1 – All those in the 13-24 period now eligible to claim
- Expect some awareness growth – “phasing in”
- Following initial peak, expect track back to 12 month proportions (which are currently increasing)
- But, some permanent uplift will apply
 - Recoveries, deaths
 - Transfers from TPD
 - Increased doctor error (or siding with patient)

Adapting the Results – Proportion TI Claims

Projected TI Proportions (% Dth + TI Claims)

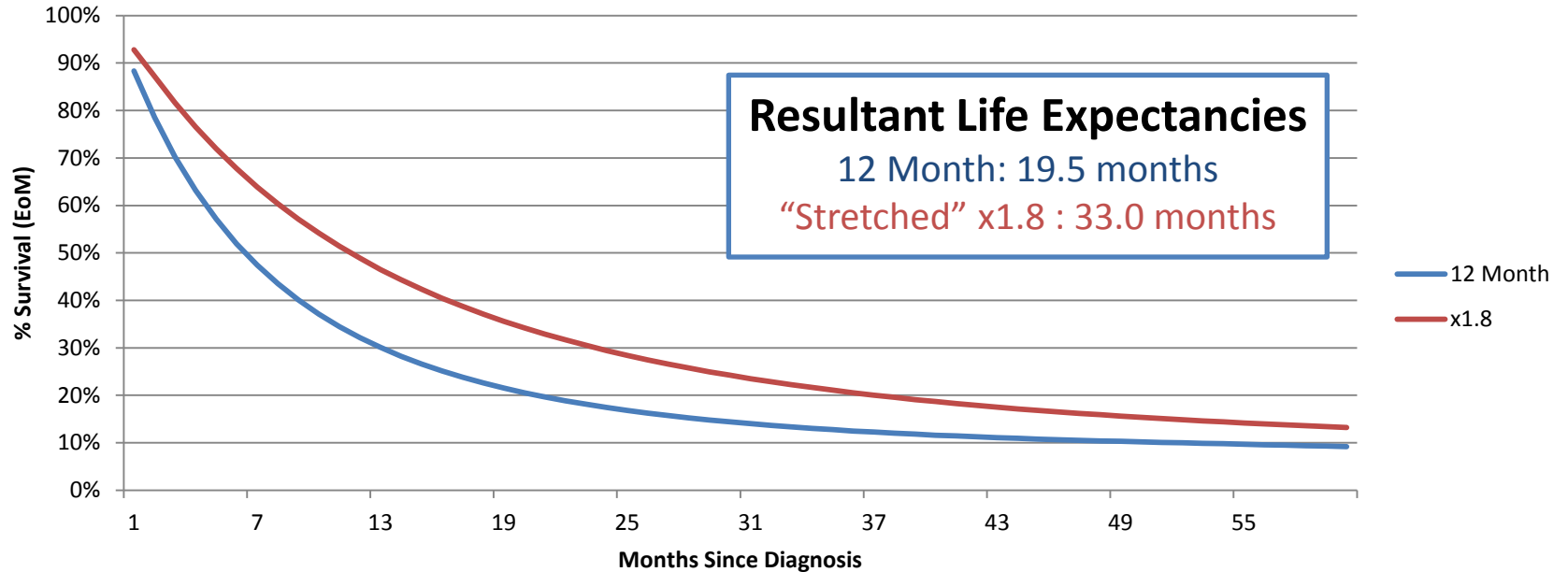


Adapting the Results – TI Survival Rates

- UK Retail survival starting point
- Expect roughly +12 months life expectancy, assuming accuracy stays the same
- But, accuracy ↓ as timeframe ↑
- Highly dependant on doctor behaviour

Adapting the Results – TI Survival Rates

Extending Survival Curve



Adapting the Results – Difference between 12 & 24 Month

Cost of bringing forward death claims on 24 month contract:

Quarter	TI Proportion		12 Month Survival	24 Month Survival	Survival to End of Period		
	12 Month	24 Month			12 Month	24 Month	Diff
Q1	20%	24%	18%	31%	4%	7%	4%
Q2	20%	30%	21%	34%	4%	10%	6%
Q3	21%	35%	24%	39%	5%	14%	9%
Q4	22%	38%	28%	44%	6%	17%	11%
Q5	22%	36%	35%	51%	8%	19%	11%
Q6	23%	32%	44%	60%	10%	19%	9%
Q7	23%	28%	57%	72%	13%	20%	7%
Q8	24%	27%	79%	87%	19%	24%	5%

~7%

The Cost of Terminal Illness

Total cost over 24 months :

Death claims brought forward	7%
+ Higher benefit scales	2.5%
+ Lost interest/premium/exp.	0.5%
= Total cost (% death premium)	10%

(Plus cost of TPD transfers where scales are different)

The Cost of Terminal Illness

Significant judgment required, so what happens when we change parameters?

Scenario	Term	"Stretch" Factor	LT Uplift (24 Month)	Death Cost
Base	24	x 1.8	10%	10%
ST	12	x 1.8	10%	16%
LT	60	x 1.8	10%	6%
Low Survival	24	x 1.5	10%	8.5%
High Survival	24	x 2.1	10%	12%
High LT Uplift	60	x 1.8	25%	7.5%

Concluding Thoughts

Concluding Thoughts

- TI Proportions Increasing
- Survival underestimated
- Guarantee periods shortened
- +
- 24 Month TI Change
- =
- Significant price increase
- Significant risk increase

Concluding Thoughts

Member Perspective

- Strong argument for alignment of insurance and SIS definitions.
- BUT arguments for different “burden of proof” for accessing member account balance compared to an insurance benefit.
- Consistency between different superannuation products (industry funds, master trusts and individual retail insurance policies).

Concluding Thoughts

Trustee Perspective

- Strong argument for alignment of insurance and SIS definitions.
- 24 month TI is predominately a one off transfer cost. Cost materially different for Industry Funds versus MT and retail policies.
- Implications for member equity as premium is being brought forward and issues of intergenerational equity.
- Timing of potential member premium increases. Equity and timing issues may be addresses by specific exit clauses by current insurer.

Concluding Thoughts

Alternative Product Designs

- Alignment of insurance and SIS definitions is NOT the only answer.
- Members could access their own money at 24 months and insurance benefit at 12 months. Insurance cover would continue despite account balance being exhausted.
- Free cover would continue after SIS TI release for death / TI insurance benefits.

Concluding Thoughts



- **Horse has bolted!**
- All that is left is to price this appropriately.
- Need to collect the data now to price this for the next five years – more detailed claims forms.