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

- **Median**
  - A: 14 months
  - B: 9 months

- **Life Expectancy**
  - A: 20 months
  - B: 30 months
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)

Source: Cancer Research UK
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
• 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) Match to record

- Uncommon Name
  - Distance less than 20 miles: Highly Certain
  - Distance greater than 20 miles: Less Certain

- Common Name
  - Distance less than 20 miles: Fairly Certain
  - Distance greater than 20 miles: Uncertain
Tracing TI Claimants

Results of Tracing Exercise:

<table>
<thead>
<tr>
<th>Trace Result</th>
<th># Claims</th>
<th>% Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Certain Death</td>
<td>2,704</td>
<td>80%</td>
</tr>
<tr>
<td>Fairly Certain Death</td>
<td>30</td>
<td>1%</td>
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<tr>
<td>Less Certain Death</td>
<td>45</td>
<td>1%</td>
</tr>
<tr>
<td>Uncertain Death</td>
<td>105</td>
<td>3%</td>
</tr>
<tr>
<td>Still Alive</td>
<td>517</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>3,401</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

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

50% Alive
30% Alive
Survivorship Results – 12 Month Definition

Monthly Survivorship from Diagnosis - All Conditions

1 Year
30% Alive

2 Years
16% Alive

3 Years
12% Alive

4 Years
10% Alive

# Months since Diagnosis

# Exposed
# Deaths
Aggregate Monthly Death Rate
Aggregate Survivorship

% Surviving at end of month

# Deaths/Exposed in Month

1 Year
30% Alive

2 Years
16% Alive

3 Years
12% Alive

4 Years
10% Alive

# Months since Diagnosis

1 7 13 19 25 31 37 43 49 55

0 100.0% 90.0% 80.0% 70.0% 60.0% 50.0% 40.0% 30.0% 20.0% 10.0% 0.0%
Survivorship Results – 12 Month Definition

Future Survival Possibilities

Life Expectancies

- 5 Year: 14 Months
- 10 Year: 17 Months
- 15 Year: 20 Months

Bear in mind that average predicted survival will be less than 1 year!
Survivorship Results – 12 Month Definition

Monthly Death Rate - All Conditions

RR = 400

RR = 20
Condition specific survival

Note: “Other cancer” includes gynaecological, liver and skin cancer

<table>
<thead>
<tr>
<th>Duration since Dx</th>
<th>Lung</th>
<th>Digestive</th>
<th>Brain</th>
<th>Bowel</th>
<th>Urological</th>
<th>Breast</th>
<th>Pancreatic</th>
<th>Haem.</th>
<th>Other Cancer</th>
<th>Other Diseases</th>
<th>All Conditions</th>
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</thead>
<tbody>
<tr>
<td>At start</td>
<td>541</td>
<td>294</td>
<td>252</td>
<td>245</td>
<td>192</td>
<td>195</td>
<td>164</td>
<td>84</td>
<td>488</td>
<td>100</td>
<td>2,555</td>
</tr>
<tr>
<td>12 Months</td>
<td>166</td>
<td>69</td>
<td>101</td>
<td>85</td>
<td>58</td>
<td>81</td>
<td>44</td>
<td>22</td>
<td>130</td>
<td>52</td>
<td>807</td>
</tr>
<tr>
<td>24 Months</td>
<td>71</td>
<td>24</td>
<td>44</td>
<td>37</td>
<td>35</td>
<td>48</td>
<td>23</td>
<td>15</td>
<td>69</td>
<td>41</td>
<td>407</td>
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</tbody>
</table>

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<th>Haem.</th>
<th>Other Cancer</th>
<th>Other Diseases</th>
<th>All Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Months</td>
<td>29%</td>
<td>23%</td>
<td>39%</td>
<td>33%</td>
<td>30%</td>
<td>39%</td>
<td>24%</td>
<td>26%</td>
<td>26%</td>
<td>51%</td>
<td>31%</td>
</tr>
<tr>
<td>24 Months</td>
<td>13%</td>
<td>8%</td>
<td>17%</td>
<td>15%</td>
<td>18%</td>
<td>25%</td>
<td>13%</td>
<td>18%</td>
<td>14%</td>
<td>38%</td>
<td>16%</td>
</tr>
<tr>
<td>36 Months</td>
<td>10%</td>
<td>5%</td>
<td>13%</td>
<td>9%</td>
<td>13%</td>
<td>19%</td>
<td>11%</td>
<td>18%</td>
<td>11%</td>
<td>27%</td>
<td>12%</td>
</tr>
</tbody>
</table>

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
• 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):

- Reasonably unlikely
- “Lighter” occupations
- Manual occupations

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)

- Bringing forward
- Permanent Uplift

12 Month Projection 24 Month Projection
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

Resultant Life Expectancies
12 Month: 19.5 months
“Stretched” x1.8 : 33.0 months
Adapting the Results – Difference between 12 & 24 Month

Cost of bringing forward death claims on 24 month contract:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>TI Proportion</th>
<th>12 Month Survival</th>
<th>24 Month Survival</th>
<th>Survival to End of Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 Month</td>
<td>24 Month</td>
<td>12 Month</td>
<td>24 Month</td>
</tr>
<tr>
<td>Q1</td>
<td>20%</td>
<td>24%</td>
<td>18%</td>
<td>31%</td>
</tr>
<tr>
<td>Q2</td>
<td>20%</td>
<td>30%</td>
<td>21%</td>
<td>34%</td>
</tr>
<tr>
<td>Q3</td>
<td>21%</td>
<td>35%</td>
<td>24%</td>
<td>39%</td>
</tr>
<tr>
<td>Q4</td>
<td>22%</td>
<td>38%</td>
<td>28%</td>
<td>44%</td>
</tr>
<tr>
<td>Q5</td>
<td>22%</td>
<td>36%</td>
<td>35%</td>
<td>51%</td>
</tr>
<tr>
<td>Q6</td>
<td>23%</td>
<td>32%</td>
<td>44%</td>
<td>60%</td>
</tr>
<tr>
<td>Q7</td>
<td>23%</td>
<td>28%</td>
<td>57%</td>
<td>72%</td>
</tr>
<tr>
<td>Q8</td>
<td>24%</td>
<td>27%</td>
<td>79%</td>
<td>87%</td>
</tr>
</tbody>
</table>
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?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Term</th>
<th>&quot;Stretch&quot; Factor</th>
<th>LT Uplift (24 Month)</th>
<th>Death Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>24</td>
<td>x 1.8</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>ST</td>
<td>12</td>
<td>x 1.8</td>
<td>10%</td>
<td>16%</td>
</tr>
<tr>
<td>LT</td>
<td>60</td>
<td>x 1.8</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Low Survival</td>
<td>24</td>
<td>x 1.5</td>
<td>10%</td>
<td>8.5%</td>
</tr>
<tr>
<td>High Survival</td>
<td>24</td>
<td>x 2.1</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>High LT Uplfit</td>
<td>60</td>
<td>x 1.8</td>
<td>25%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>
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 addressed 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.