The impact of emerging cancer drugs on health insurance in New Zealand

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1. Introduction

This paper examines reserving practices employed by health insurers in New Zealand to meet long-term claims costs arising from selective lapsation and those policyholders at higher risk of requiring medical treatment. I show that industry practice is mixed with respect to selective lapsation – some insurers recognise expected costs through explicit reserves or pricing increases, whilst others meet costs on an unfunded "pay as you go" (PAYG) basis. By contrast, insurers do not explicitly quantify increased claims costs arising from higher risk claimants. I demonstrate that this preference for PAYG funding can be understood in the context of the competitive market environment.

I then describe emerging trends in cancer care that may call into question the prudence of the PAYG approach. Early clinical evidence indicates that targeted immunotherapy drugs are more costly and less toxic than traditional chemotherapy treatments. This lower toxicity enables the drugs to be administered for longer periods of time, exposing insurers to longer-tail liabilities.

Finally, I look at product design within the New Zealand health insurance market to understand the extent to which insurers are exposed to cancer claims and the options available to respond to developing claims experience in a PAYG funding environment.

2. Background

Unlike some countries which encourage the purchase of private health insurance, the New Zealand individual health insurance market is voluntary. To manage the risk of anti-selection, individual health policies are generally underwritten and exclude coverage for pre-existing medical conditions. Health insurance policies typically cover elective surgical procedures, specialist consultations, diagnostic imaging and tests, and cancer treatment. Whilst many elective services are also available through the public health system, access to publically funded treatment is rationed.

3. Long-term nature of health insurance

In the New Zealand market, health insurance policies are "guaranteed renewable". This feature provides policyholders with the right to renew cover without being re-underwritten and guarantees that premiums will not be rated according to an individual's claims history[1]. The historic decision to offer guaranteed renewability might have been based on customer value concerns – it is unclear whether policyholders would perceive value in a health policy that could be cancelled by the insurer or that could become prohibitively expensive for claimants with chronic medical conditions[2].

It is well understood that the renewability feature of health insurance carries a long-term cost; an insurer's claims experience implicitly reflects increased costs arising from higher risk policyholders. For the purposes of this paper, I define higher risk policyholders as those with developed medical conditions[3] who expose the insurer to higher than average claims risk. These may include policyholders with chronic health conditions, past claimants at risk of requiring repeat procedures, and

[1] Some insurers offer customers "low claims" discounts. For example, the Southern Cross "Low Claims Reward" reduces premiums by 10% for members who claim below specified thresholds over a two year period. These types of discounts are a weak risk-rating measure (i.e. the opportunity to adjust the premium is limited to the level of discount).

[2] This is a matter of speculation. Early health insurance products sold in New Zealand were through Friendly Societies and were guaranteed renewable.

[3] Medical conditions that emerged following policy commencement and that are, therefore, covered by the insurer.

those claimants actively receiving treatment. Herring and Pauly (2006) develop a Markov model that can be used to estimate the cost of the renewability feature. Their analysis implies the cost of the renewability feature to be about 20% of the risk premium for females and 30% for males (on a net present value basis for US insurers).

In addition to presenting greater claims risk, higher risk claimants are also less likely to lapse than lower risk policyholders. This selective lapsation behaviour leads to gradual deterioration in claims experience. Feyter (2008) develops a model to quantify the impact of selective lapsation on claims costs. His analysis estimates that claims costs for a mature health insurance portfolio increase by 1.0% - 1.5% above the ultimate claims rate for each additional year of portfolio duration.

Consequently, the renewability feature of health insurance provides policyholders with long-term coverage for their developed medical conditions. In the next section I review the accounting standards that apply to health insurance, paying particular attention to how the standards address the long-term nature of health insurance claims.

4. Accounting standards

International Financial Reporting Standard 4 (IFRS 4), issued by the International Accounting Standards Board (IASB), prescribes a standardised set of principles concerning the accounting of insurance contracts. The New Zealand Accounting Standards Board has adapted these principles into separate reporting requirements for life insurers (NZ / PBE IFRS 4, Appendix C) and non-life insurers (NZ / PBE IFRS 4, Appendix D). As health insurance in New Zealand is distributed by life insurers, general insurers, and health insurers, variable accounting treatments apply depending on the insurer's classification under the Standards.

Life insurers (NZ IFRS 4, Appendix C)

Reporting Standards for life companies recognise the long-term nature of life insurance contracts: '*Entering into a life insurance contract is considered to be the event that gives rise to future benefits and present obligations under a policy'* (8.1.2). This statement encompasses the guaranteed renewability feature typical of life insurance contracts. The prescribed calculation of policy liabilities is based on a projection of all future policy cashflows and the value of expected future profits, allowing for expected policy renewal.

Professional Standard 20 (PS 20), issued by the New Zealand Society of Actuaries, provides guidance on the determination of life insurance policy liabilities. In line with the interpretation of the IFRS 4 accounting standards, PS 20 instructs the valuation actuary to consider any embedded options within the insurance contract (9.7.4). Consequently, life insurers account for health insurance as a long-term contract and are required to consider the materiality of the renewability feature in determining policy liabilities appearing within statutory accounts.

Non-life insurers (NZ IFRS 4, Appendix D)

Reporting Standards for non-life insurers prescribe a reporting basis over the insurance contract period: '*The insurer estimates the pattern of the incidence of risk over the period of the contract*' (4.4.1). Insurers are required to recognise liabilities for unearned premiums and the costs of settling incurred claims arising from events which occurred up to the reporting date. For the purposes of health insurance, these events are medical treatments (rather than, say, the development of medical

conditions). Therefore, the claims liability relates to unreimbursed treatment costs – claims risk arising from future periods of cover are generally not recognised through the liability.

The New Zealand Society of Actuaries Professional Standard 30, which provides guidance on the IFRS 4 general insurance Standards liability valuations, does not require the valuation actuary to consider any embedded options within the insurance contracts. Consequently, non-life insurers are not required to allow for the guaranteed renewability feature within accounting disclosures.

Are these differences important?

The objective of the IASB is to '*develop IFRS Standards that bring transparency, accountability, and efficiency to financial markets around the world*.' This mission statement provides a useful basis to evaluate the significance of the differences in accounting Standards between life insurers and non-life insurers.

Transparency

As reporting Standards are determined by the insurer classification rather than by product line, it can be difficult to directly compare financial information produced by life and non-life insurers. For example, differences in the amortisation of deferred acquisition costs lead to significant differences in the timing of accounting profits. Whilst the actuarial projection method used by life companies to value policy liabilities provides a long-term view of expected future cashflows, it is unclear whether the complexity of the calculations and the uncertainty around the assumptions improves transparency.

Accountability

The question of which Standard promotes greater accountability is subject to debate. On the one hand, the treatment of health insurance as a long-term contract requires life insurers to directly consider the materiality of the renewability option. On the other hand, the life insurance standards allow insurers to assume a future rate of premium increase above the rate of future claims growth, which may result in an overly optimistic view of liabilities.

Efficiency

Both sets of accounting Standards meaningfully describe the cashflows, profits, and liabilities to enable informed investors '*to identify opportunities and risks … thus improving capital allocation*' (IASB, 2016). From a solvency perspective, regulatory capital is determined by prudential capital standards, which take into account the characteristics of individual business lines.

Upcoming changes to the accounting of insurance contracts

Proposed changes to IFRS 4 are expected to harmonise the accounting treatment of insurance contracts by applying a consistent reporting framework across insurance entities. The latest exposure draft applies the concept of a "contract boundary" to establish the accounting treatment of policies under consideration. The "contract boundary" represents the point at which the insurance contract expires for the purposes of calculating balance sheet liabilities and is determined by the period over which the insurance contract can be re-priced. As health insurance policies are regularly re-priced, health insurance is expected to be classified as short-term business and would receive similar accounting treatment to short-tail general insurance contracts under the current accounting Standards.

Consequently, whilst the current life insurance Standards better describe the long-term nature of health insurance, the general insurance Standards do not preclude insurers from taking a long-term view of liabilities for management purposes. In the next section, I review reserving practices within New Zealand and abroad.

5. Reserving practices

In preparing this paper, I surveyed New Zealand insurers to understand their approach to health insurance reserving. The survey asked insurers to indicate the reserves that appear within their statutory accounts, the reserves calculated for internal management purposes, and the consideration of long-term claims costs. The survey was completed by seven of ten insurers active in the New Zealand health insurance market, representing over 90% of the insured population. Of the seven respondents, two report under the life insurance standards and the remainder report under the general insurance standards.

Table 1 below summarises the response data for the types of reserves held for statutory disclosure and internal management purposes. The data show that a single insurer accounts for the costs of the renewability option within its disclosures. This insurer, which reports under the life insurance standards, allows for the impact of selective lapsation by employing durational claims assumptions in its policy liability calculation. In addition, one insurer implicitly allows for the impact of selective lapsation in its internal profitability modelling. No insurers allow for the expected costs of higher risk claimants through their accounts.

Table 1: Survey responses – reserves

Reserve	Statutory Disclosure	Management
Incurred But Not Reported	7	7
Reported But Not Admitted	3	3
Catastrophe	0	1
Guarantees and Options (e.g. policy renewability)	1	2
Claims Expense Reserve	6	6
Unexpired Premium Reserve	7	7

I also sought to understand how insurers allow for increased claims costs emerging from selective lapsation and from higher risk claimants (see Table 2 below). The data show that industry practice is mixed with respect to selective lapsation: three insurers recognise expected costs through reserves or explicit pricing increases, whilst the remainder meet increased claims costs on an unfunded “pay as you go” (PAYG) basis. By contrast, no insurers appear to explicitly allow for increased claims costs arising from higher risk claimants in their pricing or reserving. Some insurers did comment that their pricing approach takes a prospective view of claims costs, which could take account of the costs expected to emerge in the following year from prior years’ claimants.

Table 2: Survey responses – increased claims costs

Treatment of increased claims costs	Selective Lapsation	Higher Risk Claimants
No explicit allowance – costs met through routine premium increases	4	7
Explicit allowance – pricing or reserving	3	0

In the United Kingdom, the Health & Care Reserving Working Party of the Institute and Faculty of Actuaries (United Kingdom) undertook a survey of reserving practices for private health insurance in 2008. As is the case in New Zealand, individual health insurance policies sold in the United Kingdom are generally guaranteed renewable. The survey results showed that the '*majority of respondents held explicit reserves for outstanding claims, IBNR, Unearned Premium and Claims Expenses in their statutory and management accounts*' (2.5). In other words, insurers calculated short-tail reserves only; no respondents declared reserves for "guarantees / options". The survey authors encouraged actuaries to consider the long-term aspects of health insurance:

'*While the majority of liabilities are known within a few months, it is not uncommon for some claims to continue over a period of years, especially ongoing cancer claims. It would therefore seem reasonable to expect different claim types to have very different development factors…*

Actuaries should be aware of the impact that these trends [changes in perception of the public health system, medical technology, and underlying health status] are likely to have on their reserving models and on the uncertainties inherent in their reserve estimates' (2.12 / 2.13).'

Outside of the private health insurance industry, there is an example of one New Zealand entity reserving for future medical claims arising from higher risk claimants. The Accident Compensation Corporation (ACC), New Zealand's universal no-fault injury scheme provides replacement income, private medical treatment, and other support services to those people injured by accident. ACC collects premium income as levies from a range of sources and is required to calculate and fully fund its Outstanding Claims Liability (OCL) so as to *'eliminate the transference of financial responsibilities between generations*.' Unlike private insurers, which take a short-tail view of liabilities based on unreimbursed treatment costs at the reporting date, ACC's obligations arise from the occurrence of an injury; as a result, its liabilities reflect the long-term costs accruing from the injury. According to information contained within its Financial Condition Report, ACC's OCL (calculated in accordance with NZ IFRS 4) includes the projection of income benefits, surgical costs and non-surgical medical expenses expected to arise from accepted injury claims. These projections allow for medical inflation and the possibility of repeat surgeries. As at 30 June 2015, the liability relating to future elective surgeries was $3,045m – 10% of ACC's total OCL ($30,329m).

As a statutory scheme with a universal mandate, ACC achieves full funding of its long-term liabilities by adjusting levies in response to emerging experience. Unlike private insurers, ACC operates without constraint from competitive market pressures to minimise premiums in order to attract and retain policyholders. In a competitive market environment, a decision by an insurer to fully fund its long-term liabilities would result in a worsening of that insurer's competitiveness and a decline in new business and persistency. This is discussed in greater detail in Section 7. For the industry as a whole, a regulatory or prudential requirement to achieve full funding would likely require an immediate increase in the industry's capitalisation. In the absence of other interventions, this could have a profound impact on the size and shape of the industry. It is, therefore, not surprising that health insurers had challenged earlier draft changes to IFRS 4 that proposed to classify health insurance as long-tail business (Robinson, 2016).

Consequently, whilst there is strong awareness of the long-term nature of health insurance claims, there are practical constraints of moving away from the current PAYG funding model. In the next section, I describe emerging trends in cancer care and their potential impacts on long-term claims costs.

6. Cancer treatment

Background

Private oncology developed in New Zealand in the early 1990s with the emergence of private chemotherapy clinics. The sector grew over the decade, supported by funding from the private health insurance industry. Services expanded during the 2000s with the opening of Auckland Radiation Oncology, New Zealand's first private radiation therapy centre, in 2008. Today, the private sector offers a range of diagnostic, therapeutic, and support services:

Treatment category	**Description**
Specialist consultations	Consultations with registered medical specialists, including oncologists
Diagnostic scans	Diagnostic imaging, tests, and procedures connected with cancer screening, detection, or treatment
Cancer medicines	Cancer drugs, including chemotherapy and immunotherapy agents
Radiotherapy	Cancer therapy using ionising radiation
Surgery	Surgical treatment to remove cancerous tumours
Reconstruction	Reconstruction of affected areas following cancer surgery (e.g. breast reconstruction following mastectomy)
Treatment and recovery support	Physical and psychological support services to alleviate impacts of treatment (e.g. massage, physiotherapy, counselling, other palliative services)
End-of-life care	Support services for terminal patients (e.g. palliative care, hospice)

In New Zealand, private health insurance primarily focuses on the diagnosis and treatment of cancer. Whilst some insurers offer coverage for a wider set of services (e.g. preventative screening or recovery support), coverage tends to be time-bound or limited to modest levels[4].

Chemotherapy

Chemotherapy treatment involves the use of chemical agents to destroy cancer tumours and to arrest the division of cancer cells. The earliest clinical use of chemotherapy occurred in the 1940s with the use of nitrogen mustards (a derivative of mustard gas) to treat lymphoma. The experimental procedure briefly reduced the size of the patient's tumour and demonstrated the opportunity to treat cancer using pharmacology (Fenn and Udelsman, 2011).

[4] For example, Sovereign "Private Health" provides $1,000 of coverage (per year) for support services, therapies or personal items following cancer treatment. The product also provides a "Health Screening Allowance" of $500 every three years for preventative screening tests.

Chemotherapy is a non-specific agent that acts on rapidly multiplying cells, such as cancer cells, hair follicles and the lining of the digestive tract. This generalised action explains the common side effects of treatment. Chemotherapy is toxic and its detrimental effects on the pulmonary, cardiovascular, digestive, and renal systems are well documented. Due to its toxicity, courses of chemotherapy are generally limited in duration. For example, cycles of chemotherapy treatment for breast cancer usually last two to three weeks and continue for several months.

The table below shows preferred chemotherapy treatment regimens for early stage HER-2 negative breast cancer (NCCN Guidelines for Patients v. 1.2016):

Table 3: Treatment regimens for HER-2 negative breast cancer

Preferred regimen	Schedule	Total time
Dose-dense AC[5]	Four 14-day cycles	4 months
then paclitaxel	Four 14-day cycles	
Dose-dense AC	Four 14-day cycles	5 months
then paclitaxel	Twelve 7-day cycles	
TC[6]	Four 21-day cycles	3 months

Immunotherapy

Unlike chemotherapy treatment, which employs chemical agents, immunotherapy makes use of synthetic biological material, such as proteins, to elicit or enhance the body's own immune response to cancer cells. The main types of immunotherapy treatment currently in use are:

- Monoclonal antibodies – synthetic versions of immune system proteins designed to target specific cancer cells or prevent cell replication. For example, the Herceptin® (tratuzumab) antibody binds to the HER-2 receptor on the surface of breast cancer cells blocking growth of HER-2 positive cancer cells.

- Immune checkpoint blockers – synthetic biological material that inhibits the expression of certain proteins that suppress the body's immune response against cancer cells. For example, Keytruda® (pembrozlimab) inhibits the production of "PD-1" proteins, which are expressed in several types of cancer, including melanoma and non-small cell lung cancer. These proteins are responsible for down-regulating the immune system against cancer cells.

- Cell-based therapies – treatments involving the use of synthetic cellular material, such as vaccines and adoptive cell therapies (e.g. the introduction of genetically modified immune cells). For example, Gardasil® is a vaccine against four types of human papillomavirus (HPV), which are known to cause cancer.

- Non-specific immunotherapy (cytokines) – treatments that boost the body's immune activity.

For more information, the reader is referred to Farkona et al. (2016).

[5] Doxorubicin and cyclophosphamide
[6] Docetaxel and cyclophosphamide

Compared with chemotherapy, immunotherapy drugs are generally less toxic, which enables longer periods of treatment. As shown in Table 3 (above), the preferred treatment regimens for early stage HER-2 negative breast cancer usually continue for several months. By contrast, the treatment duration for HER-2 positive breast cancer, which involves the use of immunotherapy agents, is significantly extended (NCCN Guidelines for Patients v. 1.2016):

Table 4: Treatment regimens for HER-2 positive breast cancer

Preferred regiment	**Schedule**	**Total time**
AC[7] (*chemo*)	Four 21-day cycles	1 year and 3 months
then paclitaxel (*chemo*)	Twelve 7-day cycles	
with trastuzumab (*immuno*)	Weekly during paclitaxel then every 7 or 21 days to complete 1 year	
AC[4] (*chemo*)	Four 21-day cycles	1 year and 3 months
then paclitaxel (*chemo*)	Four 21-day cycles	
with pertuzumab (*immuno*)	Weekly during paclitaxel	
with trastuzumab (*immuno*)	Weekly during paclitaxel then every 7 or 21 days to complete 1 year	

Similarly, emerging treatment regimens for metastatic melanoma may allow for open-ended administration of PD-1 inhibitors until unacceptable toxicity or progression. In April 2016, the Ludwig Cancer Research reported the results of the longest survival study conducted to date on patients receiving the PD-1 inhibitor, Opdivo® (nivolumab). The study involved 107 patients diagnosed with advanced melanoma who were treated with the drug for a fixed period of 96 weeks. The five-year survival rate for this group was 34% (typical five-year survival rates: 15% - 20%) and may have improved further had treatment duration had been extended.

The emergence of the targeted immunotherapy drugs has created opportunities for the treatment of certain metastatic cancers, which were until recently considered terminal. Immunotherapy remains an active area of cancer research and in coming years, I expect to see further growth in treatment options. To give the reader a sense of scale, the Pharmaceutical Research and Manufacturers of America reported that as at June 2015 there were some 771 new cancer drugs and vaccines in active clinical trials or with the Food and Drug Administration for review (Buffery, 2015). These developments, whilst promising, will invariably carry increased cost.

Costs

In 2014, the IMS Institute for Healthcare Informatics, a global information and technology services company, predicted that *'the surge in cancer drug innovation over recent years will continue to contribute to global spending on all oncology drugs, reaching about USD $100 billion in 2018'* (IMS, 2014). The following year, the IMS noted that its $100 billion estimate had already been exceeded, citing three factors contributing to the accelerated rate of spending:

- Longer treatment durations – lower toxicity allows for longer treatment durations;
- Earlier diagnosis – whilst earlier diagnosis may reduce total treatment costs for certain types of cancers (see Blumen et al., 2016), the cost of the pharmaceutical component may increase; and

[7] Doxorubicin and cyclophosphamide

- Increased availability of new and effective treatments – costs of newly developed treatments are generally higher due to inforce patent protections. By contrast, patents for many common chemotherapy agents have expired and prices have been reduced by generics.

In recent years, many papers have been produced investigating cancer treatment costs. Whilst most papers express concern about the rising costs of emerging cancer drugs, it is not possible to reliably predict future trends. In addition to the factors identified by IMS, there are a range of other items affecting treatment costs:

- Pace of drug development – whilst the introduction of new drugs increases costs, competing discoveries amongst pharmaceutical companies may create price competition. Currently, Merck and Bristol Myers (manufacturers of Keytruda® and Opdivo® respectively) are competing in the market for PD-1 inhibitors. In New Zealand, Pharmac recently listed Keytruda®, reversing an initial decision to decline funding to the drug on the basis of cost. The reversal may have been influenced by Pharmac's earlier deal with Bristol Myers to fund Opdivo®. Whilst there are several other PD-1 class drugs nearing commercialisation from other manufacturers, some are being marketed at different cancer types, possibly to avoid direct competition with existing products.

- Combination treatment – cancer care involves a combination of treatments, such as surgery, radiotherapy, chemotherapy, and immunotherapy. Developments in one area may affect a patient's treatment plan and total costs. Analysis of Medicare and health plans data in the United States by Fitch et al. of Milliman Consulting (2016) has found that oncology spending has kept pace with overall medical spending despite sharp increases in the immunotherapy category:

Table 5: Medical cost inflation (% p.a.)

Service category	Ave. annual inflation (2004 - 2014)	
	Medicare	Commercial
Emergency room	8.8%	9.5%
Hospital in-patient	2.0%	3.7%
Non-cancer outpatient	4.0%	4.1%
Radiology	2.2%	5.9%
Cancer surgery	0.0%	3.3%
Radiation therapy	11.8%	5.2%
Immunotherapy	15.8%	19.3%
Chemotherapy	1.3%	7.2%
Total cost trend	**3.1%**	**4.9%**

- Combination drug therapies – emerging evidence indicates that synergistic benefits exist from combining drug therapies that target multiple cancer cell pathways. For example, enhanced response rates have been reported for the combination of the "CTLA-4"[8] inhibitor Yervoy® (ipilimumab) with the PD-1 inhibitor Opdivo® (Carlino et al., 2016). It seems likely that additional immune response pathways will be identified in future.

- Policy settings – there remain significant differences between countries in the areas of patent lengths, "evergreening" rules, and the drug procurement process. For example, Pharmac has had significant success managing public expenditure on medication by negotiating directly with drug manufactures and promoting a competitive generics market.

[8] CTLA-4 is another type of immune checkpoint protein that down-regulates the immune system.

- Consumer expectations – Siddiqui and Rajkumar (2012) observes that patients expect to access available treatments, even where treatment costs are disproportionate to therapeutic benefit: *'There are many things patients are willing to do without; however, medication for a fatal disease is not and should not be one of them. The seriousness of a cancer diagnosis plays a role in how much cost patients and physicians are willing to bear for modest incremental benefits. However, high prices for incremental benefits are a recipe for a system with unsustainable costs.'* These expectations may be amplified in cases where patients are relying on third parties (e.g. the public health system or insurers) to fund treatment costs.

In order to better understand emerging trends in cancer claims impacting New Zealand insurers, I analysed health claims data for Sovereign Assurance. Owing to the modest size of Sovereign's health book (about 100,000 customers), caution is needed in reaching definitive conclusions. Nevertheless, the data show that the proportion of chemotherapy and (more recently) immunotherapy claims has been trending upwards. For example, in the financial year ending 30 June 2010, chemotherapy treatment accounted for 1.3% of all health claims by cost. For the 2016 financial year, chemotherapy and immunotherapy costs increased to 2.6% of claims. This upward trend might be explained by the growth in the number of claimants seeking treatment – an increasing percentage of whom had received treatment in prior years – and an increase in the number of private oncology facilities.

Table 6: Chemotherapy and immunotherapy claims

Financial year	% Total Claims	Total Claimants	Past Claimants
2010	1.3%	40	10 (25%)
2011	1.4%	50	16 (26%)
2012	2.3%	60	16 (27%)
2013	2.1%	70	27 (39%)
2014	2.5%	78	29 (37%)
2015	2.7%	74	36 (49%)
2016	2.6%	75	27 (36%)

Sovereign data also show differences in average costs between Pharmac funded and non-Pharmac funded cancer drugs for the 2015 calendar year. As the claims data are based on a twelve month period (i.e. the 2015 calendar year), treatment costs are likely to be understated for those claimants receiving recurring treatment across calendar years. The extent of this understatement is expected to be greater for non-Pharmac funded immunotherapy treatments, which as I described earlier, tend to involve longer treatment durations.

Table 7: Average yearly drug costs – Pharmac and non-Pharmac funded drugs

Drug category	Administration Cost	Pharmaceutical Cost	Total Cost
Pharmac only	$7,000	$4,000	$11,000
Non-Pharmac only	$13,000	$37,000	$50,000
Combined	$14,000	$16,000	$30,000

Other costs

The invasiveness and toxicity of cancer treatments carry additional pernicious effects. Cancer patients are known to suffer from a range of medical issues following treatment. For example, according to a 2013 report by the Macmillan Cancer Support organisation in the United Kingdom:

- Approximately 25% of people who had been diagnosed with cancer struggle with long-term poor health outcomes or disability after treatment.
- The long-term impacts of cancer and its treatment include both physical and psychological effects, such as chronic fatigue, sexual dysfunction, incontinence, depression, chronic pain, urinary and gastrointestinal issues, and lymphedema.
- Cancer sufferers are also known to suffer a reduction in overall wellbeing from social isolation and financial pressures caused by disruption to work or education.

These costs are met by cancer sufferers and their families, society at large, and life insurers through disability and trauma products.

Consequently, whilst there are a range of factors impacting cancer treatment costs, the rapid emergence of the immunotherapy drug category is likely to expose funders to long-term increases in drug costs. The implications for New Zealand insurers are discussed in the following section.

7. Implications for New Zealand insurers

Insurers are important stakeholders in New Zealand's health system, covering about 30% of the population and contributing about 4% to total national health expenditure[9]. All six major insurers active in the individual health insurance market offer coverage for cancer treatment. The extent to which each insurer can manage its long-term cost exposure is determined by its product design, policy terms, and pricing practices.

Product design

All six major insurers active in the individual health insurance market cover the costs of chemotherapy and immunotherapy treatments, albeit to varying levels:

Table 8: Coverage for cancer drugs by major insurers

Insurer	**Coverage for cancer drugs[10]**
Accuro SmartCare+	Benefit limit of $200,000 per policy year. Includes coverage for Medsafe indicated, non-Pharmac funded drugs.
AIA Real Health	Benefit limit of $500,000 per policy year. Includes coverage for Medsafe indicated, non-Pharmac funded drugs.
nib Ultimate Health	Benefit limit of $200,000 per policy year. Pharmac funded drugs only.

[9] Total claims paid by health insurers during the year ended 31 March 2010: $0.8b (Health Funds Association of NZ)
Total health expenditure during the year ended 31 March 2010: $19.9b (Ministry of Health, 2012)
[10] Policy wordings accessed August 2016.

Insurer	Coverage for cancer drugs
nib Ultimate Health Max	Benefit limit of $200,000 per policy year. Includes coverage for Medsafe indicated, non-Pharmac funded drugs
Partners Life Private Medical Cover	Benefit limit of $300,000 per policy year. Includes coverage for Medsafe indicated, non-Pharmac funded drugs
Southern Cross Wellbeing	Benefit limit of $60,000 per policy year for Pharmac-funded drugs. Benefit limit of $10,000 per policy year for Medsafe indicate, non-Pharmac-funded drugs.
Sovereign Private Health	Benefit limit of $300,000 per policy year. Includes coverage for Medsafe indicated, non-Pharmac funded drugs

nib offers policyholders the option of two products, one of which provides coverage for both Pharmac and non-Pharmac funded medicines (among other differences).

Southern Cross applies separate benefit limits for Pharmac and non-Pharmac funded medicines. This approach acts to contain the insurer's exposure to emerging drug costs in three ways:

- Dampening effect from the Pharmac approval process – Pharmac's legislative objective is to '*secure for eligible people in need of pharmaceuticals, the best health outcomes that are reasonably achievable from pharmaceutical treatment and from within the amount of funding provided*.' Pharmac achieves this objective by prioritising those drugs which demonstrate greatest clinical efficacy within its budget parameters. Therefore, medicines which attain Pharmac funding are more likely to be cost sustainable. As private treatment providers are able to purchase medicines at prices negotiated by Pharmac, insurers benefit from the Pharmac approval process. However, it is important to note that the cost of these new immunotherapy agents may still be significant in absolute terms; the Pharmac funding status does not guarantee "low cost". For example, whilst the prominent breast cancer drug Herceptin® receives Pharmac funding, a 12 month course may still cost upwards of $50,000.

- Benefit limits – lower benefit limits directly reduce exposure by limiting the maximum annual claims cost.

- Out of pocket expenses – lower benefit limits also encourage claimants to minimise treatment costs in order to reduce out of pocket expenses. By contrast, claimants holding policies with large benefit limits have little incentive to reduce treatment costs once the policy excess has been met.

For all other insurers, annual benefit limits are sufficiently large to expose insurers to potentially significant ongoing treatment costs in the area of non-Pharmac funded immunotherapy treatments.

Policy terms

In order to manage the unpredictable impacts of medical developments, health insurance policies contain terms and provisions that enable insurers to respond to emerging claims experience. In the context of cancer care, these include:

- Exclusions for new or experimental treatments – all six insurers exclude new or experimental procedures, e.g. experimental use of chemotherapy or immunotherapy drugs outside medical indications, stem cell therapies, gene therapies, etc. The practical application of this exclusion is significant in the context of the recent introduction of PD-1 inhibitors, as oncologists are known to prescribe these drugs outside of established indications.

- Medical necessity – all insurers require treatment to be "medically necessary". Some insurers define the term to mean any medical service necessary for the diagnosis, care, or treatment of the illness. Whilst this generally aims to exclude cosmetic procedures, the wording could perhaps be interpreted to exclude treatment without curative intent, such as palliative chemotherapy (e.g. treatment to prolong the life of terminally ill cancer patients).

- Reasonable charges – all six insurers require treatment costs to be "usual, customary, and reasonable". This provision aims to reduce the insurers' exposure to excessive charging by medical providers, even where the treatment costs fall within benefit limits. nib is unique in specifying that claimants will not be impacted by the application of the "reasonable charges" provisions; all other insurers may apply sub-limits at the procedure level.

- Treatment criteria – Sovereign and AIA require chemotherapy and radiotherapy treatment to meet a set of criteria that establish whether the proposed treatments fall within reasonable charges. This approach reflects the practical difficulty of determining reasonable charges for emerging treatment options. Similarly, nib excludes *'any treatment or procedure that nib considers is novel or experimental or more expensive than an available alternative treatment or procedure, which will provide the same, or a similarly acceptable, medical outcome'* (pages 62 – 63). Depending on interpretation, this provision may exclude innovative cancer treatments offering marginal benefits over established treatments.

- Affiliated providers – in an effort to address rising medical costs, Southern Cross maintains a large network of affiliated medical providers[11]. For a number of procedures, including chemotherapy, surgery and radiotherapy, members are required to utilise the service of an approved provider.

- Ability to vary the insurance contract – there are significant differences between the insurers in their capacity to vary the policy wording. Whilst guaranteed contracts are perceived by some market participants to benefit policyholders by providing certainty of coverage, the inability to vary policy terms could lead to unsustainable premium increases.

Table 9: Ability to vary the insurance contract

Insurer	
Accuro SmartCare+	Contract is not guaranteed.
AIA Real Health	Contract is guaranteed except to: add new benefits or increase benefits; take account of changes to law.
nib Ultimate Health	Contract is not guaranteed. Examples of circumstances where contract could be varied: add new benefits or increase benefits; changes to law; respond to unsustainable increase in claims costs; take account of a significantly escalated health threat.
nib Ultimate Health Max	Contract is guaranteed except to: add new benefits or increase benefits; take account of changes to law.
Partners Life Private Medical Cover	Contract is guaranteed except to: add new benefits or increase benefits; take account of changes to law.

[11] Whilst other insurers also maintain medical networks, Southern Cross is unique in terms of its scale and the requirement for members to utilise Affiliated Providers for some procedures. A number of services contain a range of approved providers that policyholders are able to select.

Insurer	
Southern Cross Wellbeing	Contract is not guaranteed.
Sovereign Private Health	Contract is not guaranteed. Examples of circumstances where contract could be varied: add new benefits or increase benefits; changes to law; respond to unsustainable increase in claims costs; take account of a significantly escalated health threat.

Consequently, whilst there are some limiting conditions within policy terms, these conditions generally limit exposure to excessive charging, experimental procedures, and treatments with limited medical efficacy. For those insurers with large benefit limits, the ability to vary the insurance contract provides the greatest measure of control against unanticipated claims costs. However, practical and commercial considerations may constrain an insurer's ability to reduce benefits, particularly for those claimants actively receiving treatment. Instead, insurers may prefer to rely on pricing to respond to emerging treatment costs.

Pricing practices

Unlike some overseas markets, where health insurance is subject to price controls, insurers in New Zealand have discretion in setting premiums. Health insurance premiums are generally based on attained age and are reviewed regularly to take account of developing claims experience.

In a competitive insurance market, the absence of regulatory controls creates incentives for insurers to employ risk-based pricing to achieve growth (Feyter, 2008). The practice, also known as "ring-fencing", involves an insurer closing existing products to new business and allowing premiums to increase in line with worsening claims experience. At the same time, new policyholders (and existing policyholders amenable to being re-underwritten) are offered a new product at lower cost. This approach undermines the long-term value proposition of health insurance by removing cross-subsidisation between lower risk and higher risk claimants. In other words, insurers can reduce the value of the renewability option by concentrating rising claims costs over a diminishing pool of higher risk claimants.

In the New Zealand market, where competition for growth occasionally leads insurers to apply risk-based pricing in order to gain a price advantage on new business, it is unsurprising that our survey found that respondents meet increased claims costs on an unfunded PAYG basis. Indeed, a decision to prefund long-term claims costs would detract from an insurer's price competitiveness, leading to a potential reduction in new business and increased selective lapsation.

Consequently, the absence of pricing controls in the competitive New Zealand health insurance market has created a disincentive to pre-funding long-term claims costs. For insurers operating in this market environment, understanding long-term claims costs may become increasingly important to ensure that regular premium increases are sufficient to cover emerging claims costs. This may become particularly important for cancer claims, where innovation may expose insurers to significant ongoing treatment costs.

8. Conclusion

Whilst the accounting standards treat health insurance as short-tail business, the guaranteed renewability feature of health insurance exposes insurers to long-term claims risk in the form of selective lapsation and recurrent treatment for developed medical conditions. The long-term nature of

health insurance is well established in the literature and is variously managed by New Zealand insurers through reserving, pricing reviews, product design, and policy terms.

Early evidence suggests that the rapidly emerging immunotherapy drug category may expose insurers to even longer-tail cancer claims through higher drug costs and longer treatment durations. In practice, insurers are unlikely to be in a position to prefund active cancer claims due to competitive pricing pressures and the unpredictability of medical developments.

In the absence of pre-funding, insurers offering broad cancer coverage should aim to remain informed of latest medical developments, develop a detailed understanding of claims experience, and actively manage their products taking the experience into account.

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