

MANAGED DEATH BENEFITS

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ABSTRACT

Mortality and other biometric risks under individual life insurance policies have generally been managed using traditional techniques. These have either focused at the time of sale or at time of claim. Measures at point of sale in use include underwriting and targeted distribution. At time of claim measures such as exclusions and disability case management have been employed. This paper sets out recent product design developments which focus on the time between policy inception and claim. These originated with worksite wellness programmes and have been developed for individual life insurance in the South African market. These concepts may be useful in other markets. We show the general approach adopted with these designs, look at the advantages and disadvantages of this type of approach and show a number of example of this type of approach. We draw the conclusion that there is merit in this approach and that more research is needed on the impact of this approach on demographic assumptions.

KEYWORDS

Wellness programmes; ongoing mortality risk management; diabetes; HIV/AIDS; life insurance;

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1 Introduction

This paper examines traditional practices for managing mortality and other biometric risks (including disability and critical illness risks) for individual life insurance products. In particular, we consider how these techniques have limited focus on the period between policy inception and time of claim.

This paper then considers worksite management programmes and the tools used to manage costs to the employer of absenteeism, disability and health related issues. These programmes have been adapted by South African insurers for individual life insurance products and the paper considers the advantages and disadvantages of this type of approach.

We will also discuss two products that have been designed to allow for this type of ongoing risk management but are focussed on lives with HIV/AIDS and diabetes respectively.

The aim throughout this paper is not to provide an exhaustive understanding of the products discussed. Rather, the focus is on providing a broad understanding of the techniques that can be used to manage mortality and morbidity risks on an ongoing basis.

2 Traditional Practices for Managing Mortality and Biometric Risks for Individual Life Insurance Products

Traditionally, mortality and other biometric risks have been managed using the following techniques:

- Product design
- Underwriting
- Claims management
- Targeted distribution and/or sales channel

These approaches are generally focus on managing the risk at either point of sale or at the time of a claim but do little to manage risk between these two points in time.

Product design focuses on managing risks at the outset of a policy and at claim stage. For example, an exclusion may allow the insurer to decline certain claims at the point of claim. These exclusions, such as a pre-existing conditions exclusion, may also discourage lives who may claim for such a condition to take out the policy. Other product design features may influence the desirability of the product to different groups of lives and this impact on the mortality and morbidity experience.

While the majority of product design features will influence product selection or claims underwriting, there are some product design features that do have an impact during the lifetime of a policy. For example, an option to increase cover during policy term may influence the mortality experience of the product.

Traditional underwriting usually occurs at the outset of the policy and allows the insurer to appropriately identify and classify lives based on the underwriter's evaluation of the risk presented by the life. Mortality risks that do not fall within the criteria necessary to obtain standard rates for the product concerned will be rated by the underwriter. The underwriting process could therefore result in the life being accepted as standard, the life being charged an extra premium for their increased risk or the life being declined cover. Once the cover is taken up this decision and related extra premium charges are not revised based on changes in prognosis for the life concerned.

Claims management firstly ensures that claims are paid out according to the definitions of the policy and ensures that all relevant criteria are met. In the case of income claims, claims management may be an ongoing process, for example, in the case disability income claims. However, before the claim occurs no risk management action is usually taken.

The distribution channel choice and target market choice also impacts on the mortality and other biometric risks and are thus useful. Targeted sales to the clients of a high net worth bank would result in a different risk profile than sales via a telephone call centre. Again, once the product is taken up, the distribution channel will not influence the risk further.

3 Wellness Programmes in the Workforce

Workplace wellness programmes have been developed which aim to manage absenteeism and disability and health insurance costs. These programmes are different to the techniques described in **Error! Reference source not found.** because they focus on managing risks before a claim event occurs.

Alderman & Schoenbaum (1975) describe one of the first published worksite disease management interventions. This intervention, focused on hypertension, took place at a department store in New York City and concluded in 1974. A screening was done to identify lives with this condition and treatment was provided where needed. The result was that 81% of lives who required treatment achieved a satisfactory blood pressure after a year.

A more recent example highlights some of the typical features of these programmes. The example is that of Johnson & Johnson. They relaunched their worksite wellness program in 1995 as the Johnson & Johnson Health & Wellness Programme (HWP). This relaunched programme was described by Goetzel et al. (2002):

The HWP programme included the following features:

- A health risk assessment covering
 - Nutrition
 - Tobacco use
 - Motor vehicle safety
 - Blood pressure
 - Cholesterol
 - Body composition
 - Diabetes risk
- High-risk intervention programmes for example, in the case of high cholesterol and/or high blood pressure.
- Preventative health services and screening programmes
- A focus on health education and self-responsibility including health and safety training
- Workplace drug and alcohol awareness programmes
- Included a significant focus on - and post- health related event management.

The programme also provided financial incentives to employees for taking part in initial screenings and enrolment in specific high-risk intervention programmes as appropriate.

Pelletier (2005) reviews a number of clinical and cost-effectiveness studies of this type programme including Johnson & Johnson's HWP. He summarises the results as follows:

"Results of the comprehensive, multifactorial health promotion and disease management interventions in worksites reviewed here provide guarded cautious optimism about the clinical and/or cost-effectiveness of these worksite programmes."

Some of the findings were:

- Reduction in prevalence of risk factors for certain conditions.
- Reduced disability days, reduced absenteeism and reduced disability costs.
- Reductions in expenditure on medical care.

These findings would motivate the use of a programme like this for an insurance company offering life, critical illness and disability products. This is a motivation which may be stronger should the company also operate medical insurance programmes especially in the case of medical reimbursement type benefits.

4 Wellness Programmes for Individual Life Insurance Products

4.1 Description of the Programmes

In South Africa, both Discovery Life and Momentum Life have implemented wellness programmes that offer rewards to individual policyholders for maintaining healthy lifestyles. Discovery Life's programme is branded 'Vitality' and Momentum Life's has been branded as 'Multiply'. The programmes can be linked to the individual's life insurance products sold by the company (including life, disability and dread disease benefits) and the medical scheme business as administered by the company. Medical schemes in South Africa are trusts setup to provide member lives with medical reimbursement cover. Lives pay an additional monthly fee to be a member of these wellness programmes.

These programmes share many of the features of worksite wellness programmes described above. However, they are also structured so as to have a lot in common with loyalty programmes found in other industries such as in the airline industry. This type of programme is focussed on customer loyalty and rewards frequent use of a company's services, for example, flying frequently.

Similarities to loyalty programmes include

- The use of points to attain membership statuses such as silver, gold and platinum.
- A 'higher' membership status entitles the individual to better rewards, discounts and preferential treatment.
- Incentives and rewards may include services unrelated to the company providing the programme.
- Membership status is not permanent and needs to be maintained by achieving enough points every year.

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A key difference, compared to standard loyalty programmes, is that points are earned by completing health related activities. Examples of the activities that accrue points are given in the table below:

| Type of activity | Examples |
|---------------------------------------|---|
| Preventative Health Screenings | Screenings for blood pressure, cholesterol tests, glucose, pap smears, mammograms, prostate checks, glaucoma screenings and HIV tests |
| Completing risk assessments | Online nutrition questionnaire Lifestyle questionnaires |
| Exercise & Fitness related activities | Fitness assessments Visits to the gym Exercise using pedometer Exercise using heart rate monitors Completion of sporting events |
| Healthy lifestyle | Weight-loss and maintaining correct BMI Smoking cessation |
| Other | Completing special driving courses Completing financial assessments Body and spa treatments |

One can easily see the similarities between points earning activities and the worksite wellness programmes described in 3 above. The main difference is that there is little direct focus on the workplace as these programmes are generally individually selected by policyholder and are not employer based.

Similar to loyalty programmes, and to a limited extent workplace wellness programmes, these programmes also provide member lives with a number of incentives. These incentives are very broad in scope but typically include:

- Reduced gym membership fees
- Special travel offers including discounted flight, car rental and hotel prices.
- Reduced fees for health related activities such as joining a smoke-ending programme, completing detailed fitness assessments, weight reduction programmes, discounts at pharmacy groups, health magazines etc.
- Savings on other non-health related products such as movies, books, cameras, mobile phone recharge vouchers etc.

The savings\discounts offered typically depend on the membership status of the individual. Maintaining the discounts also may depend on regular use of the service. For example continuing discounted gym membership may be conditional on visiting the gym on a regular basis.

Both the 'Vitality' and the 'Multiply' programmes have incentives and benefits directly tied to the life insurance (mortality, critical illness and disability) benefits provided by the two companies.

For example, incentives and benefits on Discovery's 'Vitality' programme that relate to life insurance include:

- Policyholders receive premium paybacks of a percentage of premiums less claims. The percentage of premiums used is higher for better membership status.
- Policyholder has the option to allow a portion of cover increase\decrease with Vitality status.
- Additional disability benefits depend on status in the Vitality programme.
- Increases in premiums at the end of the premium guarantee term are capped at lower levels for more time spent at better membership statuses.

Momentum offers the following life insurance related incentives:

- "Active rating" where premium discounts are available on a 3-yearly basis. The size of the premium discounts depend directly on various health related factors such as blood pressure and cholesterol which get monitored every 3 years.
- Membership of Multiply programme entitles the policyholder to a guaranteed minimum premium discount. The better the membership status the bigger the guaranteed discount.
- An enhanced premium payback option is offered to members of the Multiply programme based on time spent at different membership statuses.
- Option to receive further premium discounts based on a fitness test.

A key difference between the two programmes premium discounts or rebates is that the Momentum premium discounts are guaranteed by the membership status but can also directly be affected by health related factors.

Both programmes do not increase premiums above the level of what they would have been had the member not been taking part of the programme. This means there is no disincentive effect.

4.2 Key advantages and disadvantages

A key advantage of this approach is to allow the insurer to manage risk during the term of the policy and not just at the outset. This allows the insurer to charge less for people who their health during the term of the cover.

It also allows the insurer to differentiate risks at a more detailed level. Mortality and morbidity rates for a group of lives defined as standard by typical underwriting practice can still be very heterogeneous. Differentiation of that risk using a wellness programme in this way allows the insurer to appropriately price for that risk without directly introducing that amount of detail into its rating basis.

An example of this may be the use of body mass index (BMI) as a factor for gaining points and/or giving discounts throughout the policy term.

Typically a BMI of up to 35 could still attract a standard rating. Calle et al. (1999) lists the relative risk of death from all causes for a male who has never smoked (and with no history of disease) as 1.32 for a BMI of 30.0 to 31.9 versus a BMI of 23.5 to 24.9. This implies considerable variation of mortality within the range considered standard by insurance companies. This implies that lives with a BMI within the 23.5 to 24.9 range could have a meaningful discount compared to other lives in the standard band. Thus the variation is significant and can be used to fund the value of the points allocated for this level of BMI or to fund the direct discount to premiums provided. It should be noted that a discount given lives with a low BMI should be countered with an increase in rates to

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lives with higher BMI if profitability needs to remain the same. This assumes the mix of business does not change.

It is clear that this type of wellness programme should also share the advantages gained by employer based wellness programmes namely:

- The reduced prevalence of risk factors for certain conditions would reduce the likely incidence of critical illness, mortality and disability claims.
- Reduced disability days may result in reduced disability incidence.
- Reduced medical costs should also be helpful if the individual has their medical reimbursement insurance placed with the same insurer.

Another key advantage for a life insurance company may be that policyholders insured on these products may be less likely to lapse their policies. The programme and/or the points and status attained on the programme may be considered valuable and changing insurer means the policyholder would lose that valuable benefit. This effect may be enhanced in the case that additional benefits are offered through the programme. The added interaction with the policyholder on a regular basis could also be beneficial to retention.

Also both programmes are constructed in a way that more benefit can be gained if both life insurance and health insurance benefits are placed with the same insurer. Thus it may encourage sales.

However, these products are complex to setup and maintain as the programmes need to link to various external parties (for example health clubs) and systems need to be put in place to monitor and report progress from external parties. There are also usually extensive sets of rules to set the number of points available for different activities. Relevant infrastructure and systems would need to be created and maintained. Some of these costs may be recoverable as there is usually a separate monthly fee to be a member of the wellness programme. Alternatively, these programmes could also be simplified to focus on a few core aspects only.

Pricing the impact on mortality and morbidity of these programmes is also difficult because the designs of these programmes are quite complex. Pricing is also difficult because limited evidence is available on the impact of some of the activities (that earn points) on mortality and morbidity incidence (and also lapse rates). Further research is required to assess the impact of these programmes on experience.

These programmes are not well tailored to impaired lives as it may be difficult for impaired lives to attain similar improvements to standard lives. In section 5 below we discuss products with ongoing management component for impaired lives.

It should be clear that the key advantages of reduced claims, corresponding premium discounts and improved customer retention are available to the insurers running these programmes. It is also clear that evidence for the amounts and size of the reductions in claim incidences need to be investigated and compared to the cost of setting up these programmes and their benefits.

5 Managing an Existing Impairment on a Life Insurance Product

Many of the employer based wellness programmes discussed in 3 above had high-risk intervention aspects which were geared to dealing with specific high-risk diseases or conditions. The Discovery and Momentum programmes have no comparable feature.

However disease specific products have been developed that have an ongoing monitoring aspect. These products are similar to the wellness programmes mentioned above in that there is an element of ongoing risk management during the term of the product. We discuss two of these products that are being sold by AllLife.

5.1 Product for Lives Infected With Human Immunodeficiency Virus

Lives with human immunodeficiency virus (HIV) have generally been considered uninsurable. Since the onset of HIV many companies implemented HIV tests as an underwriting requirement and/or excluded HIV as a cause of claim. Extremely low life expectancy for untreated infection made insuring lives with HIV very difficult.

In Rossouw (2005 & 2008) the development of an HIV product is described. It is described how the development of treatment has resulted in the reduced mortality of lives with HIV has lead to the possibility of offering insurance to HIV infected lives. Mocroft et al. (1998) and Murhpy et al. (2001) are just two articles that describe this reduction in mortality. Bangsberg et al. (2001) also describes how important adherence with treatment guidelines is to successful outcomes for the life concerned. To insure an HIV infected life it is therefore important to ensure that the life is adherent to treatment programmes.

AllLife has developed a set of objective criteria for assessing adherence to treatment. AllLife has also developed systems to monitor this adherence.

The CD4 cell count and viral load forms the basis of the criteria for assessing adherence.. CD4 cell count and viral load is measured on a 6 monthly basis to assess adherence to treatment or the need to start treatment if it has not commenced yet. Note that the requirement for regular testing should not be onerous as this testing needs to be done on a regular basis in any case.

As opposed to the wellness programmes described in 4 above the risk is not managed via price reductions or other incentives. This adherence protocol's main aim is to identify non-adherent lives. Non-adherent lives cover is then reduced to 10% of the original amount.

The key advantage of ongoing monitoring for insuring HIV infected lives is that it allows the development of a product where it would have been too risky otherwise. Thus it allows people access to insurance which otherwise would have been too risky to insure.

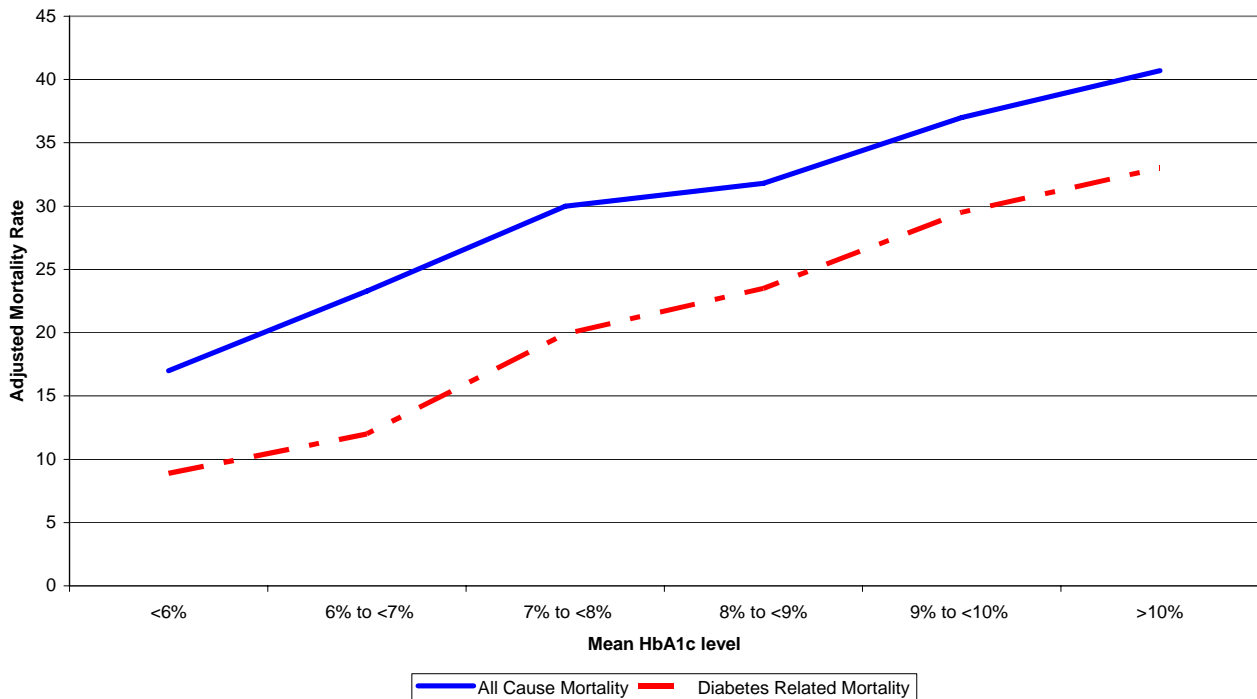
This approach also allows AllLife scope to charge a lower premium than it would have otherwise needed to charge.

The problematic part of product design is getting adherence requirements in place that are fair, objective and easy to monitor.

5.2 Product for Diabetic Lives

The chart below shows the mortality in patients with type 2 diabetes by category of updated mean haemoglobin A1c concentration (%). Rates are per 1000 person years' follow up adjusted in a Poisson regression model to white men aged 50 to 54 years at diagnosis of diabetes and followed up for 7.5 to <12.5 years. The chart is produced from data in Stratton et al. (2000).

Association of Glycemia and Mortality in a diabetic Popularion



It is clear that there is an association between mortality and glycemia (as measured by mean HbA1c level over the period of the follow up).

When assessing the extra mortality to be charged to a diabetic an insurance company usually only has one point estimate of the HbA1c level. The company has to base their assessment of risk on this one measure whereas with ongoing monitoring the HbA1c level can be checked and corrective action can be taken for high values.

AllLife’s diabetic product is based on this principle. Regular HbA1c monitoring is required to maintain cover on this product. As soon as a HbA1c test is over the maximum permitted level the life insured is advised to take corrective action. If the following HbA1c test also shows a result over this level the life is considered a non-controlled diabetic and cover is amended to be accidental cover only.

In this case the resultant cover should be more affordable than cover available elsewhere.

5.3 Key benefits and disadvantages

It is clear that the approaches adopted here has the advantage that lives insured gain access to cover that would not potentially have been available or gain cover at a cheaper price than would have been the case otherwise.

Key complications arise when defining adherence. This definition needs to be objective, fair and easy to monitor. To assess fairness and objectivity external expert parties may be approached to ensure broader acceptance of the adherence requirements.

Pricing is also difficult as limited information is available on pricing these risks in general. Even less information is available of the impact of ongoing monitoring on these risks.

6 Conclusions

We have shown how traditional risk management tools in individual life insurance products fail to manage risks in the period between policy inception and claim. We have shown how worksite

wellness programmes targeted this aspect to manage costs for the employer. We have also shown how South African insurance companies adapted this type of wellness programme to work for individual life assurance.

It should also be clear that such programmes could be tailored to specific impairments and that this allows companies to provide cover which could not be otherwise provided and/or provided that cover at a more affordable price.

There is however still a need to research the impact of these designs on incidence of mortality and morbidity.

It should be clear that products with ongoing risk monitoring and management features have a place in the arsenal of the product development actuary.

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