Subject SA1

Corrections to 2020 study material

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0 Comment

This document contains details of any errors and ambiguities in the Subject SA1 study materials for the 2020 exams that have been brought to our attention. We will incorporate these changes in the study material each year. We are always happy to receive feedback from students, particularly details concerning any errors, contradictions or unclear statements in the courses. If you have any such comments on this course please email them to SA1@bpp.com.

You may also find it useful to refer to the Subject SA1 threads on the Actuarial Discussion Forum. (You can reach the Forums by clicking on the 'Discussion Forums' button at the top of the ActEd homepage, or by going to www.acted.co.uk/forums/.)

Important note

This document was created on **20th July 2020**.

1 Course Notes

Chapter 6

Additional Core Reading has been added to Section 5 on key conditions affecting mortality.

Replacement pages are attached.

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Solution

- More detailed sales procedures to ensure customers fully understand their cover.
- Greater disclosure requirements, *eg* Key Features Documents, Statements of Best Practice.
- Generally, more financial awareness among customers, possibly due to there being more articles in the media about personal finance.
- Potentially more competition, leading to more aggressive marketing, so that consumers are more aware of health insurance products generally.

Also, in an increasingly litigious society, policyholders are more likely to dispute claims that are refused.

Question

Outline the influences that may have led to health insurance policyholders being more litigious.

Solution

- Greater media attention being given to consumer issues.
- The ease with which complaints can be made, *eg* the complaints procedure may be clearly explained in policyholder literature.
- Increasing activity among law firms to offer legal representation in disputes, *eg* no-win no-fee offers.
- Increased consumer protection.
- Awareness of the increasing number of disputed insurance claims being settled
- Influences from other countries, especially from the USA, where litigation is becoming more and more common.

Of course, any influences that are helping to ensure that all valid claims are being paid are to be commended. However, insurers should try to reduce the number of claims that involve disputes.

Although tight policy wording and good sales procedures will help to limit the number of disputed, but invalid, claims being paid, these measures can never be perfect. The insurer must therefore be aware of the risk of increasing numbers of claims being made and paid.

Furthermore, growing client sophistication is likely to be increasingly evidenced by choice of cash over care in order to arrange one's own medical outcome, or of private treatment in preference to State provision where benefits (in the shape of faster treatment, possibly more expert treatment and more comfortable surroundings) are seen as exceeding the costs (premiums).

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5 Key medical conditions

This section considers the key medical conditions that affect mortality and morbidity rates in various countries of the world. It then goes on to consider these conditions in more detail, in particular looking at the current issues affecting them.

5.1 Key medical conditions affecting mortality and morbidity

The main causes of mortality and morbidity, and any specific diseases in a jurisdiction may impact any health and care business written by an insurer. The following section looks at this in more detail.

Mortality

The drivers of mortality experience can be complex and can vary significantly over time.

Of the 56.4 million deaths worldwide in 2015, more than half (54%) were due to the top ten causes. Heart disease and stroke are the world's biggest killers, accounting for a combined 15 million deaths in 2015. These diseases have remained the leading causes of death globally in the last 15 years.

Heart disease includes angina, myocardial infarction (heart attack) and sudden cardiac death.

Chronic obstructive pulmonary disease claimed 3.2 million lives in 2015, while lung cancer caused 1.7 million deaths. Diabetes killed 1.6 million people in 2015. Deaths due to dementia more than doubled between 2000 and 2015, making it the 7th leading cause of global deaths in 2015.

Lower respiratory infections caused 3.2 million deaths worldwide in 2015. The death rate from diarrheal diseases almost halved between 2000 and 2015, but still caused 1.4 million deaths in 2015. Similarly, tuberculosis killed fewer people during the same period, but is still among the top 10 causes with a death toll of 1.4 million. HIV/AIDS is no longer among the world's top 10 causes of death, having killed 1.1 million people in 2015 compared with 1.5 million in 2000. Road injuries killed 1.3 million people in 2015.

Local factors mean that the main causes of death can vary significantly between jurisdictions.

More than half of all deaths in low-income countries in 2015 were caused by conditions such as communicable diseases, maternal causes, conditions arising during pregnancy and childbirth, and nutritional deficiencies. By contrast, less than 7% of deaths in high-income countries were due to such causes.

Non-communicable diseases (NCDs) caused 70% of deaths globally, ranging from 37% in low-income countries to 88% in high-income countries. All but one of the ten leading causes of death in high-income countries were NCDs.

In terms of absolute number of deaths, however, 78% of global NCD deaths occurred in low- and middle-income countries.

Low-income countries had the highest mortality rate due to road traffic injuries. Road injuries were also among the leading ten causes of death in both lower-middle- and upper-middle-income countries.

Global average life expectancy increased by five years between 2000 and 2015.

Source: WHO - The top 10 causes of death Factsheet, (January 2017), http://www.who.int/mediacentre/factsheets/fs310/en/

In the UK, there is some evidence of improvements in life expectancy over time. This is mainly because of falls in the death rate from coronary heart disease, lung disease, and some cancers. However, mortality experience can vary not only between jurisdictions but also within regions of a jurisdiction. For example, whilst overall life expectancy has improved in the UK, there remain significant regional differences in levels of health within the UK.

Further discussion of the main causes of death (and ill health) is given in Section 5.2 below.

For example, the Global Burden of Disease 2013 study (published by Public Health England) showed that between 1990 and 2013, life expectancy in England saw one of the biggest increases in life expectancy among major developed countries – a 5.4 year increase from 75.9 years in 1990 to 81.3 years in 2013. Although there were improvements in most diseases in the UK, there were increases in deaths due to liver cancer and cirrhosis of the liver over this period.

Over the same time period, Turkey also saw a significant increase in life expectancy of 9.1 years from 67 years to 76 years, predominantly due to reduced deaths from cardiovascular diseases. Not all countries saw an improvement over this period though. For example, South Africa's life expectancy reduced by 4.1 years from 65 years to 60 years largely due to increased deaths from HIV / AIDS and tuberculosis.

Morbidity

The drivers of morbidity are similarly complex, with significant differences by region and jurisdiction. The following table illustrates the top five diseases (as measured by disability adjusted life years lost) throughout the world, and split by low, middle and high income countries.

Leading causes of disease / injury, countries grouped by income, 2004:

Rank	*World*	*Low Income*	*Middle Income*	*High Income*
1	Respiratory	Respiratory	Depression	Depression
2	Diarrheal	Diarrheal	Heart	Heart
3	Depression	HIV / Aids	Cerebrovascular disease	Cerebrovascular disease
4	Heart	Malaria	Road Accident	Dementia
5	Aids / HIV	Premature birth	Respiratory	Alcohol

Source: WHO, *Global Burden of Disease,* (2004 update), http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf.

There are also significant differences in the leading causes of disease between individual regions. This is covered in more detail in Section 5.3 below.

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For comparison, the five most significant of causes of ill health (as measured by disability-adjusted life years lost) in the UK in recent years have been:

- **coronary heart disease**
- **back and neck pain**
- **stroke**
- **lung cancer**
- **lung disease.**

The most significant causes of ill health have remained largely unchanged in the UK over the past 25 years.

There are some similarities between the main causes of death and ill health. For example strokes are the third leading cause of death in England each year and the leading cause of disability.

Whilst life expectancies have increased in recent years in the UK, this has not been matched by improvements in levels of ill health from causes such as low back and neck pain, heart disease and strokes. For several conditions, the overall demands on the health services in the UK are increasing despite the death rate falling. In other words, people in the UK are living longer but spending more years in poor health.

To allow for this, *healthy* life expectancy can be considered rather than pure life expectancy. The healthy life expectancy for a male born in England from 2012-14 was 63.4 years compared to a total life expectancy of 79.5 years. This suggests that these men might expect to spend on average 16.1 years in ill health. The comparable figure for females is 19.2 years, so while females have a longer life expectancy, they can expect to spend more of it in ill health.

A similar measure is disability-free life expectancy. However, neither measure really allows for the *quality of life* that is experienced during the period of ill health.

Longer life expectancy and poorer health could have considerable implications for the overall population of a country. For example, there may be significant implications for individuals and local authorities in funding the costs of long-term care. A challenge for health and care insurers in the future will be to come up with innovative products that will help individuals to pay for their long-term care, at acceptable cost to the individual.

Some of the pressures being placed on long-term care insurers were considered in Chapter 2. Along with designing products that are able to meet customers' needs in terms of costs, insurers also need to try to identify customers who may be at higher risk of needing care.

One potential way to consider the progression of disability which is often quite predictable, is to consider instrumental ADLs (IADLs). These are activities that are not necessary for fundamental functioning, but they let an individual live independently in a community. Examples include shopping, doing laundry, cooking a hot meal and they can be used as early indicators of problems that may arise in the future. Individuals typically fail IADLs before the standard ADLs.

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Thankfully for insurers (and most of us!) most of old age isn't spent being dependent on care, and where care is needed, unless 24 hour care is required, most of it is provided in the home by the spouse or children. Again, this poses more issues regarding the design of products to allow the variety of care needs that policyholders may require. The availability of a viable pre-funded insurance option could also change the provision of care.

Changes in longevity and morbidity rates may make an insurer's historic data less credible. An insurer may therefore need to access more / better data to properly price and reserve for its risks.

Question

Explain how an insurer could access more / better data in this situation.

Solution

It could seek expert advice from professional bodies, such as the IFoA, who may have carried out data and modelling work on trends as they have been identified. External consultancies may also be able to provide assistance. Reinsurers may offer more data but whether it is *better* would need to be assessed as it will relate to the same historic period as the insurer's own data.

Data from other countries is an alternative in this situation but great care would need to be taken when considering any demographic trends that have occurred in other countries and assessing whether the underlying causes are the same as in the insurer's own country.

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