INSTITUTE AND FACULTY OF ACTUARIES

Scenario Material

September 2023 (am)

Subject CP3 – Communications Practice
Core Practices

INSTRUCTIONS FOR CANDIDATES

You are provided with this advance information to enable you to read and understand it in your own time and not under examination conditions. Please note that this is an examination to test your ability to communicate technical information to a non-technical audience. It is not a test of your technical actuarial knowledge or skills. As such, any technical actuarial information or techniques needed to answer the question will be provided to you. You do not need to spend time revising other subjects or researching further detail on the topics covered in the paper.

© Institute and Faculty of Actuaries

Background

LifeCo is a life insurance company operating in Country X and selling a range of life and health insurance products. LifeCo is regulated by the Insurance Regulation Body (IRB).

LifeCo offers two term life insurance products, LifeBasic and LifePlus, which have the following characteristics:

	Description	*LifeBasic*	*LifePlus*
Basic benefit trigger	Sum assured is paid on the death of the policyholder.	Standard	Standard
Terminal Illness (TI)	Sum assured is paid if the policyholder is diagnosed with an illness that, in the opinion of LifeCo's chief medical officer, has given rise to a life expectancy of less than 6 months. Once the sum assured is paid, the policy ceases.	Not included	Optional
Waiver of Premium (WoP)	While the policyholder is unable to work, no premiums are payable but the policy remains in force. The inability to work must be certified by a doctor and reviewed by LifeCo's chief medical officer.	Not included	Optional
Enhanced sum assured on accidental death	If the cause of claim is accidental death of the policyholder, the sum assured is increased by 50%.	Not included	Optional
Serious illness acceleration	If the policyholder is diagnosed with one of the 18 serious illnesses listed in the policy documentation, they will receive 50% of their sum assured. The remaining 50% would be paid on death (or at the point the policyholder meets the TI definition if option is selected).	Not included	Optional
Second medical opinion service	If the policyholder is diagnosed with one of the ten illnesses listed in the policy documentation, this benefit will fund a consultation with a senior specialist doctor to give a second opinion on the best treatment available. Life cover and other benefits are unaffected by the use of this benefit.	Not included	Optional
Benefit escalation	The sum assured increases in line with inflation. Premiums will increase by inflation multiplied by 150% (e.g. if the annual rate of inflation is 5%, the sum assured will increase by 5% and premiums will increase by 7.5%).	Not included	Optional

The following information is available:

- An extract from the IRB's regulations on data quality
- Key statistics that have been produced by LifeCo's valuations team to assess the quality of the data used to produce LifeCo's financial reports.

IRB Regulation 182 – Data used to calculate the liabilities

1 Data used in the calculation of the liabilities must be **accurate** and meet the following conditions:

(i) The data is free from material errors.

(ii) Data from different time periods used for the same estimation is consistent.

2 Data used in the calculation of the liabilities must be **complete** and meet the following conditions:

(i) The data includes sufficient historical information to assess the characteristics of the underlying risks, and to identify trends in the risks.

(ii) The data is available for each homogeneous risk group used to calculate the liabilities, and no relevant data is excluded without justification.

3 Data used in the calculation of the liabilities should be **appropriate** and meet the following conditions:

(i) The data is consistent with the purposes for which it will be used.

(ii) The volume and format of the data ensure that no material estimation errors are made in the calculation of the assumptions underlying the liabilities.

(iii) The data is consistent with the assumptions underlying the actuarial and statistical techniques that are applied to it.

(iv) The data appropriately reflects the risks to which the insurance company is exposed.

(v) The data is collected and processed in a transparent and structured manner, and the quality of the data, along with any material concerns, is documented comprehensively.

4 Insurance companies may use external data provided that, in addition to fulfilling the requirements set out above, the data meets the following conditions:

(i) The data is more suitable than the equivalent internal data that the insurance company has.

(ii) The origins of the data are fully understood and documented, and any prior data processing is fully accounted for.

(iii) The data is consistent with the business of the insurance company, and it is appropriate to assume that the underlying risks in the data accurately reflect the risks faced by the insurance company.

Statistical analysis of the data extract for the valuation of LifePlus policies

LifeCo is currently in the process of migrating business to a new data system to improve the information available to management, and to ensure that LifeCo's data collection, reporting and extraction is robust. In the life insurance portfolio, the LifeBasic product has been migrated, but the migration of LifePlus is not scheduled until next year. The following statistics have been compiled on the data for LifePlus policies from the old database.

The data extract has the following properties:

- The data is presented as one line per policy (e.g. if extracted as a spreadsheet, each policy will appear in a new row, and all information about that policy will appear in the row).
- All policy details are included within the line of the data, including any options selected.
- Two types of data extract can be run:
  - Policies currently in force
  - All policies, including those no longer in force – for example, because they have lapsed (i.e. the policyholder has cancelled or stopped paying premiums), come to the end of the term of the product or claimed.

The following table shows the number of LifePlus policies on the extracts when run as at 31 December each year:

Year	*Inforce policies*	*All policies*
2002	9,059	10,534
2003	16,252	19,697
2004	23,000	28,745
2005	30,930	39,435
2006	41,006	52,671
2007	55,274	70,835
2008	69,223	89,246
2009	80,365	105,394
2010	92,236	122,791
2011	109,145	146,283
2012	123,926	168,653
2013	143,646	197,249
2014	171,732	235,953
2015	205,423	282,350
2016	243,452	335,475
2017	276,812	310,058
2018	303,761	326,747
2019	321,861	302,570
2020	332,134	325,912
2021	347,732	314,410
2022	366,117	311,892

It is clear from these figures that the 'all policies' extract is failing for the more recent years. We would expect the figures in this column to rise each year, given that it records all policies ever sold. It appears that there are policies missing from the extract from around 2016/2017. The inforce policies extract appears to be correct.

LifeCo's sales system (which does not have policy level data but is able to track high-level statistics) shows the following information in respect of all LifePlus policies as at 31 December 2022:

Total LifePlus policies sold to date	590,031
Total policies that have lapsed	207,479
Total policies that have ever claimed (including claiming only a partial sum assured)	7,109
Total policies that have claimed only a partial sum assured	2,631
Total policies that have claimed their full sum assured	4,478
Total policies that have expired at the end of their term	11,957
Total number of policies in force	366,117

Earlier this year, a sample of 1,000 LifePlus policies from the data extract were checked against the original policyholder records, with the following results:

- Basic policyholder details (e.g. name, date of birth) matched for 99.7% of policies.
- The options shown in the original policyholders' records were not always present in the data.
- The following were missing in the data extract:
  - 5% of TI options
  - 13% of WoP options
  - 3% of enhanced accidental death options
  - 21% of serious illness options
  - 16% of second medical opinion options
  - 9% of benefit escalation options.
- Weighted approximately by liability, 15% of options, on average, appear to be missing in the extracted data.

END OF SCENARIO MATERIAL