



# **Subject F101**

## **Health and Care Principles**

### **Fellowship Principles Syllabus**

For the 2016 Examinations

August 2015

## Aim

The aim of the Health and Care Principles subject is to instill in successful candidates the ability to apply, in simple situations, the principles of actuarial planning and control needed in health and care matters on sound financial lines.

## Links to other subjects

Subject A101 (CT3) — Probability and Mathematical Statistics: provides a basic grounding in statistics.

Subject A202 (CT4) — Models: covers some stochastic models used in health and care.

Subject A204 (CT6) — Statistical Methods: covers some of the mathematical methods relevant for this subject.

Subject A301 (CA1) — Actuarial Risk Management: covers the general underlying principles affecting all specialisms.

Subject F201 — Health and Care Applications will use the principles developed in this subject to develop a deeper understanding of health and care insurance business and South African practice.

## Objectives

On the successful completion of this subject the candidate will be able to:

- (a) Describe the principal terms in health and care and health economics.
- (b) Describe the main types of health and care insurance contracts:
  - private medical insurance
  - health cash plans
  - critical illness insurance
  - long-term care insurance
  - group and individual covers
  - main example variations of contracts issued.
- (c) Outline the principles by which health and care insurance contracts are designed and the interests of the various stakeholders in the process:
  - specific healthcare needs
  - factors that influence the attractiveness of a product
  - employer as purchaser
  - insurer control and profitability
  - regulator's satisfaction
  - other considerations: equity, professional guidance, sales processes, IT.
- (d) Discuss the operating environments in which health and care insurance products and services are traded:
  - methods of sale
  - role of IFA in the group risks market

- propensity to purchase versus drive to sell — meeting customer needs
  - remuneration methods for healthcare service providers
  - remuneration of sales channels
  - types of expenses and commission
  - influence of inflation on benefits, premiums and expenses
  - regulatory environment on sales and reporting
  - professional guidance constraints and opportunities.
- (e) Explain the likely role of the State in the provision of alternative or complementary health and care protection packages:
- policy for public health provision and private sector regulation
  - lump sums and regular incomes
  - flat-rated and earnings-related
  - different viewpoints for the retired, for the employed, for children
  - simpler methods of funding these outgoes.
- (f) Explain the components of a well-functioning healthcare system:
- classification of primary, secondary and tertiary care
  - key supply-side providers
  - main funders of healthcare and main funding models that could be/are used.
- (g) Analyse the mechanics between the funding and supply of healthcare:
- risks inherent in third-party payer environments to funders and providers, and risk sharing between these entities
  - role and functions of managed care organisations
  - reimbursement methods of suppliers.
- (h) Apply the techniques used in pricing health care insurance products in terms of:
- data availability
  - assumptions used
  - equation of value
  - formula approach
  - cashflow techniques
  - group risk assessments
  - options
  - guarantees.
- (i) Evaluate the nature of the risks facing the insurer:
- data – own experience, insured experience, population data, overseas data
  - claim inception and termination rates
  - claim cost information: by treatment, per diem, length of stay, medical
  - investment performance
  - expenses and inflation
  - withdrawals
  - mix of new business by nature and size of risk and by source
  - volumes of new business
  - guarantees and options
  - competition

- management of insurer
  - counterparties in distribution
  - counterparties in provision of medical services (including remuneration methods)
  - counterparties in reinsurance
  - regulation and fiscal developments
  - customer service shortcomings / reputational risks
  - internal audit failures / fraud
  - physical risks including IT recovery
  - aggregation and concentration of risk
  - catastrophes
  - non-disclosure – underwriting at outset versus underwriting at claim stage
  - earlier screening / diagnosis.
- (j) Review how insurers use reinsurance to manage their risks and the reinsurance products involved:
- product design and pricing
  - individual risks (large and/or unusual)
  - aggregate risks (accumulation from event or portfolio)
  - other financial risks.
- (k) Describe how insurers manage their risks in ways other than reinsurance:
- review actual claims experience against pricing basis
  - service level agreements with outsourcers and healthcare service providers
  - competence assessments for in-house key staff
  - checks on policy data
  - surveys on customer service satisfaction
  - health risk management, including wellness promotion and screening
  - underwriting as gatekeeper and risk analysis
  - claims management – in line with policy conditions and underwriting
  - treating customers fairly
  - controlling the distribution process
  - managed care interventions, including claims management according to treatment protocols and contracting.
- (l) Describe the principal modelling techniques appropriate to health and care insurance:
- outstanding claim provision
  - asset liability modelling
  - actuarial models – stochastic models, generalised linear models and Monte Carlo simulation
  - Health insurance models:
    - Types of healthcare models
    - objectives and requirements
    - basic features
    - uses (pricing, return and capital, profitability assessment)
    - volatility and sensitivity
  - multi-state modelling in pricing, reserving and reporting
  - when to use deterministic models (systematic risk assessment)
  - when to use stochastic models (random risk measure)
  - comparison of formula and cashflow approach

- cashflow approach to price setting
  - risk-adjustment mechanisms for demographic and clinical risk.
- (m) Describe the assumptions that are crucial to pricing and valuation:
- morbidity
  - mortality
  - lapses
  - claim amount
  - expenses
  - inflation
  - investment return
  - taxes
  - solvency margins
  - profit requirements.
- (n) Review the purposes for and methodology by which valuation and reserving are performed:
- the role of statistical and individual case estimates
  - the uses of deterministic and stochastic processes
  - purpose of calculation
  - method of calculation
  - supervisory (solvency, prudent, prospective)
  - experience review (realistic retrospective pricing and conditions)
  - management information (realistic, prospective)
  - embedded values (various)
  - fair valuation (realistic).
- (o) Explain the purposes and practices of supervisory reporting:
- principles of setting statutory reserves
  - difference in assumptions from pricing
  - sensitivity analysis
  - strength of basis
  - valuation of assets and consistency
  - solvency margins and solvency assessment
  - risk-based capital.
- (p) Describe the principles of investment underpinning health and care insurance:
- cashflow and liquidity
  - matching and immunisation
  - fund manager assessment
  - asset valuation
  - effect on product development and pricing
  - treating customers fairly.
- (q) Describe the principles by which the experience from a health insurance operation is used to refocus business planning:
- reasons for monitoring experience
  - data required

**The Actuarial Society of South Africa: Subject F101 — Health and Care Principles  
(Fellowship Principles Syllabus)**

- analysis of mortality, disability, claim amount, and withdrawal rates
- analysis of utilisation levels
- analysis of charging practices by healthcare service providers
- analysis of expenses, sales rates and investment experience
- analysis of surplus and profit, cause and effect
- use of results to revise the models used and underlying assumptions.

**End of Syllabus**