



Institute  
and Faculty  
of Actuaries

# Subject ST1 Health and Care Specialist Technical

## Syllabus

for the 2018 exams

1 June 2017

## **Subject ST1 – Health and Care Specialist Technical**

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### **Aim**

The aim of the Health and Care Specialist Technical subject is to instil in successful candidates the ability to apply, in simple situations, the main principles of actuarial planning and control that are relevant to the provision of health and care benefits.

### **Links to other subjects**

Subject CT3 – Probability and Mathematical Statistics: provides a basic grounding in statistics.

Subject CT4 – Models: covers some stochastic models used in health and care.

Subject CT5 – Contingencies: covers techniques that are relevant to this subject, particularly for long term health and care insurance business.

Subject CT6 – Statistical Methods: covers some of the mathematical methods relevant for this subject.

Subject CA1 – Actuarial Risk Management: covers the general underlying principles affecting all specialisms.

Subject SA1 – Health and Care Specialist Applications will use the principles developed in this subject to develop a deeper understanding of health and care insurance business and United Kingdom practice.

### **Objectives**

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

- (a) Define the principal terms used in health and care.
- (b) Describe and understand the main types of contract and their purpose for the customer:
  - critical illness insurance
  - income protection insurance
  - long term care insurance
  - health cash plans
  - major medical expenses
  - private medical insurance
  - group and individual covers
- (c) Describe the principles by which health and care insurance contracts are designed and the interests of the various stakeholders in the process.

- (d) Understand the operating environments in which health and care insurance products and services are traded:
- distribution channels
  - regulatory and taxation regimes
  - professional guidance
  - economic and political influences
- (e) Explain the role of the State in the provision of alternative or complementary health and care protection:
- objectives of State healthcare provision
  - methods of State healthcare provision
  - funding approaches
- (f) Understand and apply the techniques used in pricing health and care insurance products in terms of:
- data availability
  - assumptions used
  - equation of value / formula approach
  - cash flow techniques
  - group risk assessments
  - options and guarantees
  - external influences
- (g) Understand the nature of the risks facing the insurer:
- data
  - claim rates
  - claim amounts
  - investment performance
  - expenses and inflation
  - persistency
  - mix of new business
  - volume of new business
  - guarantees and options
  - competition
  - actions of management
  - counterparties
  - legal, regulatory and tax developments
  - reputation
  - internal audit failures/fraud
  - physical risks
  - aggregation and concentration of risk
  - catastrophes
  - non-disclosure and anti-selection

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- (h) Understand how insurers use reinsurance to manage their risks and the reinsurance products involved:
- reasons for reinsurance
  - types of reinsurance
  - determination of the retention level
- (i) Describe other ways in which insurers manage their risks:
- underwriting
  - claims management
  - data checks
  - product design
  - managing the distribution process and customer relationship
  - managing other counterparties
  - other internal processes
- (j) Describe the principal modelling techniques appropriate to health and care insurance:
- asset-liability modelling
  - objectives and basic features of a health insurance model
  - uses of models
  - multi-state modelling
  - comparison of formula and cash flow approach
  - sensitivity analysis
  - deterministic and stochastic models
- (k) Understand the assumptions that are crucial to pricing and valuation, including profit requirements.
- (l) Describe the purposes of reserves, solvency capital requirements and embedded values, and the methodologies by which they are calculated for a health and care insurer, including:
- role of statistical and individual case estimates
  - setting assumptions, including a comparison with those used in pricing
  - market consistent valuation
  - the interplay between the strength of the supervisory reserves and the level of solvency capital required
  - Value at Risk (VaR) capital assessment
  - comparison of passive and active valuation approaches
- (m) Describe the principles of investment and how they apply to health and care insurance.
- (n) Describe the principles by which the experience from a health insurance operation is used to refocus business planning:
- reasons for monitoring experience

- data required
- analysis of mortality, morbidity, claim amounts and persistency rates
- analysis of expenses, new business and investment experience
- reasons for analysis of surplus and analysis of embedded value profit
- use of results to revise the models and assumptions used

**END OF SYLLABUS**