



**Canadian  
Institute  
of Actuaries**

**Institut  
canadien  
des actuaires**

# **Skills and Knowledge Inventories for the Individual Insurance Area of Practice**

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This resource document is meant to assist CIA members practising in individual insurance gauge their skills and knowledge within this area. The Skills and Knowledge Inventory (SKI) should not be construed as a definitive and complete description of the all the competencies required for members practising in this area. **It should also not be interpreted as any requirement that would qualify/disqualify or enable/disable an actuary for practising in individual insurance. Additionally, this SKI is not intended to preclude members from abiding by the *CIA Bylaws, Rules of Professional Conduct and Standards of Practice*, which may be relevant in cases where an actuary is acting in a professional capacity.**

Familiarity with or adherence to this resource document is not a condition for meeting the CIA's *Qualification Standard – Requirements for Continuing Professional Development (CPD)*. This SKI will not be used by the CIA (specifically, the Professional Conduct Board or the Disciplinary Tribunal) as a standard to discipline members.

The letter in each cell within the Code column of Table 1 indicates the code for the skills and knowledge level of a member working in a given role. The level may vary from that indication depending on the specific requirements of any practitioner's role. The letter codes are defined as follows.

**Table 1 – SKI coding legend**

Code	Level of skill and knowledge	Description
A	Basic knowledge and general awareness	General awareness of the basic facts and of broad implications of the subject.
W	Wide knowledge	Wide understanding of the subject area and its implications, as well as its potential interaction with other subjects.
D	Detailed knowledge and experience	Ability to effectively apply the subject in practice, with detailed knowledge of the facts, and ability to adjust the approach based on circumstances – particularly for unusual situations.
D*	Detailed knowledge and experience	Same as D except it is needed only if a member accepts assignments in that area.

**Table 2 – Skills and knowledge subjects for various individual insurance practitioner categories**

		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
	Skills and knowledge subjects	Consulting actuary	Valuation actuary	Actuarial modelling/ developer	Marketing actuary	Pricing actuary	Regulator
	<b>Actuarial resources</b>						
1	Experience studies (internal and industry)	D	D	D	W	D	D
2	Standard tables	D	D	D	W	D	A
	<b>Actuarial techniques and methods</b>						
3	Asset liability management	D*	W	A	A	A	A
4	Asset modelling	D*	W	A	A	A	A
5	Financial economics	W	W	A	A	A	A
6	M&A	D	W	A	A	A	A
7	Replicating portfolios	D*	D	W	A	A	W
8	Selection of methods and assumptions	D	D	A	W	D	A
	<b>Economic environment</b>						
9	Published statistics demographic/ economic	W	A		W	W	
10	Wage and price economics	W	A		W	W	
	<b>Specialist areas of knowledge</b>						
11	Risk management transactions	D	W	D*	W	W	W
12	Individual insurance administration	D	D	D	W	D	D
13	Plan design/ conversions	D*	D*		D	D*	D*

14	Living benefits and non-traditional plans	D*	D*	D*	D	D*	D*
15	Governance policies	D	W				A
16	Funding policies	D	W	W	W		A
17	Statement of investment policies and procedures	D	W	W	D		D
	<b>Tax and legal environment</b>						
18	Accounting standards	D	D	D*	A	W	D
19	Individual insurance standards acts and regulations	D	D	D	D	D	D
20	Foreign actuarial standards of practice	A	A				A
21	<i>Income Tax Act</i> and regulations	D	D	A	W	D	D
22	Jurisprudence/legal environment	D	D		D	D	D

**Table 3 – Additional information regarding skills and knowledge subjects**

<b>Skills and knowledge specifics</b>	
1	<b>Experience studies:</b> Constructing tables, comparing actual to expected, gain and loss analysis, statistical credibility, incidence, and termination disability tables.
2	<b>Standard tables:</b> Sources of data, construction techniques, projection method, common usage.
3	<b>Asset liability management:</b> Asset models, liability models, interpretation and presentation of results, methods for evaluating risk, and possible loss.
4	<b>Asset modelling:</b> Asset models, interpretation of results, setting interest rate assumptions.
5	<b>Financial economics:</b> Basic theory, evaluating guarantees, financial markets.
6	<b>Mergers and acquisitions:</b> Accounting impact of transaction, definition of purchase price adjustments.
7	<b>Replication portfolios:</b> Design, construction, available assets and products to defray risk.

8	<b>Selection of methods and assumptions:</b> Market valuations, interrelationship of assumptions, selection of realistic assumptions, best estimate assumptions, margins and provisions for adverse deviations, method, and assumptions appropriate to the purpose of valuation implications of experience studies, gain and loss analyses.
9	<b>Published statistics demographic/economic:</b> Bond yields, investment returns, market indices, population mortality tables, consumer price index, average wage index.
10	<b>Wage and price economics:</b> Central bank policies and targets.
11	<b>Risk management transactions:</b> Purchase of liabilities (buy-in and buy-out), liability trades, accounting implications, Assuris insurance, minimum guaranteed withdrawal benefits, longevity insurance and swaps, disability buyout and early settlements.
12	<b>Individual insurance administration:</b> Regulatory requirements, disclosure requirements.
13	<b>Plan design/conversions:</b> Regulatory requirements, surplus implications, accounting applications, disclosure requirements, benefit projections.
14	<b>Living benefits and designated plans:</b> Valuation requirements, regulatory requirements, accounting implications, taxation requirements.
15	<b>Governance policies:</b> Regulatory requirements, development and information that should be included, application.
16	<b>Funding policies:</b> Regulatory requirements, development, application.
17	<b>Statement of investment policies and procedures:</b> Regulatory requirements, development and information that should be included, application.
18	<b>Accounting standards:</b> Canadian, US, UK, International, etc. calculations, disclosure requirements, differences in certification requirements, convergence of standards.
19	<b>Individual insurance standards acts and regulations:</b> Funding standards (going concern and solvency), reporting requirements, minimum benefit and underwriting standards, disclosure standards.
20	<b>Foreign actuarial standards of practice:</b> Practice standards to be applied.
21	<b>Income Tax Act and regulations:</b> Maximum funding rules, reporting requirements, benefit standards and coordination
22	<b>Jurisprudence/legal environment:</b> Beneficiary rights, basic principles of trust law, rights to surplus, responsibility for deficits.

**Table 4 – Additional details regarding individual insurance practitioner categories**

<b>A</b>	<p><b>Consulting actuary:</b></p> <ul style="list-style-type: none"> <li>• Advising on benefit design and amendment</li> <li>• Setting assumptions</li> <li>• Selecting funding methods</li> <li>• Designing and applying funding policy</li> <li>• Complying with <i>Income Tax Act</i> and federal and provincial standards</li> <li>• Interpreting data, studies, and valuation results and explanation thereof to sponsors and other key players</li> <li>• Assessing financial risk to sponsors and members and reporting of actuarial implications</li> <li>• Monitoring changing standards and reporting requirements and assistance in compliance</li> </ul>
<b>B</b>	<p><b>Valuation actuary:</b></p> <ul style="list-style-type: none"> <li>• Planning, organizing, controlling and directing experience studies</li> <li>• Performing assumption-setting, valuation calculations and financial reporting</li> <li>• Setting company reserves</li> <li>• Performing gain and loss analyses</li> <li>• Developing recommendations</li> <li>• Preparing reports in accordance with legislative requirements and <i>CIA Standards of Practice</i></li> <li>• Responding to questions and provision of explanations in respect of any or all of the aforementioned</li> </ul>
<b>C</b>	<p><b>Actuarial modelling/developer:</b></p> <ul style="list-style-type: none"> <li>• Planning, organizing, controlling and directing actuarial models</li> <li>• Performing assumption-setting, valuation or pricing calculations</li> <li>• Performing gain and loss analyses</li> <li>• Developing of recommendations and preparing reports in accordance with legislative requirements and <i>CIA Standards of Practice</i></li> </ul>
<b>D</b>	<p><b>Marketing actuary:</b></p> <ul style="list-style-type: none"> <li>• Performing sales and business development of insurance products</li> <li>• Ensuring all calculations are performed in accordance with legislative requirements and applicable jurisprudence and, where applicable, with <i>CIA Standards of Practice</i></li> </ul>
<b>E</b>	<p><b>Pricing actuary:</b></p> <ul style="list-style-type: none"> <li>• Planning, organizing, controlling, and directing calculation of benefit amounts and cash values, premiums, and underwriting factors</li> <li>• Ensuring all calculations are performed in accordance with legislative requirements and applicable jurisprudence and, where applicable, with <i>CIA Standards of Practice</i></li> </ul>
<b>F</b>	<p><b>Regulator:</b></p> <ul style="list-style-type: none"> <li>• Reviewing actuarial valuation reports and other reports received for compliance with legislative requirements, applicable jurisprudence and, where applicable, <i>CIA Standards of Practice</i></li> <li>• Advising governments on changes to legislative requirements and interpretation and explanation of same to sponsors, members, consultants, and other advisors</li> </ul>

Members are reminded that they must decide for themselves whether the material presented in the resources list in Table 5 is relevant to their own development. In doing so, members should consider that the list is meant to accommodate practitioners of various experience levels and with widely different development requirements. Since members are required to be familiar with the standards of practice applicable to the actuarial work they perform, the standards are not specifically included in the SKI's resource list. A link to where they can be found on the CIA website is provided at the end of the table below.

**Table 5 – Suggested resources for skills and knowledge subjects**

Resources by broad category: Actuarial resources (R); actuarial methods (M); economic environment (E); tax/legal environment (T); specialist knowledge (S)	
<p><b>Associations and organizations:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Actuarial associations</a></li> <li>• <a href="#">Bank of Canada</a></li> <li>• <a href="#">Life Insurance Marketing and Research Association (LIMRA)</a></li> <li>• <a href="#">Canadian Life and Health Insurance Association (CLHIA)</a></li> <li>• <a href="#">Canadian Legal Information Institute (CanLII)</a></li> <li>• <a href="#">The Canadian Association of Financial Institutions in Insurance (CAFII)</a></li> </ul>	
<p><b>General references:</b></p> <ul style="list-style-type: none"> <li>• Tiller, John E. and Tiller, Denise. <i>Life, Health and Annuity Reinsurance, 4th Edition</i>. 2015</li> <li>• Erdem E., Swales J. <i>Canadian Insurance Taxation, 4th Edition</i>. 2015. Chapters 3-6, 9, 10, 11 and 24.</li> <li>• Claire, Lombardi and Summers. <i>Statutory Valuation of Individual Life and Annuity Contracts, 5th Edition</i>. 2018. Subsections 12.2, 12.4 and 18.2 and subdivisions 18.3.2 and 18.3.3.</li> <li>• Bennett and Zultowski. <i>The Art and Science of Life Insurance Distribution</i>. 2014.</li> <li>• McLean, B. and Nocera. J. <i>All the Devils Are Here: The Hidden History of the Financial Crisis</i>. 2010.</li> </ul>	
<b>CIA and Society of Actuaries materials:</b>	
M	CIA <a href="#">Standards of Practice: Part 2000 – Insurance</a> . Jan 2023. (Excluding Section 2600.)
M	CIA educational note: <a href="#">Expected Mortality: Fully Underwritten Canadian Individual Life Insurance Policies</a> . Oct 2024. (Sections 1, 2 and 3.)
M	CIA educational note supplement: <a href="#">Selective Lapsation for Renewable Term Insurance Products</a> . Feb 2017.
M	CIA educational note: <a href="#">Guidance on Fairness Opinions Required Under the Insurance Companies Act</a> . Oct 2023.
M	CIA explanatory report: <a href="#">IFRS 17 Expenses</a> . June 2022.
M	CIA educational note: <a href="#">IFRS 17 – Fair Value of Insurance Contracts</a> . June 2022.
M	CIA educational note: <a href="#">Comparison of IFRS 17 to Current CIA Standards of Practice</a> . Oct 2022.
M	CIA educational note: <a href="#">IFRS 17 Risk Adjustment for Non-Financial Risk for Life and Health Insurance Contracts</a> . Oct 2022.
M	CIA educational note: <a href="#">IFRS 17 Estimates of Future Cash Flows for Life and Health Insurance Contracts</a> . June 2022.

<b>Resources by Broad Category (continued):</b> <b>Actuarial resources (R); actuarial methods (M); economic environment (E); tax/legal environment (T); specialist knowledge (S)</b>	
M	CIA educational note: <a href="#">IFRS 17 Measurement and Presentation of Canadian Participating Insurance Contracts</a> . June 2022.
M	CIA educational note: <a href="#">IFRS 17 Discount Rates for Life and Health Insurance Contracts</a> . Sep 2024.
M	CIA educational note: <a href="#">IFRS 17 Coverage Units for Life and Health Insurance Contracts</a> . Dec 2022.
M	CIA educational note: <a href="#">IFRS 17 Market Consistent Valuation of Financial Guarantees for Life and Health Insurance Contracts</a> . June 2022.
M	Society of Actuaries article: " <a href="#">Bridging the GAAP: IFRS 17 and LDTI Differences Explored</a> ." <i>Financial Reporter</i> . July 2022.
M	CIA educational note: <a href="#">Future Income and Alternative Taxes</a> . Dec 2012.
M	Society of Actuaries paper: " <a href="#">A Multi-Stakeholder Approach to Capital Adequacy</a> ." Conning Research. <i>Actuarial Practice Forum</i> . May 2007.
M	Society of Actuaries paper: " <a href="#">Embedded Value: Practice and Theory</a> ." <i>Actuarial Practice Forum</i> . Mar 2009.
M	Society of Actuaries article: " <a href="#">The Use of Predictive Analytics in the Development of Experience Studies</a> ," <i>The Actuary</i> . Oct/Nov 2015. pp. 26-34.
M	Society of Actuaries report: " <a href="#">Modeling of Policyholder Behavior for Life and Annuity Products</a> ." 2014. pp. 6, 9-16 and 19-73.
M	CIA educational note: <a href="#">Financial Condition Testing</a> . Jan 2023.
M	CIA educational note: <a href="#">Guidance for the 2024 Reporting of Capital, Financial Condition Testing, and Own Risk and Solvency Assessment for Life and Health, P&amp;C and Mortgage Insurers</a> . April 2024.
M	CIA educational note: <a href="#">Role of the Appointed Actuary Under IFRS 17</a> . Dec 2022.
<b>Research material and CIA member paper:</b>	
R	CIA research paper: <a href="#">Lapse Experience under Term-to-100 Insurance Policies</a> . Nov 2021.
R	Society of Actuaries research report: " <a href="#">Economic Capital for Life Insurance Companies</a> ." Oct 2016. (Excluding Sections 5 and 7.)
R	CIA research paper: <a href="#">Pandemics-Driven Scenario Generation</a> . Sep 2022.



<b>Resources by Broad Category (continued): Actuarial resources (R); actuarial methods (M); economic environment (E); tax/legal environment (T); specialist knowledge (S)</b>	
R	CIA research paper: <a href="#">Hedging longevity risk in the Canadian market</a> . Jul 2021.
R	CIA research report: <a href="#">Lapse Experience under Universal Life Level Cost of Insurance Policies</a> . Nov 2011.
R	CIA research paper: <a href="#">CIA2014 – A Mortality Table Constructed from the CIA Individual Insurance Data of Policy Years 2009–2019</a> . June 2022.
R	CIA member’s paper: <a href="#">Update on Mortality Improvement</a> . Jan 2020.
	<b>Reports and studies:</b>
R	CIA report: <a href="#">Lapse Experience Study for 10-year Term Insurance</a> . Jan 2014. pp. 6-32.
R	Society of Actuary participant report: “ <a href="#">Variable Annuity Guaranteed Living Benefits Utilization</a> .” 2018. Executive summary only (pp. 19-32).
R	Society of Actuaries report: “ <a href="#">Report on Premium Persistency Assumptions Study of Flexible Premium Universal Life Products</a> .” May 2012. pp. 9-15.
R	Society of Actuaries report: “ <a href="#">Report on the Conversion Experience Study for the Level Premium Term Plans</a> .” 2016. pp. 6-9, 39-40 and Appendix B.
R	CIA explanatory report: <a href="#">Development of the Ultimate Reinvestment Rates (URRs)</a> . June 2018.
R	CIA research report: <a href="#">Canadian Individual Life Experience for Policy Year 2020-2021</a> . June 2023.
R	CIA research report: <a href="#">Canadian Mortality Table Construction Alternative Methods – Generalized Additive Model and Neural Network Model</a> . May 2022.
R	CIA report: <a href="#">Report 6: COVID-19 Canadian Insurance Industry Monthly Aggregate Data Analysis</a> . Oct 2022.
R	CIA report: <a href="#">Report on the Lapse and Mortality Experience of Post-Level Premium Period Term Plans</a> . Dec 2020.
R	CIA morbidity study: <a href="#">Canadian Individual Critical Illness Insurance Morbidity Experience Study</a> . Jun 2019.
R	Society of Actuaries report: <a href="#">Structured Settlement Annuities</a> . March 2022.
R	Society of Actuaries study: “ <a href="#">Long-term Care Insurance: The SOA Pricing Project</a> .” Nov 2016.
R	Society of Actuaries article: “ <a href="#">Market Trends and Product Designs in a Rising Interest Rate Environment</a> .” Nov 2021.

<b>Resources by Broad Category (continued): Actuarial resources (R); actuarial methods (M); economic environment (E); tax/legal environment (T); specialist knowledge (S)</b>	
	<b>Other resources:</b>
S	CIA publication: <a href="#"><i>Respondents' Handbook: The Canadian Institute of Actuaries Disciplinary Process</i></a> , Jan 2024
S	<a href="#"><i>CPA Canada Handbook – Accounting</i></a>
S	<a href="#"><i>CPA Canada Public Sector Accounting Handbook</i></a>
S	Log in required: <a href="#">Financial Accounting Standards Board – Accounting Standards Codification (U.S. GAAP)</a>
S	Bodie Z., Kane A., and Marcus A. <i>Investments, 12th Edition</i> . 2021.
S	Hardy M. <i>Investment Guarantees – Modeling and Risk Management for Equity-Linked Life Insurance</i> . 2003.
T	Canada Revenue Agency – <a href="#">Registered Plans Directorate</a> including, but not limited to: <ul style="list-style-type: none"> <li>• <i>Income Tax Act</i></li> <li>• <i>Income Tax Act</i> regulations</li> <li>• forms and publications</li> <li>• consultation sessions</li> <li>• bulletins</li> <li>• frequently asked questions</li> </ul>
T	Federal – <a href="#">Office of the Superintendent of Financial Institutions (OSFI)</a> including, but not limited to: <ul style="list-style-type: none"> <li>• Life Insurance Capital Adequacy Testing</li> <li>• individual insurance standards and regulations</li> <li>• OSFI guidance notes</li> <li>• OSFI directives and specifications</li> <li>• frequently asked questions</li> </ul>
T	British Columbia – <a href="#">Financial Services Authority: Superintendent of Insurance</a> including, but not limited to: <ul style="list-style-type: none"> <li>• <i>Insurance Act</i></li> <li>• insurance standards regulation</li> <li>• advisories, regulatory statements and guidelines</li> </ul>
T	Alberta – <a href="#">Alberta Finance, Superintendent of Financial Institutions (Insurance)</a> including, but not limited to: <ul style="list-style-type: none"> <li>• filing requirements, forms, bulletins, notices, guidelines, legislation and company information</li> <li>• interpretive guidance</li> </ul>

<b>Resources by Broad Category (continued): Actuarial resources (R); actuarial methods (M); economic environment (E); tax/legal environment (T); specialist knowledge (S)</b>	
T	<p>Saskatchewan – <a href="#">Saskatchewan Financial and Consumer Affairs Authority</a> including, but not limited to:</p> <ul style="list-style-type: none"> <li>• insurance legislation and regulations</li> <li>• insurance guidance notes</li> <li>• insurance policies</li> <li>• licensing requirements</li> <li>• frequently asked questions</li> </ul>
T	<p>Manitoba – <a href="#">Office of the Superintendent: Insurance Institutions</a> including, but not limited to:</p> <ul style="list-style-type: none"> <li>• mediates disputes between consumers, agents, adjusters and insurance companies</li> <li>• policy bulletins and updates</li> <li>• frequently asked questions</li> <li>• overview of Manitoba insurance law</li> </ul>
T	<p>Ontario – <a href="#">Financial Services Regulatory Authority of Ontario</a> including, but not limited to:</p> <ul style="list-style-type: none"> <li>• insurance legislation and regulations</li> <li>• insurance guidance notes</li> <li>• insurance policies</li> <li>• licensing requirements</li> <li>• frequently asked questions</li> <li>• insurance services portal</li> </ul>
T	<p>Quebec – <a href="#">Autorité des marchés financiers</a> including, but not limited to:</p> <ul style="list-style-type: none"> <li>• insurance legislation and regulations</li> <li>• insurance guidance notes</li> <li>• insurance policies</li> <li>• licensing requirements</li> <li>• frequently asked questions</li> <li>• legal references</li> </ul>
T	<p>New Brunswick – <a href="#">Financial and Consumer Services Commission</a> including, but not limited to:</p> <ul style="list-style-type: none"> <li>• <i>Insurance Act</i></li> <li>• term and permanent life benefits and regulations</li> <li>• bulletins, notices and guidelines</li> <li>• frequently asked questions</li> </ul>
T	<p>Nova Scotia – <a href="#">Finance and Treasury Board, Insurance Regulation Division</a> including, but not limited to:</p> <ul style="list-style-type: none"> <li>• insurance tax and licensing</li> <li>• insurance regulation and forms</li> <li>• notices</li> <li>• publications</li> <li>• frequently asked questions</li> </ul>

<b>Resources by Broad Category (continued):</b> <b>Actuarial resources (R); actuarial methods (M); economic environment (E); tax/legal environment (T); specialist knowledge (S)</b>	
T	Prince Edward Island – <a href="#">Prince Edward Island Office of the Superintendent of Insurance</a> including, but not limited to: <ul style="list-style-type: none"> <li>• insurance legislation and regulations</li> <li>• insurance guidance notes</li> <li>• insurance policies</li> <li>• licensing requirements</li> <li>• frequently asked questions</li> </ul>
T	Newfoundland and Labrador – <a href="#">Newfoundland and Labrador, Insurance Division</a> including, but not limited to: <ul style="list-style-type: none"> <li>• insurance regulation</li> <li>• insurance forms, news and bulletins</li> <li>• directives</li> </ul>

To assist in keeping the above reference list current and relevant to CIA members, we encourage practitioners to share with the Individual Insurance Practice Committee additional documents and references not included in the above list. Please send the information to [ski@cia-ica.ca](mailto:ski@cia-ica.ca).

**Links to *Standards of Practice* and Qualification Standard:**

- [Complete \*Standards of Practice\* \(Parts 1000-8000\)](#)
- [\*Standards of Practice – Insurance\* \(Part 2000\)](#)
- [\*Qualification Standard – Requirements for Continuing Professional Development \(CPD\)\*](#)



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