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# CURATED PAST EXAM ITEMS

## - Solutions -

### GH 201-C – Valuation and Regulation, Canada

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#### **Important Information:**

- These curated past exam items are intended to allow candidates to focus on past SOA fellowship assessments. These items are organized by topic and learning objective with relevant learning outcomes, source materials, and candidate commentary identified. We have included items that are relevant in the new course structure, and where feasible we have made updates to questions to make them relevant.
- Where an item applies to multiple learning objectives, it has been placed under each applicable learning objective.
- Candidate solutions other than those presented in this material, if appropriate for the context, could receive full marks. For interpretation items, solutions presented in these documents are not necessarily the only valid solutions.
- Learning Outcome Statements and supporting syllabus materials may have changed since each exam was administered. New assessment items are developed from the current Learning Outcome Statements and syllabus materials. The inclusion in these curated past exam questions of material that is no longer current does not bring such material into scope for current assessments.
- Thus, while we have made our best effort and conducted multiple reviews, alignment with the current system or choice of classification may not be perfect. Candidates with questions or ideas for improvement may reach out to [education@soa.org](mailto:education@soa.org). We expect to make updates annually.

# GH 201-C Curated Past Exam Model Solutions

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# GH 201-C Model Solutions

## Learning Objective 1

### GH FVA Fall 2020 #1.

#### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

#### Learning Outcomes:

- (1a) Describe the types of claim reserves
- (1b) Explain the limitations and biases of the traditional valuation methods
- (1d) Describe, calculate, and evaluate the impact of environmental factors on reserve calculations (trend, seasonality, claim processing changes, etc.) claim processing changes, etc.)

#### Sources:

Skwire Chapter 37

#### Commentary on Question:

*The Question was testing the basis for short-term benefit reserves. The key to the question was identifying the information from the syllabus and applying the knowledge to parts (b) and (c).*

#### Solution:

- (a) Describe considerations for establishing claim reserves for short-term benefits.
  - Company's **internal practices**, which may cause lags to be faster or slower than normal which can be significant.
  - Consider **External environmental influences**, such as epidemics, governmental mandates or new laws
  - The types of benefits, utilization incentives or disincentives, claim sizes in general, and other **policy provisions**
  - **Insurance characteristics** such as new insured difference in utilization or a complicated new benefit.
  - Consider each **homogenous category of business**. The drawback of increasing the number or **reserve cells** is that the estimation error may be increased for cells that are too small (credibility of data for each cell)
  - **Managed care** initiatives or discounts including changes in utilization levels and impacts on larger sized claims.

- Claims may increase or decrease significantly at various times of the year (**seasonality**).
- Recessions (**economic conditions**) will affect claims for elective treatments, but cause an increase in incidences and durations of claim where people fear the loss of coverage
- Reserve bases, reconciliation, trends and claims administrative expense factors are also important

(b) Describe ways you can check the reasonability of your claim reserve calculation.

- Reserve comply with ASOPs?
- Does the final amount make sense?
- How does it compare with the prior year?
- How does it compare to the industry?

(c) Explain the effects this change could have on your client's year-end claim reserves.

- Higher deductible plans have greater seasonality differences causing later quarter claim liabilities to be higher than earlier quarters. This could make their year-end liability greater despite the reduction in benefit.
- A new plan will likely impact utilization in the first year as employees get used to the new plan design.
- An announcement of a plan reduction could lead to increased utilization in the prior year in the form of a benefit rush.
- Changes in service mix (inpatient, outpatient, professional, drug)

(d)

- List and describe four stochastic modeling techniques.
- List considerations for applying stochastic modeling to estimating reserves.

(i)

Monte Carlo Sampling and Simulation: Significant practical value when trying to combine results from any of the other stochastic models

Parametric Distribution –Works best when the process being modeled is stationary over time

Ordinary Least Squares Regression: Used when we want to investigate the effects of specific explanatory variables, such as time or seasonality.

Generalized Linear Models: Best to use when a dependent variable is either bounded or not normally distributed

Stochastic Time Series: Useful for handling situation where values are correlated across time

(ii)

- Availability of data
- Appropriateness of data
- Access to statistical software
- Validation of results
- Covariance between model inputs
- Advantages vs. disadvantages

## GH FVA Spring 2021 #2.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data
- (1e) Evaluate data resources and appropriateness for calculating reserves

### Sources:

CIA Educational Note - Valuation of Group Life and Health Policy Liabilities

### Commentary on Question:

*The focus of the entire question was on the material from the CIA Educational Note – Valuation of Group Life and Health Policy Liabilities. Questions were based on different sections which tested the candidates understanding of valuation challenges, experience rating refunds, and reserve adequacy.*

### Solution:

- (a) Describe challenges you may face in the valuation of Northern Insurance Company's group and health business.

### ~~Commentary on Question:~~

~~Many candidates were able to recall many of the list items below and provide a one or two line description.~~

~~The list below includes all of the acceptable points, however candidates only had to provide the text in bold and one of the subpoints to achieve full credit. Listing just the items in bold without any description was not sufficient.~~

#### ~~• Different lines of business~~

- ~~▪ Group insurance encompasses employer group, association, creditor and special risk~~
- ~~▪ Contract features, underwriting and claims experience, reporting systems, compensation and other expenses, benefit provisions and reinsurance will usually differ among these different lines.~~

#### ~~• Benefit Variety~~

- ~~▪ There is a wide variety of benefits and financial arrangements.~~
- ~~▪ There is a wide variety of benefit types, contract provisions and rating practices.~~

#### ~~• Customization~~

- ~~▪ For groups beyond a certain size, contracts are usually the result of negotiation and thus involve customization to meet the client's specific needs.~~
- ~~▪ This customization creates additional complexity in the valuation.~~

- ~~Third party administrators~~
  - ~~TPAs are common and their record-keeping and administration practices do not always meet the actuary's needs.~~
- ~~Refund Accounting~~
  - ~~Large groups are commonly subject to refund accounting, which adds an additional degree of complexity to the valuation work.~~
  - ~~Because the actuary's valuation is prospective in nature, the liability for future experience rating refunds reflects the refund accounting rules or bases, and may not be simply equal to the group's surplus at the valuation date.~~
- ~~Data~~
  - ~~Reliable and consistent experience data are often scarce. There are often data issues affecting the valuation of group life and health plans.~~
- ~~Liability Term Length Results in Individual (Seriatim) Reserving~~
  - ~~While group contracts are traditionally of a short-term nature, the term of the liability for some of these coverages ("group business that behaves like individual business") would be determined on a seriatim basis and related to the ages or lifetimes of the individual participants, similar to individual insurance.~~
  - ~~Group administration practices apply even to groups that, for valuation purposes, behave like individual business. As a result, policy data and valuation systems may not be readily available for the actuary's valuation purposes. Moreover, while the seriatim valuation basis of the future claims liability is well accepted for some coverage (e.g., paid-up life and creditor insurance), it is not common practice for others like association group business.~~
  - ~~If refund accounting applies in such cases, the refund accounting rules may not include a future claim liability of this nature. This may complicate the actuary's valuation of the liability for future experience rating refunds.~~

Employer A has an experience rating refund (ERR) provision in its contract. The future experience of Employer A through the end of its rate guarantee period is projected as follows:

- ~~Premium: \$1,000,000~~
- ~~Expense Premium: \$300,000~~
- ~~Profit Charges: \$10,000~~
- ~~Policy Holder Liabilities on New Claims: \$600,000~~
- ~~Interest Credited: \$10,000~~
- ~~Interest Required on Existing Policyholder Liabilities: \$15,000~~
- ~~Policyholder Margin on Existing Claim Liabilities: \$3,000~~
- ~~Policyholder Margin on New Claim Liabilities: \$6,00~~

- ~~Policyholder Valuation Expense: \$10,000~~
- ~~Claims Administration Charges: \$20,000~~
- ~~Discount Rate: 0%~~

- (b) Calculate the future ERR liability for Employer A. Show your work. Describe potential concerns regarding your use of this data.

**Commentary on Question:**

*Candidates found this question challenging and missed key components of the formula or applied components incorrectly.*

*Credit was given to candidates who described the formula that they were using and then for the calculation that was performed.*

The future experience rating refund (ERR) liability is calculated by summing the present value of the following:

- Margins (over the term of the claim liability) from the benefit cash flow difference between the policyholder and statutory liabilities (the “policyholder margin”) on existing claims and future claims incurred before the end of the rate guarantee period
- Guaranteed interest credited less interest required on the policyholder liabilities to the end of the interest guarantee period
- Policyholder valuation expense less claims administration charges
- Differences between premiums and expected policyholder charges for retention (excluding risk charge) and claims (using policyholder liability bases) to the end of the premium rate guarantee period.

**Future ERR Liability = PV(ERR) = ERR since discount rate is 0%**

= Policyholder Margin on Existing Claim Liabilities  
 + Policyholder Margin on New Claim Liabilities  
 + Interest Credited  
 – Interest Required on Existing Policyholder Liabilities  
 + Policyholder Valuation Expense  
 – Claims Admin Charges  
 + Premium  
 – Expense Premium  
 – Profit Charges  
 – Policyholder Liabilities on New Claims

= \$3,000 + \$6,000 + \$10,000 - \$15,000 + \$10,000 - \$20,000 + \$1,000,000 - \$300,000 - \$10,000 - \$600,000 = **\$84,000**

Employer B has been a policyholder for several years. You are given the following information on Employer B's claim reserve development during 2020. Amounts are in thousands of dollars.

Claim Duration	Reserve at 1 Jan 2020	Actual Claim Payments	Valuation Interest Amount	Reserve at 31 Dec 2020
5+	300	50	10.0	260
4	140	25	4.6	130
3	180	20	6.4	160
2	230	50	7.2	190
1	300	65	9.4	240

- (a) Evaluate the adequacy of the claim reserves:
- (i) For each individual claim duration. Show your work and justify your answer.
  - (ii) For the lifetime of the policy. Show your work and justify your answer.

**Commentary on Question:**

*Candidates did very well with this question. Many were able to articulate the formula correctly and calculate the gains and losses of each duration and then calculate the sum of the gains and losses to understand the reserve adequacy over the lifetime of the policy.*

The gain/loss for each claim duration and the total overall needs to be calculated.

**Gain (loss) = Reserve at 1/1 – Reserve at 12/31 – claim payments + valuation interest**

Claim Duration	Reserve at 1 Jan 2020	Actual Claim Payments	Valuation Interest	Reserve at 31 Dec 2020	2020 Gain (loss)
5+	300	50	10.0	260	0.0
4	140	25	4.6	130	-10.4
3	180	20	6.4	160	6.4
2	230	50	7.2	190	-2.8
1	\$300	65	9.4	240	4.4

2020 total gain for the Lifetime of the Policy = 0 – 10,400 + 6,400 – 2,800 + 4,400 = -\$2,400

- (i) **As long as the gain is equal to or greater than zero, the reserve is adequate.** Therefore, the reserve was adequate for durations 1, 3 and 5 but not adequate for durations 2 and 4 as determined by the losses during those durations.
  
- (ii) The reserve was not adequate for the lifetime of the policy as determined by the \$2,400 loss overall. **The overall gain (loss) is the sum of the individual gains and losses.**

## GH FVA Spring 2021 #5.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1a) Describe the types of claim reserves
- (1b) Explain the limitations and biases of the traditional valuation methods
- (1c) Calculate appropriate claim reserves given data
- (1d) Describe, calculate, and evaluate the impact of environmental factors on reserve calculations (trend, seasonality, claim processing changes, etc.) claim processing changes, etc.)
- (1e) Evaluate data resources and appropriateness for calculating reserves.
- (1g) Apply applicable best practices related to reserving

### Sources:

Group Insurance (Skwire), Chapter 37; GH201-100-25: Health Reserves

### Commentary on Question:

*This question tested the candidates' knowledge of how to calculation completion factors and incurred but not paid (IBNP) reserves. Most candidates did well on the calculations required for parts (a) and (b). Part (c) required candidates to analyze data and to provide relevant questions to investigate.*

### Solution:

- (a) Recommend completion factors for use in reserving. Show your work.

### Commentary on Question:

*Most candidates did well on this part, a straightforward calculation of completion factors. To receive full credit, the candidate must have stated a recommendation in addition to completing the calculations.*

First, calculate total incurred claims for each year. Based on information provided in question, claims are complete within five months of incurral.

Inc. Year	Months Between Incurral and Payment					Total
	0	1	2	3	4	
	Number of Claims Paid					
2018	792	396	264	132	72	1,658
2019	912	455	302	154	84	1,907

Next, calculate completion factors. The completion factor at duration  $n$  is the sum of claims paid through duration  $n$  divided by the ultimate number of paid claims.

Inc. Year	Completion Factors (number of claims)				
	0	1	2	3	4
2018	47.8%	71.7%	87.7%	95.7%	100.0%
2019	47.8%	71.7%	87.5%	95.6%	100.0%

Because the completion factors are nearly identical in both years, recommend using 2019 factors (or an average of 2018 and 2019 factors).

- (b) Calculate the number of incurred but not paid (IBNP) claims and the IBNP dollar amount for incurreal months Oct 2020 to Dec 2020 using the completion factor method. Show your work.

**Commentary on Question:**

*Some candidates forgot to include the number of IBNP claims and went directly to IBNP dollar amounts, missing half of the possible credit. Many candidates used 2018/2019 claims experience to calculate the average claim amounts, even though 2020 experience is markedly different. Many candidates also applied the completion factors derived in part (a), which were calculated on claim counts, directly to the incurred claims dollars, instead of to the incurred claims counts.*

First, calculate number of claims paid to date, use incurral factors from part (a) to estimate ultimate expected number of claims, and subtract expected claims from claims paid to date to arrive at incurred but not paid claims count.

Inc. Month	Number of Claims by Paid Month			Claims Paid to Date	Duration	Completion Factor	Expected Claims	Claim Count IBNP
	Oct-2020	Nov-2020	Dec-2020					
Oct-2020	38	23	12	73	2	87.5%	83.4	10.4
Nov-2020		46	23	69	1	71.7%	96.3	27.3
Dec-2020			38	38	0	47.8%	79.5	41.5
Total				180			259.1	<b>79.1</b>

Next, calculate average claim size for Q4 2020 based on claims paid to date.

Total claims payments through December 2020: \$8.9 million + \$8.4 million + \$4.6 million = \$21.9 million.

Average claim to date: \$21.9 million / 180 = \$121,667

Finally, calculate total IBNP claims dollars:

IBNP Claims = \$121,667 \* 79.1 = **\$9.63 million**

- (c) Propose questions to investigate based on your analysis of the patterns in the claims data. Justify your answer.

**Commentary on Question:**

*In order to receive full credit, candidates needed to provide at least two observations on the data patterns and propose relevant question(s) based on each of those observations. Four possible observations and questions are provided below. Many candidates just provided a general list of questions not tied to any particular observations and were awarded partial credit.*

Observation #1: Total number of claims increased from 1,656 in 2018 to 1,907 in 2019, a 15.2% increase. This is significantly higher than the 4% annual mortality rate suggested by recent studies.

Questions: Have premium or lives inforce for the two years been reviewed to see if they exhibit the block of business growth? Is experience deteriorating for other reasons?

Observation #2: Average claim size increased from \$105,676 in 2018 to \$110,121 in 2019, a 4.2% increase, and to \$121,667 in 2020, a 10.5% increase from 2019. This is significantly higher than the 3% annual wage increase suggested by recent studies, and group life benefits are typically in proportion to wages.

Questions: Have claims been reviewed to see if there is a selection issue? Have new groups been added with higher salaries or richer benefits?

Observation #3: Estimated annualized number of claims in 2020 is 1,036, a decrease of 45.6% from 2019 claims, an extremely large drop.

Questions: Have premium or lives inforce for Q4 been reviewed to see if there was a significant drop? Are there seasonality effects (Q4 claims tend to drop compared to other quarters)?

Observation #4: Claims incurred and paid in November 2020 are 46, much higher than duration 0 claims in October and December (38 each month).

Questions: Were there issues with claims processing in those months (backlogs of claims to be paid, issues with claims processing systems, etc)?

## GH FVA Fall 2021 #2.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1b) Explain the limitations and biases of the traditional valuation methods.
- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.

### Sources:

AAA Premium Deficiency Reserves Discussion Reports

GH201-100-25: Health Reserves (Lloyd)

### Commentary on Question:

*This was a fairly lengthy question focused specifically on premium deficiency reserves (PDRs) with some straightforward calculations. Few candidates did well on this question, with the average candidate receiving around half of the total points available.*

### Solution:

- (a) List factors the actuary should consider when projecting claims for a Premium Deficiency Reserve (“PDR”) calculation.

#### Commentary on Question:

*Most candidates did poorly on this part, instead referring to a different list in the syllabus that included many items not specifically related to claims projections (e.g., non-claim expenses, rate increases, asset returns, etc.). Credit may be earned for items not included on the list below.*

- Current trends in medical cost and utilization
  - Provider risk-sharing
  - Changes in provider contracts
  - Environmental and demographic impacts on morbidity
  - Potential improvements in technology resulting in new services being offered and covered
  - Positive morbidity impact of growth in underwritten coverage
  - Durational wear-off
  - The impact of benefit changes
- (b) Describe two reasons why a PDR of \$0 may be appropriate for Woodford’s Medicare Supplement business.

**Commentary on Question:**

*Candidates performed poorly on this part. Many just provided the definition of a PDR, or brought up other reserves (contract reserves, deferred acquisition costs) that were not relevant. Full credit required more than just a list; some description was necessary. Credit may be earned for items not included on the list below.*

- Lapsation of members that had high claims so that the business will be profitable going forward
  - Large rate increase approved by state makes the business profitable
- (c) Calculate the PDR at the end of year 2 for the group medical contract given the premium rate increases are guaranteed through year 5 and assume a discount rate of 0%. Show your work.

**Commentary on Question:**

*Candidates generally did well on this part. Almost all candidates calculated the revised profits correctly, but many did not calculate the resulting PDR correctly.*

For each of the years 3 through 5, calculate revised gain/loss = earned premiums – revised claims – expenses.

Year	Annual Results (\$000)				Revised Gain/(Loss)
	Earned Premiums	Original Claims	Revised Claims	Expenses/ Commissions	
3	\$454	\$382	\$396	\$54	\$4
4	\$464	\$392	\$414	\$56	(\$6)
5	\$475	\$403	\$417	\$57	\$1

At end of year 2, only year with projected loss is year 4, and then a gain in year 5.  
 PDR = present value of the losses in year 3 and 4 = \$4 - \$6 = \$2.

- (d) Calculate the PDR at each testing level for the Denmain businesses including the business acquired from Bayshore. Show your work.

**Commentary on Question:**

*Many candidates did well on this part and calculated the testing level PDRs correctly. Few candidates combined the existing individual and acquired group contracts for testing purposes.*

Testing Group	Projected Underwriting Cash Flows by Year (\$000)					Testing Level PDR
	3	4	5	6	7	
Group Disability	(\$14)	\$3	\$4	\$5	\$7	\$14
Group Long-Term Care	\$19	\$22	\$21	\$23	\$25	\$0
Group Dental	\$13	\$10	\$9	\$6	\$5	\$0
Individual Medicare Supplement	(\$9)	(\$7)	(\$5)	(\$4)	\$0	\$25
Individual Major Medical	(\$22)	\$0	\$15	termed	termed	
Bayshore Group Medical	\$4	(\$6)	\$1			
Combined Major Medical	(\$18)	(\$6)	\$16			\$24

- (e) Recommend a grouping for the PDR at the reporting level for Denmain including the business acquired from Bayshore. Justify your answer.

**Commentary on Question:**

*Most candidates answered this part correctly. In order to receive full credit, candidates had to provide a justification for their recommendation. A sample justification is provided below.*

- Group Long-Term Care would need to be reported on its own
- Group Disability would need to be reported on its own
- Comprehensive Major Medical (including Group Dental, Individual Major Medical, Individual Medicare Supplemental, and Bayshore Group Medical) would be combined when reporting

This is the grouping recommended by the Health Reserves Guidance Manual (HRGM).

- (f) Calculate the PDR at the reporting level for Denmain including the business acquired from Bayshore using your recommended grouping from (e). Show your work.

**Commentary on Question:**

*Some candidates received full credit for this part, but many made various mathematical or grouping errors.*

	Projected Underwriting Cash Flows by Year (\$000)					PDR
All Comprehensive Major Medical	\$13 - \$9 - \$22 + \$4 = (\$14)	\$10 - \$7 + \$0 - \$6 = (\$3)	\$9 - \$5 + \$15 + \$1 = \$20	\$6 - \$4 = \$2	\$5 + \$0 = \$5	\$17

All Comprehensive Major Medical = Group Dental + Individual Medicare Supplement + Individual Major Medical + Bayshore Group Medical

Reporting Grouping	PDR
Group Disability	\$14
Group Long-Term Care	\$0
All Comprehensive MM	\$17
<b>Total</b>	<b>\$31</b>

- (g) Recommend a method to allocate the PDRs from (f) by product for internal reporting purposes. Justify your answer.

**Commentary on Question:**

*Many candidates answered this part correctly. To receive full credit, candidates had to provide a justification for their recommendation. Credit may be earned for other reasonable recommendations.*

Recommend allocating the resulting PDR for reporting purposes based on earned premium. This would be a good approximation of the relative size of the groupings.

- (h) Calculate the PDR at the reporting level for each product using the method recommended in part (g). Show your work.

**Commentary on Question:**

*Generally, if candidates answered part (g) correctly, the calculations done for this part were correct. Other calculations may receive credit based on the recommendations given in part (g).*

Product	Grouping	Earned Premium	% of grouping	Grouping PDR	Product PDR
Group Disability	Disability		100.0%	\$14	\$14.0
Group Long-Term Care	LTC		100.0%	\$0	\$0.0
Group Dental	Comp MM	\$300	23.8%	\$17	\$4.0
Individual Medicare Supplement	Comp MM	\$472	37.4%	\$17	\$6.4
Individual Major Medical	Comp MM	\$47	3.7%	\$17	\$0.6
Bayshore Group Medical	Comp MM	\$443	35.1%	\$17	\$6.0
Total		\$1,262			

Product PDR = Grouping PDR \* % of grouping

## GH FVA Fall 2021 #3.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1a) Describe the types of claim reserves.
- (1b) Explain the limitations and biases of the traditional valuation methods.
- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.

### Sources:

GH201-100-25: Health Reserves

### Commentary on Question:

*Successful candidates summarized the authorization data on an incurred basis and utilized other information appropriately to calculate the reserve. Additionally, successful candidates justified their ways to add conservatism instead of simply providing a list.*

### Solution:

- (a) Calculate the total estimated inpatient Incurred But Not Reported (IBNR) reserve as of the end of the year. Show your work.

### Commentary on Question:

*Many candidates summarized the authorization data appropriately, but some ignored the data, summarized incorrectly, or did not summarize on an incurred basis. Some candidates had trouble applying completion, seasonality, and/or credibility correctly. Most candidates understood that the IBNR was calculated as incurred minus paid. Partial credit was given where appropriate.*

Summarize authorizations on an incurred basis using a combination of month and sum-if functions, using a pivot table, or using appropriate sorting. The 'Authorized Days' column below shows the correct amounts.

The following table outlines the remainder of the calculation:

Incurring Month	Authorized Days	Completion	Lag-					Credibilit y	Blended Cost/Day	Incurring Claims (000s)	Incurring & Paid (000s)	Estimate d IBNP (000s)
			Incurring Days	Contract Cost/Day	Based Cost/Day							
	a	b	c = a/b	d	e	f	g = e*f + d*(1-f)	h = c*g/1,000	i	j = h - i		
1	948	0.9700	977	\$1,100	\$930	100%	\$930	\$909	\$909	(\$0)		
2	1,048	0.9700	1,080	\$1,100	\$1,012	100%	\$1,012	\$1,093	\$1,093	\$0		
3	1,080	0.9700	1,113	\$1,100	\$1,068	100%	\$1,068	\$1,189	\$1,165	\$24		
4	1,061	0.9700	1,094	\$1,100	\$1,083	100%	\$1,083	\$1,185	\$1,137	\$48		
5	1,088	0.9700	1,122	\$1,100	\$1,042	100%	\$1,042	\$1,169	\$1,099	\$70		
6	1,002	0.9700	1,033	\$1,100	\$1,026	100%	\$1,026	\$1,060	\$975	\$85		
7	1,274	0.9700	1,313	\$1,100	\$939	100%	\$939	\$1,233	\$1,110	\$123		
8	1,187	0.9700	1,224	\$1,100	\$1,081	100%	\$1,081	\$1,323	\$1,164	\$159		
9	1,088	0.9700	1,122	\$1,100	\$969	100%	\$969	\$1,087	\$935	\$152		
10	880	0.9500	926	\$1,100	\$1,153	100%	\$1,153	\$1,068	\$897	\$171		
11	811	0.9000	901	\$1,155	\$1,046	90%	\$1,057	\$952	\$781	\$171		
12	864	0.8500	1,016	\$1,045	\$942	80%	\$963	\$978	\$774	\$204		
Total							Totals			\$1,207		

- (b) Describe issues with using authorization reports when estimating an IBNR reserve.

**Commentary on Question:**

Most candidates received credit for generally noting that data quality may be an issue. Candidates may earn credit for other reasonable responses not listed.

- 1) Not all days that are authorized happen so you may need to adjust for differences
- 2) Not all days that happen are authorized so you may need to adjust for differences
- 3) COB may result in actual days being less than authorized
- 4) Appeals may be why actual days are more than authorized

- (c) Explain four different ways to add conservatism when using authorized days to estimate your IBNR reserve in (a). Justify your answer.

**Commentary on Question:**

Many candidates successfully listed ways to add conservatism. Some candidates struggled to justify their answers. Candidates may earn credit for other reasonable responses not listed.

- 1) Combine this data with data from another block of business with similar payment patterns to increase data credibility
- 2) Add conservatism to the cost per day to compensate for the variance in costs caused by combining more than one type of plans as the contractual provisions, benefit structures, and other dynamics of the plans being grouped may differ

- 3) Be conservative in selecting credibility assumed of lag data to provide implicit margin for variability in patterns
- 4) Be conservative in selecting completion factors used in lag approach to provide implicit margin for variability in patterns

## GH FVA Fall 2021 #5.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1g) Apply applicable best practices related to reserving.

### Sources:

GH201-100-25 Health Reserves

ASOP # 5

ASOP # 23

ASOP # 41

### Commentary on Question:

*Candidates had a difficult time with making correct calculations. Challenges include the correct length of lag durations and the claims data to be used for the calculation. Since this is the last question, some candidates may have experienced a challenge with limited time.*

### Solution:

- (a) Calculate the incurred but not reported (IBNR) reserve as of September 30, Year 4. Show your work.

	(A)	(B)	(C) = (A) - (B)		(D)	(E)	(F) = (C) / (E)	(G) = (F) - (C)	
Incurred Date	Paid Through Dec	Paid 4th qtr Year 4	Paid thru Sep Year 4		Sep-Year 3	Cumulative	CF	Calculate Ultimate	Reserve
	\$1,871,000						100%		
Sep-Year 3	\$2,298,000						100%		
Oct-Year 3	\$2,185,000	\$0	\$2,185,000	Lag 12	\$2,298,000	100.0%	\$2,185,000	\$0	
Nov-Year 3	\$2,436,000	\$4,000	\$2,432,000	Lag 11	\$2,293,000	99.8%	\$2,437,303	\$5,303	
Dec-Year 3	\$1,782,000	\$13,000	\$1,769,000	Lag 10	\$2,289,000	99.6%	\$1,775,955	\$6,955	
Jan-Year 4	\$1,888,000	\$16,000	\$1,872,000	Lag 9	\$2,286,000	99.5%	\$1,881,827	\$9,827	
Feb-Year 4	\$1,131,000	\$15,000	\$1,116,000	Lag 8	\$2,277,000	99.1%	\$1,126,292	\$10,292	
Mar-Year 4	\$1,629,000	\$42,000	\$1,587,000	Lag 7	\$2,263,000	98.5%	\$1,611,545	\$24,545	
Apr-Year 4	\$1,252,000	\$76,000	\$1,176,000	Lag 6	\$2,229,000	97.0%	\$1,212,404	\$36,404	
May-Year 4	\$1,489,000	\$64,000	\$1,425,000	Lag 5	\$2,196,000	95.6%	\$1,491,189	\$66,189	
Jun-Year 4	\$1,321,000	\$342,000	\$979,000	Lag 4	\$2,122,000	92.3%	\$1,060,199	\$81,199	
Jul-Year 4	\$1,166,000	\$399,000	\$767,000	Lag 3	\$1,784,000	77.6%	\$987,985	\$220,985	
Aug-Year 4	\$1,230,000	\$737,000	\$493,000	Lag 2	\$819,000	35.6%	NA		
Sep-Year 4	\$1,400,000	\$1,327,000	\$73,000	Lag 1	\$56,000	2.4%	NA		

$$\text{PMPM (Aug-Year3)} = \$1,871,000 / 11,700 = \$159.91$$

$$\text{PMPM (Sep-Year3)} = \$2,298,000 / 11,400 = \$201.58$$

$PMPM (\text{Aug-Year4}) = \$159.91 * 1.07 = \$171.11$   
 $\text{Projected Claims (Aug-Year4)} = \$171.11 * 11,900 = \$2,036,192$   
 $\text{Reserve (Aug-Year4)} = \$2,036,192 - \$493,000 = \$1,543,192$

$PMPM (\text{Sep-Year4}) = \$201.58 * 1.07 = \$215.69$   
 $\text{Projected Claims (Sep-Year4)} = \$215.69 * 12,100 = \$2,609,843$   
 $\text{Reserve (Aug-Year 4)} = \$2,609,843 - \$73,000 = \$2,536,843$

$\text{Total Reserve} = \sum(\text{Column G}) + \$1,543,192 + \$2,536,843 = \$4,541,734$

- (b) Calculate the difference between the original reserve and the revised reserve from the run-out study. Show your work

		(H)	(I)	(J) = (A) / (E)	(K) = (J) - (H)	(L)	(M) = (K) + (L)	(N) = (G)
		Paid Thru	Lag factors	Revised	Reserve as	4th Qtr	Run-out	Original
		Dec - Year 4	from part a	Ultimate	of 12/31/Year 4	Payments	Reserve	Reserve
Lag 17	Aug-Year 3	\$1,871,000	100.0%					
Lag 16	Sep-Year 3	\$2,298,000	100.0%					
Lag 15	Oct-Year 3	\$2,185,000	100.0%	\$2,185,000	\$0	\$0	\$0	\$0
Lag 14	Nov-Year 3	\$2,436,000	100.0%	\$2,436,000	\$0	\$4,000	\$4,000	\$5,303
Lag 13	Dec-Year 3	\$1,782,000	100.0%	\$1,782,000	\$0	\$13,000	\$13,000	\$6,955
Lag 12	Jan-Year 4	\$1,888,000	100.0%	\$1,888,000	\$0	\$16,000	\$16,000	\$9,827
Lag 11	Feb-Year 4	\$1,131,000	99.8%	\$1,133,466	\$2,466	\$15,000	\$17,466	\$10,292
Lag 10	Mar-Year 4	\$1,629,000	99.6%	\$1,635,405	\$6,405	\$42,000	\$48,405	\$24,545
Lag 9	Apr-Year 4	\$1,252,000	99.5%	\$1,258,572	\$6,572	\$76,000	\$82,572	\$36,404
Lag 8	May-Year 4	\$1,489,000	99.1%	\$1,502,733	\$13,733	\$64,000	\$77,733	\$66,189
Lag 7	Jun-Year 4	\$1,321,000	98.5%	\$1,341,431	\$20,431	\$342,000	\$362,431	\$81,199
Lag 6	Jul-Year 4	\$1,166,000	97.0%	\$1,202,094	\$36,094	\$399,000	\$435,094	\$220,985
Lag 5	Aug-Year 4	\$1,230,000	95.6%	\$1,287,131	\$57,131	\$737,000	\$794,131	\$1,543,192
Lag 4	Sep-Year 4	\$1,400,000	92.3%	\$1,516,117	\$116,117	\$1,327,000	\$1,443,117	\$2,536,843

$\text{Total Original Reserve} = \sum(\text{Column N}) = \$4,541,734$  (from part a)

$\text{Total Revised Reserve} = \sum(\text{Column M}) = \$3,293,949$

$\text{Difference} = \$4,541,734 - \$3,293,949 = \$1,247,785$

- (c) List considerations of Actuarial Standard of Practice #5 that can be used in estimating incurred claims.

**Commentary on Question:**

*There was some confusion on what ASOP 5 represents.*

Considerations include:

- Health Benefit Plan Provisions and Business Practices
- Economic and other External influences
- Behavior of Claimants
- Organizational Claims Administration
- Claim Seasonality
- Credibility

- Risk Characteristics and Organizational Practices by Line of Business
- Legislative Requirements
- Carve-Outs
- Special Considerations for Long-term Products (not applicable for health insurance)

# GH FVC Spring 2022 #1.

## Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

## Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1g) Apply applicable best practices related to reserving.

## Sources:

Actuarial Standard of Practice No. 23

GH201-100-25 Health Reserves.pdf

## Commentary on Question:

*Commentary listed underneath question component.*

## Solution:

- ~~(a) Describe the considerations regarding the quality of data to be used for reserving according to Actuarial Standard of Practice No. 23.~~

### ~~Commentary on Question:~~

~~To receive full credit, candidates needed to make at least one statement describing data quality related to reserving. Credit was awarded for descriptions not identified in the list below. Most candidates described several considerations relating generally to data quality but nothing specific to reserving, and therefore only received partial credit. No credit was given for responses that only listed key terms.~~

- ~~• Actuaries should use data that is appropriate to the work being performed.~~
- ~~• The data should be reviewed for general reasonableness and consistency, but the review does not need to be an audit.~~
- ~~• The actuary should disclose any reliance on others who reviewed the data.~~
- ~~• For claims reserves, the review and documentation should address the reconciliation of paid claims against the general ledger. Proper reserve estimates should include some attempt to account for all paid claims related to a line of business.~~

- (b) Describe the considerations when setting initial lag factors for the age-to-age development method.

**Commentary on Question:**

*Candidates did not perform well on this question. Many candidates listed general considerations for using the development method, and not specifically for setting the initial lag factor. Some candidates received partial credit for generally describing the twofold test.*

- In a simple model, pick the duration at which all claims are expected to be complete and set at 1.000 (fully complete). Divide age-to-age development backward to get completion factors.
- It is possible to set the last lag factor to something less than 1.000 if residual claims may still develop.
- Consider whether completion factors can be set greater than 1.000. This means that we expect to have a negative liability, and the expected runout will be recoveries.
- The test for setting completion factors greater than 1.000 is twofold:
  - Consider whether the pattern is consistent historically.
  - Consider whether there are any changes in business practices or provider contracts to suggest the pattern will continue going forward

- (c) Calculate the IBNR estimate as of 12/31/2021. Show your work.

**Commentary on Question:**

*For the months using the development method, most candidates received partial credit for setting up the reserve calculation correctly even if they did not calculate the smoothed six-month average lag factor or completion factors correctly. A common mistake was to use an earlier time period to calculate the six-month average factors, instead of the most recent months, or to set lag 11 at 1.0 instead of lag 12 when determining the completion factor.*

*For the month using the projection method, few candidates received full credit because most did not trend the PMPM correctly. Several candidates did not use the correct experience period to determine the PMPM or used the sum of the entire triangle instead of the ultimate value. However, most candidates received at least partial credit for calculating a PMPM and applying it correctly in the reserve calculation.*

*Candidates also received points for appropriately identifying which months should use the projection method instead of the development method based on their completion factors, even if those factors were not correct.*

To calculate the IBNR, candidates had to perform the following steps:

- Step 1: Calculate the age-to-age development factors by dividing the adjacent cells in the claims triangle.

Incurred Month	Month Lag												
	0	1	2	3	4	5	6	7	8	9	10	11	12
June-20	23.51	1.46	1.05	1.02	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
July-20	30.27	1.29	1.08	1.08	1.02	1.01	1.00	1.00	1.01	1.00	1.00	1.00	1.00
August-20	9.28	1.40	1.06	1.03	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
September-20	47.12	1.13	1.04	1.02	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
October-20	5.75	1.44	1.12	1.03	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
November-20	22.29	1.30	1.03	1.01	1.01	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00
December-20	14.91	1.21	1.04	1.05	1.01	1.04	1.00	1.00	1.01	1.01	1.00	1.00	1.00
January-21	10.90	1.50	1.07	1.05	1.03	1.00	1.01	1.01	1.01	1.01	1.00	1.00	
February-21	15.82	1.57	1.09	1.02	1.02	1.00	1.01	1.00	1.00	1.00	1.00		
March-21	9.23	1.48	1.03	1.01	1.03	1.01	1.00	1.00	1.00				
April-21	20.73	1.28	1.03	1.06	1.01	1.00	1.01	1.00					
May-21	17.03	1.20	1.07	1.02	1.01	1.01	1.01	1.00					
June-21	16.51	1.59	1.03	1.01	1.00	1.00							
July-21	23.11	1.25	1.11	1.02	1.01								
August-21	14.52	1.37	1.04	1.08									
September-21	11.23	1.14	1.07										
October-21	4.83	1.69											
November-21	21.94												
December-21													

- Step 2: Calculate the smoothed age-to-age factors by averaging the most recent 6 months of data.
- Step 3: Calculate the completion factors (CF). Since the problem states that all claims are complete after 12 months, set the CF for lag month 12 at 1.00. Then calculate the lag month 11 CF by dividing the lag month 12 CF by month 11 lag factor.
- Step 4: Identify months with <30% completion, which need to use the projection method to estimate reserves.

Lag Month	0	1	2	3	4	5	6	7	8	9	10	11	12
Lag Factor (6 Mo Avg)	15.356	1.374	1.057	1.031	1.014	1.005	1.005	1.003	1.002	1.003	1.001	1.001	1.000
Completion Factor	4.2%	64.5%	88.7%	93.8%	96.7%	98.1%	98.6%	99.1%	99.4%	99.6%	99.9%	99.9%	100.0%
Projection Method Required?	Yes	No											

- Step 5: Calculate the trended PMPM to use for the projection method. Start by using 1/2019-12/2020 experience to calculate a PMPM. Then trend the PMPM for 23.5 months (trending mid-point of experience period to mid-point of reserve estimate month; i.e., 1/1/2020 to 12/15/2021).

2019-2020 Claims	\$42,872,648
2019-2020 Members	276,327
<b>PMPM</b>	<b>\$155.15</b>
Trend at 10% for 23.5 months	
<b>Trended PMPM</b>	<b>\$186.99</b>

- Step 6: Calculate reserves using the appropriate method for each month.
  - For months that are at least 30% complete, divide the claims paid to date by the completion factor to determine the incurred claims.
  - For months that are less than 30% complete, multiply the trended PMPM by the membership to determine the incurred claims.
  - Subtract the claims paid to date from the incurred claims to determine the IBNR.

Incurred Month	Members	Claims Paid to Date	Months that are 30% or more complete			Months that are less than 30% complete		Selected Method	
			Lag Month	Completion Factor	Incurred Claims	Trended PMPM	Incurred Claims	Incurred Claims	IBNR
January-21	12,227	\$2,548,319	11	99.9%	\$2,549,802			\$2,549,802	\$1,482
February-21	12,201	\$2,187,520	10	99.9%	\$2,190,341			\$2,190,341	\$2,821
March-21	12,130	\$2,361,225	9	99.6%	\$2,370,435			\$2,370,435	\$9,209
April-21	11,986	\$2,237,437	8	99.4%	\$2,251,387			\$2,251,387	\$13,950
May-21	11,927	\$2,385,024	7	99.1%	\$2,406,479			\$2,406,479	\$21,455
June-21	11,814	\$2,196,919	6	98.6%	\$2,228,197			\$2,228,197	\$31,278
July-21	11,787	\$2,502,042	5	98.1%	\$2,550,951			\$2,550,951	\$48,909
August-21	11,689	\$2,466,086	4	96.7%	\$2,550,060			\$2,550,060	\$83,974
September-21	11,731	\$2,688,921	3	93.8%	\$2,867,962			\$2,867,962	\$179,041
October-21	11,843	\$2,193,388	2	88.7%	\$2,473,189			\$2,473,189	\$279,802
November-21	11,902	\$1,283,817	1	64.5%	\$1,989,471			\$1,989,471	\$705,654
December-21	11,844	\$96,378	0	4.2%		\$186.99	\$2,214,706	\$2,214,706	\$2,118,328
<b>Total IBNR as of December 2021</b>									<b>\$3,495,902</b>

## GH FVC Spring 2022 #2.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1a) Describe the types of claim reserves.
- (1c) Calculate appropriate claim reserves given data.

### Sources:

Skwire, Group Insurance, 8<sup>th</sup> Edition, Ch. 39 and 40

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) —
- (i) — Critique the accuracy of your direct report's calculated pending reserve using your own estimate from the continuance table provided. Show your work.

Claim Duration (months)	Age 40 at Claim
0	1000
1	960
2	920
3	880
4	845
5	815
6	790
7	765
8	745
9	725
10	0

You receive a follow-up email from your direct report.

*Hi, it turns out I had it backwards on when we were informed of the claim. Rather than one month after the end of the elimination period, it's supposed to be one month before the end of the elimination period. Sorry about that!*

- (ii) — Evaluate how the pending reserves may change based on the follow-up email.

**Commentary on Question:**

*Part (i) was very well answered by most candidates. Where most candidates went wrong, they didn't assume payments occurred mid point. Points were still provided if their assumptions for beginning or end of month were clearly stated. Some candidates forgot to provide critique on the analyst's results after performing the calculations. Some candidates did not properly use the continuance factors at time 4, but rather another time period. Some candidates confused the pending reserve with the tabular reserves.*

*For Part (ii), most candidates had a good understanding as to the impact this change would have on the pending reserve. Some candidates provided contradictory statements without explicitly stating the impact on the pending reserve.*

SOLUTION							
(i)	First, calculate tabular reserve						
Claim Duration (months)	Age 40 at Claim	Midpoint	Number of Months	Discounting Factor	Payment	Reserve by Duration	
0	1000						
1	960						
2	920						
3	880						
4	845						
5	815	830.0	-0.0417	0.9984	\$1,000	\$980.64	
6	790	802.5	-0.1250	0.9951	\$1,000	\$945.06	
7	765	777.5	-0.2083	0.9919	\$1,000	\$912.63	
8	745	755.0	-0.2917	0.9886	\$1,000	\$883.33	
9	725	735.0	-0.3750	0.9854	\$1,000	\$857.12	
10	0						
Total Tabular Reserve =						\$4,578.79	
Discount Factor	60%						
Accumulated Benefit	\$1,000						
Pending Reserve	\$3,347.27						
The pending reserve the direct report calculated seems to be too light. The pending reserve should be equal to the tabular reserve plus any benefits already due before we were made aware of the claim.							

~~For pending claims that have completed the elimination period, the claim reserve may be computed as the product of the pending factor and the sum of (a) the tabular reserve at the current claim distribution, and (b) the accumulated value of past claim payments that have not yet been made since the claim is not yet approved.~~

~~For pending claims that are still in the elimination period, the claim reserve may be computed as the product of the pending factor and the tabular claim reserve at the end of the elimination period.~~

~~The correction means that the pending reserve comes down, as there are not yet any accumulated claims to pay out.~~

- (b)
- (i) Describe each consideration listed in the table above.:
  - (ii) Critique the accuracy of each row in the table above.

**Commentary on Question:**

*In general, Part (i) was well answered. Insurance characteristics in particular was not answered very well. In some cases, the descriptions were repetitive and didn't clearly outline the consideration itself.*

In general, Part (ii) was not very well answered. Most candidates thought all considerations impacted both long term and short term reserves, without going into detail or providing support. Some candidates only stated a true/false without supporting arguments. Some candidates only called out what was wrong in the table, without confirming the correct elements of the table.

- (i) FALSE, seasonality is a short term consideration. Claims may increase or decrease significantly at various times of the year.
- (ii) TRUE, internal company practices are a short term consideration. Fluctuating payment patterns can be caused by staffing practices and staffing events (vacations, layoffs, unusual weather), changes in computer systems, and other company specific practices.
- (iii) FALSE, economic conditions are a short term consideration. Recessions will affect claims for elective treatments but cause an increase in incidences and durations of claim where people fear the loss of coverage.
- (iv) TRUE, Claim Expenses are a short term consideration. However, they are also a long term consideration. Short Term – Accounting standards require recognition of a liability for the administrative expenses related to the incurred but not paid claims. Long Term – Insurers must also make provision for the expenses related to the management and payment of claims.

- (v) FALSE, reserve cells are a short term consideration. For medical benefits, reserves for hospital benefits may be estimated separately from those for physician benefits. Can be set up by group size, by medically underwritten vs guaranteed issue, by over 65 vs under 65, by deductible size, by network, or by region.
  - (vi) TRUE, policy provisions are both short term and long term considerations. Short Term – The types of benefits, utilization incentives, or disincentives, claim sizes in general, and other policy provisions, can dramatically affect the pattern of claim payments. One must consider the frequency of claim payment, as well as the severity of claims. Long Term – Inclusions such as COLA, Partial and Residual Benefits, Survivor Benefits, Benefit Integration, Benefit Limitation, Waiver of Premium, Non-Level Daily Benefits.
  - (vii) FALSE, data integrity is both short term and long term consideration. Unlike the aggregate reserves computed for short-term health benefits, tabular reserves for long-term benefits are heavily dependent on the underlying seriatim claim data. Regular audits should be performed.
  - (viii) FALSE, insurance characteristics are a short term consideration. In general, new plans will typically have long lags initially, but will typically become shorter after the initial period after issue has passed. Severity of claims may also impact lag.
- (c) ~~List and describe considerations of short term and long term reserves not identified above.~~

**~~Commentary on Question:~~**

~~Several candidates provided a list of considerations without describing. Several candidates restated considerations that were outlined in the earlier question, without providing new considerations. Very few candidates answered this portion strongly. Additional credit was awarded for relevant answers not identified in the list below.~~

~~Short Term Considerations~~

- ~~• Controls and Reconciliation – Ensure the data being used by the actuary reconciles and is consistent with the data and reporting practices used by the accounting department.~~
- ~~• External Influences – Environmental influences like epidemics, governmental mandates, new laws.~~

### Long Term Considerations

- ~~Morbidity Assumptions~~—The determination of the appropriate morbidity basis (continuance table) depends on the type of benefit being reserved, and on the purpose for which the reserves are being computed.
- ~~Interest Rates~~—Rates for statutory reserves are generally specified by law. Rates for GAAP reserves are generally equal to a company's expected investment income rate on the assets backing its claim reserves.

## GH FVC Spring 2022 #4.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1d) Describe, calculate, and evaluate the impact of environmental factors on reserve calculations (trend, seasonality, claim processing changes, etc.)
- (1f) Describe, calculate, and evaluate non-IBNR types of reserves and explain when each is required

### Sources:

GH201-100-25-Health Reserves

Individual Health Chapter 6

### Commentary on Question:

*Many candidates did quite well in identifying ways to incorporate conservatism into IBNR reserves but needed to better apply knowledge correctly to the scenario provided.*

### Solution:

- (a) Describe three different ways to incorporate conservatism into Incurred But Not Reported (IBNR) estimates.

### Commentary on Question:

*Candidates generally did well on this part of the question. Additional credit may be earned for relevant descriptions not identified in the list below.*

- Implicit Conservatism
  - Apply actuarial judgement within the IBNR calculation to reflect higher than normal claim costs in the most recent months due to the lice outbreak.
- Explicit Conservatism
  - Apply an additional percentage load to the IBNR to account for the additional uncertainty due the lice outbreak. This would be above any normal explicit conservatism that is applied each period.
- Case Reserve
  - Establish a fixed dollar amount reserve outside the normal IBNR which is calculated by taking the number of expected incurred lice claims times the average amount paid minus the claims paid to date.

- (b) ~~Recommend which method from (a) FIC should use for the ACA business. Justify your answer.~~

**Commentary on Question:**

~~Candidates generally did well in selecting a method for incorporating conservatism and justifying why. Additional credit may be awarded for recommendations not identified in the list below.~~

~~A Case Reserve should be used since it can be established outside the normal IBNR process and easily tracked and explained to regulators and auditors. I would recommend that this case reserve be calculated as [number of members < 18] x [infection rate assumption] x [avg claim cost]. FIC can quantify the number of its current members who are less than 18 years old, and historical industry trend (or other credible resources) could be used to help set the infection rate as the average claim cost.~~

- (c) Calculate the Premium Deficiency Reserve (PDR) that should be recorded at 12/31/Year 2. Show your work.

**Commentary on Question:**

*Many candidates failed to annualize numbers or incorporate salaries into the calculation.*

PDR for 12/31/2021 is based on the 2022 forecast

$$\text{PDR} = \text{Claims} + \text{Expenses} - \text{Premium}$$

$$\text{PDR} = [\text{Claims PMPM}] * \text{Members} * 12 + [\text{Marketing Expense PMPM}] * \text{Members} * 12 + [\text{Claims Department PMPM}] * \text{Members} * 12 + \text{Salaries} - [\text{Premium PMPM}] * \text{Members} * 12$$

$$\begin{aligned} \text{PDR} &= \$513 * 215,000 * 12 + \$52 * 215,000 * 12 + \$26 * 215,000 * 12 + \$67,080,000 \\ &\quad - \$626 * 215,000 * 12 \\ &= (\$23,220,000) \end{aligned}$$

A PDR less than 0 means no PDR is needed.

$$\text{Recorded PDR at 12/31/2021} = \$0$$

~~(d) Recommend any conservatism FIC needs to include in each of the following reserves for the Accident business because of the lice outbreak. Justify your answer.~~

~~(i) IBNR~~

~~(ii) Contract Reserves~~

**~~Commentary on Question:~~**

~~Many candidates identified that a lice outbreak would not affect accident claims and that employees working from home would also reduce accidents. Very few candidates correctly identified the underlying GAAP Accounting rules applicable to Contract Reserves. Additional credit may be awarded for relevant items not identified in the list below.~~

~~(i)~~

- ~~• The lice outbreak is not very likely to impact accident claims since accident benefits typically do not relate to medical conditions like lice.~~
- ~~• Because parents are transitioning to working from home, FIC's claims department might be experiencing a slowdown of claims processing.~~

~~(ii)~~

- ~~• Under GAAP accounting, assumptions used for Contract Reserves (e.g. ALR) are 'locked-in' at issue and cannot be changed unless a loss event occurs. The lice outbreak is not going to lead to a higher frequency of Accident claims. Thus, no changes can be made to the ALR assumptions of policies issued in prior year.~~
- ~~• The lice outbreak is likely to be short term in nature whereas the assumptions used in ALR calculations are meant to capture the long term view of future claims.~~

~~(e) Compare and contrast how this outbreak affects the reserves held for the ACA and Accident blocks of business.~~

**~~Commentary on Question:~~**

~~Candidates did better on identifying differences rather than similarities between the reserves under each block of business; however, many individuals were able to identify the impact to both ACA and Accident reserves. Additional credit may be awarded for relevant commentary not identified in the list below.~~

### **Similarities**

- Both ACA and Accident business could be impacted by slow-downs in the claims department (due to parents working from home) and as a result, both blocks could hold an additional pending claims / inventory reserve associated with the IBNR.
- The contract reserves for both the ACA and Accident business would not change. Given the long-term nature of contract reserves, the short-time impact of the lice outbreak would not impact the Accident ALR assumptions. Similarly, given the short-term nature of the ACA contract, contract reserves are typically not held (e.g. ALR = \$0) and that would not change even with a lice outbreak since the outbreak would not change the terms of the ACA contract.

### **Differences**

- The lice outbreak will likely lead to more claims under the ACA business whereas it would not increase accident claims. As a result, the IBNR for the ACA business would increase as a whole whereas the IBNR for Accident business would not be directly impacted.
- The lice outbreak could entice more families to purchase ACA coverage; as a result, the overall size of actuarial balances (like IBNR) would increase due to more members. Because lice are not covered by typical Accident policies, there will not be a similar growth expected in Accident membership or Accident actuarial balances.

## GH FVC Fall 2022 #4.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1d) Describe, calculate, and evaluate the impact of environmental factors on reserve calculations (trend, seasonality, claim processing changes, etc.)

### Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, Chapter 39

ASOP 23: Data Quality (excluding Appendix)

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe considerations associated with establishing reserves for short-term benefits.

### Commentary on Question:

*Part (a) was large a recitation of a list from Chapter 39 of Group Insurance. Most candidates did moderately well on this part with very few candidates receiving either the full score or no points. Only responses with descriptions were awarded points. Candidates were awarded additional points for relevant responses beyond those listed below.*

- Incurral dating method – some methods incur for claims as they occur and some incur for claims in the future
- Reserve basis – for STAT, GAAP, and Tax use different margin, methods, interest, and continuance tables
- Internal considerations – such as internal staffing or computer system changes
- External considerations – such as epidemics, new government laws
- Economic – such as pent up demand after a recession for discretionary services
- Reserve cells – separate estimation for claims exhibiting different claim cost, frequency, or severity
- Controls and reconciliation – review and confirm the data underlying the analysis
- Claim seasonality – adjust for the impact of seasonality

- (b) Describe considerations for setting reserves for BigCo on March 31, 2021.

**Commentary on Question:**

*Part (b) asked candidates to apply the list from Part (a) in a specific situation. Candidates generally recognized that Covid was an event that needed to be addressed and most candidates recognized that either you need to adjust for changes in incurred costs or in completion factors. Candidates were awarded additional points for relevant responses beyond those listed below.*

- Since no claims were incurred in April and May we would not want to include those two months in any averaging.
- There is likely some built up demand in the months that followed. That will cause reserves needing to be higher.
- Because of deferred care, health claims in the following months might be higher.
- Due to the economic impact of covid-19, individuals may not have the finances to pay for dental services and forgo their visit. Saves money now, but likely has a bigger impact down the road.

- (c) Calculate the IBNR reserve as of March 31, 2021 using the age-to-ultimate development method. Show your work.

**Commentary on Question:**

*Many candidates received full credit on this part. Common errors included either including January 2020 and February 2020 incurrals in data to develop the completion factor when the payment pattern has clearly changed or basing the completion factors entirely on January 2020 and February 2020 data. Although the answer below uses a link-ratio method, full credit was also given to candidates who based completion factors only on incurred months that were fully complete.*

Note for the prior 8 months, claims have been complete at month 4.

Data prior to August 2020 is not used due to the impact of the COVID 19 pandemic on claims.

Average Incurred Month	Paid to Paid factor				Calculated Age to Ultimate
	1	2	3	4	
6/1/2020	2.0606061	1.135294	1.0284974	1	3 1
7/1/2020	1.9462366	1.176796	1.0211268	1	2 0.980848
8/1/2020	1.8638743	1.16573	1.0289157	1	1 0.839418
9/1/2020	1.9798995	1.139594	1.0200445	1	0 0.426312
10/1/2020	2.035	1.159705	1.0105932	1	
11/1/2020	1.9851485	1.169576	1.0170576	1	
12/1/2020	1.9767442	1.126471	1.0104439		
1/1/2021	1.8291457	1.274725			
2/1/2021	2.0445545				
3/1/2021					

	Inc. and Pd	Age to Ult.	Incurred.	IBNR
12/1/2020	387	1	387	0
1/1/2021	464	0.980848	473	9
2/1/2021	413	0.839418	492	79
3/1/2021	194	0.426312	455	261

**Total 349**

- (d) Evaluate the reasonableness of the reserve from (c) using membership and premium data. Show your work and justify your answer.

**Commentary on Question:**

*This part was looking for the candidate to do a comparison of both implied PMPMs and implied loss ratios based on the monthly incurred claims calculated in the prior question. Many candidates only performed one of the tests.*

Average PMPM for complete data after pandemic:	17.07	June 2020-November 2020
Average LR for complete data after pandemic:	71%	June 2020-November 2020

Implied Incurred for Incomplete Months

	PMPM	Ratio	Loss
1/1/2021	17.22		72.0%
2/1/2021	19.59		81.8%
3/1/2021	17.93		74.3%
Average	18.22		75.9%

The PMPM and loss ratio is reasonably aligned with historical average.

**Therefore, the reserve appears reasonable.**

- ~~(e) —~~
- ~~(i) — Assess the level of compliance for each listed consideration. Justify your answer.~~
- ~~(ii) — Recommend improvements to BigCo for each deficient consideration.~~

**Commentary on Question:**

*Part (e) (i) asked the candidate to apply ASOP 23 to the specific situations described. Most candidates scored some points on the question but few candidates received a full score. Part (e) (ii) asked the candidate to recommend improvements for deficient considerations. The primary improvements to be identified were performing a review of the data and looking for additional data to give some perspective on things such as possible seasonality and whether the slow payment patterns for January 2020 and February 2020 were related to processing issues resulting from Covid shutdowns.*

<ul style="list-style-type: none"> <li>• Selection of Data <ul style="list-style-type: none"> <li>i. Mostly compliant. Given that the data looks complete for the analysis it is the right data, but there is some concern for the lack of data during the closure.</li> <li>ii. Identify other sources that may help fill in the gap -- potentially historical data for the client or other industry data</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Review of Data <ul style="list-style-type: none"> <li>i. Deficient. The client explicitly indicates no review has been conducted. A review is necessary given the gaps in the data and further analysis will be required.</li> <li>ii. Review with the client if the lags after the office closure are expected to return to the lags experienced prior to the office closure.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Use of Data <ul style="list-style-type: none"> <li>i. Mostly compliant. The data is appropriate for the calculation requested. However, there are issues within the data that must be understood, or it could limit the analysis.</li> <li>ii. Validate data to ensure a higher level of appropriateness to complete the reserve calculation.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Reliance on Data Supplied by Others <ul style="list-style-type: none"> <li>i. Possibly deficient. Much is not known about the data source.</li> <li>ii. Review the data provided with the client to better understand how the information ties out with the general ledger and reconcile to other sources. Disclose any reliance of the claims data.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Reliance on Other Information Relevant to the Use of Data <ul style="list-style-type: none"> <li>i. Possibly deficient. The client did not provide any contract or plan/benefit details, which may be relevant to the reserve calculation. The loss ratio appears to have improved since the pandemic, perhaps caused by a change in benefits.</li> <li>ii. Review with the client if the contract provisions and plan details changed once the pandemic began, or why the client believes the change in loss ratio occurred.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Confidentiality <ul style="list-style-type: none"> <li>i. Compliant, to the extent CACC properly protects the information.</li> <li>ii. No improvement required</li> </ul> </li> </ul>

# GH VRC Spring 2023 #1.

## Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

## Learning Outcomes:

- (1a) Describe the types of claim reserves.
- (1b) Explain the limitations and biases of the traditional valuation methods.
- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.

## Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, 2021

- Ch. 39: Claim Reserves for Short-Term Benefits
- Ch. 40: Claim Reserves for Long-Term Benefits

GH201-100-25: Health Reserves

## Commentary on Question:

*Generally, candidates performed well on this question, especially the first three sections.*

## Solution:

- (a) List and describe the types of claim reserves and claim liabilities required in regulatory statements.

## Commentary on Question:

*Candidates generally performed very well on this question. Some candidates listed other types of reserves, but were generally able to get part marks if these reserves contained concepts related to claim reserves or liabilities.*

Points were awarded based on providing the list and describing each type of reserve, up to the maximum points allocated for the question.

<b>Due and unpaid (D&amp;U)</b>
Liabilities for claims that have been reported, adjudicated and processed but final payment has not been recorded as of the valuation date. D&U are typically fairly small in relation to overall reserves. They may be estimated using historical averages.
<b>In Course of Settlement (ICOS)</b>
Liabilities for claims reported, received but not yet adjudicated or paid as of the valuation date.
<b>Incurring but not reported (IBNR)</b>
Liabilities for claims that are anticipated but have not been reported as of the valuation date. This is typically a very large accrual for health insurance. A wide range of estimation techniques can be applied to estimate this liability.
<b>Loss Adjustment Expenses (LAE)</b>
Liabilities for the administrative costs associated with the adjudication of unpaid claims. Usually developed as a percentage of the unpaid claims liability.
<b>Present value of amounts not yet due, or Unaccrued</b>
This reserve covers claims that were incurred on or before the valuation date which have not accrued as of the valuation date. These are most commonly done on a seriatim basis.
<b>Resisted Claims</b>
May vary from carrier to carrier, however, generally include claims for which known litigation situation exists
<b>Outstanding Accounting Feed</b>
Amounts acknowledged as payments, but for which no check has been cut as at the valuation date. Overlaps with Due and Unpaid definitions
<b>Other extended benefits</b>
May include deferred maternity benefits where claim payments after the valuation date are known but not yet due.

- (b)
  - (iii) List and describe basic techniques to estimate claim reserves.
  - (iv) Recommend reserve methods for each of XYZ's products. Justify your answer.

**Commentary on Question:**

*Generally candidates performed well on this part.*

<b>Factor method</b>
<ul style="list-style-type: none"> <li>This method is generally used for reserves that are easily estimated due to a short lag or run off period.</li> </ul>
<b>Lag method (or development method)</b>
This method assumes the historical lag pattern can predict the payment patterns for claims that have been incurred but not yet paid. The method provides an estimate of the ultimate aggregate fully incurred payment for all claims in a time period.
<b>Tabular method</b>
For products such as group long term disability (LTD) insurance, where benefits can be paid for many years on a single claim, industry practice and regulatory standards require the use of a tabular method to compute reserves.
<b>Average Size Claim method</b>
The claim reserve for reported claims is estimated by reviewing claim sizes for previously closed claims. The total reported reserve is then calculated as the estimated average size multiplied by the number of reported claims, less any payments made on these claims prior to the valuation date.
<b>Loss Ratio method</b>
The reserve under this method is based on earned premium times an estimated loss ratio minus paid claims.
<b>Projection Methods</b>
<ol style="list-style-type: none"> <li>Develop projected incurred claims cost per unit of exposure.</li> <li>Multiply this value times the exposure base for each period being estimated.</li> <li>Subtract known paid claims.</li> </ol> <p>Can assume the claims cost used in pricing as an estimate.</p>
<b>Examiner's method or Case reserves</b>
Generally, these estimates are based on doctors' statements and past history for such claims. This method is often used to estimate the liability arising from claims subject to lawsuits. In that case, the legal department should be involved in the process.

<b>Life</b>
<ul style="list-style-type: none"> <li>Factor method is appropriate given the company has sufficient historical experience to establish a credible factor</li> <li>Waiver of Premium reserves can leverage the Tabular method</li> </ul>
<b>AD&amp;D</b>
<ul style="list-style-type: none"> <li>Given the relatively minimal historic experience, the Loss Ratio method would be most suitable</li> </ul>
<b>STD</b>
<ul style="list-style-type: none"> <li>Given the relatively minimal historic experience, the Loss Ratio method would be most suitable</li> </ul>
<b>LTD</b>
<ul style="list-style-type: none"> <li>The Tabular method is best suited for long term reserves associated with Long Term Disability</li> </ul>
<b>Supplemental Health Plan</b>
<ul style="list-style-type: none"> <li>Given the relatively minimal historic experience, the Loss Ratio method would be most suitable</li> <li>While potentially not fully credible, the lag method can also be reviewed and potentially credibility weighted</li> </ul>

- (c) Calculate the total incurred health claims from January 20X2 to June 20X2 using an average of the most recent six months' age-to-age factors. Show your work.

**Commentary on Question:**

*Candidates whom were able to calculate the correct incurred claims were able to get full marks even if they did not specifically calculate all steps in the model solution (i.e. calculate incurred claims from age to ultimate factors as opposed to completion factors). Candidates were also not required to perform all of the calculations below, as long as they performed enough calculation to derive the response. Some areas that candidates generally lost marks were not leveraging the most recent period and six months' of age-to-age factors for averaging.*

Step 1 Calculate Cumulative claims

**Cumulative Claims by payment months**

		Prior	Jun 20X1	Jul 20X1	Aug 20X1	Sep 20X1	Oct 20X1	Nov 20X1	Dec 20X1	Jan 20X2	Feb 20X2	Mar 20X2	Apr 20X2	May 20X2	Jun 20X2
<b>Incurral month</b>	Jan 20X1	97	97	97	97	97	97	97	97	97	97	97	97	97	97
	Feb 20X1	231	243	243	243	243	243	243	243	243	243	243	243	243	243
	Mar 20X1	384	491	532	534	534	534	534	534	534	534	534	534	534	534
	Apr 20X1	97	407	737	916	969	969	969	969	969	969	969	969	969	969
	May 20X1	49	366	703	832	948	989	989	989	989	989	989	989	989	989
	Jun 20X1	0	112	668	820	952	1005	1010	1010	1010	1010	1010	1010	1010	1010
	Jul 20X1	0	0	124	691	815	919	995	1015	1030	1030	1030	1030	1030	1030
	Aug 20X1	0	0	0	106	746	892	989	1042	1051	1051	1051	1051	1051	1051
	Sep 20X1	0	0	0	0	161	751	880	966	1031	1072	1072	1072	1072	1072
	Oct 20X1	0	0	0	0	0	99	733	1026	1089	1093	1093	1093	1093	1093
	Nov 20X1	0	0	0	0	0	0	101	636	957	1035	1101	1115	1115	1115
	Dec 20X1	0	0	0	0	0	0	0	103	726	920	1036	1114	1137	1137
	Jan 20X2	0	0	0	0	0	0	0	0	105	686	979	1071	1128	1147
	Feb 20X2	0	0	0	0	0	0	0	0	0	117	669	900	1072	1137
	Mar 20X2	0	0	0	0	0	0	0	0	0	0	135	719	1021	1116
	Apr 20X2	0	0	0	0	0	0	0	0	0	0	0	163	739	934
	May 20X2	0	0	0	0	0	0	0	0	0	0	0	0	131	734
	Jun 20X2	0	0	0	0	0	0	0	0	0	0	0	0	0	165

**Development factors by payment month**

		Prior	Jun 20X1	Jul 20X1	Aug 20X1	Sep 20X1	Oct 20X1	Nov 20X1	Dec 20X1	Jan 20X2	Feb 20X2	Mar 20X2	Apr 20X2	May 20X2	Jun 20X2	
<b>Incurral month</b>	Jan 20X1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Feb 20X1	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Mar 20X1	1.00	1.28	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Apr 20X1	1.00	4.20	1.81	1.24	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	May 20X1	1.00	7.47	1.92	1.18	1.14	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Jun 20X1			5.96	1.23	1.16	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Jul 20X1				5.57	1.18	1.13	1.08	1.02	1.01	1.00	1.00	1.00	1.00	1.00	
	Aug 20X1					7.04	1.20	1.11	1.05	1.01	1.00	1.00	1.00	1.00	1.00	
	Sep 20X1						4.66	1.17	1.10	1.07	1.04	1.00	1.00	1.00	1.00	
	Oct 20X1							7.40	1.40	1.06	1.00	1.00	1.00	1.00	1.00	
	Nov 20X1								6.30	1.50	1.08	1.06	1.01	1.00	1.00	
	Dec 20X1									7.05	1.27	1.13	1.08	1.02	1.00	
	Jan 20X2										6.53	1.43	1.09	1.05	1.02	
	Feb 20X2											5.72	1.35	1.19	1.06	
	Mar 20X2												5.33	1.42	1.09	
	Apr 20X2													4.53	1.26	
	May 20X2														5.60	
	Jun 20X2															NA

### Completion Factors

Lag Mth	Development factor	Completion factor
8	1.000	1.000
7	1.000	1.000
6	1.002	1.000
5	1.016	0.998
4	1.054	0.981
3	1.108	0.931
2	1.371	0.840
1	5.794	0.613
0	NA	0.106

### Incurred Claim by Month

		Paid to Date	Lag Mth	Completion Factor	Total Incurred
<b>Incurral months</b>	Jan 20X2	1147	5	0.998	1150
	Feb 20X2	1137	4	0.981	1159
	Mar 20X2	1116	3	0.931	1199
	Apr 20X2	934	2	0.840	1111
	May 20X2	734	1	0.613	1198
	Jun 20X2	165	0	0.106	1560
20X2 Total					7376

- (d) Critique the use of the development method in part (c).

#### **Commentary on Question:**

*In order to receive full marks, candidates were required to confirm all the necessary requirements for development method to be suitable, critique how that applies in this situation, and recommend some potential alternatives to improve.*

- i) Development method works best if the following conditions are met:
1. Ability to record incurred date and payment date of each claim.
  2. Consistent lag patterns.
  3. Incurred periods should have a relatively short duration.
  4. Sufficient volume of business
  5. Requires either earned premium or exposed contract counts to assist in the calculation

ii) XYZ's health block does not meet criteria 2. 4. And unclear on 5. Significant business growth is observed in 2021 and 2022. The runoff pattern is not stable.

iii) Estimates for ultimate claims for months below the threshold are often based on an alternative estimate of the average incurred claim cost per contract or member. Two common methods of developing the alternative estimates are

1. an estimate based on the trend in claim cost (claim dollars per unit of exposure, such as PMPM), or  
an estimate based on applying an assumed loss ratio (ratio of incurred claims to earned premium) to earned premium.

(e) Calculate the Incurred But Not Paid (IBNP) reserve as of June 30, 20X2 by applying both credibility weights and an alternative method. State your assumptions and show your work.

**Commentary on Question:**

*Some candidates did not consider an alternative method for this part of the question and considered alternative smooth techniques within the development method. Points were awarded for either Loss Ratio or Projection Method alternatives, although Loss Ratio method is described below. In order to get full marks, candidates were required to provide a reason for their determination of the credibility formula.*

**Calculate Loss Ratio**

		Paid to Date	Earned Premium	Loss Ratio
<b>Incurral months</b>	Jan 20X1	97	150	65%
	Feb 20X1	243	350	69%
	Mar 20X1	534	750	71%
	Apr 20X1	969	900	108%
	May 20X1	989	1200	82%
	Jun 20X1	1010	1300	78%
	Jul 20X1	1030	1400	74%
	Aug 20X1	1051	1400	75%
	Sep 20X1	1072	1500	71%
	Oct 20X1	1093	1500	73%
	Nov 20X1	1115	1700	66%
	Dec 20X1	1137	1800	63%

Loss Ratio = Sum of Paid to Date / Sum of Earned Premium = 74%

Calculate Incurred Claims based on LR Method

		Paid to Date	Earned Premium	Expected Incurred
<b>Incurral months</b>	Jan 20X1	1147	1750	1297
	Feb 20X2	1137	1700	1260
	Mar 20X2	1116	1750	1297
	Apr 20X2	934	1750	1297
	May 20X2	734	1800	1334
	Jun 20X2	165	1800	1334

**Credibility-Blended Estimate**

		Paid to Date	Completion Factor	Incurred (Development)	Incurred (Loss Ratio)	Incurred (Blended with Completion Factor)
<b>Incurral months</b>	Jan 20X1	1147	0.998	1150	1297	1150
	Feb 20X2	1137	0.981	1159	1260	1160
	Mar 20X2	1116	0.931	1199	1297	1205
	Apr 20X2	934	0.840	1111	1297	1141
	May 20X2	734	0.613	1198	1334	1250
	Jun 20X2	165	0.106	1560	1334	1358

**IBNP**

Total Paid = 15573

Total Incurred = 17605

IBNP = 2032

## GH VRC Spring 2023 #4.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts
2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (1a) Describe the types of claim reserves.
- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.
- (2c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, 2021 Ch. 40: Claim Reserves for Long-Term Benefits

GH201-100-25: Health Reserves

Comparison of IFRS 17 to Current CIA Standards of Practice, Nov 2020 (excluding sections 3.3, 7.2.1, 7.2.2, 7.2.3, 7.2.5 & 8.1.1)

CIA Draft Educational Note – IFRS 17 Coverage Units for Life and Health Insurance Contracts (excluding sections 3.1.2, 3.1.3, 3.2, 3.4)

### Commentary on Question:

*This question tested candidates' knowledge on insurance reserving. Overall, candidates did well on part (a) and (b), but had difficulties with subsequent sections. Partial credit was awarded if the LRC or LIC calculation was not fully complete, or simplifying assumptions were made to continue to subsequent sections.*

**Solution:**

- (a) Identify the types of liabilities that XYZ would need to hold for the acquired block from ABC. Justify your response.

**Commentary on Question:**

*Partial credit was awarded to identify the type of liabilities, but justifications were required for full credit. Only items pertaining to disabled or in payment claims were applicable. No credit was awarded for other reserves, such as incurred but not reported reserve, policy reserve or unearned premium reserve.*

- Due & Unpaid (D&U) Liabilities – liabilities for claims that have been reported, adjudicated and processed, but for which final payment has not been recorded as of the valuation date.
- Loss Adjustment Expense (LAE) – liability for admin costs associated with the adjudicated of unpaid claims.
- Outstanding Accounting Feeds – amounts which have been acknowledged as payments, but for which no check has yet been cut as of the valuation date.
- Present Value of Amounts Net Yet Due – covers claims that were incurred on or before the valuation date which have not accrued as of valuation date.

- ~~(b) Calculate a best estimate tabular claim reserve for Policyholder A as of the valuation date. State any assumptions and show your work.~~

**Commentary on Question:**

*Candidates did fairly well on this section. Stating the formula and/or a properly labelled table was required for full credit as part of showing work. An assumption on which interest to use was required. Candidates needed to provide a reasonable explanation for their assumption selection.*

Formula for tabular reserve:  $\text{sum payment} (\text{benefit} * \text{continuance} * \text{interest discount})$

**Assumptions made:**

- ~~Given this is a best estimate reserve, actual asset earned rate should be used to reflect market rates. Without indicating rationale for why actual terminations are different from expected, we assume expected terminations (current assumptions) hold.~~

Date of Payment		30/06/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020	31/12/2021	31/12/2022					
Age			50	51	52	53	54	55					
Annual Benefit			\$ 30,000	\$ 30,600	\$ 31,212	\$ 31,836	\$ 32,473	\$ 33,122					
Expected Termination per 1,000 lives			500	150	75	200	200	200					
Actual Termination per 1,000 lives			350	200	100	150	150	150					
<b>Calculate Reserve:</b>		Claim Duration	6	7	8	9	10	11	12	13	14	15	
		12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031	12/31/2032	
Age of claimant		55	56	57	58	59	60	61	62	63	64	65	
Benefit	2.00%	\$ 33,122	\$ 33,785	\$ 34,461	\$ 35,150	\$ 35,853	\$ 36,570	\$ 37,301	\$ 38,047	\$ 38,808	\$ 39,584	\$ 40,376	
Asset Earn rate	4.50%	1.0000	0.9569	0.9157	0.8763	0.8386	0.8025	0.7679	0.7348	0.7032	0.6729	0.6439	
Continuance	0.20	1.0000	0.8000	0.6400	0.5120	0.4096	0.3277	0.2621	0.2097	0.1678	0.1342	0.1074	
Discounted & Prob weighted cash flows	\$	-	\$ 25,864	\$ 20,196	\$ 15,770	\$ 12,315	\$ 9,616	\$ 7,509	\$ 5,863	\$ 4,578	\$ 3,575	\$ 2,792	
Best Estimate Reserve			\$ 108,078										

(c) Compare and contrast the following approaches for revenue recognition under IFRS 17:

- (i) Liability for Incurred Claims (LIC) approach
- (ii) Liability for Remaining Coverage (LRC) approach

**Commentary on Question:**

*In general, candidates did not score well on this section. Most candidates did not mention any similarities between the two approaches. Not all points listed below was required for full credit.*

Unique for LIC approach:

- Coverage units would be the same regardless of whether the contract holder was in active life status or in disabled life status
- Views the insured event as the uncertain event that a policyholder becomes disabled, and the annuity payments are simply settlement of the claim
- Faster amortization pattern than the LIC approach
- CMS amortization based on PV of future payments
- Coverage unit calculated as:

$$CU_t = PV(\text{Annuity Payments})_t * ({}_t p_x)$$

Unique for LRC approach

- No coverage for contract holders while in disabled life status
- Actuary would consider how recoveries from disability and return to active life status would affect the projection of coverage units
- Considers the insured events as both the uncertain event of the policyholder becoming disabled, and also remaining disabled and eligible to claim.
- Slower amortization pattern than the LIC approach
- Coverage unit calculated as:

$$CU_t = (\text{Annualized Annuity Payment})_t * ({}_t p_x)$$

Similarities between LIC and LRC approaches:

- These approaches are applied to health products that have annuity payments, such as individual disability, GLTD or LTC.
- The approach is used for determining amortization pattern of CSM
- Both approaches deemed valid interpretations of IFRS 17
- Judgement is involved by the actuary in determining which approach is used

(d) Construct the CSM amortization schedule as of the valuation date under the following approaches, using Policyholder A as a representative point for the acquired block of business:

(i) LIC approach

(ii) LRC approach

State any assumptions and show your work.

**Commentary on Question:**

*Candidates did not score well on this question and had difficulties with the practical application of LIC and LRC in calculations.*

*** LIC APPROACH ***												
Year beginning		12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031	12/31/2032
Benefit Payments			\$ 33,785	\$ 34,461	\$ 35,150	\$ 35,853	\$ 36,570	\$ 37,301	\$ 38,047	\$ 38,808	\$ 39,584	\$ 40,376
PV of Future Benefits			\$ 109,991	\$ 84,003	\$ 63,612	\$ 47,613	\$ 35,060	\$ 25,210	\$ 17,483	\$ 11,419	\$ 6,662	\$ 2,929
Probability of Survival		1.0000	0.8000	0.6400	0.5120	0.4096	0.3277	0.2621	0.2097	0.1678	0.1342	0.1074
discounting @ locked-in discounting rate	4.00%	1.0000	0.9615	0.9246	0.8890	0.8548	0.8219	0.7903	0.7599	0.7307	0.7026	0.6756
Current service			87,993	53,762	32,569	19,502	11,488	6,609	3,666	1,916	894	314
current + future service			218,714	130,721	76,959	44,390	24,888	13,400	6,791	3,124	1,209	314
CSM amortization factor			40.2%	41.1%	42.3%	43.9%	46.2%	49.3%	54.0%	61.3%	74.0%	100.0%
BoY CSM			25,000.00	15,390.28	9,332.53	5,544.49	3,201.85	1,775.57	926.84	439.23	175.00	46.90
Interest accretion	3.00%	-	750.00	461.71	279.98	166.33	96.06	53.27	27.81	13.18	5.25	1.41
CSM with interest accretion			25,750.00	15,851.98	9,612.51	5,710.82	3,297.90	1,828.84	954.64	452.40	180.25	48.31
CSM Amortization			-	10,359.72	6,519.45	4,068.02	2,508.98	1,522.33	902.00	515.42	277.40	133.35
EoY CSM		25,000.00	15,390.28	9,332.53	5,544.49	3,201.85	1,775.57	926.84	439.23	175.00	46.90	-

*** LRC APPROACH ***												
Year beginning		12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031	12/31/2032
Benefit Payments			\$ 33,785	\$ 34,461	\$ 35,150	\$ 35,853	\$ 36,570	\$ 37,301	\$ 38,047	\$ 38,808	\$ 39,584	\$ 40,376
Probability of Survival		1.0000	0.8000	0.6400	0.5120	0.4096	0.3277	0.2621	0.2097	0.1678	0.1342	0.1074
Current service			27,028	22,055	17,997	14,685	11,983	9,778	7,979	6,511	5,313	4,335
current + future service			127,664	100,637	78,582	60,585	45,900	33,917	24,138	16,159	9,648	4,335
CSM amortization factor			21.2%	21.9%	22.9%	24.2%	26.1%	28.8%	33.1%	40.3%	55.1%	100.0%
BoY CSM			25,000.00	20,298.46	16,325.49	12,964.25	10,116.49	7,699.60	5,644.17	3,891.80	2,393.41	1,107.72
Interest accretion	3.00%	-	750.00	608.95	489.76	388.93	303.49	230.99	169.33	116.75	71.80	33.23
CSM with interest accretion			25,750.00	20,907.41	16,815.26	13,353.18	10,419.98	7,930.59	5,813.49	4,008.55	2,465.21	1,140.95
CSM Amortization			-	5,451.54	4,581.91	3,851.01	3,236.69	2,720.38	2,286.42	1,921.69	1,615.14	1,140.95
EoY CSM		25,000.00	20,298.46	16,325.49	12,964.25	10,116.49	7,699.60	5,644.17	3,891.80	2,393.41	1,107.72	-

- (e) Recommend an approach for XYZ for revenue recognition of the acquired block of business. Justify your answer.

**Commentary on Question:**

*A recommendation was required for full mark. Alternative answers were accepted if they were justified.*

I would recommend using the LRC approach due to the following reasons:

- This block has disabled life only, so LIC would be difficult to implement (uncertain event that the policyholder becomes disabled has already passed)
- LRC is more reasonable since the insured event is on the eligibility of the remaining disabled
- LRC has a slower amortization pattern of the CSM than the LIC approach, which may be favorable to XYZ.

Also, XYZ is looking to acquire this business.

- Under IFRS 17, liability for settlement of a claim is to be established as a LRC rather than an LIC. On acquisition of obligations in the claim settlement period, the liability established by the acquirer would be LRC rather than LIC, regardless of how the entity from which the obligations were acquired accounted for the obligations. So, if acquired, XYZ would be required to set this up under LRC eventually under IFRS17 accounting policy.

- ~~(f) Critique the 2022 claims termination rate study based on actual to expected (A/E) ratios. State any assumptions and show your work.~~

**Commentary on Question:**

*Only partial credit was awarded for calculating the A/E ratios. For full credit, a critique or conclusion was needed to be provided based on the information derived.*

<b>Claims Duration</b>	<b>1.00</b>	<b>2.00</b>	<b>3.00</b>	<b>4+</b>
<del>Expected Termination (Rate per 1,000 lives)</del>	500	150	75	200
<del>Actual Terminations (Rate per 1,000 lives)</del>	350	200	100	150
Calculate A/E	<b>0.70</b>	<b>1.33</b>	<b>1.33</b>	<b>0.75</b>

~~Assuming the inforce block is similar to model point provided, the block is running at a 0.75 A/E ratio. Overall, there are less terminations than expected. For disability, this means that termination experience was worse than expected. The expected terminations may need to be adjusted for future reserve calculations.~~

- ~~(g) Propose questions that XYZ should ask to ABC in order to get a deeper understanding of their 2022 experience study results.~~

**~~Commentary on Question:~~**

~~Most candidates did well on this section. Most candidates recognized that information around how the experience study results were calculated need to be reviewed. Not all the considerations listed below was required for full credit.~~

- ~~• How was credibility defined and was there sufficient data used for the study? If the study was supplemented by industry table, which industry table was used?~~
- ~~• What types of terminations were included? Is it largely recovery or deaths driving terminations?~~
- ~~• What are the exposure characteristics?~~
- ~~• Voluntary Claims Settlements how they were treated in the study?~~
- ~~• How did the most recent experience study result compare to prior experience studies, such as 2019 or prior?~~
- ~~• What was the source of the raw data used to calculate?~~
- ~~• Was there a claim runoff study also completed?~~
- ~~• Were there any other grouping splits, other than duration, considered? Such as age, COLA indicator, diagnosis, more granular duration bucketing, etc.~~

## GH VRC Fall 2023 #1.

### Learning Objectives:

1. The candidate will understand and apply valuation principles for group and health insurance contracts.

### Learning Outcomes:

- (1a) Describe the types of claim reserves.
- (1b) Explain the limitations and biases of the traditional valuation methods.
- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.

### Sources:

Group Insurance Ch 39, GH201-100-25 Health Reserves

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a)
  - (i) Describe the Tabular method, Examiner's method, and Factor method.
  - (ii) Explain for which lines of business it is appropriate to use each method.

### Commentary on Question:

*Most candidates were able to describe the three methods, but had difficulty in part ii) of identifying appropriate lines of business for the examiner's method and factor method.*

- (i)

#### **Tabular method –**

Under this method, a reserve is computed for each claim (rather than for the block as a whole), using a table of expected recovery and mortality rates. The actuary projects future benefits expected to be paid to the claimant, and then determines the present value of those benefits, discounting for recovery and mortality (using the tabular rates) as well as for interest.

**Examiner’s method –**

Under this method, claim department or other qualified personnel are asked to estimate the remaining claim payments expected on known claims, based on the characteristics of each claim.

**Factor method –**

This method is generally used for reserves that are easily estimated due to a short lag or run off period. Utilizes historical factor (percent of premium, claims PMPM factor etc.) to project future ultimate claims.

(ii)

**Tabular method –** This method is used for long term products such as long term disability and long term care.

**Examiner’s method –**

This method can be used for the following types of products:

Short Term Medical Products

- to estimate very large catastrophic claims.

Short Term Disability and Hospital Income

- where the present value of amounts not yet due is easily estimated and not particularly impacted by termination rates or other contingencies.

**Factor method –**

This method is used for Group Life and Medical Products.

- (b) Recommend whether the development method is appropriate for each scenario. Justify your answer.

**Commentary on Question:**

*Most candidates received partial credit on this section.*

*Table 4 presented a challenge to many candidates as they looked only at the lag patterns and not the claims volume that was changing significantly. Some candidates did not provide a recommendation, but instead gave pros and cons. If no recommendation was given, then no points were awarded for that scenario.*

Table 1

- No, the development method is not appropriate.

The lag patterns are not consistent in the progression of claims from incurred date to ultimate date. The claim pattern is too erratic to use the development method.

Table 2

- Yes, the development method is appropriate.

The lag patterns appear to be consistent with smaller amounts of paid claims in later lag periods. The duration appears to be within a 1-year timespan which is considered a shorter duration. Claim levels indicate that this is a large enough block of business to deem credible.

Table 3

- No, the development method is not appropriate.

It is not clear when the ultimate date will be or what the ultimate claims amount will be in order to calculate the completion factors to be used in the development method

Table 4

- No, the development method is not appropriate.

While lag patterns appear consistent, the problem is the block appears to be either growing rapidly or has issues with credibility. It is unclear if the current payment pattern will hold in later months with higher claim volume.

- (c) Recommend the incurred month to be used as the basis for an age-to-ultimate development factor reserve. Show your work and justify your answer.

**Commentary on Question:**

*Most candidates did well on this section. Below is a solution, but other selected months with appropriate justification that met the Chief actuary's criteria are acceptable.*

January has an unusual payment in month 12 that does not seem to be representative of the other months.

The chief actuary requires at least 10 months to be used, which eliminates using May through December.

Recommend using Feb as it has the most months of data otherwise.

- (d) Calculate the IBNR as of January 31, 20X2 using your recommendation from (c). Show your work.

**Commentary on Question:**

*The solution in the attached excel file is based on having chosen February as the reserve month. Other solutions are acceptable based on the month recommended in part c. See excel file.*

- (e) Calculate the total case reserve for the members in Exhibit 3. Show your work.

**Commentary on Question:**

*Since the contract terms for Hospital C and D are based on an average cost per day, the length of stay for members at those hospitals needs to be calculated in the actual number of days. Some candidates used 30 days for all months instead of the calendar days that each month has. Also, if the length of stay below plus 1 was used, then this was an acceptable answer. Many candidates did not apply the stop loss correctly for member 4 to limit the financial limit to \$300,000 across both hospital stays.*

		A)	B)	C) = 12/31- B)	D) = Hosp A and B	E) = Hosp C and D	F) = A)*D) + C)*E)	G) = Min \$300k, F) per member
Mbr ID	Hosp	Billed Amt	Admit Date in 20X2	LOS	Discount	Cost per day	Expected Claims	With Financial Limit Applied
1	A	\$944,647	9/1		0.6		\$566,788.20	\$300,000.00
2	B	\$928,492	9/1		0.4		\$371,396.80	\$300,000.00
3	C	\$505,729	11/1	60		4000	\$240,000.00	\$240,000.00
4*	B	\$501,205	9/1		0.4		\$200,482.00	\$200,482.00
4*	D	\$849,032	11/1	60		2500	\$150,000.00	\$99,518.00
5	A	\$747,554	9/1		0.6		\$448,532.40	\$300,000.00
6	B	\$948,928	9/1		0.4		\$379,571.20	\$300,000.00
7	C	\$524,505	10/1	91		4000	\$364,000.00	\$300,000.00
8	D	\$819,454	10/1	91		2500	\$227,500.00	\$227,500.00
9	C	\$530,468	10/1	91		4000	\$364,000.00	\$300,000.00
10	D	\$943,329	9/1	121		2500	\$302,500.00	\$300,000.00
11	A	\$696,121	11/1		0.6		\$417,672.60	\$300,000.00
12	B	\$816,868	9/1		0.4		\$326,747.20	\$300,000.00
13	C	\$946,993	9/1	121		4000	\$484,000.00	\$300,000.00
14	D	\$658,236	10/1	91		2500	\$227,500.00	\$227,500.00
15	A	\$850,079	11/1		0.6		\$510,047.40	\$300,000.00
16	B	\$868,005	9/1		0.4		\$347,202.00	\$300,000.00
17	C	\$845,355	9/1	121		4000	\$484,000.00	\$300,000.00
18	D	\$639,030	10/1	91		2500	\$227,500.00	\$227,500.00
19	C	\$557,874	9/1	121		4000	\$484,000.00	\$300,000.00
20	D	\$550,065	10/1	91		2500	\$227,500.00	\$227,500.00
							<b>Total =</b>	<b>\$5,650,000</b>

Mbr 4 has 2 hospital stays so the second visit is capped at \$300K - \$200,482 = \$99,518.00

## GH VRC Spring 2024 #1.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.
- (1g) Apply applicable best practices related to reserving.

### Sources:

GH201-100-25 Health Reserves

Individual Health Insurance, Chapter 6

Group Health Insurance, Chapter 39

### Commentary on Question:

*This question aimed to test candidates on Incurred But Not Reported reserving, including applying two specific methods. Generally, candidates were able to score partial marks throughout, however, in order to get full marks while being mindful of time, there are ways of organizing the provided data to facilitate calculation.*

### Solution:

- (a)
  - (i) Describe four ways you could set a monthly Incurred But Not Reported (IBNR) reserve estimate for small group hospital claims, including the data needed to use each approach.
  - (ii) Propose a ranking of the four methodologies listed in part (a) (i), with #1 being the best and #4 being the worst in terms of methodologies to use when setting the small group IBNR reserve for hospital claims. Justify your answer.

**Commentary on Question:**

*Majority of candidates were able to name four ways to set up Incurred But Not Reported (IBNR) reserves and ranking them, however, candidates whom identified reserving techniques suitable for IBNR and also specifically highlighted data requirements were able to get full marks. Model solution incorporates acceptable methods, however, other methods were also acceptable given that they were described, including the data needed, and ranked with justification. Candidates were required to include subtraction of paid claims to date in order to receive full marks.*

(i)

- Set the IBNR estimate using the expected loss ratio.
  - Under this approach, the  $IBNR = \text{Expected Loss Ratio} * \text{Revenue} - \text{Paid Claims}$
  - Data required: Need expected loss ratio through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the budgeted claims.
  - Under this approach, the  $IBNR = \text{Budgeted claims} * \text{enrollment} - \text{paid claims}$
  - May need to adjust for population differences from the budget.
  - Data required: Need budgeted claims through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the traditional completion factor approach with small group hospital paid claims data.
  - Under this approach, completion factors are developed based on the hospital lag triangle and an incurred claim estimate by month is developed as  $\text{Paid Claims} / \text{Completion Factor}$ .  $IBNR = \text{Estimated Incurred Claims} - \text{Paid Claims}$
  - Data required: Hospital paid data with incurred and paid dates to construct a lag triangle. However, with only 6 months of data it may be difficult to develop appropriate completion factors. Paid claims to date are already provided.
- Set the IBNR estimate using the traditional completion factor approach with proxy completion factors from the large group business.
  - Under this approach, completion factors would not be specific to small group hospital claims; rather based on patterns for hospital claims from another block of business different source of data could be used.
  - The incurred claim estimate by month is developed as  $\text{Paid Claims} / \text{Completion Factor}$ .  $IBNR = \text{Estimated Incurred Claims} - \text{Paid Claims}$
  - Claim patterns may not be appropriate given differences in seasonality (benefit richness differences between the segments) or delays caused by implementation of claims system.

- Data required: Hospital paid data with incurred and paid dates to construct a lag triangle from the large group business are needed. Paid claims to date are already provided.
- Set the IBNR estimate using pre-authorizations (or admissions).
  - $IBNR = \text{Number of Admissions} \times \text{Assumed Cost per Admit} - \text{Paid Claims}$
  - Not all pre-authorizations become claims and some claims (e.g. OON) are not subject to pre-authorizations
  - Data required: Need average cost per admission. The other data needed includes number of admits per month, and paid claims by month, which are already provided.

(ii)

1. Set the IBNR using Authorization Data – all the data needed has been provided, so it would be the quickest methodology to use
2. Set the IBNR using the Expected Loss Ratio – all the data to use this method has been provided except for the expected loss ratio. The expected loss ratio is something that the company should have internally and reflects emerging experience in terms of the revenue sold (presumably reflects risk of business is sold)
3. Use large group completion factors. This makes sense if claim patterns are similar for both products and if the system was set up on time for the new block (no delays); if slower set up, may need to add larger higher margin since large group block would be operating at normal speeds
4. Use budget claims. This data is available but it does not reflect any of the emerging data so least useful approach.

(b)

- (i) Critique the intern's IBNR reserve estimate.
- (ii) Recommend the hospital IBNR reserve that you would record at 6/30/20X2. Justify your answer and show your work.

**Commentary on Question:**

*Majority of candidates were able to identify that the intern's estimate incorrectly used average member months instead of number of admits, that paid claims incorrectly included physician claims, and that the source of the cost per admit assumption was unclear. In order to get full marks, candidates were required to identify that the current estimate is overstated (as a result of any of the identified errors above, or by a reasonableness check), derive an appropriate average hospital claim cost per admit, and include an appropriate explicit load to take into account that the paid claims data used to derive cost per admit may not yet be complete. Candidates who used the same cost per admit as the intern but explicitly questioned where it came from were awarded partial credit.*

(i)

- The INTERN is drastically overstating the IBNR estimate, with an IBNR estimate of over \$29M when compared to revenue and/or claims paid.
- Average hospital claim cost per admit can be calculated by reviewing hospital paid claims data and pre-authorized admission, with the earlier months (more complete) of January and February averaging about \$32,500
- When calculating IBNR based on admits, the intern should have multiplied by the number of pre-authorized admits, not average member months
- Paid claims being subtracted should only be hospital paid claims; it should not include physician paid claims
- The INTERN should consider including explicit conservatism in their estimate. Apply an additional percentage load to the IBNR to account for the additional uncertainty due to normal claims volatility as well as the fact that the calculation of average hospital claims per admit data may not yet be complete. An additional load between 5% and 20% could be reasonable.

(ii)

$$\text{IBNR} = [\text{Cost per Admit}] \times [\# \text{ admits}] - [\text{Total Paid Hospital Claims}]$$

Although Jan and Feb are not 100% complete, the cost per admission is around \$32,500, so using \$33,000 would be a reasonable assumed cost per admit.

*(A cost per admit between \$32,500 and \$40,000 would be reasonable)*

$$\text{IBNR} = [33,000] \times [29] - [\$913,104]$$

$$\text{IBNR} = \$957,000 - \$913,104$$

$$\text{IBNR} = \$43,896$$

Due to potential claims volatility of the new business, an explicit load of 10%, or \$4,390

*(Additional load between 5% and 20% could be reasonable, depending on the candidate's assumed cost per admit. For example, if they are assuming a cost per admit of \$40,000 including 20% explicit conservatism would be too conservative).*

- (c) Calculate the unpaid claim liabilities as of 8/1/20X2 using a development method that addresses the enrollment decline for the following completion ratios. Show your work.
- (i) 3-month average completion ratios
  - (ii) 6-month average completion ratios
  - (iii) 9-month average completion ratios

**Commentary on Question:**

*Candidates generally were able to do well in this question, however, there are certain ways to organize the data to facilitate the calculations faster. This revolves around the idea of being able to drag formulae as opposed to having to change formulae manually. Candidates were also asked to address the enrollment decline. Candidates were able to use either a PMPM approach prior to deriving completion ratios or a weighted average approach to calculating the average completion ratios. While the PMPM approach doesn't impact the final result (due to each successive incurral month's completion ratio derivation from cumulative claims being based on the same headcount), candidates were required to at least address the enrollment in some way.*

Leveraging the provided claims triangle and enrollment, PMPM claims triangle is calculated.

- (d) Recommend which completion ratios to use in your final estimate. Justify your answer.

**Commentary on Question:**

*Candidates were generally awarded points if they were able to justify their answer appropriately. In order to get full marks, candidates generally had to present multiple reasons for their recommendation.*

Many responses are acceptable, which may include some of the below:

The 6-month average because the claims are completing more quickly in recent months. 9-month average estimates are higher because there is less ability to react to recent changes. 3-month may be too reactive.

The 6-month average because it strikes a good balance between a stable and credible answer while still incorporating some of the speed up in claims for recent months.

The 3-month average has the advantage of using more current data that reflects current trends in payment patterns unlike longer periods which would smooth those out (bury the current trends).

The 6-month or 9-month average because I don't want to give too much credit to the recent speed up, it may be a false sign.

The 9-month average smooths things which is consistent with a desire to recognize change slowly and not over-react to changes.

The 9-month average is typically smoother, but may bury recognition of more current trends in payment patterns.

## GH VRC Fall 2024 #1.

### Learning Objectives:

1. The candidate will understand how to apply valuation principles for group and health insurance contracts

### Learning Outcomes:

- (1c) Calculate appropriate claim reserves given data.
- (1d) Describe, calculate, and evaluate the impact of environmental factors on reserve calculations (trend, seasonality, claim processing changes, etc.)
- (1e) Evaluate data resources and appropriateness for calculating reserves.

### Sources:

- Group Insurance, Skwire, Daniel D., 8th Edition, 2021
- Ch. 39: Claim Reserves for Short-Term Benefits

GH201-100-25: Health Reserves

### Commentary on Question:

*This question is mainly aimed to test candidates the methods of estimation for claim reserves. To receive maximum points, candidates need to assess the appropriateness of both reserving methods for part (c) and explain the impact on both IBNR methodology and estimate for part (d).*

### Solution:

- (a) Define the following terms:
  - (iii) Valuation date
  - (iv) Incurral date
  - (v) Reporting date
  - (vi) Reporting lag
  - (vii) Payment lag

**Commentary on Question:**

*Candidates generally did well on this part. The common mistakes include candidates confusing the service date with the incurral date and misinterpretation of the payment lag.*

**Valuation date** = the date on which reserves are estimated

**Incurral date** = the date on which an event either causes a reserve or a liability. Can either be the date of death, disability, medical service, or other insured event. Any claim incurred before the valuation date generates a reserve.

**Reporting date** = the date on which the claim is reported

**Reporting lag** = the time between the incurral date and the reporting date

**Payment lag** = the time between the incurral date and the payment date

- (b) Calculate the incurred but not reported (IBNR) claims on the emerging small group block as of June 20X2. Show your work.

**Commentary on Question:**

*Some candidates failed to recognize that the claims provided are cumulative. Another portion where candidates struggled was the proper use of the loss ratio method.*

See Excel file for solution.

- (c) Assess whether the methodology prescribed is appropriate in this situation. Justify your response.

**Commentary on Question:**

*Candidates struggled on this question. The intent of the question was to understand if candidates understood the appropriate use of both the loss ratio and development methods. Few candidates mentioned that completion factors that were not high enough should not be used due to lower credibility. Other reasonable answers were also accepted.*

The loss ratio method can be applied in situations in which historical claims costs are not available and in which pricing loss ratios may be deemed to be more appropriate. For new blocks of business without credible history, the loss ratio method may be the best estimate until other information is available to adjust the assumptions

Completion factors in durations 3-4 makes sense, since the completion factors are more credible. Typically, completion factors below 40% to 70% are replaced with other projected fully incurred cost per member estimates or blended under a credibility-weighted approach. Completion factors below 40% to 70% are subject to greater estimation error.

- (d) Explain how the following situations may affect your IBNR methodology and estimate:
- (i) EMC installs a new claim adjudication system which accelerates reporting and payment times.
  - (ii) A pandemic causes widespread and sustained closures of medical offices.
  - (iii) The small group block becomes subject to a risk adjustment mechanism.
  - (iv) The small group block only offers high-deductible health plans.
  - (v) EMC experiences an increase in the proportion of its total claims that are inpatient claims.
  - (vi) EMC changes its provider reimbursements from a fee-for-service model to a capitation model.

**Commentary on Question:**

*Candidates struggled to identify both the impact to the methodology and the resulting change in estimate. Many candidates failed to identify the impact due to risk adjustment or changing the provider reimbursement method.*

- (i) New adjudication system:  
A change in computer systems may be preceded by a speed up in claim processing time as the processing area cleans up its inventory of unpaid claims in anticipation of the computer change. During the system change itself, unanticipated bugs or errors may emerge that slow processing time and create claim backlogs. May need to pick different CFs as a result.
- (ii) Pandemic causes medical office closure:  
Expect ultimate claims to be significantly lower. May not want to use unadjusted development factors created during the timeframe of office closures for future reporting periods when claims volume returns to status quo.

- (iii) Small group subject to risk adjustment:  
May be a speed-up of claims processing before the risk adjustment data submission cutoff date in order to increase risk scores. Take caution when applying completion factors or using completion data in future reporting periods.
- (iv) Small group block offers only HDHPs:  
May see seasonal pattern in paid claims, where paid claims in early durations are much lower because the deductible has not yet been met. Consider adjusting completion factors to account for this seasonality.
- (v) Greater proportion of claims are inpatient:  
Inpatient claims tend to complete more slowly since they are more complex and take time for the actual claim to complete (i.e., bed days). Other claims, like outpatient and Rx, tend to complete faster because they are more likely to be electronically submitted and processed in real time. EMC may want to decrease the completion factors to account for the longer duration inpatient claims.
- (vi) Change from FFS to capitation:  
Under capitation, providers are totally compensated by the negotiated capitation rate, so there are no claims to be reported or reserves held for.

# GH 201-C Model Solutions

## Learning Objective 2

### GH FVCC Fall 2020 #2.

**Learning Objectives:**

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

**Learning Outcomes:**

- (2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

**Sources:**

CIA Educational Note – Comparison of IFRS 17 to Current CIA Standards of Practice, Sep 2018 (excluding 3.3, 7.3.1, 7.3.3 & 8.1.1)

CIA Draft Educational Note – Application of IFRS 17 Insurance Contracts (Ch. 5: Level of Aggregation)

CIA Educational Note – IFRS 17 Coverage Units for Life and Health Insurance Contracts (excluding sections 3.1.2, 3.1.3, 3.2, 3.4)

**Commentary on Question:**

*Commentary listed underneath question component.*

**Solution:**

- (a) Briefly describe the three "building blocks" under IFRS 17 to measure insurance contract liabilities.

**Commentary on Question:**

*Candidates generally had issues identifying the 3 building blocks.*

- **Present value of future cash flows (i.e. best estimated cash flows)**
    - This is similar to the current CIA liability without PfADs, although there are several important differences.
  - **Risk adjustment for non-financial risk**
    - This is similar to current CIA PfADs for non-economic risk.
    - The sum of the present value of future cash flows and the risk adjustment for non-financial risk is called the fulfilment cash flows (FCF).
  - **Contractual Service Margin**
    - The CSM represents unearned profit from a group of insurance contracts.
    - At the inception of the contract, if the future cash flows is less than zero, the CSM is established to offset negative amounts to prevent front-ending of profits. CSM is then released into income once the services are provided.
- (b) List considerations for using provisions for adverse deviations (PfADs) to determine the risk adjustment for non-financial risk.

**Commentary on Question:**

*Candidates generally were not able to list considerations.*

- Is the current level of PfAD consistent with the compensation the entity requires for bearing uncertainty?
  - Are the diversification benefits included in current PfADs consistent with those that would be reflected in IFRS 17?
  - How would the confidence level (to satisfy disclosure requirement of IFRS 17.B92) inherent in the current PfADs be determined?
  - IFRS 17 requires reinsurance contracts held to be measured as separate contracts. How would the PfAD appropriate to the net liability be split between the direct and ceded contracts?
  - Are any adjustments needed for pass-through features?
- (c) Compare how the discount rate is determined under the Canadian Asset Liability Method (CALM) versus IFRS 17.

**Commentary on Question:**

*Candidates were able to generally describe the method of discount rate determination for both CALM and IFRS 17.*

- **CALM**
  - CALM sets the value of the insurance contract liabilities equal to the current statement value of supporting assets required to satisfy the obligations, taking into account reinvestment/ disinvestment.

- While CALM does not result in explicit discount rates, it is common practice to solve for an equivalent discount rate that when applied to the insurance contract liability cash flows will give the same liability.
  - **IFRS 17**
    - The discount rates do not depend on the assets used to support the liabilities (e.g., investment expenses are ignored) and there are no reinvestment/disinvestment assumptions.
    - Instead, under IFRS 17, discount rates for cash flows that are fixed (i.e., that do not vary with returns on underlying items) are based on a liquidity-adjusted risk-free discount rate curve.
    - The discount rate curve is set to reflect the characteristics of the liability cash flows (i.e., liquidity, currency, timing) only.
- (d) List and describe the approaches to develop the discount rate curve under IFRS 17.

**Commentary on Question:**

*Candidates were typically able to identify the methods, but descriptions were unsatisfactory*

- **Bottom-up Approach:**
  - A risk-free discount curve is adjusted by adding an illiquidity premium to reflect the characteristics of the insurance contract liabilities.
  - For cash flows denominated in Canadian dollars, the risk-free curve under CALM uses the first 20 years of the current risk-free curve in the Canadian market (which is usually a government bond curve).
    - This same approach could be used for IFRS 17 if 20 years is considered the longest duration for which there is a reliable yield.
  - The CALM method for extending the risk-free yield curve beyond the first 20 years prescribes a URR and a method for interpolating between the 20-year term and the URR.
    - This approach might be used as a reference point for how to extend the risk-free curve beyond the observable period for IFRS 17.
- **Top-down Approach:**
  - A reference portfolio of assets is selected with characteristics that are similar to those of the insurance contract liability.
  - The current yields on the reference assets are then adjusted to remove any characteristics of the asset(s) that are not relevant to the liability (i.e. credit risk and market risk).
  - The yield on the reference portfolio would be adjusted to account for differences in liquidity characteristics between the reference portfolio and the insurance contract liabilities.

- (e) Describe the decision process in determining the level of aggregation when valuing insurance contracts under IFRS 17.

**Commentary on Question:**

*Candidates were unable to outline the full set of considerations for aggregation*

- Begin with individual insurance contracts.
  - Determine if contracts are managed together, or if they are subject to similar risks.
  - Once determined, they will be grouped in separate portfolios.
    - Contracts that fall into a group due to constraints on profitability due to law/regulation, these contracts may be grouped together.
  - Determine if the contract is subject to the premium allocation approach or general measurement/variable fee approach.
    - Split contracts into the PAA or GMA/VFA.
  - For PAA grouping, we can assume that the contracts are not onerous.
    - Assess likelihood of future changes in facts and circumstances.
      - One grouping for not onerous/possibly onerous.
      - One grouping for not onerous, no significant possibility to be onerous.
    - Facts and circumstances indicate that the contracts are onerous.
      - Another grouping for onerous.
  - For GMA/VFA, we need to measure if the contracts are onerous.
    - Assess likelihood of changes in assumptions resulting in onerous.
      - One grouping for not onerous/possibly onerous.
      - One grouping for not onerous, no significant possibility to be onerous.
      - Another grouping for onerous.
  - Groups should comprise contracts incepting no longer than 12 months apart.
  - Once identified, split contracts into final groupings.
- (f) Calculate the amortized amount of the CSM for each quarter under the following approaches:
- (i) (2 points) Simple sum of the various contractual coverages
  - (ii) (2 points) Normalization of the coverage units based on expected premiums

State any assumptions and show your work.

**Commentary on Question:**

*Candidates were unable to replicate the calculations.*

(i)

Period	1	2	3	4
Quantity of Benefits	703,500	703,500	703,500	703,500
Probability of Survival (tpx)	100%	95%	90%	86%
(A) Current service (CUt)	703,500	668,325	634,909	603,163
(B) Current + future service	2,912,069	2,208,569	1,540,244	905,335
CSM amortization factor [(A)/(B)]	24.2%	30.3%	41.2%	66.6%
Opening CSM	225,000	170,644	119,006	69,950
Insurance finance expense	0	0	0	0
CSM amortized	54,356	51,638	49,056	46,603
Ending CSM	170,644	119,006	69,950	23,347

Period	5	6	7	8
Quantity of Benefits	100,000	100,000	100,000	100,000
Probability of Survival (tpx)	81%	77%	74%	70%
(A) Current service (CUt)	81,451	77,378	73,509	69,834
(B) Current + future service	302,172	220,721	143,343	69,834
CSM amortization factor [(A)/(B)]	27.0%	35.1%	51.3%	100.0%
Opening CSM	23,347	17,054	11,075	5,396
Insurance finance expense	0	0	0	0
CSM amortized	6,293	5,979	5,680	5,396
Ending CSM	17,054	11,075	5,396	0

- Quantity of Benefits = Total Maximum Coverage of Contract #1 + Total Maximum Coverage of Contract #2
- tpx = prior tpx \* (1- lapse)
- CUt = Quantity of Benefits \* tpx
- CSM amortized = CSM Amortization factor \* Opening CSM
- Ending CSM = Opening CSM – CSM amortized

(ii)

Period	1	2	3	4
Quantity of Benefits	1,175,000	1,175,000	1,175,000	1,175,000
Probability of Survival (tpx)	100%	95%	90%	86%
(A) Current service (CUt)	1,175,000	1,175,000	1,175,000	1,175,000
(B) Current + future service	8,700,000	7,525,000	6,350,000	5,175,000
CSM amortization factor [(A)/(B)]	13.5%	15.6%	18.5%	22.7%
Opening CSM	225,000	194,612	164,224	133,836
Insurance finance expense	0	0	0	0
CSM amortized	30,388	30,388	30,388	30,388
Ending CSM	194,612	164,224	133,836	103,448

Period	5	6	7	8
Quantity of Benefits	1,000,000	1,000,000	1,000,000	1,000,000
Probability of Survival (tpx)	81%	77%	74%	70%
(A) Current service (CUt)	1,000,000	1,000,000	1,000,000	1,000,000
(B) Current + future service	4,000,000	3,000,000	2,000,000	1,000,000
CSM amortization factor [(A)/(B)]	25.0%	33.3%	50.0%	100.0%
Opening CSM	103,448	77,586	51,724	25,862
Insurance finance expense	0	0	0	0
CSM amortized	25,862	25,862	25,862	25,862
Ending CSM	77,586	51,724	25,862	0

- Quantity of Benefits = Total Expected Premiums of Contract #1 + Total Expected Premiums of Contract #2
- tpx = prior tpx \* (1- lapse)
- CUt = Quantity of Benefits
- CSM amortized = CSM Amortization factor \* Opening CSM
- Ending CSM = Opening CSM – CSM amortized

(g) Recommend which one of the two approaches listed in part (f) produces the best proxy for the aggregate quantity of services provided. Justify your answer.

**Commentary on Question:**

*Candidates were generally unable to explain which of the 2 approaches were the best as a proxy.*

- The Normalization of the coverages units based on expected premiums approach produces a better representation of the services being provided under this group of contract.
  - The exposures for each of the coverages are not easily comparable. It is difficult to compare the respective exposures of dental coverage and life coverage under a group insurance contract. Under the simple sum of the various contractual coverages approach, the CSM is amortized quickly over the first four quarters, driven by the first contract where the annual premium is lower, while the contract with a longer guarantee period has a higher annual premium.
- (h) Propose another proxy for coverage units for this group of contracts. Justify your answer.

**Commentary on Question:**

*Candidates were generally able to provide an adequate alternative.*

- The number of certificates would also be a good proxy for coverage units for group insurance, provided that the volume of coverage does not vary substantially between certificates.
- Where the use of premiums for normalization would not be appropriate, a more sophisticated normalization approach may be appropriate, such as calculation of a notional CSM for each coverage. A notional CSM approach would essentially amortize a CSM calculated for each coverage as if it was a separate contract, but the aggregate CSM for a group of contracts would be the sum of the notional CSMs for the underlying coverages in the contract.

## GH FVCC Spring 2021 #3.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-duration products.
- (2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.

### Sources:

GH201-693-25: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

### Commentary on Question:

*In general, this question was not well answered, but most candidates were able to get partial credits.*

### Solution:

- (a) Describe the risk components that are considered in the calculation of the CHL's capital requirements with respect to LICAT.

### Commentary on Question:

*Most candidates were able to get the majority of points on this portion. Some candidates only listed the risks without any description and then no points were given for simply listing the risks.*

### Credit Risk:

- Risk of loss arising from the potential default of parties having a financial obligation to the insurer – includes the risk of actual default as well the risk of an insurer incurring losses due to downgrades.
- The required capital is calculated by applying factors to the balance sheet values of the assets.
- The factors will be higher for assets that are considered to have higher risks.

### Market Risk / Interest Rate Risk

- Risks arising from the insurer's exposure to market variables - exchange rates, interest rates, commodity prices, equity prices.
- The most important risk for CHL would be the risk of mismatch between interest sensitive asset and liability cash flows.
- The required capital is calculated as the maximum loss under four different prescribed scenarios, where the loss is a decrease in the insurer's net position (PV assets – PV liabilities) according to each scenario

**Insurance Risk:**

- Risk of loss arising from the obligation to pay out benefits and expenses on insurance policies in excess of expected amounts.
- CHL has Morbidity and Expense risks.
- Required capital considers misestimation of the level of the BE assumption (level risk), misestimation of the future trend of the BE assumption (trend risk), volatility risk due to random fluctuations and catastrophe risk due to a one-time large-scale event.
- The risks are evaluated as shocks to incidence and termination rates.

**Operational Risk:**

- Risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events (includes legal but excludes strategic and reputational).
- Required capital is necessary for Business volume (factor applied to premiums), Large increase in business volume (factor applied to excess year over year premiums) and General required capital (factor applied to required capital for credit, market and insurance risk)

- (b) Explain how the required capital for morbidity risk is determined for group LTD products.

**Commentary on Question:**

*This part of the question was not well answered by candidates. Most candidates were able to list a few items, but very few candidates had the complete list.*

- Morbidity risk required capital components are calculated for level, trend, volatility and catastrophe risks
- $RC_{\text{morbidity}} = (RC_{\text{vol}}^2 + RC_{\text{cat}}^2)^{.5} + RC_{\text{level}} + RC_{\text{trend}}$
- Total required capital for morbidity risk is calculated separately by geographic region.
- Level risk for active lives applies to products with guaranteed coverage period exceeding 12 months. The shock factor is +25% permanent increase in best estimated incidence rates.
- Level risk for disabled lives is a permanent decrease in best estimated termination rate. The factor applied is -25%.
- Trend factor is a permanent 100% decrease in the best estimated morbidity improvement assumption. If a best estimate assumption for morbidity improvement is not used, the risk charge for trend risk is zero.
- Volatility risk component is calculated as a one-time shock to first year incidence rates for active lives only. The shock factor applied to group LTD is +25%.
- Catastrophe risk component is calculated as a one-time shock to first year incidence rates.  $(1+25\%) \times$  Best estimated incidence rate.

- (c) Calculate:
- (i) LICAT total ratio
  - (ii) LICAT core ratio

State any assumptions and show your work.

**Commentary on Question:**

*Most candidates were able to identify the formulas for the total and core ratios. However, very few candidates were able to calculate them correctly.*

- Surplus Allowance = Pfads (except credit spread and investment expenses) =  $10 - 0.5 = 9.5$
- Eligible Deposit = 0 (No reinsurance on balance sheet)
- Base Solvency Buffer = 12
- Available Capital = Common Share Capital = 5
- Total Ratio =  $(\text{Available Capital} + \text{Surplus Allowance} + \text{Eligible Deposits}) / \text{Base Solvency Buffer} = (5 + 9.5) / 12 = 120.8\%$
- Core Ratio =  $(\text{Tier 1 Capital} + 70\% \text{ of Surplus Allowance} + 70\% \text{ of Eligible Deposits}) / \text{Base Solvency Buffer} = (5 + 0.7 \times 9.5) / 12 = 97.1\%$

- (d) Assess the financial health of CHL based on the results obtained in (c). Justify your answer.

**Commentary on Question:**

*This part of the question was well answered by candidates, but most candidates were able to justify their answer in part c).*

- The Total Ratio focuses on policyholder and creditor protection.
  - CHL has a Total Ratio of 120.8%, which is well above the Supervisory Target Total Ratio of 100%, as established by OSFI, and well above the minimum Total Ratio 90%.
- The Core Ratio focuses on financial strength.
  - CHL has a Core Ratio of 97.1%, which is well above the Supervisory Target Core Ratio of 70%, as established by OSFI, and well above the minimum Core Ratio 55%.
- Clearly, CHL is in a strong financial position and OSFI do not have to intervene in order to improve the capital adequacy of CHL.

- (e) Calculate the operating profit margin that should be included in CHL's renewal premiums to achieve its target Return on Equity. State any assumptions and show your work.

**Commentary on Question:**

*This part of the question was the one where the candidates have the most difficulty to answer. No candidate was able to calculate the profit margin correctly.*

- $ROE = (\text{After tax Operating profit} + \text{After Tax profit on Surplus}) / \text{Surplus}$
- Surplus can be estimated as  $110\% \times 12 \text{ million}$
- $\text{After Tax Operating Profit} = (12\% - 2\%) \times 110\% \times 12 \text{ Million} = 1.32 \text{ Million}$
- $\text{Pre-Tax Operating Profit} = 1.32 / (1 - 20\%) = 1.65 \text{ Million}$
- $\text{Profit Margin} = \text{Pre-Tax operating profit} / \text{Premium} = 1.65 / 20 = 8.25\%$

## GH FVCC Spring 2021 #5

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-duration products.
- (2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

CIA Educational Note on Source of Earnings Calculations – Group Life and Health

OSFI Guideline D-9 – Source of Earnings

### Commentary on Question:

*This question was pertaining to Source of Earnings. In general, candidates did not perform well on this question.*

### Solution:

- (a) Describe how group insurance businesses are classified for a SOE analysis.

### Commentary on Question:

*The list of three basic types of group business was taken directly from Section 1.4 of the CIA SOE Study Note. No candidate correctly answered this part of the question, but most candidates were able to get partial credits.*

#### Fully insured:

- Insurers bear the full risk
- May be prospectively experience-rated
- No allowance for recovery of past loss

#### ASO (Administrative Services Only):

- Fee-income type business
- Service providers bear no claim risk
- May have amounts on deposit, with or without interest credits
- May have some insured elements (e.g. high amount pooling)

Refund (Retrospectively Rates):

- Allows for recovery of past loss or refund past gains
- In a given time period, insurers may have full claim risk, or little to no claim risk

(b) List and describe the components of a SOE analysis to be included under the following categories:

(i) Management Actions

(ii) Basis Changes

**Commentary on Question:**

*The lists of management actions and basis changes were taken directly from the Appendix of the OSFI SOE Study Note. To receive full credit, candidates needed to provide four items under each category. Many candidates provided one or two items and then received partial credit.*

Management Actions:

- Changes in price of product
- Changes in fees or fee structure
- Changes in asset mix, whether in category of asset, quality of asset, duration, etc.
  - This would include the impact of investment management changes that are material and either change the previous investment policy or are outside of the existing investment policy.
  - This category would not include changes due to normal trading activity within an established investment policy, or changes in the asset mix due to the aging of the assets, new business, etc.
- New or revised reinsurance deals on in-force business
- Acquisition or sale of a block of business or company

Basis Changes:

- Changes in any best estimate assumptions for in-force business.
  - This includes changes in mortality, morbidity, lapse, policyholder dividends, expenses, ultimate interest rates, equity returns, real estate returns, default rates, etc.
  - This also includes changes in PfADs where the MfADs are a function of the best estimate actuarial liabilities.
- Changes due to refinements in valuation calculation systems
- Changes due to new actuarial or accounting standards

- ~~Correction of errors.~~
    - ~~This category is for any errors that are not material to the total, but could be regarded as material in a particular segment shown in the SOE analysis~~
  - ~~Changes in MfAD levels, including changes in the conditional tail expectation (CTE) level.~~
  - ~~Changes in non-formula bulk actuarial or other liabilities.~~
    - ~~This category does not include actuarial liabilities that are consistently calculated using an aggregate level methodology, as opposed to a policy by policy level calculation.~~
  - ~~New economic scenario for Canadian Asset Liability Method~~
- (c) Create the minimum disclosure of SOE analysis for 2019, as required by the Office of the Superintendent of Financial Institutions (OSFI). State any assumptions and show your work.

**Commentary on Question:**

*The format of the SOE disclosure appears on p. 3 of the OSFI SOE Study Note. Most candidates provided the correct form of disclosure. Most candidates provided the correct form of disclosure, but very few calculated these items correctly.*

First, calculate the expected 2019 results, based on the information found in the case study (actual 2019 results) and the additional information included in the problem. Note that premium growth from 2018 to 2019 was 6.1% (7,223 to 7,660).

	Actual 2019	Budget 2019
Premium	7,660	7,660 <sup>1</sup>
Other Revenue	1,542	1,542 <sup>1</sup>
Operating Revenue	9,202	9,202
Investment Income	351	546 <sup>3</sup>
G/L on Investment	321	0 <sup>4</sup>
Total Revenue	9,874	9,748
Benefit	5,193	6,279 <sup>2</sup>
Commissions	1,149	1,149 <sup>2</sup>
Expense	735	623 <sup>2</sup>
Premium tax	153	153 <sup>2</sup>
Interest Expense	50	45 <sup>3</sup>
Amortization	298	287 <sup>3</sup>
Total Expense	7,578	8,536
Income before tax	2,296	1,212

Footnotes (information from question):

1. Expected premium is \$7,660,000 and other revenue income is \$1,542,000 (same as actual for 2019)
2. Expected benefit expense, commissions, general and administrative expenses and premium taxes are proportional to premium growth
3. Expected net investment income, interest expense and amortization of other intangible assets are the same as 2018 actual
4. There is zero expected net realized gain or loss on investments

Expected profit on in-force business is **\$1,212**, per above.

Second, calculate experience gain/loss for the following items:

- Interest = (Expected investment income + G/L on investment + interest expenses + amortization) – (actual investment income + G/L on investment + interest expenses + amortization) =  $(546+0+45+287) - (351+321+50+298) = \$110$
- Benefit = Expected benefit – actual benefit =  $6,279 - 5,193 = \$1,086$
- Expense = (Expected commissions + expenses + premium tax) – (actual commissions + expenses + premium tax) =  $(1,149+623+153) - (1,149+735+153) = -\$112$ , and,
- Total equal to sum of gain/loss components =  $\$110 + \$1,086 - \$112 = \mathbf{\$1,084}$

Finally, create SOE disclosure. Note that information provided in question indicated that new business, management actions, and changes in assumptions were all zero. Assume that other and earnings on surplus are also zero. (Numbers do not add due to rounding.)

Expected Profit on In-Force Business	\$1,212
Impact of New Business	\$0
Experience Gain or Loss	\$1,084
Management Actions and Change in Assumptions	\$0
Other	\$0
Earnings on Operations (Pre tax)	\$2,295
Earnings on Surplus	\$0
<b>Income before Income Tax</b>	<b>\$2,295</b>
Income taxes	-\$1,251
<b>Net Income</b>	<b>\$1,044</b>

- (d) Explain the source of income differences. State any assumptions and show your work.

**Commentary on Question:**

*The question asked to compare 2018 to 2019 results. Several candidates compared expected 2019 results to actual, which was not what the question asked. To receive full credit, the candidate should have identified the three major drivers of changes to net income (premium growth, benefit costs, expenses). Partial credit was given for calculating other minor items and quantifying their impact (commission, premium taxes, etc.), or by noticing that policy mix changes could drive changes in claims or expense ratios.*

The primary drivers of the change in net income were:

- Increase in premium (\$7,223 to \$7,660, or 6.1% increase)
- Decrease in benefit costs (\$5,921 to \$5,193, or, as a percent of premium, 82.0% to 67.8%)
- Increase in expenses (\$587 to \$735, or, as a percent of premium, 8.1% to 9.6%)

The first two items increase net income, while the second decreases.

- (e) Compare the pattern of earnings of LTD with other group short-term liability products.

**Commentary on Question:**

*The discussion of short-term versus long-term products was taken directly from Section 2.2.3.1 of the CIA SOE Study Note. To receive full credit, candidates needed to provide the answer as illustrated below. Many candidates provided some of the items mentioned below and then received partial credit.*

- First-year LTD case would have minimal paid claims relative to premium
  - LTD liabilities have substantial PfADs when they are initially established
  - PfADs may be released fairly quickly as the claim matures
- Short term products have liabilities that are significantly smaller than associate paid claims
  - PfAD changes have a minimal effect on earnings since they are relatively small

- A stable LTD block with substantial inforce will likely be profitable, but a rapidly growing block may not be profitable, due to strain on liabilities.
  - The net expected profit on LTD includes:
    - Pricing profit loads
    - Marketing discount applied
    - New PfADs established on new claims
    - Release of PfADs on existing claims
- (f) Explain how refund businesses impact the methodology of SOE analysis.

**Commentary on Question:**

*The discussion of refund business was taken directly from Section 2.5 of the CIA SOE Study Note. To receive full credit, candidates needed to explain the surplus versus deficit treatment, as well as the additional sources of earnings.*

The SOE methodology applied to the refund business in a deficit position without a hold harmless agreement is the same as the one applied to pooled business. Refund business in surplus position, or in deficit with a hold harmless agreement, may have most of the earnings offset by changes in experience rating refund liability. Earnings will be dependent on the actual refund mechanism design.

Some examples of other potential source of earnings for group in surplus:

- Gains/losses on pooled elements (e.g., high amount pooling)
- Gains/losses from the use of liability basis for refund calculation different from the valuation basis
- Gains/losses from charges for expenses in the policy refund calculation different from actual allocated expenses
- Gains/losses from interest credits on policy liabilities and deposit different from actual interest the company earns

## GH FVCC Fall 2021 #3.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-duration products.
- (2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.

### Sources:

GH201-693-25: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

### Commentary on Question:

*This was a rather lengthy question on Canadian Life Insurance Capital Adequacy Testing (LICAT), requiring significant recall of items from the study note, as well as calculations. Candidates generally did not score well on this question.*

### Solution:

- (a) Explain how the required capital component for morbidity risk is calculated for the following group insurance products:
  - (i) Short Term Disability
  - (ii) Long Term Disability
  - (iii) Health and Dental

### Commentary on Question:

*Required capital components for morbidity risk for each of the group insurance products was taken from chapter 6 of the study note. Candidates were required to identify/describe the 4 risks for determining the capital components while also being able to explain how the required capital components for the morbidity risk is calculated for each product. Candidates were not penalized for providing the incorrect % changes for incidence and termination and received points for stating correctly on which best estimate assumptions (BEA) the shocks were applied depending on risk component and insurance product. Most candidates scored well on this part compared to other components of the question.*

The value of each morbidity risk component is the difference between the present value of the shocked cash flows and the present value of the best estimate cash flows.

Risk components are calculated at the policy level, summed by product and added across products by risk component. Total required capital for morbidity risk is calculated separately by geographic region using the following formula:

$$RC\_morbidity = \sqrt{RC\_volatility^2 + RC\_catastrophic^2} + RC\_level + RC\_trend$$

- (i) Short Term Disability:
  - Active live reserves:
    - Level risk - If rates guaranteed > 12 months, +25% on incidence rates
    - Trend risk – If rates guaranteed >= 24 months, 100% decrease in the BEA for morbidity improvement
    - Volatility risk – +25% on first-year incidence rates
    - Catastrophic risk – +25% on first year incidence rates
  - IBNR:
    - Level risk – -25% on termination rates
    - Trend risk – 100% decrease in the BEA for morbidity improvement
  
- (ii) Long Term Disability:
  - Active lives:
    - Level risk – If rates guaranteed > 12 months, +25% on incidence rates
    - Trend risk – If rates guaranteed >= 24 months, 100% decrease in the BEA for morbidity improvement
    - Volatility risk – +25% on first-year incidence rates
    - Catastrophic risk – +25% on first year incidence rates
  - IBNR / Disabled live reserves:
    - Level risk – -25% on termination rates
    - Trend risk – 100% decrease in the BEA for morbidity improvement
  
- (iii) Health & Dental:
  - Level risk - If rates guaranteed > 12 months, +20% on incidence rates
  - Trend risk – If rates guaranteed >= 24 months, 100% decrease in the BEA for morbidity improvement
  - Volatility risk - +15% medical / +20% dental on first-year incidence rates

- (b) Describe the two adjustments to the insurance risk required capital formula to account for special policyholder arrangements.

**Commentary on Question:**

*In general, candidates did not score well on this question. Candidates that did not score well failed to identify the two adjustments to the insurance risk required capital formula to account for special policyholder arrangements. A few candidates were able to describe specific policyholder arrangements and as such received partial credit for doing so.*

**Adjustments to group business:**

- Required capital may be reduced if a group benefit included in the calculation of the insurance risk requirement carries one of the following risk-reduction features that provides for a full transfer of risk: 1) “guaranteed no risk”, 2) deficit repayment by policyholders, or 3) a “hold harmless” agreement where the policyholder has a legally enforceable debt to the insurer.
- The amount by which required capital may be reduced is equal to a scaling factor multiplied by the sum of the marginal policy requirements for the policy calculated net of all reinsurance.
- The scaling factor to be used is 95% if the group policyholder is the Canadian Government or a provincial or territorial government in Canada, and 85% for all other policyholders.

**Policyholder deposits:**

- Qualifying policyholder deposits, excluding actuarial and claim reserves and any due refund provisions, may be used to reduce the insurance risk requirement for a policy.
- Such deposits must be: 1) made by policyholders, 2) available for claims payment (e.g., claims fluctuation and premium stabilization reserves, and accrued provision for experience refunds), and 3) returnable, net of applications, to policyholders on policy termination.
- When an insurer can recover excess losses from a deposit for a particular policy on a first dollar, 100% coinsurance basis, the amount by which required capital may be reduced is the lower of the deposit amount, or the sum of the marginal policy requirements for each of the insurance risks mitigated by the deposit, calculated net of all reinsurance.
- If a risk-sharing arrangement is eligible for credit, the amount by which required capital may be reduced is the lower of the deposit amount, or the portion of the marginal policy requirements for the policy that would be allocated to the policyholder under the risk-sharing formula.

- (c) Calculate the following:
- (iii) Diversified Risk Requirement (D)
  - (iv) Undiversified Risk Requirement (U)
  - (v) Adjusted Diversified Requirement (K)

State any assumptions and show your work.

**Commentary on Question:**

*The majority of candidates did not receive any points on this question. Calculations for this question came from Chapter 11 of the study note – the example listed in the study note provided a similar calculation of the required components.*

- Minimum value of  $I = \Sigma(IR_i - 0.5LT_i) + P\&C \text{ risk} = 650\,000$
- $I = \text{Insurance risk requirement} = 761,903$
- $A = \text{Requirement for credit risk} = \text{credit risk} + \text{market risk} = 550,000$
- $D = \sqrt{(A^2 + A \times I + I^2)} = 1,141,071$
- $U = \Sigma IR_i + P\&C \text{ risk} + A = 2,137,000$
- $LT = \Sigma LT_i = 965,000$
- $K = 0.8U + 0.1LT + \text{Max}[0; 0.233U - 0.116LT - 1.033D + D^2 / (U - 0.5LT)] = 1,806,100$

- (d) Assess the impact of K on LICAT ratios. Justify your response.

**Commentary on Question:**

*Most candidates generally did not score well on this question. Candidates were expected to describe how required capital and LICAT ratios would be impacted by changes in the adjusted diversified requirement (K) and by the difference between the Undiversified Risk Requirement (U) and K. The impact that K had on the LICAT ratio was discussed in chapter 1 of the study note and illustrated in the example in chapter 11.*

- A higher value of K means a higher base solvency buffer (BSB) and thus a lower LICAT ratio
- Results in a reduction to account for “double-counting” since individual risks are related to each other. In other words, risk aggregation creates a diversification benefit/credit – the sum of individual risks (U) is greater than the aggregated diversified risk (K)
- Using U or K in the BSB formula would produce a higher BSB and thus reduces the LICAT ratio. In other words, the diversification credit reduces the BSB and in turn increases the LICAT ratio.

## GH FVCC Fall 2021 #5.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

IFRS 17 and the Appointed Actuary in Canada

Comparison of IFRS 17 to Current CIA Standards of Practice, Nov 2020 (excluding sections 3.3, 7.2.1, 7.2.2, 7.2.3, 7.2.5 & 8.1.1)

IFRS 17 Insurance Contract Examples

### Commentary on Question:

*In general, candidates performed better on parts a and c while part b, d and e needed more work.*

### Solution:

- (a) — ~~List the key differences in comparing a valuation under IFRS 17 to the current valuation practice under Canadian GAAP.~~

### ~~Commentary on Question:~~

~~*This question was designed to test the understanding of how IFRS 17 compares to Canadian GAAP. In general, this question was well answered by many candidates. Candidates were required to have 4 of the 6 items listed below to receive full credit.*~~

- ~~• IFRS 17 requires a base calculation of a present value of future cash flows, which is clearly an actuarial calculation that the actuary will perform but this calculation must use an unbiased estimate of future experience and a discount rate that is consistent with IFRS 17 requirements.~~
- ~~• A separable risk adjustment must be added to the base present value, but the strength of that risk adjustment is intended to reflect the compensation that the entity requires for accepting the risk of uncertainty of the non-financial assumptions alone and thus is not solely determined by the actuary.~~

- ~~The explicit risk adjustment allowed is restricted to reflecting non-financial risk. The calculation of the present value of future cash flows is intended to reflect a market consistent provision for financial risk, without additional margins.~~
- ~~The derivation of the discount rate used in the base valuation as defined in the IFRS 17 standard reflects current yields in the market and is independent of both assets actually held and reinvestment strategies planned. Accordingly, the risk of asset and liability mismatch, including the assessment of the intention and ability of the entity to actually earn the assumed discount rate, is not addressed in the valuation.~~
- ~~Future expenses not directly attributable to the costs of administering the business in force and settling claims are not included in the projected future cash flows.~~
- ~~The valuation of policy liabilities is calculated without recognition of future deferred taxes.~~

(b) Describe how IFRS 17 will impact the role of the appointed actuary.

**Commentary on Question:**

*This question was designed to test the understanding of how IFRS 17 will impact the role of appointed actuary. In general, this question was not well answered by most candidates.*

- The actuarial valuation performed for Canadian GAAP reporting has for years been the sole valuation needed in Canada for public and regulatory reporting purposes and the methods and assumptions have until now been left up to the profession to define in its SOP.
  - Also left to our SOP was the wording of the opinion on the valuation that the actuary should include in any report to the policyholders, shareholders, and regulator.
- Under IFRS 17, the actuary will be tasked for the first time to perform a valuation where the methodology and the approach to assumptions, and the overall accounting framework driving the financial statements, is controlled by an independent standard-setting party.
- The new accounting framework incorporates at its core an approach to valuation that is fundamentally different from existing accepted actuarial practice in Canada.
  - This valuation approach was developed specifically for international GAAP reporting and not for regulatory monitoring or solvency assessment purposes, which are outside their purview.
  - Under IFRS 17, the accounting profession in Canada is no longer ceding control over the valuation to the actuarial profession, as this measurement is specifically addressed by the IFRS 17 Standard and is intended to be universally applied among adopting national jurisdictions.

- Yet the formal role of the Appointed Actuary in Canada as defined in the ICA will still require a report and presumably a standard opinion on the results of the valuation as well as opinions related to other components of the actuary's role, and the CIA still requires that the valuation of policy liabilities be in accordance with accepted actuarial practice.
    - Accordingly, fundamental questions have to be answered about how to continue this historic multifaceted role under IFRS 17 and most urgently, how the responsibility of the actuary for the total policy liabilities is construed given these changes.
- (c) Propose an appropriate measurement method for each of XYZ's products. Justify your answer.

**Commentary on Question:**

*This question was designed to test the application of choosing appropriate measurement methods for various products of an insurance company. In general, this question was well answered by many candidates.*

Type of measurement method under IFRS 17:

- PAA: premium allocation approach
- GMA: general measurement approach (or BBA: building block approach)
- VFA: variable fee approach

Traditional Term life product

- Traditional life product is subject to GMA since this product has long term liabilities, with the coverage period expanded to multiple years.

Group insurance

- Product with short term liabilities (Life, Health and Dental) less than a year are eligible for PAA.
- For products with coverage period longer than a year (e.g. LTD, group annuities), one should consider if the LRC calculated under the PAA would not be materially different than that under the GMA.
  - If at inception of the group an entity expects significant variability in the cash flows that would affect the measurement of the liability then this would lead to a response of 'No', not eligible for PAA.

Special considerations should be given to the following situations:

- New business rate guarantees beyond one-year period.
  - Depending on the wording of the group contract, if XYZ has obligation to provide insurance coverages during the guaranteed period and has no right to cancel the contract, GMA should be applied.
  - Otherwise, it is eligible for PAA.

- Treatment of Disability claims.
  - LTD claims can be treated as Liability for Incurred Claim (LIC) or Liability for Remaining Coverage (LRC).
  - If LTD is treated as LIC, LTD contracts are eligible for PAA.
  - If treated as LRC, check LRC calculated under PAA vs. GMA.

(d) Create the reconciliation of:

- (i) Risk Adjustment
- (ii) Contractual Service margin

State any assumptions and show your work.

**Commentary on Question:**

*Most candidates had difficulties answering the question, either not understanding the question was asking for a reconciliation or not understanding how to apply knowledge of risk adjustment and contractual service margin.*

(i) Reconciliation of Risk Adjustment (entire table is not shown)

Entry	Time 1	Time 2	...	Time 20
Opening	0	115,637	...	7,402
Changes Related to Future Services: New Business	118,882	0	...	0
Change Related to Future Services: Assumptions	0	0	...	0
Expected Cash Inflows	0	0	...	0
Expected Cash Outflows	0	0	...	0
Insurance Finance Expense	4,755	4,625	...	296
Changes Related to Current Services: Experience	0	0	...	0
Changes Related to Current Services: Release	(8,000)	(7,597)	...	(7,698)
Closing	115,637	112,666	...	0

- Changes related to future services: new business @ time 1 = NPV(expected risk adjustment CFs at 4% discounting)
- Insurance finance expense = (opening balance + changes related to future services: new business) x discount rate of 4%
- Changes related to current services: release = actual risk adjustment CFs
- Closing = sum of column

(ii) Reconciliation of Contractual service margin (entire table is not shown)

Entry	Time 1	Time 2	...	Time 20
Opening	0	65,696	...	1,544
Changes Related to Future Services: New Business	70,830	0	...	0
Change Related to Future Services: Assumptions	0	0	...	0
Expected Cash Inflows	0	0	...	0
Expected Cash Outflows	0	0	...	0
Insurance Finance Expense	2,833	2,628	...	62
Changes Related to Current Services: Experience	0	0	...	0
Changes Related to Current Services: Release	(7,967)	(7,868)	...	(1,605)
Closing	65,696	60,456	...	0

- Changes related to future services: new business @ time 1 = CSM at initial recognition
- Insurance finance expense = (opening balance + changes related to future services: new business) x locked in CSM rate of 4%
- Changes related to current services: release = sum of (opening, changes related to future service: new business, changes related to future service: assumptions, expected cash inflows, expected cash outflow, insurance finance expense, changes related to current services: experience) x coverage units reconciliation opening balance / sum of (coverage units reconciliation opening balance for all remaining periods)
- Closing = sum of column

~~(e) Construct a mock up of a Profit and Loss statement under IFRS 17 for XYZ without providing any numbers.~~

**~~Commentary on Question:~~**

~~Most candidates were not able to identify how a profit and loss statement will look under IFRS 17.~~

**Statement of Profit or Loss**

~~Insurance Service Revenue~~

~~Release of CSM~~

~~Release of Risk Adjustment~~

~~Expected Claims~~

~~Expected Expenses~~

~~Recovery of Acquisition Cash Flows~~

~~Total~~

**~~Insurance Service Expense~~**

~~Claims Incurred~~

~~Expenses Incurred~~

~~Amortization of Acquisition Cash Flows~~

**~~Total~~**

**~~Other Expense~~**

**~~Financial Gain/Loss~~**

~~Investment Income~~

~~Insurance Financial Expense~~

**~~Total~~**

**~~Profit or Loss~~**

## GH FVC Spring 2022 #7.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-duration products.
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

Guideline – Source of Earnings Disclosure

CIA Educational Note on Source of Earnings Calculations – Group Life and Health

### Commentary on Question:

*The purpose of this question was to test the candidates' understanding of the OSFI framework for disclosure of source of earnings for GL&H insurance carriers. All candidates did not perform very well with none getting more than half credits. More commentaries are provided below on each part.*

### Solution:

- (a) Calculate the following by completing the table:

	<b>Year 2021</b>
<del>Expected Profit on In-Force Business</del>	
<del>Experience Gains &amp; Losses</del>	
<del>Management Actions and Changes in Assumptions</del>	
<del>Earnings on Operations (pre-income tax)</del>	
<del>Earnings on Surplus</del>	
<del>Income before Income Tax</del>	
<del>Income Taxes</del>	
<del>Net Income</del>	

State any assumptions and show your work.

**Commentary on Question:**

*This part of the question tested the candidates' comprehension of the OSFI guideline and definitions for SOE Disclosure. No candidates were able to correctly calculate the first elements. The common mistakes were not taking out investment income from surplus' assets (i.e. the earnings on surplus which do not arise from in force business experience) from expected profit and not taking out the impact of the new valuation system (i.e. the management actions and changes in assumptions which is a loss) from the increase in liabilities. Also, several candidates did not see that the change in contract liabilities was already included in total expenses and incorrectly accounted for change in liabilities. Most candidates got earnings on operation and income before taxes, which also equal actual total revenues minus total benefits and nearly all calculated taxes correctly.*

- ~~Expected profit on in force business = Premium + Investment Income – total benefit and expenses (based on 2020 “Plan” income) = (\$333,250 – \$500) – \$321,750 = \$11,000~~
- ~~Experience Gain/Loss = (\$356,760 – \$500 – \$343,510) – \$11,000 + \$650 = \$2,400~~
- ~~Management actions and changes in assumptions = – \$650~~
- ~~Earnings on operations (pre-income tax) = \$11,000 + \$2,400 – \$650 = \$12,750~~
- ~~Earnings on Surplus: \$500~~
- ~~Income before income tax = \$12,750 + \$500 = \$13,250~~
- ~~Income taxes = \$13,250 x 20% = \$2,650~~
- ~~Net Income = \$13,250 – \$2,650 = \$10,600~~

(b) Calculate the following:

- (i) Experience gain (or loss) from investment income
- (ii) Experience gain (or loss) from reinsurance
- (iii) Experience gain (or loss) from expenses, commissions and premium tax (combined)

**Commentary on Question:**

*This part of the question tested the ability of candidates to correctly interpret the experience gains definitions of OSFI. No candidates were able to get all credits, but several were able to get partial credits for some elements that were calculated correctly. On part (i), candidates mostly missed that interest on liabilities is shared as part of the reinsurance arrangement (change in reinsurance assets partially offset the change in liabilities by the coinsurance percentage). On part (iii), no candidates correctly calculated the expected expenses as the expense loads on actual premiums, but some got partial credit for correctly calculating actual expenses.*

- (i) Expected investment income = \$3,000  
Expected interest on liabilities =  $3\% \times (\$165,000 + \$175,000) / 2 \times 50\% = \$2,550$   
Actual investment income = \$3,700  
Actual interest on liabilities =  $3.5\% \times (165,000 + 174,180) / 2 \times 50\% = \$2,968$   
Experience gain from investment income =  $(\$3,700 - \$2,968) - (\$3,000 - \$2,550) = \$282$
- (ii) Expected gain from reinsurance =  $-(\$20,250 - \$17,500 - \$5,000) = \$2,250$   
Actual gain from reinsurance (after change in valuation system) =  $-(\$19,440 - \$17,250 - \$4,590) = \$2,400$   
Loss due to the change in the valuation system =  $\$650 \times 50\% = \$325$  – should be removed from the experience gain on operations  
Experience loss from reinsurance =  $-(\$2,400 - \$2,250 - \$325) = \$175$
- (iii) LTD pricing total expenses =  $6.5\% + 4\% + 3\% = 13.5\%$   
Health/Dental pricing total expenses:  $4.5\% + 4\% + 3\% = 11.5\%$   
LTD gross premium =  $\$19,440 / (50\% - 9.5\%) = \$48,000$   
Health & Dental premium =  $\$372,000 - \$48,000 = \$324,000$   
Expected expenses =  $\$48,000 \times 13.5\% + \$324,000 \times 11.5\% = \$43,740$   
Actual expenses =  $\$14,880 + \$19,420 + \$11,160 = \$45,460$   
Experience loss from expenses =  $\$45,460 - \$43,740 = \$1,720$
- (c) Describe the reasons for these differences assuming the simplified approximation to the Canadian Asset Liability Method (CALM) methodology is used for group insurance.

**Commentary on Question:**

*This part of the question tested the candidates' knowledge of different valuation methodologies and explain differences with respect to group insurance. Only one candidate got near full credits and a few others had half credits.*

- Contrary to individual benefits, liability calculations projecting full future cash flows would not be available to support the analysis for group benefits.
  - For many group benefits, most insurers conclude that the effect of including short-term cash flows (until the next premium renewal date) in CALM valuation is not material and they are ignored.
  - The incidence of future claims (i.e., full future cash flows) is not projected as part of the valuation; liabilities are set up only when claims are incurred.
  - Variance in the incidence of claims and the related claims loss ratio is the primary source of volatility in group earnings.
  
- Group earnings are more naturally analyzed as a function of the pricing assumptions rather than the valuation assumptions.
  - Group pricing starts from actuarial rating factors that normally utilize best estimate assumptions.
  - In group insurance, there is much more flexibility applied by underwriters or field personnel in determining the final rate basis for a given case than is normal for other lines of business.
  - Renewal underwriting process adjusts prices at regular intervals, where rate guarantees are generally limited to 15–27 months from issue. As a result of this pricing flexibility, the initial quotation and subsequent annual renewal underwriting process are the most critical determinants of future profits.
  
- Understanding of changes in group earnings is greatly enhanced by an analysis of earnings in the first policy period (which are driven by pricing decisions made at the initial quotation) separately from second and/or later policy periods (driven by renewal pricing decisions).
  - If the simplifying approximation to CALM valuation noted above is used, then the effect of new business for Appointed Actuary reporting purposes would typically be approximated as zero, and all gains would be considered gains on inforce business.
  - Analysis of gains from inforce operations separately by policy period, or at least between first policy period and subsequent policy periods, may be beneficial and can help in quickly identifying the root cause of an earnings downturn.

## **GH FVC Fall 2022 #7.**

### **Learning Objectives:**

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### **Learning Outcomes:**

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### **Sources:**

Comparison of IFRS 17 to Current CIA Standards of Practice, Jun 2022

IFRS 17 Insurance Contract Examples

CIA Explanatory Report - IFRS 17 Expenses

### **Commentary on Question:**

*Understanding of insurance contracts in the context of IFRS was valuable to this question. Many candidates were able to set up the Reconciliation of Acquisition Expenses as well as Profit and Loss Statements, but lacked key components.*

### **Solution:**

- (a) Explain the IFRS 17 accounting treatment related to:
  - (vi) Amounts on deposit
  - (vii) Experience rating
  - (viii) Claims fluctuation reserves / Premium stabilization reserves
  - (ix) Administrative Services Only (ASO) contracts

### **Commentary on Question:**

*Candidates were mostly unable to explain the IFRS accounting treatment for the various insurance features. There was limited understanding on treatment of the investment component and whether they were treated as distinct or non-distinct.*

(i) Amount on Deposits

- Treated as either a distinct or non-distinct investment component.
- If distinct, would be separated from the insurance contract, measured under IFRS 9, and the liability would be included with other investment contract liabilities in the financial statements.
- If non-distinct, IFRS 17 applies and the liability would be included with insurance contract liabilities. Exclude from insurance revenue and insurance service expense.

(ii) Experience Rating

- Treated as a non-distinct investment component.
- Same as policy-holder share of the underlying (VFA).
- If there is no insurance risk (i.e. some have hold harmless agreements), the contract would be outside the scope of IFRS 17.

(iii) Claims Fluctuation reserves/Premium stabilization reserves

- Treated as either a distinct or non-distinct investment component
- If distinct, would be separated from the insurance contract, measured under IFRS 9, and the liability would be included with other investment contract liabilities in the financial statements.
- If non-distinct, IFRS 17 applies and the liability would be included with insurance contract liabilities. Exclude from insurance revenue and insurance service expense.

(iv)

- ASO – Pure
  - Treated as a service contract.
  - IFRS 15 applies to pure ASO since entity has no insurance risk and provides administrative, claims, and processing services, while the group contract holder assumes all the insurance risk, and pays for all services and claims.
  - Absent of any insurance features, IFRS 9 applies to any account balances.
- ASO – with insurance
  - AoD arising from annual accounting of the ASO might be a distinct investment component. If so, it would be separated, measured under IFRS 9 and included with other investment contracts in the financial statements.
  - The service component of the contract might be distinct under IFRS 17.34. If so, it would be separated, measured under IFRS 15, and included with other service contracts in the financial statements.
  - The remaining components of the contract would not be separated.

(b) Create the following missing reporting sections in the Excel spreadsheet:

(i) Reconciliation of Acquisition Expense Amortization

(ii) Statement of Profit or Loss

State any assumptions and show your work.

**Commentary on Question:**

Candidates were unable to set up the reconciliation of acquisition expense amortization, generally missing the components to the amortization. Many candidates were able to set up the Profit and Loss Statement, however they missed many components such as the release of CSM, release of Risk adjustment as well as expenses.

Reconciliation of Acquisition Expense Amortization		0	189,213	174,120	158,705	142,953	126,848	110,373	93,515	76,252	58,569	40,447	36,765	33,010	29,180	25,272	21,282	17,208	13,046	8,793	4,446	
Opening		0																				
New Acquisition Expense	204,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accretion of Interest	8,160	7,569	6,965	6,348	5,718	5,074	4,415	3,741	3,050	2,343	1,618	1,471	1,320	1,167	1,011	851	688	522	352	178		
Amortized Expense	-22,947	-22,662	-22,380	-22,100	-21,823	-21,548	-21,274	-21,003	-20,733	-20,465	-20,200	-19,937	-19,676	-19,416	-19,157	-18,900	-18,645	-18,392	-18,141	-17,892	-17,645	-17,400
Closing	189,213	174,120	158,705	142,953	126,848	110,373	93,515	76,252	58,569	40,447	36,765	33,010	29,180	25,272	21,282	17,208	13,046	8,793	4,446	0		
<b>Statement of Profit or Loss</b>																						
Release of CSM	7,967	7,868	7,771	7,673	7,577	7,482	7,386	7,292	7,199	7,106	7,014	6,923	6,832	6,742	6,652	6,563	6,474	6,386	6,298	6,211	6,124	6,038
Release of Risk Adjustment	8,000	7,597	9,017	8,562	9,756	10,806	10,258	11,129	11,884	12,532	6,007	6,731	6,869	6,974	7,488	7,508	7,504	7,852	8,138	7,698		
Expected Claims	80,000	75,968	90,174	85,620	97,556	108,056	102,577	111,288	118,839	125,322	60,070	67,306	68,694	69,740	74,879	75,084	75,043	78,519	81,381	76,985		
Expected Expenses	30,000	38,221	36,295	34,462	32,722	31,066	29,491	27,996	26,574	25,221	9,869	9,356	8,867	8,402	7,960	7,538	7,138	6,757	6,394	6,049		
Recovery of Acquisition Cash Flows	22,947	22,662	22,380	22,100	21,823	21,548	21,274	21,003	20,733	20,465	20,200	19,937	19,676	19,416	19,157	18,900	18,645	18,392	18,141	17,892		
Insurance Service Revenue	148,914	152,316	165,637	158,418	169,434	178,957	170,986	178,708	185,228	190,646	83,085	90,432	91,369	91,954	97,064	96,766	96,219	99,561	102,245	96,961		
Claims Incurred	-80,000	-75,968	-90,174	-85,620	-97,556	-108,056	-102,577	-111,288	-118,839	-125,322	-60,070	-67,306	-68,694	-69,740	-74,879	-75,084	-75,043	-78,519	-81,381	-76,985		
Expenses Incurred	-30,000	-38,221	-36,295	-34,462	-32,722	-31,066	-29,491	-27,996	-26,574	-25,221	-9,869	-9,356	-8,867	-8,402	-7,960	-7,538	-7,138	-6,757	-6,394	-6,049		
Amortization of Acquisition Cash Flows	-22,947	-22,662	-22,380	-22,100	-21,823	-21,548	-21,274	-21,003	-20,733	-20,465	-20,200	-19,937	-19,676	-19,416	-19,157	-18,900	-18,645	-18,392	-18,141	-17,892		
Insurance Service Expense	-132,947	-136,851	-148,849	-142,182	-152,101	-160,670	-153,342	-160,287	-166,146	-171,008	-75,238	-81,887	-82,711	-83,218	-87,840	-87,547	-87,030	-90,051	-92,475	-87,657		
Other Expense	-80,000	-18,992	-18,035	-17,124	-16,259	-15,437	-14,654	-13,911	-13,204	-12,532	-3,121	-2,958	-2,804	-2,657	-2,517	-2,384	-2,257	-2,137	-2,022	-1,913		
Investment Income	45	2,700	5,315	7,000	8,665	9,508	9,583	9,662	9,059	7,815	5,194	6,340	6,966	7,351	7,512	7,246	6,790	6,156	5,171	3,858		
Insurance Financial Expense	-40	-2,400	-4,724	-6,222	-7,702	-8,452	-8,518	-8,589	-8,052	-6,947	-4,617	-5,636	-6,192	-6,535	-6,678	-6,441	-6,036	-5,472	-4,596	-3,429		
Financial Gain/Loss	5	300	591	778	963	1,096	1,074	1,007	868	577	704	774	817	835	895	754	684	575	429			
Profit or Loss	64,028	-3,227	-656	-111	2,036	3,907	4,055	5,584	6,885	7,974	5,304	6,291	6,628	6,896	7,542	7,640	7,686	8,057	8,322	7,820		
When experience < expected, profits = CSM and RA release plus investment income variance less unallocated expenses	-64,028	-3,227	-656	-111	2,036	3,907	4,055	5,584	6,885	7,974	5,304	6,291	6,628	6,896	7,542	7,640	7,686	8,057	8,322	7,820		

(c) List examples of other expenses that would generally be considered directly attributable to an insurance contract.

**Commentary on Question:**

Candidates were generally unable to identify the differences between acquisition and maintenance expenses, but were able to identify many components that are directly attributable to the insurance contracts.

- **Acquisition Expenses** – Expenses which are incurred with the primary purpose being issuance or renewal of insurance contracts, such as:
  - Costs related to pricing activities
  - Costs associated with policy issuance or renewal
  - Costs related to underwriting activities
  - Costs related to sales and distributions, including salaries, bonuses, commissions and agency costs
  - Contingent profit commissions (except if qualify as non-distinct investment component), transfer/overwrite commissions (associated with procurement of new insurance contracts) (P&C only)

- Training and/or HR costs directly related to any of the above functions
  - Overhead attributed to issuance or renewal of insurance contracts
  - **Maintenance Expenses** – Expenses incurred with the primary purpose being the fulfilment of obligations under insurance contracts, such as:
    - Policy maintenance costs, including salaries of administration personnel, systems maintenance costs, and customer service costs
    - Claims settlement costs
    - Recurring commissions (e.g. related to recurring premiums)
    - Sliding scale and other profitability-based commissions (except if it qualifies as non-distinct investment components) (P&C Only)
    - Training and/or HR costs that were directly related to any of the above functions
    - Overhead attributed to the maintenance of the insurance contracts
- (d) You have decided to classify expenses related to investment management, asset liability management and risk management as directly attributable to insurance contracts. The auditor has questioned your classification of expenses.

Explain to the auditor why your rationale is correct.

**Commentary on Question:**

*Candidates were generally unable to explain why the rationale is correct, but were able to identify that the interpretation of “directly attributable” may be up for a wider interpretation.*

- The counter argument to the auditor is that an insurance entity couldn’t plausibly fulfill its obligations under its insurance contracts without expenses such as investment management, asset liability management and risk management.
- Additionally, while the primary purpose of incurring these costs may not be acquisition of insurance contracts or fulfilling obligations under insurance contracts, neither is the primary purpose of overhead expenses (such as rent and HR costs), but these overhead costs are considered directly attributable under IFRS 17.B65(1).
- Thus, from this perspective, wider interpretation of the scope of “directly attributable” could be potentially adopted.

## GH FVC Fall 2022 #12.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-duration products.
- (2c) Project financial outcomes and recommend a strategy to senior management to achieve financial goals.
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, 2021, Ch. 43: Analysis of Financial and Operational Performance

### Commentary on Question:

*Most candidates got full marks on part A, but failed to discuss the deterioration of the DuPont formula components in enough detail to get full marks for part B. Few were able to identify and describe the types of financial analyses asked in part C. For parts D and E, common mistakes included using the wrong revenue (the question referred to individual business only but many included group) and using the wrong Member Months.*

### Solution:

- (a) Calculate the following metrics for Year 3 and Year 4:
  - (i) Total leverage ratio
  - (ii) Total asset turnover
  - (iii) Net profit margin
  - (iv) Return on assets
  - (v) Return on equity

State any assumptions and show your work.

### Commentary on Question:

*Candidates did very well on these calculations.*

	Year	3	4
Data from Quantum Income Statement and Balance Sheet	Revenue	97,419	88,203
	Net Income	4,659	1,820
	Total Assets	40,002	40,291
	Shareholder Equity	19,861	20,519

Calculated Responses	Total Leverage Ratio	201.4%	196.4%
	Total Asset Turnover	243.5%	218.9%
	Net Profit Margin	4.8%	2.1%
	Return on Assets	11.6%	4.5%
	Return on Equity	23.5%	8.9%

- (b) Explain the deterioration between Year 3 and Year 4 using the DuPont formula. Justify your answer.

**Commentary on Question:**

*Candidates generally identified that ratios were deteriorating, however, they did not interpret what drove this deterioration.*

**Return on Assets (Deterioration)**

Net income has decreased because of the deterioration in revenue of the legacy block. The assets to support the liabilities and business have remained the same. This would indicate that the runoff has not been as good as expected on the legacy business.

**Total Leverage Ratio (Deterioration)**

Total assets have remained flat from year 3 to year 4 while the shareholder equity has grown. Likely Quantum's position on leveraging their shareholder investment has become more conservative as results have deteriorated.

This indicates that there are a number of fixed assets supporting the long-term legacy debt.

**Return on Equity (Deterioration)**

Net income has dropped year over year and shareholder equity has risen. The deterioration in net income is attributed to revenues dropping \$9M while expenses dropped by \$5M and offset by tax of \$1.5M. (Total of \$2.5M)

**Total Asset Turnover (Deterioration)**

Revenues have dropped significantly between years 3 and 4 which was driven by the deterioration of the grandfathered block revenues. The assets to support the liabilities and business have remained the same. This would indicate that the runoff has not been as good as expected on the legacy business.

**Net Profit Margin (Deterioration)**

Net income has dropped at a faster rate than revenues. The deterioration in net income is attributed to revenues dropping \$9M while expenses dropped by \$5M, offset by an improvement in tax of \$1.5M (total of \$2.5M)

- (c) List and describe the types of financial analysis where ratios in part (a) can be applied.

**Commentary on Question:**

*In order to receive full marks, candidates were expected to identify how the ratios can be used. Candidates were able to identify different types of reporting, which may leverage these ratios. However, in order to receive full marks, it was important to qualify the usefulness of the various types of reporting.*

<b>Year-over-Year</b>
<ul style="list-style-type: none"> <li>• This analysis looks at financial ratios over different twelve-month periods.</li> <li>• Year-over-year variances can be identified and remedied, especially using same size income statements.</li> <li>• Comparing similar twelve-month periods has the virtue of eliminating the effects of seasonal patterns.</li> </ul>
<b>Comparisons with Other, Similar Enterprises</b>
<ul style="list-style-type: none"> <li>• By comparing with similar insurers, a health plan can identify whether it operates at best practice and set best practice goals if it does not.</li> <li>• Insurers being compared should have similar business models, offer similar products, and perhaps also have similar operational philosophies.</li> <li>• Having similar geographic focus and capital cost conditions is also helpful.</li> <li>• While economies of scale are generally limited to a few functions and a modest impact, achieving similarity in size may enhance comparability.</li> </ul>
<b>Financial Planning and Analysis</b>
<ul style="list-style-type: none"> <li>• Financial planning and analysis involves establishing goals and measuring performance relative to those goals. There are analytical advantages to selecting a single metric to maximize, say return on equity and growth, and employing the financial ratios to support this analysis.</li> <li>• The process of financial planning and analysis occurs prospectively, in an annual or long-term budget, and then retrospectively, through a review of how performance compares to these objectives. In this way, financial planning complements financial analysis.</li> </ul>
<b>Operational Expense Analysis</b>
<ul style="list-style-type: none"> <li>• Looks at the operational performance of individual aspects of the business from Rating and Underwriting, Product Development / Market Research, Sales and Marketing (Except Advertising and Promotion), Commissions (External), Advertising and Promotion, Enrollment / Membership / Billing, Customer Services, Provider Network Management and Services, Medical Mgmt. / Quality Assurance / Wellness, Claim and Encounter Capture and Adjudication, Total Information System Expenditures (As Expensed), HIPAA, Finance and Accounting, Actuarial, Corporate Services (HR, Facilities, Legal, Regulatory), Corporate Executive / Governance, and Association Dues and License/Filing Fees</li> <li>• Typically starts with an expense and headcount review.</li> </ul>

- (d) Create the same-size income statements for Year 4 for the following individual plans:
- (i) HMO plans
  - (ii) PPO plans
  - (iii) Grandfathered plans

State any assumptions and show your work.

**Commentary on Question:**

*Candidates needed to use the individual plan figures in order to receive full marks.*

Revenues	Revenue Splits			Total
	HMO	PPO	Grandfathered	
Premium Revenues	22,637	6,407	18,780	<b>47,824</b>
Administrative fees income	9	3	8	<b>20</b>
Miscellaneous income	498	141	413	<b>1,052</b>
Net investment income	392	111	325	<b>828</b>
<b>Total Revenues</b>	<b>23,536</b>	<b>6,662</b>	<b>19,526</b>	<b>49,724</b>
Expenses	Individual HMO	Individual PPO	Individual Grandfathered	Total
Benefit Expenses	19,500	5,574	15,860	<b>40,934</b>
Commissions	451	128	374	<b>953</b>
General Insurance Expenses	2,789	789	2,319	<b>5,897</b>
Insurance taxes, licenses and fees, excluding federal income tax	498	141	413	<b>1,052</b>
Write-in	62	216	182	<b>460</b>
<b>Total Expenses</b>	<b>23,300</b>	<b>6,848</b>	<b>19,148</b>	<b>49,296</b>
<b>Income before Tax</b>	<b>236</b>	<b>-186</b>	<b>378</b>	<b>428</b>

Same-Size			
HMO	PPO	Grandfathered	Total
96.18%	96.17%	96.18%	<b>96.18%</b>
0.04%	0.05%	0.04%	<b>0.04%</b>
2.12%	2.12%	2.12%	<b>2.12%</b>
1.67%	1.67%	1.66%	<b>1.67%</b>
<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>
Individual HMO	Individual PPO	Individual Grandfathered	Total
82.85%	83.67%	81.23%	<b>82.32%</b>
1.92%	1.92%	1.92%	<b>1.92%</b>
11.85%	11.84%	11.88%	<b>11.86%</b>
2.12%	2.12%	2.12%	<b>2.12%</b>
0.26%	3.24%	0.93%	<b>0.93%</b>
<b>99.00%</b>	<b>102.79%</b>	<b>98.06%</b>	<b>99.14%</b>
<b>1.00%</b>	<b>-2.79%</b>	<b>1.94%</b>	<b>0.86%</b>

(e) Create the per member per month (PMPM) income statements for Year 4 for the following individual plans:

- (i) HMO plans
- (ii) PPO plans
- (iii) Grandfathered plans

State any assumptions and show your work.

**Commentary on Question:**

*General formula leverages the income statement from d) multiplied by 1,000 on the basis of the member per months.*

Revenues	Per Member per Month			
	HMO	PPO	Grandfathered	Total
<b>Member Months</b>	<b>52,550</b>	<b>25,740</b>	<b>145,800</b>	<b>224,090</b>
Premium Revenues	430.77	248.91	128.81	213.41
Administrative fees income	0.17	0.12	0.05	0.09
Miscellaneous income	9.48	5.48	2.83	4.69
Net investment income	7.46	4.31	2.23	3.69
<b>Total Revenues</b>	<b>447.88</b>	<b>258.82</b>	<b>133.92</b>	<b>221.89</b>
<b>Expenses</b>	<b>HMO</b>	<b>PPO</b>	<b>Grandfathered</b>	<b>Total</b>
Benefit Expenses	371.08	216.55	108.78	182.67
Commissions	8.58	4.97	2.57	4.25
General insurance expenses	53.07	30.65	15.91	26.32
Insurance taxes, licenses and fees, excluding federal income tax	9.48	5.48	2.83	4.69
Write-in	1.18	8.39	1.25	2.05
<b>Total Expenses</b>	<b>443.39</b>	<b>266.05</b>	<b>131.33</b>	<b>219.98</b>
<b>Income before Tax</b>	<b>4.49</b>	<b>-7.23</b>	<b>2.59</b>	<b>1.91</b>

- (f) Propose four solutions to improve the financial performance of Quantum. Justify your proposal.

**Commentary on Question:**

*Any reasonable answers were awarded credit.*

<b>Revenue Actions</b>
<ul style="list-style-type: none"> <li>• Quantum could look at divesting in the legacy block or acquire another block to generate more revenue</li> </ul>
<ul style="list-style-type: none"> <li>• Look to improve underwriting margin by repricing and increasing premium rates where they can</li> </ul>
<ul style="list-style-type: none"> <li>• Grow larger margin business (HMO or PPO)</li> </ul>
<b>Expense Actions</b>
<ul style="list-style-type: none"> <li>• Restructure compensation where possible</li> </ul>
<ul style="list-style-type: none"> <li>• Review internal expenses required to support the business</li> </ul>
<ul style="list-style-type: none"> <li>• Evaluate internal procedures to find ways to improve expenses and reduce headcount</li> </ul>
<ul style="list-style-type: none"> <li>• Integrate technology solutions to improve customer experience and reduce costs.</li> </ul>

## **GH VRC Spring 2023 #4.**

### **Learning Objectives:**

1. The candidate will understand how to apply valuation principles for group and health insurance contracts
2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### **Learning Outcomes:**

- (1a) Describe the types of claim reserves.
- (1c) Calculate appropriate claim reserves given data.
- (1e) Evaluate data resources and appropriateness for calculating reserves.
- (2c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### **Sources:**

Group Insurance, Skwire, Daniel D., 8th Edition, 2021 Ch. 40: Claim Reserves for Long-Term Benefits

GH201-100-25: Health Reserves

Comparison of IFRS 17 to Current CIA Standards of Practice, Jun 2022 (excluding sections 3.3, 7.2.1, 7.2.2, 7.2.3, 7.2.5 & 8.1.1)

CIA Educational Note – IFRS 17 Coverage Units for Life and Health Insurance Contracts (excluding sections 3.1.2, 3.1.3, 3.2, 3.4)

### **Commentary on Question:**

*This question tested candidates' knowledge on insurance reserving. Overall, candidates did well on part (a) and (b), but had difficulties with subsequent sections. Partial credit was awarded if the LRC or LIC calculation was not fully complete, or simplifying assumptions were made to continue to subsequent sections.*

**Solution:**

- (a) Identify the types of liabilities that XYZ would need to hold for the acquired block from ABC. Justify your response.

**Commentary on Question:**

*Partial credit was awarded to identify the type of liabilities, but justifications were required for full credit. Only items pertaining to disabled or in payment claims were applicable. No credit was awarded for other reserves, such as incurred but not reported reserve, policy reserve or unearned premium reserve.*

- Due & Unpaid (D&U) Liabilities – liabilities for claims that have been reported, adjudicated and processed, but for which final payment has not been recorded as of the valuation date.
- Loss Adjustment Expense (LAE) – liability for admin costs associated with the adjudicated of unpaid claims.
- Outstanding Accounting Feeds – amounts which have been acknowledged as payments, but for which no check has yet been cut as of the valuation date.
- Present Value of Amounts Net Yet Due – covers claims that were incurred on or before the valuation date which have not accrued as of valuation date.

- ~~(b) Calculate a best estimate tabular claim reserve for Policyholder A as of the valuation date. State any assumptions and show your work.~~

**Commentary on Question:**

*Candidates did fairly well on this section. Stating the formula and/or a properly labelled table was required for full credit as part of showing work. An assumption on which interest to use was required. Candidates needed to provide a reasonable explanation for their assumption selection.*

Formula for tabular reserve:  $\text{sum payment (benefit} \times \text{continuance} \times \text{interest discount)}$

**Assumptions made:**

- ~~Given this is a best estimate reserve, actual asset earned rate should be used to reflect market rates. Without indicating rationale for why actual terminations are different from expected, we assume expected terminations (current assumptions) hold.~~

Date of Payment		30/06/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020	31/12/2021	31/12/2022					
Age			50	51	52	53	54	55					
Annual Benefit			\$ 30,000	\$ 30,600	\$ 31,212	\$ 31,836	\$ 32,473	\$ 33,122					
Expected Termination per 1,000 lives			500	150	75	200	200	200					
Actual Termination per 1,000 lives			350	200	100	150	150	150					
<b>Calculate Reserve:</b>		Claim Duration	6	7	8	9	10	11	12	13	14	15	
		12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031	12/31/2032	
Age of claimant		55	56	57	58	59	60	61	62	63	64	65	
Benefit	2.00%	\$ 33,122	\$ 33,785	\$ 34,461	\$ 35,150	\$ 35,853	\$ 36,570	\$ 37,301	\$ 38,047	\$ 38,808	\$ 39,584	\$ 40,376	
Asset Earn rate	4.50%	1.0000	0.9569	0.9157	0.8763	0.8386	0.8025	0.7679	0.7348	0.7032	0.6729	0.6439	
Continuance	0.20	1.0000	0.8000	0.6400	0.5120	0.4096	0.3277	0.2621	0.2097	0.1678	0.1342	0.1074	
Discounted & Prob weighted cash flows	\$	-	\$ 25,864	\$ 20,196	\$ 15,770	\$ 12,315	\$ 9,616	\$ 7,509	\$ 5,863	\$ 4,578	\$ 3,575	\$ 2,792	
Best Estimate Reserve		\$ 108,078											

(c) Compare and contrast the following approaches for revenue recognition under IFRS 17:

- (iii) Liability for Incurred Claims (LIC) approach
- (iv) Liability for Remaining Coverage (LRC) approach

**Commentary on Question:**

*In general, candidates did not score well on this section. Most candidates did not mention any similarities between the two approaches. Not all points listed below was required for full credit.*

Unique for LIC approach:

- Coverage units would be the same regardless of whether the contract holder was in active life status or in disabled life status
- Views the insured event as the uncertain event that a policyholder becomes disabled, and the annuity payments are simply settlement of the claim
- Faster amortization pattern than the LIC approach
- CMS amortization based on PV of future payments
- Coverage unit calculated as:

$$CU_t = PV(\text{Annuity Payments})_t * ({}_t p_x)$$

Unique for LRC approach

- No coverage for contract holders while in disabled life status
- Actuary would consider how recoveries from disability and return to active life status would affect the projection of coverage units
- Considers the insured events as both the uncertain event of the policyholder becoming disabled, and also remaining disabled and eligible to claim.
- Slower amortization pattern than the LIC approach
- Coverage unit calculated as:

$$CU_t = (\text{Annualized Annuity Payment})_t * ({}_t p_x)$$

Similarities between LIC and LRC approaches:

- These approaches are applied to health products that have annuity payments, such as individual disability, GLTD or LTC.
- The approach is used for determining amortization pattern of CSM
- Both approaches deemed valid interpretations of IFRS 17
- Judgement is involved by the actuary in determining which approach is used

(d) Construct the CSM amortization schedule as of the valuation date under the following approaches, using Policyholder A as a representative point for the acquired block of business:

(iii) LIC approach

(iv) LRC approach

State any assumptions and show your work.

**Commentary on Question:**

*Candidates did not score well on this question and had difficulties with the practical application of LIC and LRC in calculations.*

*** LIC APPROACH ***												
		12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031	12/31/2032
Year beginning												
Benefit Payments			\$ 33,785	\$ 34,461	\$ 35,150	\$ 35,853	\$ 36,570	\$ 37,301	\$ 38,047	\$ 38,808	\$ 39,584	\$ 40,376
PV of Future Benefits			\$ 109,991	\$ 84,003	\$ 63,612	\$ 47,613	\$ 35,060	\$ 25,210	\$ 17,483	\$ 11,419	\$ 6,662	\$ 2,929
Probability of Survival		1.0000	0.8000	0.6400	0.5120	0.4096	0.3277	0.2621	0.2097	0.1678	0.1342	0.1074
discounting @ locked-in discounting rate	4.00%	1.0000	0.9615	0.9246	0.8890	0.8548	0.8219	0.7903	0.7599	0.7307	0.7026	0.6756
Current service			87,993	53,762	32,569	19,502	11,488	6,609	3,666	1,916	894	314
current + future service			218,714	130,721	76,959	44,390	24,888	13,400	6,791	3,124	1,209	314
CSM amortization factor			40.2%	41.1%	42.3%	43.9%	46.2%	49.3%	54.0%	61.3%	74.0%	100.0%
BoY CSM			25,000.00	15,390.28	9,332.53	5,544.49	3,201.85	1,775.57	926.84	439.23	175.00	46.90
Interest accretion	3.00%	-	750.00	461.71	279.98	166.33	96.06	53.27	27.81	13.18	5.25	1.41
CSM with interest accretion			25,750.00	15,851.98	9,612.51	5,710.82	3,297.90	1,828.84	954.64	452.40	180.25	48.31
CSM Amortization			-	10,359.72	6,519.45	4,068.02	2,508.98	1,522.33	902.00	515.42	277.40	133.35
EoY CSM			25,000.00	15,390.28	9,332.53	5,544.49	3,201.85	1,775.57	926.84	439.23	175.00	46.90

*** LRC APPROACH ***												
		12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031	12/31/2032
Year beginning												
Benefit Payments			\$ 33,785	\$ 34,461	\$ 35,150	\$ 35,853	\$ 36,570	\$ 37,301	\$ 38,047	\$ 38,808	\$ 39,584	\$ 40,376
Probability of Survival		1.0000	0.8000	0.6400	0.5120	0.4096	0.3277	0.2621	0.2097	0.1678	0.1342	0.1074
Current service			27,028	22,055	17,997	14,685	11,983	9,778	7,979	6,511	5,313	4,335
current + future service			127,664	100,637	78,582	60,585	45,900	33,917	24,138	16,159	9,648	4,335
CSM amortization factor			21.2%	21.9%	22.9%	24.2%	26.1%	28.8%	33.1%	40.3%	55.1%	100.0%
BoY CSM			25,000.00	20,298.46	16,325.49	12,964.25	10,116.49	7,699.60	5,644.17	3,891.80	2,393.41	1,107.72
Interest accretion	3.00%	-	750.00	608.95	489.76	388.93	303.49	230.99	169.33	116.75	71.80	33.23
CSM with interest accretion			25,750.00	20,907.41	16,815.26	13,353.18	10,419.98	7,930.59	5,813.49	4,008.55	2,465.21	1,140.95
CSM Amortization			-	5,451.54	4,581.91	3,851.01	3,236.69	2,720.38	2,286.42	1,921.69	1,615.14	1,140.95
EoY CSM			25,000.00	20,298.46	16,325.49	12,964.25	10,116.49	7,699.60	5,644.17	3,891.80	2,393.41	1,107.72

- (e) Recommend an approach for XYZ for revenue recognition of the acquired block of business. Justify your answer.

**Commentary on Question:**

*A recommendation was required for full mark. Alternative answers were accepted if they were justified.*

I would recommend using the LRC approach due to the following reasons:

- This block has disabled life only, so LIC would be difficult to implement (uncertain event that the policyholder becomes disabled has already passed)
- LRC is more reasonable since the insured event is on the eligibility of the remaining disabled
- LRC has a slower amortization pattern of the CSM than the LIC approach, which may be favorable to XYZ.

Also, XYZ is looking to acquire this business.

- Under IFRS 17, liability for settlement of a claim is to be established as a LRC rather than an LIC. On acquisition of obligations in the claim settlement period, the liability established by the acquirer would be LRC rather than LIC, regardless of how the entity from which the obligations were acquired accounted for the obligations. So, if acquired, XYZ would be required to set this up under LRC eventually under IFRS17 accounting policy.

- ~~(f) Critique the 2022 claims termination rate study based on actual to expected (A/E) ratios. State any assumptions and show your work.~~

**Commentary on Question:**

*Only partial credit was awarded for calculating the A/E ratios. For full credit, a critique or conclusion was needed to be provided based on the information derived.*

<b>Claims Duration</b>	<b>1.00</b>	<b>2.00</b>	<b>3.00</b>	<b>4+</b>
<del>Expected Termination (Rate per 1,000 lives)</del>	500	150	75	200
<del>Actual Terminations (Rate per 1,000 lives)</del>	350	200	100	150
Calculate A/E	<b>0.70</b>	<b>1.33</b>	<b>1.33</b>	<b>0.75</b>

~~Assuming the inforce block is similar to model point provided, the block is running at a 0.75 A/E ratio. Overall, there are less terminations than expected. For disability, this means that termination experience was worse than expected. The expected terminations may need to be adjusted for future reserve calculations.~~

- ~~(g) Propose questions that XYZ should ask to ABC in order to get a deeper understanding of their 2022 experience study results.~~

**Commentary on Question:**

~~Most candidates did well on this section. Most candidates recognized that information around how the experience study results were calculated need to be reviewed. Not all the considerations listed below was required for full credit.~~

- ~~• How was credibility defined and was there sufficient data used for the study? If the study was supplemented by industry table, which industry table was used?~~
- ~~• What types of terminations were included? Is it largely recovery or deaths driving terminations?~~
- ~~• What are the exposure characteristics?~~
- ~~• Voluntary Claims Settlements how they were treated in the study?~~
- ~~• How did the most recent experience study result compare to prior experience studies, such as 2019 or prior?~~
- ~~• What was the source of the raw data used to calculate?~~
- ~~• Was there a claim runoff study also completed?~~
- ~~• Were there any other grouping splits, other than duration, considered? Such as age, COLA indicator, diagnosis, more granular duration bucketing, etc.~~

## GH VRC Spring 2023 #7.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.
- (2d) Describe the planning process of a life and health insurance company (strategic, operational, and budgeting).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

CIA Educational Note - Financial Condition Testing, Jan 2023, pp. 1-45

GH201-693-25: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

- Chapter 1: Overview and General Requirements (All sections) (pp. 5-14)
- Chapter 2: Available Capital (sections 2.1-2.2) (pp. 15-40)
- Chapter 6: Insurance Risk: (sections 6.1-6.8, excluding 6.7) (pp. 125-143)

### Commentary on Question:

*In general, this question was not well answered by most candidates, except for part b (i) where most candidates did well.*

### Solution:

- (a) List the changes to the SOP related to the introduction of FCT.

### Commentary on Question:

*Candidates had to retrieve a list of changes. However, only some candidates were able to get partial credits.*

1. Renaming of Dynamic Capital Adequacy Testing (DCAT) to Financial Condition Testing (FCT).
2. Revised threshold testing of the base scenario to internal target capital ratio(s) as determined by ORSA rather than regulatory supervisory level(s).
3. Testing of “satisfactory financial condition” using both going concern and solvency scenarios.
  - The threshold for “going concern” scenarios is the minimum regulatory target.
  - The threshold for “solvency” scenarios is that the statement value of assets is sufficient to cover the statement value of the liabilities.

4. Three options for the opinion of the actuary:
  - Satisfactory
  - Satisfactory subject to ...
  - Not satisfactory
5. Elimination of specifications on the number of years for the review of the recent financial position and forecast period.
6. Removal of the detailed listing of risk categories.
7. Distinction made between ripple effects (which may include management's routine actions) and corrective management actions.
8. Ability to harmonize with ORSA

(b) List and describe key elements of:

(x) FCT

(xi) LICAT ratios

**Commentary on Question:**

*Most candidates were able to get 75% to full marks on this part of the question. There are a few candidates who were able to identify the total and core ratio formulas, but did not explain their components.*

(i) FCT

- **Development of a base scenario:**
  - As stated in the SOP, this would normally be consistent with the insurer's business plan.
- **Development of adverse scenarios:**
  - Selection of scenarios for inclusion in the report from those modeled showing the greatest sensitivities, where such sensitivity is based on the type of scenario and the associated thresholds being tested.
- **Corrective management actions:**
  - Identification and analysis of the effectiveness of corrective management actions to mitigate risks.
- **FCT Report:**
  - Should contains the results of the analysis and recommendations to the insurer's management and the board of directors or chief agent.

- **Opinion statement:**
  - An opinion signed by the Appointed Actuary (AA) indicating the financial condition of the insurer.
- (ii) LICAT
- **Available Capital:**
  - Available Capital comprises Tier 1 and Tier 2 capital, and involves certain deductions, limits and restrictions.
- **Risk Adjustments and Surplus Allowance:**
  - The term “risk adjustment”, as used in this guideline in relation to a specific block of business, refers to the risk adjustment for non-financial risks reported in the financial statements that is associated to the block of business. The risk adjustment excludes all provisions for credit risk and counterparty default, as these are financial risks.
  - The amount of the Surplus Allowance used in the calculation of the Total and Core Ratios is equal to the net risk adjustment (i.e. the risk adjustment net of all reinsurance) reported in the financial statements in respect of all insurance contracts other than risk adjustments arising from segregated fund contracts with guarantee risks.
- **Eligible Deposit:**
  - Subject to limits, collateral and letters of credit placed by unregistered reinsurers and claims fluctuation reserves may be recognized as Eligible Deposits in the calculation of the Total Ratio and Core Ratio. Recognition of these amounts is subject to the criteria for risk.
- **Base Solvency Buffer:**
  - Insurers’ capital requirements are set at a supervisory target level that, based on expert judgment, aims to align with a conditional tail expectation (CTE) of 99% over a one-year time horizon including a terminal provision.
- **Total Ratio:**
  - Focuses on policyholder and creditor protection. The formula used to calculate the Total Ratio is:  $(\text{Available Capital} + \text{Surplus Allowance} + \text{Eligible Deposits}) / \text{Base Solvency Buffer}$ .
- **Core Ratio:**
  - Focuses on policyholder and creditor protection. The Core Ratio focuses on financial strength. The formula used to calculate the Core Ratio is:  $(\text{Tier 1 Capital} + 70\% \text{ of Surplus Allowance} + 70\% \text{ of Eligible Deposits}) / \text{Base Solvency Buffer}$ .

- (c) Describe how the Base Solvency Buffer is determined in LICAT.

**Commentary on Question:**

*Most candidates were able to identify that the capital requirements are set at a CTE of 99%, aggregated for all geographic regions. However, all the other items were missing in the answer of most candidates.*

- Insurers' capital requirements are set at a supervisory target level that, based on expert judgment, aims to align with a conditional tail expectation (CTE) of 99% over a one-year time horizon including a terminal provision.
  - The risk capital requirements in this guideline are used to compute capital requirements at the target level.
  
- An insurer's Base Solvency Buffer is calculated in respect of all of its assets, all written insurance business, and all other liabilities. It is equal to the sum of the aggregate capital requirement net of credits, for each of six geographic regions, multiplied by a scalar of 1.0. An aggregate capital requirement is calculated for:
  - Canada
  - United States
  - United Kingdom
  - Europe other than UK
  - Japan
  - Other locations
  
- The aggregate capital requirement within a geographic region comprises requirements for each of the following five risk components:
  - credit risk
  - market risk
  - insurance risk
  - segregated funds guarantee risk
  - operational risk
  
- Aggregate requirements are reduced by credits for qualifying in-force participating and adjustable products, and risk diversification. Additionally, it is possible to obtain credit (via a reduction of specific risk components or an amount recognized in Eligible Deposits) for the following risk mitigation arrangements:
  - reinsurance (insurance risk components, and other components where reinsurance is explicitly recognized)
  - collateral, guarantees and credit derivatives (credit risk component for fixed-income and reinsurance contracts held)
  - other derivatives serving as hedges (market risk components)
  - asset securitization (credit risk component)

- (d) Calculate the required capital for the mortality risk component as of December 31, 2022. State any assumptions and show your work.

**Commentary on Question:**

*This part of the question was not well answered by most candidates. Most candidates were able to identify the mortality risk formula, but were unable to calculate the individual components.*

<b>Volatility Risk</b>		
C =		8 075
F =	$A \approx \sqrt{\frac{C \times \sum b^2}{F}}$	390 363
A =		368
E =		285 526
Volatility Risk = 2.7 x A X E/F		727
<b>Level Risk</b>		
Spot Discount Rate		5.30%
PV of BEL CFs		91 818
PV 15% Mort Shock for all years		98 584
Level Risk = Shocked - BEL		6 765
<b>Trend Risk</b>		
As Mortality Improvement = 0		0
<b>Catastrophe Risk</b>		
PV of BEL CFs		91 818
PV of the shocked CFs - 1st Year Mortality by 1 per 1,000		99 765
RC		7 947
Mortality Risk =		14 745
$RC_{mortality} = \sqrt{RC_{vol}^2 + RC_{cat}^2 + RC_{level} + RC_{trend}}$		

- (e)
- (i) Justify why the auditor statement is incorrect. State any assumptions and show your work.
  - (ii) Explain how the required calculation for the mortality risk component would have been different if the auditor statement was true.

**Commentary on Question:**

*In general, this part of the question was not well answered by most candidates, especially part e (ii).*

- (i) PV (shocked cashflow at -15% mortality for all years) = \$98 584  
PV (best estimate cash flows) = \$91 818  
PV (shocked cashflow) - PV (best estimate cash flows) = \$6 765

Because the difference  $> 0$ , then death supported business

- (ii) Volatility Risk + Trend Risk + Catastrophe Risk  $\implies$  No change

Level Risk  $\implies$  Yes, different calculation

- The level risk shock for life supported business is a permanent increase to the BEA for mortality rate at each age.
- The increased mortality rates are calculated as  $(1 + \text{Factor}) \times \text{Best Estimate Mortality Rate}$ 
  - where Factor is the Min (11% plus 20% of the ratio of the calculated individual life volatility component to the following year's net expected claims; 25%)

## GH VRC Fall 2023 #5.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.
- (2d) Describe the planning process of a life and health insurance company (strategic, operational, and budgeting).
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

CIA Explanatory Report - IFRS 17 Expenses

IFRS 17 Insurance contract examples

CIA Educational Note – Financial Condition Testing, Jan 2023, pp. 1-45

### Commentary on Question:

*Overall, candidates did not perform well on this question. Most candidates were able to classify expenses and identify key elements of financial condition testing, but very few were able to create a statement of profit/loss.*

### Solution:

- (a) Describe the two interpretations of directly attributable expenses.

### Commentary on Question:

*Most students were able to identify one part of the answer in the model solution, but did not provide enough information to earn full credit.*

- One potential view is that an expense would only be considered directly attributable if it is incurred for the clear purpose of either issuing insurance contracts or fulfilling obligations under insurance contracts. From this perspective, expenses such as investment management, asset liability management and risk management would *not* be considered directly attributable.

- While these expenses are incurred to support the profitable operation of an insurance entity, the primary purpose of these functions is one or two steps removed from acquiring insurance contracts or fulfilling obligations under insurance contracts.
- The counter argument to the view above is that an insurance entity could not plausibly fulfil its obligations under its insurance contracts without expenses such as investment management, asset liability management, and risk management.
- Furthermore, while the primary purpose of incurring these costs may not be acquisition of insurance contracts or fulfilling obligations under insurance contracts, neither is the primary purpose of overhead expenses such as rent and HR costs, but these overhead costs are considered directly attributable under IFRS 17.B65(l). From this perspective, a wider interpretation of the scope of “directly attributable” could potentially be adopted.

(b) Calculate the following:

- (i) Directly attributable expenses
- (ii) Non-directly attributable expenses

State any assumptions and show your work.

**Commentary on Question:**

*Candidates performed either very well or not on this part of the question. An area where most candidates left marks on the table was consistently classifying grey area expenses.*

Expense Items	Expenses Incurral Time	(\$000s)	Expense Category	
Claim handling	Recur annually	3	Directly attributable	Maintenance
Company holiday party	Recur annually	4	Non-Directly Attributable	Maintenance
Insurance company tax filing	Recur annually	3	Non-Directly Attributable	Maintenance
Recruitment of employees working for the product	Incur prior to Issuance	2.5	Directly attributable	Acquisition
Investment management	Recur annually	17	GREY	Maintenance
Marketing	Incur prior to Issuance	10	GREY	Acquisition
Policy issuance and renewal	Incur prior to Issuance	5	Directly attributable	Acquisition
Pricing	Incur prior to Issuance	16.5	Directly attributable	Acquisition
CEO salary	Recur annually	8	Non-Directly Attributable	Maintenance
Services of external risk management consultants	Recur annually	15	GREY	Maintenance
Statutory reporting	Recur annually	12	GREY	Maintenance
Medical underwriting	Incur at Inception	12	Directly attributable	Acquisition
Other directly attributable expenses	Incur prior to Issuance	45	Directly attributable	Acquisition
Other non-directly attributable Expenses	Incur at Inception	30	Non-Directly Attributable	Acquisition
		Total	Acquisition	Maintenance
	Directly attributable	84	81	3
	Non-Directly Attributable	45	30	15
	GREY	54	10	44
	<b>Scenario 1 - Grey Area items grouping to attributable</b>			
	Attributable	138	91	47
	Non attributable	45	30	15
	<b>Scenario 2 - Grey area items grouped to non-attributable</b>			
	Attributable	84	81	3
	Non attributable	99	40	59
	Other scenarios are acceptable: Grey area items can be either classified as attributable or non attributable			

- (c) Create the projected statement of profit or loss that covers the duration of the product. State any assumptions and show your work.

**Commentary on Question:**

*Candidates did not perform well on this part of the question. Partial marks were given to candidates who made an attempt or calculated part of the statement of profit/loss correctly.*

**Solution:**

SCENARIO 1 - Investment + Mkt + RM + Reporting exp are directly attributable		SCENARIO 1 - Investment + Mkt + RM + Reporting exp are directly attributable				
			Year 1	Year 2	Year 3	Year 4
Insurance Premiums (paid upfront)	1,500	Insurance Revenue				
Insurance claims (per year)	200	Expected claims and other expenses	247.00	247.00	247.00	247.00
Directly attributable acquisition expenses (Incurred at or prior to initial recognition)	91	CSM recognized for service provided	105.25	105.25	105.25	105.25
Directly attributable maintenance expenses (per year)	47	Amortization of insurance acquisition cash flow	22.75	22.75	22.75	22.75
Non-directly attributable acquisition expenses	30	Total Insurance Revenue	375.00	375.00	375.00	375.00
Non directly attributable maintenance expenses (per year)	15					
<b>Calculation of CSM:</b>		Insurance Service Expenses				
Total Premium	1,500.00	Incurred Claims and other expenses	247.00	247.00	247.00	247.00
Claims	-800.00	Amortization of insurance acquisition cash flow	22.75	22.75	22.75	22.75
Directly attributable acquisition expenses	-91.00	Total Insurance Service Expenses	269.75	269.75	269.75	269.75
Directly attributable maintenance expenses	-188.00					
Total CSM	421.00	Insurance Service Result	105.25	105.25	105.25	105.25
CSM Per Year	105.25					
		Other Expenses	45.00	15.00	15.00	15.00
		Profit	60.25	90.25	90.25	90.25

- (d) Describe the primary factors affecting directly attributable expense projections.

**Commentary on Question:**

*Some candidates were able to identify expected policy growth strategy as a primary factor affecting directly attributable expense projections, but many candidates did not provide information to earn full marks on this question.*

- The entity’s expected overall expense growth: expense growth would be influenced by general inflation and by the entity’s cost management strategy. It may be reasonable to assume that the entity’s fixed cost base would increase over time at the expected rate of general inflation, unless the entity has a credible cost containment (or expansion) strategy.
- The entity’s expected policy growth strategy: a growing aggregate policy base over time could result in lower fixed expense allocations to the group, as the entity’s fixed costs would be spread over a broader base of contracts. Variable costs would grow proportionally to the growth in the policy base, perhaps adjusted for general inflation.
- In a growing entity, it may be possible that unit cost allocations would decrease over time if the entity’s policy growth exceeds its fixed expense growth. Conversely, in an entity that is not growing (runoff of inforce exceeds new business), unit cost allocations would likely increase at a faster rate than the entity’s expense growth. For these reasons, reasonable new business and inforce run off projections, and an understanding of the fixed/variable nature of the entity’s expenses, are likely to be fundamental inputs into the projection of expenses in the FCF.

(e) Create the projected statement of profit or loss in accordance with the instructions provided by the chief actuary. State any assumptions and show your work.

**Commentary on Question:**

*Candidates did not perform well on this part of the question. Partial marks were given to candidates who made an attempt or calculated part of the statement of profit/loss correctly.*

SCENARIO 2 - Investment + Mkt + RM + Reporting exp are NOT directly attributable		SCENARIO 2 - Investment + Mkt + RM + Reporting exp are NOT directly attributable				
			Year 1	Year 2	Year 3	Year 4
Insurance Premiums (paid upfront)	1,500	Insurance Revenue				
Insurance claims (per year)	200	Expected claims and other expenses	203.00	203.00	203.00	203.00
Directly attributable acquisition expenses (Incurred at or prior to initial recogniti	81	CSM recognized for service provided	151.75	151.75	151.75	151.75
Directly attributable maintenance expenses (per year)	3	Amortization of insurance acquisition cash flow	20.25	20.25	20.25	20.25
Non-directly attributable acquisition expenses	40	Total Insurance Revenue	375.00	375.00	375.00	375.00
Non directly attributable maintenance expenses (per year)	59	Insurance Service Expenses				
<b>Calculation of CSM:</b>		Incurred Claims and other expenses	203.00	203.00	203.00	203.00
Total Premium	1,500.00	Amortization of insurance acquisition cash flow	20.25	20.25	20.25	20.25
Claims	-800.00	Total Insurance Service Expenses	223.25	223.25	223.25	223.25
Directly attributable acquisition expenses	-81.00	Insurance Service Result	151.75	151.75	151.75	151.75
Directly attributable maintenance expenses	-12.00	Other Expenses	99.00	99.00	60.00	59.00
Total CSM	607.00	Profit	52.75	92.75	91.75	92.75
CSM Per Year	151.75					

- (f)
- (i) Recommend which interpretation of directly attributable expenses you should use based on your calculations in part (c) and (e). Justify your answer.
  - (ii) Recommend actions that should be taken in implementing the interpretation in (i). Justify your answer.

**Commentary on Question:**

*Since candidates have experienced difficulties in parts c) and e) there were generally also unable to make a recommendation in part i). Some candidates were able to make a recommendation in part ii) that earned part marks, but generally candidates were not able to provide enough information to receive full marks.*

- (i) Scenario where Investment management expenses, Marketing, Services of an external risk management consultant and Statutory reporting expenses are considered not directly attributable should be recommended since it provides better Insurance Services Results associated with this new 4-years term product, while overall results will be the same under both interpretations.

Indeed, expected directly attributable acquisition and maintenance expenses are both included in the fulfilment cash flows (FCF) at initial recognition, and therefore impact the amount of the contractual service margin (CSM) or loss component. As a result, the more expenses that are included in the FCF at initial recognition, the lower the CSM will be for the group; furthermore, the probability increases for contracts in the group to be classified as onerous.

- (ii) This interpretation may or may not align with the view of some audit firms, so each entity is advised to consult with its auditor before finalizing the entity's own views.

The Appointed Actuary Report (AAR) disclosure would also include qualitative comments on whether the grey area expense items discussed in Section 4 of this report (and other company specific grey areas that are material) are considered as directly attributable expenses or not.

Moreover, actuaries would be expected to outline the rationale for categorizing these expenses as directly or non-directly attributable expenses.

- (g)
- (i) Identify the key elements of Financial Condition Testing (FCT).
  - (ii) Propose corrective management actions in response to this scenario. Justify your answer.

**Commentary on Question:**

*Candidates performed well on this part of the question.*

- (i)
  - Development of a base scenario.
  - Development of adverse scenarios.
  - Identification and analysis of the effectiveness of corrective management actions to mitigate risks.
  - A report on the results of the analysis and recommendations to the insurer's management and the board of directors or chief agent.
  - An opinion signed by the Appointed Actuary (AA) indicating the financial condition of the insurer.
  
- (ii)
  - Morbidity risk:
    - Increasing premium rate - Cannot increase premiums already paid up-front, but can increase premiums for future clients.
    - More active claims management.
  
  - Inflation risk:
    - Implementing rate increases, where possible.
    - Reviewing the extent of the coverage and cost containment features.
    - Reviewing the asset mix to increase real rates of return.
    - Reviewing policies, procedures, and staffing to control costs.
  
  - Expense risk:
    - Practice strict management of budgets to meet expense levels included in pricing.

## GH VRC Fall 2023 #7.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-term products.
- (2c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.

### Sources:

GH201-693-25: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

- Chapter 1: Overview and General Requirements (All sections) (pp. 5-14)
- Chapter 2: Available Capital (sections 2.1-2.2) (pp. 15-40)
- Chapter 6: Insurance Risk: (sections 6.1-6.8, excluding 6.7) (pp. 125-143)

### Commentary on Question:

*Candidates were asked to understand the various insurance risk components related to insurance. Candidates were generally able to list and describe the components, however they were unable to provide the details by risk. Candidates were also asked to be able to calculate the DTA amounts.*

**Solution:**

(i)

$$\text{Total Ratio} = \frac{\text{Available Capital} + \text{Surplus Allowance} + \text{Eligible Deposits}}{\text{Base Solvency Buffer}}$$

$$\text{Core Ratio} = \frac{\text{Tier 1 Capital} + 70\% \text{ Surplus Allowance} + 70\% \text{ Eligible Deposits}}{\text{Base Solvency Buffer}}$$

Available capital: available Capital comprises Tier 1 and Tier 2 capital, and involves certain deductions, limits and restrictions.

Surplus Allowance is equal to the net risk adjustment (i.e. the risk adjustment net of all reinsurance) reported in the financial statements in respect of all insurance contracts other than risk adjustments arising from segregated fund contracts with guarantee risks. The risk adjustment refers to the risk adjustment for non-financial risks reported in the financial statements.

Eligible deposit: collateral and letters of credit placed by unregistered reinsurers and claims fluctuation reserves may be recognized as Eligible Deposits subject to criteria for risk transfers

Base Solvency Buffer:

- Aggregate capital requirement is calculated by regions. (Canada, US, UK, Europe, Japan and other)
- Consist of 5 risk components (credit risk, market risk, insurance risk, segregated fund guarantee risk, operational risk)
- Aggregate requirements are reduced by credits for participating and adjustable products, risk diversification.
- Multiplier to aggregate requirement = 1

(ii)

- OSFI has established a Supervisory Target Total Ratio of 100% and a Supervisory Target Core Ratio of 70%.
- Insurers are required, at minimum, to maintain a Total Ratio of 90% and a Core Ratio of 55%.

(b)

- (i) List and describe the insurance risk components required for the bundled plan.
- (ii) Describe the steps to calculate each component in (i), including shock factors.

**Commentary on Question:**

*Most candidates were able to list the various insurance risk components. However additional details on how to calculate each component, including shock factors in order to get full marks.*

**Mortality risk:** required for term life business. This is the risk associated with the incidence of death. It includes components of level, trend, volatility, and catastrophe risk.

$$RC_{mortality} = \sqrt{RC_{vol}^2 + RC_{cat}^2 + RC_{level} + RC_{trend}}$$

**Steps**

1. Determine if the business is life supported or death supported. Apply -15% shock to mortality rate and +75% shock to Mortality improvement rate, discounted at 5.3%.
  - Death supported if PV of shocked CF > PV of BE CF
  - Life supported if PV of shocked CF < PV of BE CF
2. Calculate Level Risk
  - Life supported business: (1+Factor) x BE Mortality. Factor is 11% + 20% volatility component / net expected claim (of the following year), capped at 25%
  - Death supported: 15% decrease in BE Mortality
3. Calculate Trend risk
  - Life supported: -75% to MI assumption for 25 years and no mortality improvement after 25 years
  - Death supported: +75% permanent MI assumption shock
4. Volatility risk:  $RC = 2.7 \times A \times (1-V/F)$ 
  - A: standard deviation of upcoming years projected death claims
  - V: total BE liability net of registered reinsurance
  - F: total face amount net of registered reinsurance
5. Catastrophe risk: shock 1.0 number of deaths per thousand life

**Morbidity risk:** required for LTC. This is the risk associated with the incidence of health claim and from termination rate.

$$RC_{morbidity} = \sqrt{RC_{vol}^2 + RC_{cat}^2 + RC_{level} + RC_{trend}}$$

### Steps

1. As the business is individually underwritten, individual business shocks apply.
2. Calculate Level Risk
  - Active life: +30% of LTC incidence rate assumption
  - Disabled LTC: -25% shock to LTC termination rate assumption
3. Calculate Trend risk
  - Permanent 100% decrease in BE for morbidity improvement; or use 0% morbidity improvement assumption
4. Volatility risk: shock first year incidence rate by +30%
5. Catastrophe risk: shock first year incidence rate by +10%

**Lapse risk:** As the business is individually underwritten, lapse shocks are applied.

$$RC_{lapse} = \sqrt{RC_{vol}^2 + RC_{cat}^2 + RC_{level+trend}}$$

### Steps

1. Level and trend risk: +/-30% shock applied dynamically.
  - At durations where net cash surrender values are higher than Best Estimate Liabilities, lapse rates are shocked upwards, and at all other durations they are shocked downwards.
2. Volatility risk: +/-30% shock applied in the first year
3. Catastrophe risk:
  - For lapse sensitive products, an absolute increase of 20 percentage points in the Best Estimate Assumption for lapse for the first year only.
  - For lapse supported products, a 40% proportional reduction of the Best Estimate Assumption for lapse in the first year only.

**Expense risk:** The combined shock is an increase of 20% in the first year followed by a permanent increase of 10% in all subsequent policy years. Expense shocks are applied to maintenance expenses. Premium taxes and investment income tax are excluded.

- (c) Calculate the DTA Temporary amount included in available capital. State any assumptions and show your work.

### Commentary on Question:

*Generally, candidates were able to recall the formula for the calculation. However, in order to get full marks, they were required to be able to apply the calculation to the provided example.*

Gross Tier 1 Assets	(a)	4 500 000
All deductions from Gross Tier 1 except those relating to Deferred Tax Assets (DTA)	(b)	2 402 000
DTA arising from temporary differences	(c)	300 000
DTA other than those arising from temporary differences	(d)	100 000
Deferred Tax Liability (DTL) associated with goodwill	(e)	50 000
Other DTL	(f)	120 000

**Calculate DTA net of eligible DTL**

DTL Allocated to DTA Temp = $(f) \times (c) / ((c) + (d)) = 120\,000 \times 300\,000 / (300\,000 + 100\,000)$	90 000
DTL Allocated to DTA nonTemp = $(f) \times (d) / ((c) + (d)) = 120\,000 \times 100\,000 / (300\,000 + 100\,000)$	30 000
DTA Non-Temp net of eligible DTL = $(d) - \text{DTL Allocated to DTA nonTemp}$	70 000
DTA Temp net of DTL = $(c) - \text{DTL Allocated to DTA Temp}$	210 000

**Calculate DTA Temp deducted from Gross Tier 1**

T1 deduction = $(b) + \text{Deduction of DTA Non-Temp}$	2 472 000
DTA Temp deducted from Gross Tier 1 = $\text{Max}[\text{DTA Temp net of DTL} - 10\% \times (\text{T1Gross} - \text{T1Deductions}); 0] / 0.9$	8 000

**DTA Temp included in Available Capital is limited to 10% of Net Tier 1**

Net T1 = $(a) - (b) - \text{Deduction of DTA Non-Temp} - \text{Deduction of DTA Temporary}$	2 020 000
DTA Temp included in T1 = $(c) - \text{DTL Allocated to DTA Temp} - \text{Deduction of DTA Temporary}$	202 000
DTA Temp included in T1 = 10% of Net Tier 1 (Validated)	202 000

## GH VRC Spring 2024 #2.

### Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

### Learning Outcomes:

- (2a) Prepare financial statement entries in accordance with generally accepted accounting principles.
- (2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.
- (2c) Project financial outcomes and recommend a strategy.

### Sources:

Group Insurance, Skwire, 8th Edition, 2021, Ch. 43: Analysis of Financial and Operational Performance

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a)
  - (i) Describe the Gordon Constant Growth Model (GCGM).
  - (ii) Describe why the GCGM assumes the price-to-earnings (P/E) ratio of companies with high growth rates will be expected to drop in a context of rising interest rates.

### Commentary on Question:

*This question was not answered well in general.*

- *For part (i), most candidates got 1 point for stating the GCGM formula, but failed to describe it as a simplified discounted future cash flow model that assumes that dividends grow in perpetuity at a constant rate.*
- *For part (ii), what the question intended to test is why P/E drops faster for high  $G$  (the growth rate of dividends) company when  $k$  (the required rate of return) increases in comparison to a company with a lower  $G$ , and candidates that demonstrated this generally received credit. While the question was not straightforward, simply explaining why increase in interest rate would decrease P/E ratio was insufficient to receive credit.*

i. Describe the Gordon Constant Growth Model (GCGM).  
ii. Describe why the GCGM assumes stock prices of companies with high growth rates will be expected to drop more in a context of rising interest rates."

- The Gordon Constant Growth Model is a simplified discount future cash model that assumes dividends grow in perpetuity at a constant rate.
- The P/E ratio of a stock is equal to  $1/(k-G)$  where  $k$  is the required rate of return for equity investor and  $G$  is the growth rate in dividends
- The P/E ratio is therefore higher for companies with higher expected growth rates, but that advantage diminishes when interest rates grow higher.
- For example, if we consider a 15% discount rate, enterprise A with 5% growth has a P/E ratio of 10 while enterprise B with a 10% growth rate has a P/E of 20.
- If the required rate of return were to rise to 25% with the same expectations for both companies, enterprise A's P/E ratio would reduce to 5 (two times lower) while enterprise B's would reduce to 6.67 (three times lower).

(b) Describe why stock prices are imperfect metrics for the financial analysis of health plans.

**Commentary on Question:**

*This question was not answered well in general.*

*Many candidates pointed out that stock prices sometimes reflect short-term phenomena, but very few candidates mentioned the other points which were mentioned on page 778 in Skwire Chapter 43.*

Describe why stock prices are imperfect metrics for financial analysis of health plans

- Health plans that are not publicly traded will not have stock prices
- Stock prices sometimes reflect short-term phenomena
- Investment analysts may not understand operational realities of the insurance plan
- May be impossible to clearly communicate detailed or trade secret aspects of strategies to investment analysts

(c) Calculate the following performance metrics for Portwater and Carabelle separately. Show your work.

(i) Total Asset Turnover

(ii) Return on Assets

(iii) Total Leverage Ratio

(iv) Return on Equity

**Commentary on Question:**

*This question was answered very well. Candidates that lost points often made small mistakes like using the Total Current Assets rather than the Total Assets in their calculations.*

The model solution for this part is in the Excel spreadsheet.

(d) Calculate the two annual profit margin ratios most commonly used by financial analysts for Carabelle and Portwater separately. Show your work.

**Commentary on Question:**

*The question asks to calculate the **most commonly used** two annual **profit margin** ratios by financial analysts. These were identified in Skwire Chapter 43 on page 764.*

- *Many candidates recognized they are Net Profit Margin and Operating Profit Margin, but very few calculated Operating Profit Margin correctly.*
- *Some candidates calculated other ratios, such as expense ratio, loss ratio, etc.*

The model solution for this part is in the Excel spreadsheet.

(e) Your intern made the following statements:

- GAAP profit margins for insured businesses are overstated relative to statutory profit margins.
- "Same-size" analyses are done on a per capita basis to reflect the impact of size on operating measures.

Critique the accuracy of the intern's statements. Justify your answer.

**Commentary on Question:**

*The question asks to critique the intern's statements and then justify. Many candidates who correctly restates the intern's statements failed to explicitly state if the intern's statements were true or false.*

Critique the accuracy of the intern's statements. Justify your answer.

Statement on insured business is FALSE.

The profit margins for insured businesses are in a sense **overstated**, since **they imply a level of cash flow available to owners that excludes the impact of generally more conservative statutory reserve requirements.**

*(this is enough to get full credit for why) People might write other things like the following which also get credit*

In other words, a non-GAAP accounting presentation more reflective of health insurers' free cash flows would increase expenses by the increase in required reserves in the measurement period.

While capital investments necessary for growth are also not included, such investment is captured indirectly through the inclusion of depreciation and amortization in the expenses.

Statement on same-size analysis is FALSE

"Same-size" income statement express all relevant income statement items as a percentage of revenue and not on a per capita basis. In this way, profit margins can be divided into component parts, all of which are expressed independently of the size of the enterprise.

## GH VRC Spring 2024 #3.

### Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.

### Sources:

Group Insurance, Skwire, 8th Edition, 2021

Ch. 43: Analysis of Financial and Operational Performance, p. 776-777

### Commentary on Question:

*This was a recall question. Surprisingly, candidates performed relatively poorly on the question. In part (a)(i), candidates generally got some credit but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance. In part (a)(ii), candidates frequently listed some items but few candidates provided the majority of the list. In part (b)(i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. In part (b)(ii), many candidates confused “evaluating data sources” with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.*

### Solution:

- (a)
  - (i) State reasons why Company X would want to compare its financial ratios to its competitors.
  - (ii) List characteristics that, when similar, improve comparisons of financial ratios between Company X and competitors.

### Commentary on Question:

*Candidates generally got some credit on part (i) but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance.*

*In part (ii), candidates frequently listed some items but few candidates provided the majority of the list.*

- (i) Comparisons allow health plans to identify whether it operates at best practices. Comparisons also allow health plans to set best practice goals for future performance.

- (ii) Similar:
  - a. Products or lines of business
  - b. Business models (e.g. staff model vs. ffs)
  - c. Operational philosophies
  - d. Geographic focus
  - e. Capital cost conditions
  - f. Size
  
- (b)
  - (i) Identify sources of data you could use to prepare your comparison.
  
  - (ii) Describe factors you should consider when evaluating the data sources identified in part (b)(i).

**Commentary on Question:**

*In part (i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. Some candidates broadly listed something such as “financial statements” which is not really identifying a data source. In part (ii), many candidates confused “evaluating data sources” with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.*

- (i) Data sources can include:
  - a. SEC filings since Megacorp is a public company
  - b. NAIC blanks
  - c. Commercial sources (may yield more precise cost information or precise segmentation)
  
- (ii) Factors to consider include:
  - a. RegionalCare’s income statement may include intersegment charges rather than actual costs
  - b. Publicly available data may not have sufficient detail in cost segmentation by product
  - c. Cost definitions may vary from carrier to carrier
  - d. Commercial survey data may be de-identified or provided only in groupings such as quartiles.

## GH VRC Spring 2024 #8.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-term products.
  
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).

### Sources:

GH201-693-25: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

- Chapter 1: Overview and General Requirements (All sections) (pp. 5-14)
- Chapter 2: Available Capital (sections 2.1-2.2) (pp. 15-40)
- Chapter 6: Insurance Risk: (sections 6.1-6.8, excluding 6.7) (pp. 125-143)

Comparison of IFRS 17 to Current CIA Standards of Practice, Jun 2022

### Commentary on Question:

*The question was asking candidates understanding of the LICAT and its components. It also tested candidates' knowledge on IFRS17, more specifically the Risk Adjustment. Most candidate did not perform well on this question. Most candidate successfully answer part (a). Some candidates have successfully calculated the morbidity risk and expense risk, while others demonstrated some understanding but were not able to accurately provide full answers.*

*Only a few candidates demonstrated understanding of the difference between IFRS4 and IFRS17 on part (c) and few candidates could provide a correct answer for part (d).*

### Solution:

- (a)
  - (i) List and describe the risk components that are considered when calculating the morbidity risk.
  
  - (ii) Explain how the risk components in (i) apply to your block of business.

### Commentary on Question:

*Successful candidates provided descriptions for all four risks.*

*Successful candidates demonstrated their understanding about risks associated with the closed block of disability benefit where only the level risk was applicable in this case.*

- (i)
- Level Risk – misestimation of the level of Best Estimate Assumptions.
  - Trend Risk – misestimation of the future trend of Best Estimate Assumptions.
  - Volatility Risk – due to random fluctuations. The volatility risk component is calculated as a one-time shock to first-year incidence rates for all active lives that are exposed to morbidity risk.
  - Catastrophic Risk – due to a one-time, large-scale event. The catastrophe risk component is calculated as a one-time shock to first year incidence rates for all active lives that are exposed to morbidity risk.
- (ii)
- Level Risk – For disabled lives, the shock for level risk is a permanent decrease in Best Estimate Assumptions for the morbidity termination rate at each age.
  - Trend Risk – In this case, an assumption for morbidity improvement is not used, therefore the risk charge for trend risk is zero.
  - Volatility Risk – In this case, there is no volatility risk since there are no active lives
  - Catastrophic Risk – In this case, there is no catastrophic risk since there are no active lives.

(b) Calculate the value of total components for the following risks in LICAT as of December 31, 20X1:

- (i) Morbidity risk
- (ii) Expense risk

**Commentary on Question:**

*Some candidates were able to correctly calculate the risks while others demonstrated some understanding but failed to provide full answer. A few candidates failed to notice the benefit are monthly and mistakenly applied annualized calculation. Partial points were given for these candidates.*

The model solution to this part is provided in the Excel spreadsheet.

- (c)
- (i) Describe the requirements for selecting Provisions for Adverse Deviation (PfADs) under IFRS 4.
  - (ii) Describe the requirements to determine the risk adjustment for non-financial risk under IFRS 17.
  - (iii) Describe the considerations for using PfADs to determine the risk adjustment for non-financial risk.

**Commentary on Question:**

*On part (i), successful candidate demonstrated their understanding of Pfads from the following four perspectives: objective, scope, method and diversification benefit.*

*On part (ii), successful candidate demonstrated their understanding of RA from the following four perspectives: objective, scope, method and diversification benefit.*

*On part (iii), successful candidate demonstrated their understanding of the consideration for using Pfads to RA. Keywords are highlighted. If a candidate listed the questions, as illustrated below, but did not provide discussion, full marks were provided.*

- (i)
  - Measurement objective: Amount required to provide for the impact of uncertainty.
  - Scope: Pfads covers Financial and non-financial risks.
  - Method: Assumptions that are more conservative than best estimate (often MfADs). Margin approach is often used.
  - Diversification benefit: Reflected due to requirement that assumptions/liabilities be appropriate in aggregate. In practice, often given no explicit consideration or considered only within a line of business.
- (ii)
  - **Measurement objective:** Compensation required by entity to bear uncertainty.
  - **Scope:** Non-financial risk only, no asset related MfADs, such as asset default, investment expenses or reinvestment risk (C3).
  - **Method:** various at entity discretion. Cost of capital, percentile or margin approach can be used.
  - **Diversification benefit:** Reflected, based on diversification that the entity considers when setting compensation requirements. Diversification between financial risks and non-financial risks ignored. Entity's view of diversification may be different than diversification reflected in PfADs.

(iii)

- Is the current level of PfAD **consistent** with the compensation the entity requires for bearing uncertainty? If using CIA PfADs to determine the IFRS 17 risk adjustment for non-financial risk, adjustment would be needed if the entity-specific view of the compensation required to bear uncertainty is different from that of typical Canadian entities.
- Are the **diversification benefits** included in current PfADs consistent with those that would be reflected in IFRS 17? If using CIA PfADs to determine the IFRS 17 risk adjustment for non-financial risk, adjustment might be needed to achieve the objectives of IFRS 17.
- How would the **confidence** inherent in the current PfADs be determined? IFRS 17 requires disclosure of the confidence level of the risk adjustment for non-financial risk.
- IFRS 17 requires **reinsurance** contracts held to be measured as separate contracts. How would the PfAD appropriate to the net liability be split between the direct and ceded contracts? Under current CIA requirements for life, the PfADs for non-economic assumptions are set at a level appropriate for the liability net of reinsurance, and there is no requirement to split them between the direct contract and the reinsurance ceded contract.
- Are any **adjustments needed for pass-through** features? In IFRS 17, to the extent that the compensation an entity requires takes account of the existence of the pass-through features. Therefore, if using CIA PfADs to determine the IFRS 17 risk adjustment for non-financial risk, adjustment would be required if the entity ignores (some or all) pass-through features in determining the compensation it requires for bearing uncertainty.

(d) Explain how the selected risk adjustment for non-financial risk will impact your LICAT ratio.

**Commentary on Question:**

*None of the candidate was able to demonstrate that risk adjustment will not impact the final LICAT ratio. Partial marks were provided if they wrote something related to the points listed below.*

- The Risk Adjustment has no impact on the LICAT ratio.
- 

$$\frac{\text{Available Capital} + \text{Surplus Allowance} + \text{Eligible Deposits}}{\text{Base Solvency Buffer}}$$

- The amount of the Surplus Allowance used in the calculation of the Total and Core Ratios is equal to the risk adjustment. Although the risk adjustment increases liabilities and therefore decreases available capital, the surplus allowance (risk adjustment) is added back so there is no impact on the numerator.
- The Base Solvency Buffer is calculated using best estimate assumptions (no risk adjustment) so there is no impact on the denominator.

## GH VRC Fall 2024 #4.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2a) Interpret insurer financial statements from the viewpoint of various stakeholders.
- (2b) Evaluate key financial performance measures used by life and health insurers for both short and long-term products.

### Sources:

Group Insurance, Skwire, 8th Edition, 2021 - Ch. 37: Group Insurance Financial Reporting in Canada

GH201-693-25: OFSI Guidelines for Life Insurance Capital Adequacy Test (LICAT)

- Chapter 1: Overview and General Requirements (All sections) (pp. 5-14)
- Chapter 2: Available Capital (sections 2.1-2.2) (pp. 15-42)
- Chapter 6: Insurance Risk: (sections 6.1-6.8, excluding 6.7) (pp. 130-149)
- Chapter 11: Aggregation and Diversification of Risk (All sections) (pp. 210-217)

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) (1 point) List the risk components that are considered in the determination of XYZ's capital requirements in accordance with the LICAT framework.

### Commentary on Question:

*Full credit was given to candidates that provided at least 4 of the risks identified below. The description of each risk was not required to get full credit.*

- Credit Risk
  - Market Risk
  - Insurance Risk
  - Operational Risk
  - Segregated Fund Guarantee
- (b) Explain how to determine the required capital for the different insurance risk components involved with each of the following products:
    - (i) Group Life, including Waiver of Premium
    - (ii) Group Critical Illness

### Commentary on Question:

A successful candidate was able to identify the risks associated with the benefits. Credit was not given for risks that did not apply. Many candidates shared all of the same list of risks twice even if they applied or not indicating that they were not sure which ones applied to each benefit listed.

#### (i) Group Life including Waiver of Premium

Mortality risk applies to group life insurance

- Level risk ( $RC_{level}$ )
- Trend risk ( $RC_{trend}$ )
- Volatility risk ( $RC_{vol}$ )
- Catastrophe risk ( $RC_{cat}$ )

$$RC_{mortality} = \sqrt{RC_{vol}^2 + RC_{cat}^2} + RC_{level} + RC_{trend}$$

The insurer should partition its policies into sets with similar products and characteristics and then determine if each individual set is life supported or death supported. Level and trend risk components must be combined for this calculation.

Morbidity risk does apply to Waiver premiums

- Level risk
  - Incidence rate: +25% for active WP
  - Termination rate: -30% for disabled WP
- Trend risk does apply as it provides benefits to disabled lives
  - If a Best Estimate Assumption for morbidity improvement is not used, the risk charge for trend risk is zero.
  - The shock for trend risk is a permanent 100% decrease in the Best Estimate Assumption for morbidity improvement. The shocked cash flows for trend risk are calculated using Best Estimate Cash Flows and an annual morbidity improvement rate assumption of 0%.
  - The morbidity trend risk component is the difference between the present value of the shocked cash flows and the present value of the Best Estimate Cash Flows.
- Volatility risk
  - +25% for group active WP
- Catastrophe risk
  - +25% on incidence rates for group active WP

#### Expense Risk

- The combined shock is a permanent shock on the Best Estimate Assumptions for expenses including inflation. The shock is an increase of 20% in the first year followed by a permanent increase of 10% in all subsequent policy years. Expense shocks are applied to maintenance expenses. Premium taxes and investment income tax are excluded.
- Required capital for expense risk is the difference between the present value of the shocked cash flows and the present value of Best Estimate Cash Flows.

#### (ii) Group Critical Illness

##### Morbidity Risk

- Level Risk
  - Incidence rate: +35% of CI
  - Termination rate: does not apply for CI
- Volatility Risk: +50% for group CI
- Catastrophe risk: +5% on incidence rates for group CI

##### Expense Risk

- The combined shock is a permanent shock on the Best Estimate Assumptions for expenses including inflation. The shock is an increase of 20% in the first year followed by a permanent increase of 10% in all subsequent policy years. Expense shocks are applied to maintenance expenses. Premium taxes and investment income tax are excluded.
- Required capital for expense risk is the difference between the present value of the shocked cash flows and the present value of Best Estimate Cash Flows.

#### (c)

##### (i) Contrast the following:

- Minimum Ratio
- Supervisory Target Ratio

##### (ii) State the minimum threshold for each of the ratios mentioned in part (i).

##### (iii) Define the following:

- Total Ratio
- Core Ratio

**Commentary on Question:**

*Almost all candidates were successful in this part of the question and those that did not score well tended to mix up the Minimum ratio and Supervisory target ratio.*

**(i)**

Minimum Ratio

- Minimum level necessary to cover the risks specified in the LICAT guidelines.

Supervisory target ratio

- Minimum level necessary to cover the risks specified in the guidelines and provide a cushion for other risks.

**(ii)**

Minimum Ratio

- Total = 90%
- Core = 55%

Supervisory target ratio

- Total = 100%
- Core = 70%

**(iii)**

Core Ratio

- The Core Ratio focuses on financial strength.
- The formula used to calculate the Core Ratio is:  
$$\frac{\text{Tier 1 Capital} + 70\% \text{ of Surplus Allowance} + 70\% \text{ of Eligible Deposits}}{\text{Base Solvency Buffer}}$$

Total Ratio:

- The Total Ratio focuses on policyholder and creditor protection.
- The formula used to calculate the Total Ratio is:  
$$\frac{\text{Available Capital} + \text{Surplus Allowance} + \text{Eligible Deposits}}{\text{Base Solvency Buffer}}$$

(d) Calculate the following:

(i) Total Ratio

(ii) Core Ratio

State any assumptions and show your work.

**Commentary on Question:**

*Successful candidates were able to calculate all of the components from the data given to ultimately calculate the Total Ratio and Core Ratio. If candidates made errors, they were carried throughout the calculation and not penalized more than once.*

*Common challenges encountered were:*

- Application of the reduction % to the Policy-by-policy negative reserves in the Tier 1 and Tier 2 capital deduction.
- Application of the rules that do not allow Tier 2 capital to exceed 100% of Tier 1 capital.

The model solution for this part is in the Excel spreadsheet.

- (e) Assess the implications of XYZ's capital ratios calculated in (d).

**Commentary on Question:**

*Successful candidates were able to assess their answers from Part D. A candidate was given credit if their assessment of the result from Part D was accurate even if the result from Part D was incorrect.*

- OSFI has established a Supervisory Target Total Ratio of 100% and a Supervisory Target Core Ratio of 70%.
- The Total Ratio (103%) exceeds the Target Total Ratio of 100% which is viewed as strong, and no action would be required.
- Insurers are required, at minimum, to maintain a Total Ratio of 90% and a Core Ratio of 55%
- Core ratio (56%) is below supervisory target (70%) but above a minimum requirement (55%). Company will be subject to increased supervision.

- (f) Recommend two actions that could be implemented by XYZ to improve their capital ratios calculated in (d). Justify your answer.

**Commentary on Question:**

*Successful candidates were able to recommend two actions based on their answers from Part D. A candidate was given credit if the actions recommended aligned with their result from Part D even if the result from Part D was incorrect. Other answers, other than those provided below, were accepted.*

- Obtain more capital
- Cede more business (obtain more reinsurance)
- Accept moving the ceded reinsurance to a registered reinsurer (the question assumes eligible deposits) to provide full capital relief

## GH VRC Fall 2024 #6.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.

### Learning Outcomes:

- (2c) Project financial outcomes and recommend strategy to senior management to achieve financial goals.
- (2e) Explain fair value accounting principles and describe International Financial Reporting Standards (IFRS).
- (2f) Construct basic financial statements and associated actuarial entries for a life and health insurance company.

### Sources:

IFRS 17 Insurance Contract Examples

Comparison of IFRS 17 to Current CIA Standards of Practice, June 2022 (excluding sections 3.3, 7.2.1, 7.2.2, 7.2.3, 7.2.5 & 8.1.1)

Group Insurance, Skwire, 8th Edition, 2021 - Ch. 37: Group Insurance Financial Reporting in Canada

CIA Educational Note – IFRS 17 Coverage Units for Life and Health Insurance Contracts, Dec 2022 (excluding sections 3.1.2, 3.1.3, 3.2, 3.4)

### Commentary on Question:

*This question was testing candidates general understanding of IFRS 17 and how to construct financial statements. Most candidates demonstrated a strong understanding of the concept of CSM and how to calculate CSM. However, many candidates fell short in demonstrating an understanding of other components of the IFRS reporting. Part (g), where candidates were asked to apply their knowledge was not done particularly well.*

### Solution:

- (a)
  - i. Describe the concept of Contractual Service Margin (CSM).
  - ii. Define the three "building blocks" used in the measurement of insurance contract liabilities under the General Measurement Approach (GMA).
  - iii. Describe how each "building block" under the GMA compares to the Canadian Asset Liability Method (CALM).

**Commentary on Question:**

*Candidates generally did well in this section. Not all the details in the solution were required for full credit.*

- (i) The CSM represents the unearned profit from a group of insurance contracts. At contract inception, if the FCF including all cash flows of the contract (i.e., including acquisition expenses and all premiums) is less than zero, the CSM is established to offset that negative amount so there is no front-ending of profit. The CSM is then released into income as insurance contract services are provided.
- (ii) Three building blocks:
- The estimated future cash flows laying within the boundary of the contract, based on the “expected value (i.e., the probability-weighted mean) of the full range of possible outcomes” and reflecting “conditions existing at the measurement date” (that is, there is no lock-in of assumptions).
  - The impact of discounting for the time value of money.
  - Risk adjustment to reflect “the compensation that the entity requires for bearing the uncertainty about the amount and timing of the cash flows”.
- (iii) General Measurement Approach (GMA) vs CALM:
- Present value of future cash flows: Conceptually, this is similar to the current CIA liability PfADs. Projected cashflows may be different under IFRS17 due to level of aggregation, contract boundary, and the concept of probability weighted cashflows.
  - Risk adjustment for non-financial risk: Conceptually, this is similar to current CIA PfADs for non-economic risk. Under IFRS17 there are no asset related MfADs, such as asset default, investment expenses, or reinvestment risk (C3). Diversification of risks may be viewed differently.
  - Contractual service margin (CSM): CSM is a new concept versus current CIA standards, which allow front-ending of profit at issue.
- (b) Calculate the components of the liability on initial recognition as of January 1, 2023. State any assumptions and show your work.

**Commentary on Question:**

*This part of the question explicitly asked candidates to calculate the components of the liability on initial recognition, not only the CSM. Candidates needed to show their work, and label the initial BEL (PV Premiums, PV Claims, PV Commissions) and PV RA cash flows for full credit.*

The model solution for this part is in the Excel spreadsheet.

- (c) Construct the CSM Amortization Schedule for years 2023 to 2032. State any assumptions and show your work.

**Commentary on Question:**

*Candidates did generally well on this question and demonstrated they were able to construct the CSM amortization schedule. Full credit was awarded where errors were carried forward from part (b).*

The model solution for this part is in the Excel spreadsheet.

- (d) Calculate the components of the Insurance Financial Expense for the year 2023. State any assumptions and show your work.

**Commentary on Question:**

*This question asked candidates to calculate the components. Candidates needed to show their work and label each component for full credit. Partial credit was given if the candidate only did a calculation for IFIE*

The model solution for this part is in the Excel spreadsheet.

- (e) Construct the Statement of Expected Profit or Loss for the year 2023. State any assumptions and show your work.

**Commentary on Question:**

*Most candidates recognized how to calculate Insurance Service Result (Insurance Service Revenue and Insurance Service Expense) but were challenged to complete the other sections of the statement. All components (even those with 0 values) were required to be disclosed in the statement for full credit.*

The model solution for this part is in the Excel spreadsheet.

- (f) Explain how insurance companies need to segment their insurance contracts according to IFRS 17.

**Commentary on Question:**

*Most candidates did well in recalling this information. Not all the points below were required for full credit.*

Under IFRS 17, contracts considered to be similar risk must be managed together.  
A group of contracts:

- Contain contracts issued in one issue year only.
- Contain contracts that are in a similar product line.

Furthermore, insurer should divide a portfolio of insurance contracts issued into at least the following:

- A group of contracts that are onerous at initial recognition, if any.
- A group of contracts that at initial recognition have no significant possibility of becoming onerous subsequently, if any.
- A group of the remaining contracts in the portfolio, if any.

- (g) Recommend portfolios XYZ should include in their 2024 accounting disclosure according to IFRS 17. Justify your response.

**Commentary on Question:**

*Although candidates were able to explain the considerations needed for grouping contracts in part (f), most candidates had difficulties in apply the concepts in this question. Candidates needed to recognize that Company XYZ needed to have different cohort years for business in 2023 and 2024, as well as different cohorts for different lines of business (i.e. life, medical, etc.) A proposed set up of cohorts was required for full credit. Partial credit was not awarded for re-iterating what was mentioned in part (f). Various answers were accepted, as long as the proposal was justified. This level of detail below was not required for full credit.*

Company XYZ would need to have at least the following portfolios:

- 2024 Group Term business portfolio. Assuming Company XYZ continues to sell Term life business, the new business will need to be set up in a separate cohort from the existing 2023 cohort.
- Separate portfolios for 2024 Group Term, 2024 Medical & 2024 Drug cohorts. These are distinctly different product lines.
- Furthermore, there is a good chance that the medical and drug business being sold heavily discounted will be onerous at initial recognition. Therefore, the 2024 medical & 2023 drug cohorts will need to be split into an "onerous group" as well as a "no significant possibility of becoming onerous" group. These contracts would need be in its own separate portfolio with a loss component.

- 2023 Group Term business portfolio (established earlier).
- Depending on how long Company XYZ has been in business (we only know the company has been established before Jan 1, 2023), there will likely also be 2022, 2021, 2020, etc. Group Term business portfolio. Each year must be in its own cohort.

# GH 201-C Model Solutions

## Learning Objective 3

### GH FVCC Fall 2020 #3.

#### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

#### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.

#### Sources:

GH201-661-25: Employee Life and Health Trusts & Health and Welfare Trusts

#### Commentary on Question:

*Successful candidates were able to understand the study note. Successful candidates were able to recall key features of ELHTs and then explain how they relate to different cohorts of employees. Ultimately successful students were able to translate the rules into calculations and results.*

#### Solution:

- (a) Describe the key features of ELHTs.

#### Commentary on Question:

*Successful candidates were able to not only list the key feature of Employee Life and Health Trusts, but to describe them as well.*

- The trust must be resident in Canada.
- The trust must be organized for the purpose of providing the limited forms of benefits and assistance – group sickness or accident insurance, a group term life insurance policy or a private health services plan.
- The trust has a legal right to enforce payment of contributions to the trust.
- Employer agents or representatives constitute only a minority of the trustees of the trust.

- (b) Explain ELHT’s requirements as it relates to “key employees”.

#### Commentary on Question:

*Successful candidates were able to explain ELHT requirements as they relate to key employees. It was important for candidates to make the distinction of a key employee to provide an accurate explanation.*

- ELHT's have an anti-avoidance concept of a key employee.
- Defined as a high-income employee of one which holds significant shareholdings.
- Benefits cannot accrue more favorably to key employees.
- At least one class of beneficiaries must contain more than 25% of all employees, and at least 75% of this class must not be a key employee.

(c) Calculate the contribution required from:

- (i) Outdoor employers
- (ii) Indoor employers

State any assumptions and show your work.

**Commentary on Question:**

*Successful candidates were able to demonstrate that they could understand three key calculations and then repeat them for each of the 4 years. The three calculations were trending, aging and the present value. The calculations were similar for both the Outdoor and Indoor employers.*

Successful candidates made the following assumption to calculate the contribution correctly for both the indoor and outdoor employers:

- Annual benefit payments occur mid-year (i.e. assume uniform distribution of claims). This assumption is critical to calculate the present value correctly.

Successful candidates were able to calculate the following correctly:

**1. Trending**

- Trending starts at 6.5% and then decreases by 0.125% each year thereafter, so as an example:
- **Year 2022:**  $1.0000 \times 1.0650 \times 1.06375 = 1.1329$

**2. Aging**

- **Year 2020 (Indoor):**  
Aging Factor  $^{(Average\ Age - 55)} = 1.02^{(59.1 - 55)} = 1.0846$
- **Year 2020 (Outdoor):**  
Aging Factor  $^{(Average\ Age - 55)} = 1.02^{(63.1 - 55)} = 1.174$
- This calculation is repeated for years 2021 – 2023 using the average age for each year.

**3. Present value**

- Successful candidates calculated the Total Costs prior to calculating the present value.

- **Total Costs = Total Claims Cost x Count x Trend x Aging**
- Then the present value was calculated as:
- $Present Value = \frac{Total Costs}{(1+Discount Rate)^{time}}$
- For 2020 (Indoor):
- $Present Value = \frac{857,359}{(1+0.025)^{0.5}}$  or \$846,839

4. The sum of the present value from 2020 through 2023 represented the total contribution for the employer.

Year	Base			Aging	Total Costs	Present Value	
	Claims Cost	Count	Trend				
2020	\$1,500	527	1.0000	1.0846	\$857,359	\$846,839	--> discount to 1/1/2020
2021	\$1,500	586	1.0650	1.0803	\$1,011,298	\$974,526	--> discount to 1/1/2020
2022	\$1,500	592	1.1329	1.0889	\$1,095,426	\$1,029,848	--> discount to 1/1/2020
2023	\$1,500	608	1.2037	1.0997	\$1,207,240	\$1,107,287	--> discount to 1/1/2020
						<b>\$3,958,500</b>	

Part (ii): Calculate contribution for outdoor employers:

Year	Base			Aging	Total Costs	Present Value	
	Claims Cost	Count	Trend				
2020	\$900	105	1.0000	1.1740	\$110,941	\$109,580	--> discount to 1/1/2020
2021	\$900	106	1.0650	1.1693	\$118,806	\$114,486	--> discount to 1/1/2020
2022	\$900	112	1.1329	1.1670	\$133,270	\$125,291	--> discount to 1/1/2020
2023	\$900	114	1.2037	1.1647	\$143,842	\$131,933	--> discount to 1/1/2020
						<b>\$481,291</b>	

(d) Calculate the 2020 tax return refund the employers would receive under the following scenarios:

- All employers participate in the ELHT
- Only the outdoor employers participate in the ELHT

State any assumptions and show your work.

**Commentary on Question:**

*Successful candidates were required to identify if the multi-employer trust rules applied or not. The ability to recognize the differences allowed the candidate to apply the correct percentage to the result in C.*

- Successful candidates were able to recognize that if all employers participate, then multi-employer rules apply (since min. 15 employers reached).**

- Under multi-employer trusts, employers can deduct the full value of the contribution.
- Refund would be 40% of the total indoor and outdoor contributions calculated in part c in 2020.

$$= 40\% \times (846,839 + 109,580) = \$382,568$$

(ii) **In this case, the multi-employer rules would NOT apply**

- The employer deduction is limited to the benefits paid out that year.
- The refund would be 40% of the 2020 costs, calculated in c, for outdoor employers only.  

$$= 40\% \times (109,580) = \$54,790$$

- (e) Calculate the expected asset balance at the end of 2021. State any assumptions and show your work.

**Commentary on Question:**

*Successful candidates understood that the starting point for the answer was the sum of the Indoor and Outdoor Employer contributions from C. Once a student understood where to start, they would apply the rules in the study note to the individual components to calculate the balances and carry forward amounts.*

Line Item	Amount	Comments
<b>Trust balance at 1/1/2020:</b>	<b>\$ 4,439,790</b>	--> from c (indoor & outdoor) employer contributions
2020 claims costs:	\$ 484,150	--> from c, multiplied by 50%
2020 trust income:	\$ -	--> no income for trust
Amount subject to tax:	\$ -	--> Since there is no income for the trust it is not subject to tax
Taxes owed:	\$ -	--> taxes are owed are at the highest marginal tax rate per the study note, given as 50% in the stem
2020 carry-forward deduction:	\$ (484,150)	--> candidate will need to recognize unused deductions can be carried forward
<b>Trust balance at 1/1/2021:</b>	<b>\$ 3,955,640</b>	--> prior balance, less benefit costs, plus income, less taxes
2021 claims costs:	\$ 1,017,094	--> from c, multiplied by 90%
2021 trust income:	\$ 1,551,192	--> big return for trust, well in excess of costs
Amount subject to tax, net of any carry forwards:	\$ 49,948	--> the net income is offset against the carry-forward from the prior year; if candidate gives no consideration to the carry-forward
Taxes owed:	\$ 24,974	--> taxes are owed are at the highest marginal tax rate per the study note, given as 50% in the stem
<b>Trust balance at 1/1/2022:</b>	<b>\$ 4,464,765</b>	--> prior balance, less benefit costs, plus income, less taxes

## GH FVCC Spring 2021 #1.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.

### Sources:

GH201-672-25: CHLIA Guideline G17 – Coordination of Benefits for Out-of-Country/Out-of-Province/Territory Medical Expenses

### Commentary on Question:

*Candidates did generally well on this question.*

### Solution:

- (a) Describe the main components of out-of-country claims management.

#### Commentary on Question:

*Candidates did very well on this portion*

- Emergency Assistance
    - Determine claim eligibility
    - Initiate/handle case management
    - Notify other carriers
    - Coordinate any payments
    - Recover amounts owing from other carriers
  - Claim payment
    - First insurer contacted will generally be first carrier
      - Even if carrier provides Excess Coverage Provision
    - Initiate medical elements / repatriation
    - Pay the claim under the contract as if no other coverage exists
    - Process recovery from GHIP
      - If retiree already reimbursed by GHIP, the payment will be net
- (b) Recommend questions you can ask the retiree to ensure you evaluate the coordination of benefits appropriately.

**Commentary on Question:**

*Candidates who did best asked several relevant questions around other coverages that could apply. Few candidates asked about public coverage.*

- 1) Is the claimant covered by another group as primary beneficiary?
    - Is the retiree an active worker or retired under these plans?
      - First payer is active full time, then part time, finally retiree
    - If same status, how long have they worked at each?
      - Longer duration is first payer
    - What are the medical plan terms? Do they have COB provisions?
    - Does the program have lifetime benefit maximum?
      - If so, how much credits are left?
    - What is their contact information to share claim documents?
  - 2) Is the claimant a dependent on another group plan?
    - Did he or his spouse buy supplemental coverage or use a credit card providing benefits?
    - What are the medical plan terms? Do they have COB provisions?
    - Does the program have lifetime benefit maximum?
      - If so, how much credits are left?
    - What is the claim limitation language?
  - 3) Is the claimant a Canadian resident covered by public GHIP?
    - Which province are they covered by?
    - Did they or will they apply for reimbursement?
- (c) Calculate how much would be payable under Company XYZ's retiree plan benefit:
- (i) Without the spouse's plan
  - (ii) With the spouse's plan

State any assumptions and justify your answer.

**Commentary on Question:**

*About half of candidates got full credits on this part. Most of those who did not missed the exception that applies to retiree group plans with lifetime limit of \$50,000 or less.*

- (i) XYZ is the only payer. Because the claim exceeds XYZ's lifetime maximum, XYZ pays \$50,000.
- (ii) Because of its lifetime maximum of \$50,000, XYZ is secondary to any plan with a higher lifetime maximum. XYZ pays \$0.

## GH FVCC Spring 2021 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.

### Sources:

GH201-621-25: Canadian Life and Health Insurance Association: Guideline G3, Group Life and Health Insurance

GH201-647-25: Protecting Canadians' Long Term Disability Benefits

GH201-661-25: Employee Life and Health Trusts & Health and Welfare Trusts

### Commentary on Question:

*This question attempted to test candidates' knowledge of the taxation and regulatory policies of various insurances and trusts offered by insurance companies and plan sponsors in Canada. While a majority of candidates demonstrated sufficient knowledge to obtain a significant amount of available points, few candidates provided enough details and depth to their responses to obtain full credit for the entire question.*

### Solution:

- (a) Critique the Board of Trustee's expectations.

### Commentary on Question:

*Most candidates were able to correctly identify that there should not be any impact to the member's net benefit as a result of the expected Cost of living adjustment (COLA) to the Canada Pension Plan (CPP). Fewer candidates, however, received full credit, which required a recognition that the Board of Trustee's expectation is not aligned with CHLIA, which specifies that a Disability Income Benefit should not be reduced due to a government sponsored program COLA adjustment that occurs after the Disability Income Benefit becomes payable.*

The Board of Trustee's expectation is not aligned with CHLIA G3 Section 10.2. As such, there should not be any impact to the members' net benefit. According to G3 Section 10.2, where the Disability Income Benefit does not have a COLA, the Disability Income Benefit payable should not be reduced because of a government sponsored plan or support program COLA occurring after the date on which the Disability Income Benefit becomes payable. Since the expected COLA would take place after the benefit became payable, it would not impact the net benefit.

- (b) Calculate the reserve for this claimant at December 31, 2020 using the newest reserve tables of Thunderball. State any assumptions and show your work.

**Commentary on Question:**

*Most candidates did very well with this question, although many candidates made small mistakes such as utilizing the incorrect reserve factor from the Case Study tables or incorrectly adjusting the CPP offset by the COLA. Candidates still received a majority of the points available if their calculation was otherwise correct.*

First, the preliminary monthly benefit can be calculated as the annual salary (divided by 12) multiplied by the specified percentage of pre-disability earnings:

$$\$55,000 / 12 * 66.67\% = \$3,055.71 \text{ per month.}$$

This amount checks out, as it is less than the benefit maximum of \$3,500 per month. Next, the monthly CPP offset should be subtracted from the preliminary monthly benefit. It is important that the expected CPP COLA adjustment of 2% not be applied to the offset, as the insured benefit has no COLA.

$$\$3,055.71 - \$800 = \$2,255.71 \text{ per month.}$$

The new monthly benefit should be multiplied by a reserve factor that corresponds to the beneficiary's age and claim duration. As of 12/31/2020, the beneficiary is 43 years old with a claim duration of 5 years (60 months). Exhibit 1 of Thunderball in the Case Study indicates this factor is 94.24.

$$\text{Reserve} = \text{Monthly Benefit} \times \text{Reserve Factor} = \$2,255.71 \times 94.24 = \$212,578. \\ (\text{Or } \$212,605 \text{ if the monthly benefit gets rounded to } \$2,256.)$$

- (c) Describe the results of the CLHIA's assessment.

**Commentary on Question:**

*Most candidates were able to identify the four main solutions of CLHIA's assessment and give one detail of the reasoning or effectiveness of each. To receive maximum credit, some of the assessment's proposals had to have a more detailed explanation.*

The CLHIA's assessment included four potential policy solutions to protect disabled employees:

1. Implement Enhanced Disclosure Requirements

This may help Canadians with uninsured plans better understand that their LTD plans are not insured, as well help understand the implications that this has for their financial security. While it would raise awareness, it would not address the issue of protecting the benefits of those Canadians.

2. Increase the Priority Status of Disabled Employees During Bankruptcy

This would increase the likelihood that disabled employees get access to available funds in a bankruptcy proceeding, but does not fully ensure that there are in fact funds available. Furthermore, changing established creditor ratings in bankruptcy would distort the credit and bond market in Canada and increase capital funding and borrowing costs for plan sponsors with ASO plans.

3. Require Plan Sponsors to Establish Reserves Under a Separate Fund

This significantly improves the protection over the status quo if reserves established are under the same actuarial requirements as insured plans. To be effective, the funds would need to be protected from other creditors of the plan sponsor. To make this work, provinces would have to establish some form of substantive regulatory and supervisory framework.

4. Require that LTD Plans be Offered on an Insured Basis

This proposal provides maximum protection for disabled employees, but would also require a robust regulatory and supervisory framework in place that provides protection to LTD claimants even in the scenario of insurer insolvency.

(d) Describe the key features of:

(i) HWT

(ii) ELHT

**Commentary on Question:**

*Most candidates were able to identify and describe enough features of ELHT's and HWT's to get full credit; it was not required that every key feature be identified for full credit. Candidates focused mostly on the features of each type of trust as opposed to the regulatory background of each (e.g. legislative vs CRA administrative discretion).*

(i) Key features of a Health & Welfare Trust (HWT) include:

- An HWT must be restricted to providing group sickness or accident insurance, private health services and group life insurance to employees.
- An HWT cannot be controlled by the funding plan sponsors and cannot make direct investments in the plan sponsor.
- There is no “key employee” test for an HWT.
- A HWT is subject to tax as a trust (e.g. at the highest marginal rate) on its investment income. Often HWTs do not pay tax because the trusts are able to deduct taxable benefits paid to beneficiaries, and such deductions exceed their income.

(ii) Key features of Employee Life and Health Trusts (ELHT) include:

- The trust must be resident in Canada.
- Like an HWT, the ELHT must be organized for the purpose of providing the limited forms of benefits and assistance – group sickness or accident insurance, a group term life insurance policy or a private health services plan.
- The trust has a legal right to enforce payment of contributions to the trust, and employer agents or representatives must constitute only a minority of the trustees.
- At least once class of beneficiaries of an ELHT must contain more than 25% of all employees and at least 75% of that class must not be a key employee. Key employees are high income employees or those that hold significant shareholdings.

(e) Compare and contrast the key distinctions between a HWT and an ELHT.

**Commentary on Question:**

*Many candidates struggled to do a comprehensive comparison and especially contrasting of HWT's and ELHT's beyond just re-listing features from part (d). While partial credit was granted by comparing and contrasting features that were found in part (d), full credit required a more thorough compare and contrast of additional distinctions that were not listed in part (d).*

While HWT's and ELHT's have many things in common and are utilized to achieve similar goals, there are several key distinctions:

1. Tax Efficiency and Other Tax Considerations

While an HWT is only able to deduct taxable benefits it pays out, an ELHT is able to deduct all costs related to providing eligible benefits, including insurance premiums, claims and administrative costs. An HWT contribution can be deducted in the year in which there is a legal obligation to make payment to the extent that the contribution is reasonable in the circumstance. For ELHT's, though, where employer contributions are not deducted in the year, they can normally be deducted in a subsequent year where the trust uses those contributions to provide for benefits in that subsequent year. Finally, non-capital losses can be carried forward and back in an ELHT, while in an HWT only the "carry forward" rule applies (and only for three years).

2. Qualified Multi-Employers

While multiple employers can participate in the same HWT, the "qualified multi-employer" rules allow an ELHT with at least 15 employers under a collective bargaining agreement to, provided certain technical conditions are met, be able to claim a full current year deduction for all contributions made.

3. Excess Funds

An HWT can deliver any excess funds to a charity, while an ELHT upon wind-up may only pass to beneficiaries, another ELHT, or the Crown.

## GH FVCC Fall 2021 #2.

### Learning Objectives:

2. The candidate will understand how to prepare and interpret insurance company financial statements in accordance with IFRS.
3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (2d) Describe how to compute the taxable income of a life and health insurance company.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

Canadian Insurance Taxation, Swales, et. al., 4th Edition, 2015

- Ch 2: Taxation of Life Insurers – An Introduction
- Ch. 4: Income for Tax Purposes – General Rules (pp. 37-38 [excluding “Imputed Interest Benefit on Real Property”] & 43-47)
- Ch. 9: Investment Income Tax (pp. 135-142)

### Commentary on Question:

*Most candidates performed well on part b of the question, while parts a and c needed more work.*

### Solution:

- (a) List and describe the inclusions in net income that are permitted under the special tax provisions applicable to life insurers.

### Commentary on Question:

*The intent of the question was for candidates to recall the inclusions in net income that are permitted under the special tax provisions for life insurers. In general, this question was not well answered by most candidates. Successful candidates were able to list and describe the inclusions in net income permitted under the special tax provisions.*

- **Premium Income**

- Insurers must include in income from a life insurance business the amount of net premiums written on the sale of life insurance policies and amounts received in respect of annuities.
  - Net premiums written include direct written premiums and premiums assumed under reinsurance arrangements, less premiums ceded under reinsurance arrangements.

- **Policy Loans**
    - A life insurer must include in income any amount received as a repayment of a policy loan or as interest on a policy loan.
  - **Reserves**
    - If tax reserves are negative, that amount must be included in income for the year.
    - Any reserves deducted in the previous year must also be included in the current year's income.
  - **Investment Income**
    - Life insurers are subject to a 15% tax on the income that accrues annually within certain life insurance policies.
- (b) Describe the deductions from income that are permitted under the special tax provisions applicable to life insurers.

**Commentary on Question:**

*The intent of the question was for candidates to recall the deductions from income that are permitted under the special tax provisions for life insurers. In general, this question was well answered by most candidates. Successful candidates were able to list and describe the deductions from income permitted under the special tax provisions.*

- **Payments to Policyholders**
  - Life insurer is allowed to deduct policy loans, claims paid on a paid basis, reserve for unpaid claims (including IBNR), payments on surrender, premium and experience rating refunds, and dividends on participating policies.
- **Policyholder Dividends**
  - A deduction is permitted for policyholder dividends payable and paid, to the extent that the amount was not deducted in a previous year.
- **Experience Rating Refunds**
  - Insurers are permitted a deduction for experience rating refunds that during the year or 12 months thereafter were:
    - Paid or unconditional credited to a policyholder
    - Applied against a liability to pay premiums.
- **Interest Expense**
  - Borrowed money used to acquire property or amounts payable in respect of property.
  - Deposits held in connection with life insurance policies in Canada or policies insuring Canadian risks.

- **Interest Paid to Non-residents**
  - Special rules limit the deductibility of interest on debt a Canadian corporation owes to specified non-resident shareholders.
  - In general terms, the limitation will occur to the extent that the average outstanding debt, calculated on a monthly basis, owing to those shareholders exceeds 1.5 times the equity amount of the corporation.
- **Receivables and Bad Debts**
  - Insurers may not claim a reserve for doubtful debts in respect of premiums receivable for a life insurance policy in Canada.
  - This restriction does not apply to premiums receivable for non-life insurance policies.
- **Policy Acquisition Expenses**
  - Any outlay or expense made or incurred on account of the acquisition of an insurance policy, must be amortized and deducted over the period of coverage of the policy.
  - If the policy is non-cancellable or guaranteed renewable accident and sickness insurance policies, and life insurance policies other than group life insurance policies providing coverage for 12 months or less, acquisition costs are currently deductible.
- **Prepaid expenses**
  - Rules prohibit a deduction for prepaid expenses in general before the year which they relate.
- **Rental Loss**
  - Life insurers may generate a rental loss on real property by claiming capital cost allowance.
  - Any rental loss created in this fashion may be used to offset insurer's income from other sources.
- **Foreign Taxes Paid on Income from a Foreign Insurance Business**
  - Life insurers cannot claim foreign tax credits for both business and non-business taxes.
- **Investment Income Tax**
  - Life insurers may deduct the investment income tax payable for the year.
- **Reserves**
  - A life insurer is permitted to deduct prescribed reserves.

(c) Calculate the investment income tax on these three blocks of policies as of December 31, 2020. State any assumptions and show your work.

**Commentary on Question:**

*Successful candidates were able to use the information from above to calculate the components of the Investment Income Tax correctly. Marks were given for successfully calculating Life Investment Income, Experience Rating Refund, Canadian life investment losses carried forward if applicable, and the final investment income tax.*

- The model solution has been broken down into 3 distinct steps: Life investment income, experience rating refund, and Canadian life investment losses carried forward which must be applied to all three lines of business (UL Policy, Group Life Policy, and 10-year Term). Once all 3 steps are calculated the Tax of the three lines of business are summed:
- **Step 1: Calculation of the Life Investment Income**

**Average Life Reserves**

$$= (\text{Total Life Reserves (Dec 31, 2019)} + \text{Total Life Reserves (Dec 31, 2020)}) / 2$$

**Yield**

$$= 55\% * \text{Average interest rate on Government of Canada bonds base on policy issue dates}$$

**Life Investment Income**

$$= \text{Average Life Reserves} \times \text{Yield}$$

	<b>UL Policy</b>	<b>Group Life Policy</b>	<b>10-year Term</b>
Average Life reserves	\$ 5,993,535	\$ 125,000	\$ 2,312,500
Yield	2.0625%	2.0625%	2.0625%
Life Investment Income	\$ 123,617	\$ 2,578	\$ 47,695

- **Step 2: Calculating the Experience Rating Refund (Only the group life policy included an experience refund reserve**

**Average Experience Rating refund reserve**

= Experience refund reserve / 2

**Yield adjusted average claim fluctuation reserve**

= Yield x Average experience rating refund reserve

**Experience rating refund reserve adjustment**

= Yield adjusted average claim fluctuation reserve prorated for the number of days in the taxation year.

**In this case, the prorated time is the number of days from July 1, 2020 through December 31, 2020**

	<b>UL Policy</b>	<b>Group Life Policy</b>	<b>10-year Term</b>
Average experience rating refund reserve	\$ 0	\$ 6,250	\$ 0
Yield	3.75%	3.75%	3.75%
Yield adjusted average claim fluctuations reserve	\$ 0	\$ 234	\$ 0
Reduction for changes in the experience rating refund since 1990	\$ 0	\$ 0	\$ 0
Experience rating refund reserve adjustment	\$ 0	\$ 118	\$ 0

- **Step 3: Calculating the investment losses and tax**

**Life Investment Income:** Calculated in Step 1

**Experience rating refund reserve adjustment:** Calculated in Step 2

**Amounts reported to policyholders as includable in income for the policyholder**

= Policy holder loans + Policy holder withdrawals

**Canadian life investment income or loss for the year**

= Life investment income + experience rating refund reserve adjustment – Amounts reported to policyholders as includable in income for the policyholder

**Canadian life investment loss carry-forward**

= Investment losses carried forward

**Taxable Canadian life investment income**

= Canadian life investment income or loss for the year – Canadian life investment loss carry-forward

### Investment Income Tax

= Taxable Canadian life investment income x tax rate

	<b>UL Policy</b>	<b>Group Life Policy</b>	<b>10-year Term</b>	<b>Total</b>
Life Investment Income	\$ 123,617	\$ 2,578	\$47,695	\$171,312
Experience rating refund reserve adjustment	\$ 0	\$ 118	\$ 0	\$ 0
Amounts reported to policyholders as includable in income for the policyholder	\$ 62,500	\$ 0	\$ 0	\$ 62,500
Canadian life investment income or loss for the year	\$ 61,117	\$ 2,696	\$47,695	\$108,812
Canadian life investment loss carry-forward	\$ 56,000	\$ 0	\$ 0	\$ 56,000
Taxable Canadian life investment income	\$ 5,117	\$ 2,696	\$ 47,695	\$ 52,812
Tax Rate	15%	15%	15%	15%
Investment Income Tax	\$ 767	\$ 404	\$ 7,154	\$ 7,922

### Total Investment Tax

= Sum of the Investment Income Tax of UL Policy, Group Life Policy, and 10-year term

## GH FVCC Fall 2021 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020, Ch. 2, 17, 18, 19

GH201-653-25: Telus Health Note: How Much Does that Drug Cost?

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) List and describe the three recommendations of the Canadian Life and Health Insurance Association (CLHIA) to ensure affordable prescription drugs in Canada.

### Commentary on Question:

*All candidates received partial mark on this question, but no full mark was given. No candidate was able to fully recall the three recommendations made by CLHIA.*

To ensure affordable prescription drugs in Canada, the CLHIA recommends:

- That the mandate of PMPRB be reformed to achieve the lowest possible price for Canadians and examine ways to be more aggressive in using value-based pricing approaches to set prices to encourage pharmaceutical innovation.
  - The VBP approach would incorporate a wider set of factors when determining price, such as the burden of the illness in society, whether the drug addresses an unmet need, how innovative the drug is and the wider social benefits it offers.

- Where a brand drug is currently on a provincial formulary and a generic has been approved as bio-equivalent with the Canadian brand reference product by Health Canada, that the generic be automatically interchangeable without the need for additional review by the provinces an automatically listed to prevent the delay in substituting the generic.
  - There can be a lag between the time it takes the generic to be approved and deemed bio-equivalent by Health Canada and the province to list the generic as interchangeable, during which time the more costly brand product continues to be dispensed.
- Regardless of whether a drug is listed on a provincial formulary, generic price caps apply to all generic drug approved for sale within a given province, as generics not listed under the formulary are not subject to the same generic pricing controls as those on formulary.

(b) Calculate the 2021 salary increase that would be cost neutral for ABC. State any assumptions and show your work.

**Commentary on Question:**

*All candidates received partial marks on this question, but no full mark was given. Most candidates did not calculate the appropriate impact for CPP and EI which resulted in marks deducted. Candidates failed to recognize that for higher income earners (i.e. those earning above EI maximum yearly insurable earnings and those earning above YMPE), salary increase has no impact on the employer paid EI / CPP amount.*

	2020 Cost	2021 Cost	Formula for 2020 Cost	
Benefit	\$176,640	\$0	Benefit	$\$176,640 = \$92 \times 160 \times 12$
EI	\$176,888	\$178,295	EI	$\$176,888 = 2.21\% \times (\$40,000 \times 50 + \$50,000 \times 30 + \$56,300 \times 80)$
CPP	\$425,318	\$431,165	CPP	$\$425,318 = 5.45\% \times [(\$40,000 - \$3,500) \times 50 + (\$50,000 - \$3,500) \times 30 + (\$60,000 - \$3,500) \times 40 + (\$61,600 - \$3,500) \times 40]$
WSIB	\$139,500	\$142,037	WSIB	$\$139,500 = 1.55\% \times \$9,000,000$
EHT	\$175,500	\$178,691	EHT	$\$175,500 = \$29,250 + 1.95\% \times (\$9,000,000 - \$1,500,000)$
<b>Total</b>	<b>\$1,093,846</b>	<b>\$930,188</b>	<b>Total</b>	<b>\$1,093,846</b>
Payroll	\$9,000,000	\$9,163,658	2020 payroll	\$9,000,000
<b>Total Cost</b>	<b>\$10,093,846</b>	<b>\$10,093,846</b>	<b>Total Cost</b>	<b>\$10,093,846</b>
Payroll Increase		1.82%		

Using goal seek, calculate the payroll increase in order to maintain the total 2020 cost while reducing benefit amount to \$0  
This gives 1.82%

**Notes**

- Salary increase only impact employer cost for employees under EI maximum yearly insurable earnings of \$56,300
- Salary increase only impact employer cost for employees under Year's Maximum pensionable Earnings (YMPE) of \$61,600
- Salary increase impacts employer cost for all employees under the Annual Maximum Assessable Earning of \$100,000

- (c) Assess the impact of the proposed change for employees. Justify your answer.

**Commentary on Question:**

*All candidates received partial mark on this question, but no full mark was given.*

- Cost-effectiveness of directing funds to salary increase rather than supplemental medical plan depends on the employee's income and work location.
- In most cases, there is a significant advantage for the employee to receive increased supplemental medical benefits as opposed to increased salary given the benefits plan is non-taxable (for most provinces).
- Employees may perceive a greater value in receiving benefits such as physiotherapy coverage, prescription drug coverage, etc. as opposed to receiving a salary increase.
- However, employees with little usage of the plan may perceive a greater value in receiving a salary increase.

- (d) Recommend cost saving options to address the CEO's concern regarding ABC's higher brand drug utilization relative to its peer companies. Justify your answer.

**Commentary on Question:**

*All candidates received partial mark on this question. Most candidates provided recommendation but failed to provide justification.*

- First, ensure that mandatory generic substitution is implemented to ensure payment for the lowest cost alternative.
- Alternatively, offering reimbursement of generics at a more generous level of reimbursement will encourage members and prescribers to use these products over newer, branded products.
- In addition, ABC can use the maximum allowable cost program to target limiting the cost to the lowest therapeutic alternative when more costly but similarly effective agents exist.

## GH FVCC Fall 2021 #7.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

GH201-621-25: Canadian Life and Health Insurance Association: Guideline G3, Group Life and Health Insurance

GH201-671-25: CHLIA Guideline G4 – Coordination of Benefits

### Commentary on Question:

*In general, most candidates did not perform well on this question and then could not identify all regulations or understand applicable taxation.*

### Solution:

- (a) Explain how Another Day can offer each benefit in exhibit 1 on a tax-free basis for employees.

### Commentary on Question:

*The majority of candidates did well on this section. However, many candidates missed indicating that offering a health, dental or HCSA program must qualify as a private health services plan.*

- For Extended Health Care and Dental Benefits, the employers can provide these benefits to employees on a non-taxable basis, as long as the plan qualifies as a Private Health Services Plan (PHSP).
- For life insurance and AD&D, premiums that employers paid towards life insurance and AD&D for their employees are taxable to the employees. As such, Another Day is unable to provide life and AD&D insurance on a tax-free basis to employees.
- For LTD and STD, employer paid premium is not considered a taxable benefit to the employee. However, benefits payable from the plan will be taxable.
- For health spending account, the contribution made by employer is not taxable to the employees. The expenses reimbursed to the employee are

not taxable to employees, as long as the plan qualifies as a PHSP under the income Tax Act.

- (b) Calculate the total amount of taxes paid by Another Day for the HCSA benefit. State any assumptions and show your work.

**Commentary on Question:**

*Few candidates answered completely this question. Very few candidates have identified the correct premium tax or provincial tax. Finally, many candidates applied taxes on fees only and not on claims and fees.*

	Ontario	Quebec	BC
Claims %	50%	30%	20%
Premium Tax	2.00%	3.48%	N/A
Provincial sales tax	8.00%	9.00%	N/A

	All Employees	Ontario	Quebec	BC
Claims	\$500,000	\$250,000	\$150,000	\$100,000
Fees (prorated in the same proportion as claims)	\$21,000	\$10,500	\$6,300	\$4,200
Total claims and fees	\$521,000	\$260,500	\$156,300	\$104,200
Premium tax (on total claims and fees)	\$10,649	\$5,210	\$5,439	\$0
Provincial sales tax (on total claims and fees)	\$34,907	\$20,840	\$14,067	\$0
Total taxes	\$45,556	\$26,050	\$19,506	\$0

	Provincial Sale		
	Premium Tax	Taxes	Total
Ontario	\$5,210	\$20,840	\$26,050
Quebec	\$5,439	\$14,067	\$19,506
BC	\$0	\$0	\$0
Total	\$10,649	\$34,907	\$45,556

- (c) Calculate the change in the out-of-pocket amount for Jack's family resulting from this plan change. State any assumptions and show your work.

**Commentary on Question:**

*Many candidates had difficulties identifying how the reasonable and customary amount would impact the cost after the plan design change.*

Jack's Plan - Maximum	\$200
Nichole's Plan - Maximum	\$500
R&C for Another Day	\$220
Incurred claim	\$300

(i)

**Prior to the change**

Nichole's plan pay	\$240
Jack's plan pay	\$60
<hr/>	
out of pocket	\$0

The second payer limits its payment to the lesser of (a) the amount that would have been payable had the plan been the first payer (b) 100% of the eligible expense reduced by all benefits paid for the same expenses by the first payer

**After the change**

(a) amount that would have been payable had the plan been the first payer	\$200
(b) 100% of all eligible expenses reduced by all benefits paid for the same expenses by the first payer	\$0
<hr/>	
Nichole's plan pay	\$240
Jack's plan pay	\$0
<hr/>	
out of pocket	\$60
Change in the out-of-pocket amount	\$60

- (d) Describe the replacement contract provisions needed to protect current covered employees from loss of insurance.

**Commentary on Question:**

*Most candidates had difficulties identifying any of the contract provisions.*

- Any member whose insurance was terminated solely because of the contract termination and is eligible for insurance under the terms of the replacing contract shall be insured under the replacing contract.
- The member's insurance amount shall be the lesser of the amount the member is eligible for under the replacing contract and the insured amount under the terminating contract.
- Insurance under the replacing contract shall become effective on the later of the date coverage terminates on the terminating contract and the effective date of the replacing contract.

- No one under the terminating contract on its termination date shall be ineligible under the replacing contract solely because that person was not actively at work on the effective date of the replacing contract.
- (e) Describe what will happen to members who are not actively at work at the termination date of the current insured contract.

**Commentary on Question:**

*Candidates did well in describing the first two points, however most missed identifying the last two.*

- Claims for disability income benefits shall be considered as if the contract had remained in force.
  - For group life contracts with a waiver of premium benefit, a claim for waiver of premium benefit shall be considered as if the contract had remained in force.
  - The life coverage shall be provided by the replacing insurer on a premium-paying basis when the terminating contract does not include a waiver of premium benefit or the member does not qualify for the waiver benefit.
  - No member who is receiving benefits under the terminating contract may receive duplicate benefits under the new contract.
- (f) Calculate the annual LTD employee cost for each category under a taxable arrangement versus a non-taxable arrangement. State any assumptions and show your work.

**Commentary on Question:**

*Candidates did well identifying the cost under the current arrangement. However, most candidates had issues incorporating taxes under the first two categories.*

- Annual premium calculation:

	Category 1	Category 2	Category 3
Annual Salary	\$30,000	\$50,000	\$70,000
Province	Ontario	Manitoba	BC
Volume	\$1,667	\$2,778	\$3,889
Annual premium	\$510.03	\$850.04	\$1,190.06

- Current arrangement (taxable) cost to an active employee = \$0 for all categories
- Category 1 non-taxable cost (annual):
  - Employee paid premium = \$510.03
  - RST =  $8\% * \$510.03 = \$40.80$
  - Total cost =  $\$510.03 + \$40.80 = \$550.83$
- Category 2 non-taxable cost (annual):
  - Employee paid premium = \$850.04
  - RST =  $8\% * \$850.04 = \$68.00$
  - Total cost =  $\$850.04 + \$68.00 = \$918.04$
- Category 3 non-taxable cost (annual):
  - Employee paid premium = \$1,190.06
  - RST = \$0
  - Total cost =  $\$2,190.06 + \$0.00 = \$1,190.06$

## GH FVC Spring 2022 #10.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

GH201-631-25: Canadian Life & Health Insurance Association: The Protection of Personal Information Under Group Benefit Plans

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

### Commentary on Question:

*Candidates performed very well on part (a) of the question, but most did not perform well on other parts. Many candidates did not understand how taxation of pay vs. benefits differed. Most candidates also did not demonstrate understanding that an increase in pay would lead to an increase in salary-based benefits, such as life insurance.*

### Solution:

- (a) List the principles governing the protection of personal information.

#### Commentary on Question:

*Most candidates did very well by listing these principles.*

- Accountability
- Identifying purposes
- Consent
- Limiting Collection
- Limiting use, disclosure and retention
- Accuracy
- Safeguards
- Openness
- Individual access
- Challenging compliance

- (b) Describe how a cost-plus plan works.

#### Commentary on Question:

*Most candidates understood some parts of what a cost-plus plan is, but did not explain how it works.*

- Cost-plus plans operate like an HCSA plan without the carry-forward provisions or credits, so account balances are not maintained.
- A typical cost-plus plan reimburses employee's medical expenses (not covered by other plans) under an administrative agreement between the employer and a third party such as an insurer, up to a defined limit each year.
- The third party adjudicates the claims and bills the employer for the amount of the claims reimbursed, plus the fees and taxes required, hence the term cost-plus.
- Cost-plus plans are popular with employers who want to provide additional benefits to key employees. ASO plans and HCSA plans are versions of a cost-plus arrangement but are not usually referred to as cost-plus plans.

(c) Calculate the cost for Another Day under each option:

- (i) Increase given as salary only
- (ii) Increase given as HCSA benefit only

State any assumptions and show your work.

**Commentary on Question:**

*Most candidates knew that wages were above thresholds, so no additional EI, CPP and WSIB would apply. Many candidates did not apply EHT properly to additional earnings. Furthermore, many candidates did not incorporate additional employer costs related to Life and AD&D due to the benefit being salary based.*

(i) **Increase given as salary only**

EI, CPP, WSIB = 0 because salary already maximum insurable earnings

- No change in EI premiums because taxable income exceeds the maximum insurable earnings (\$50,800 for 2016)
- No change in Canada Pension Plan contribution because taxable income exceeds the maximum annual pensionable earnings (\$54,900 for 2016)
- No change in Workplace Safety and Insurance Board cost because taxable income exceeds the maximum insurable earnings (\$88,000 for 2016)
- $EHT = 1.95\% \times \$20,000 = \$390$

When increasing the salary, note that there is also the additional increase to both the life and AD&D benefit (2 times annual salary up to \$500,000)

$$\begin{aligned}
&\text{Basic Life Premium} \\
&= \text{Monthly Rate}/\$1,000 \times 2 \text{ times earnings} \times 20\text{k salary increase} \times 12 \\
&\text{months} \\
&= \$0.463 \times 2 \times 20 \times 12 \\
&= \$222.20
\end{aligned}$$

$$\begin{aligned}
&\text{Based AD\&D Premium} = \text{Monthly Rate}/\$1,000 \times 2 \text{ times earnings} \times 20\text{k} \\
&\text{salary increase} \times 12 \text{ months} \\
&= \$0.03 \times 2 \times 20 \times 12 \\
&= \$14.40
\end{aligned}$$

$$\begin{aligned}
&\text{Retail sales tax} = \text{Ontario RST} \times \text{Additional benefit cost} \\
&= 8\% \times (\$222.20 + \$14.40) \\
&= \$18.90
\end{aligned}$$

$$\begin{aligned}
&\text{Total cost to employer} = \$20,000 + \$390 + \$222.20 + \$14.40 + \$18.90 \\
&= \$20,645.50
\end{aligned}$$

(ii) **Increase given as HCSA benefit only**

$$\begin{aligned}
&\text{Administrative Expenses} = \text{admin rate} \times \text{benefit increase} \\
&= 3\% \times \$20,000 \\
&= \$600
\end{aligned}$$

$$\begin{aligned}
&\text{Premium tax} = \text{Ontario premium tax rate} \times \text{additional benefit cost} \\
&= 2\% \times (\$20,000 + \$600) \\
&= \$412
\end{aligned}$$

$$\begin{aligned}
&\text{RST} = \text{Ontario RST} \times \text{additional benefit cost} \\
&= 8\% \times (\$20,000 + \$600) \\
&= \$1,648
\end{aligned}$$

$$\begin{aligned}
&\text{Total cost to employer} = \$20,000 + \$600 + \$412 + \$1,648 \\
&= \$22,660
\end{aligned}$$

(d) Calculate the after-tax value to the CEO under each option:

- (i) Increase given as salary only
- (ii) Increase given as HCSA benefit only

State any assumptions and show your work.

**Commentary on Question:**

*Most candidates correctly identified that benefits would not be taxed, but they did not apply the correct taxation to the increase in salary.*

**Answer:**

(i) **Value to CEO - Given in Salary**

Increase = \$20,000

Fed income tax =  $29.32\% \times \$20,000 = \$5,864$

Provincial income tax =  $12.16\% \times \$20,000 = \$2,432$

Total value to employee =  $\$20,000 - \$5,864 - \$2,432$

= \$11,704

(ii) **Value to CEO - Given in Benefits**

Increase = \$20,000

No taxation on benefits in Ontario so no additional costs

Total value to employee = \$20,000

- (e) Recommend which option is the best considering both the value for the CEO and the cost for Another Day. Justify your answer.

**Commentary on Question:**

*Most candidates realized that there was better value in providing the compensation as benefits, but needed to better justify their reasoning.*

**Answer:**

Given in Salary ratio

= value / cost

=  $\$11,704 / \$20,645.50$

= 56.7%

Given in Benefits

= value / cost

=  $\$20,000 / \$22,660$

= 88.3%

When increasing the salary, note that there is also the additional increase to both the life and AD&D benefit (2 times annual salary up to \$500,000)

Additional \$20,000 in total compensation should be given in benefits based on the better value vs. cost ratio

- (f) Identify areas in the current plan design where a \$20,000 increase in benefits could provide better value. Justify your answer.

**Commentary on Question:**

*Many candidates scored well on this question, but failed to identify specific deficiencies in the current plan.*

Plan already provides \$500 HCSA, so could focus on other important areas:

- Drugs currently covered at 90%. Could look at increasing to 100%
- Dental major and orthodontics covered at 50%. A more competitive dental plan would have major coverage closer to 70%
- Could expand vision coverage to more than just \$200 per 12 months
- Could upgrade hospital coverage from semi-private to private
- Could upgrade paramedical coverage from \$500 per practitioner per year to \$1,000 per practitioner per year
- Could upgrade the STD/LTD benefits as the limits severely impact disability earnings for a high earner

## GH FVC Spring 2022 #11.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

GH201-637-25: Ch. 16 and 17 of Canadian Life & Health Insurance Law, Jones, H. E.

GH201-671-25: CHLIA Guideline G4 – Coordination of Benefits

GH201-700-25: Ch. 12 (sections 12.1-12.4) and 13 of Canadian Handbook of Flexible Benefits, McKay, Robert J., 3rd Edition

### Commentary on Question:

*In general, candidates did not have a complete understanding of rules and regulations around benefits for insurance companies or plan sponsors.*

### Solution:

- (a) Compare individual and group insurance with respect to:
  - (i) Underwriting
  - (ii) Premiums
  - (iii) Policy provisions

### Commentary on Question:

*Candidates had difficulty understanding and outlining the differences or similarities, mainly around how underwriting and policy provisions.*

- 1) Underwriting
  - Individual Insurance
    - The individual must meet the insurer's underwriting criteria
  - Group Insurance
    - The group must meet the insurer's underwriting criteria
    - Individuals usually are not required to present EOI
    - Examples of group U/W criteria:

- The purpose of the group must be unrelated to obtaining insurance
- Benefits must be determined by someone other than the group persons insured
- The size of the group affects the reliability of the group's prior claim experience and, thus, the premium rate that must be charged
- The contract must include provisions to reduce the plan's administrative costs

## 2) Premiums

- Individual Insurance
  - The premium rate is based on the age and sex of the life insured, the type of coverage, and the amount of coverage.
- Group Insurance
  - The premium rate is based on the same factors as in individual insurance
  - Premium rates are usually lower than rates for individual insurance because administrative expenses are lower
  - Group contracts often provide for premium refunds at the end of each policy year if the group had favorable claim experience

## 3) Policy provisions

- Eligibility provisions
  - Individual Insurance
    - Not required, since the contract identifies the person who is insured
  - Group Insurance
    - The contract must define which members of the group are eligible to be covered by the contract
- Incontestable clause
  - Individual Insurance
    - The applicant and the life insured have a statutory duty to disclose the material facts within their knowledge
    - The contract is incontestable based on material misrepresentation after it has been in force for 2 years
  - Group Insurance
    - The applicant and the group insured have a statutory duty to disclose material facts within their knowledge

- The contract is incontestable based on material misrepresentation after it has been in force for 2 years
  - Each group insured's coverage is incontestable after it has been in effect for 2 years
- (b) Compare how benefits provided under a group or individual basis could align with Zoomers' objectives.

**Commentary on Question:**

*Candidates did well in answering this question.*

- Underwriting under group coverage makes it more accessible to members, as EOI is not required, and an employee would not be rejected for their health
  - Premiums are typically cheaper under group arrangement, providing max value to benefits dollar
- (c) Describe the rules adopted by the Canada Revenue Agency (CRA) with respect to the roll-over of credits and claims under an HCSA.

**Commentary on Question:**

*In general, candidates only answered how credits or expenses were able to carry forward up to a year. Full marks were only given if a candidate could describe the majority of the rules, as indicated below.*

- Excess HCSA balances may be rolled forward for up to twelve months after the end of a plan year and be used to reimburse the following year's expense
- A 1-year roll forward period for unused balances does not have to expire on termination of employment or retirement
- Alternatively, unreimbursed expenses may be rolled over for up to 12-months after the end of a plan year and may be claimed from the following year's HCSA
- Participant must have allocated funds to the HCSA the prior year in order to be allowed to roll forward expenses
- A plan that permits employees to roll over both excess claims and unused allocations will not qualify as a PHSP
- However, a plan can offer an employee the choice of what they want to roll forward, although this would be administratively complex
- Reasonable "grace periods" following the end of a plan year within which an employee can submit a claim are acceptable
- Unused flex credits may be rolled over on retirement to a retiree HCSA
- A portion of a bonus may, under appropriate circumstances, be allocated to an employee's HCSA

- (d) Describe the CRA rules that address buying and selling vacation days under a flexible benefits program.

**Commentary on Question:**

*Candidates were able to describe the main rules. However, most candidates did not state why carry forward of vacation time was not allowed. Full credits were only given if the individual stated how this would be a salary deferral arrangement*

- **Vacation buying:** If additional vacation time is funded through the allocation of flexible credits, the design of the flexible plan typically requires the employee to use the purchased vacation within the plan year in which it was acquired. Carryforward may be considered salary deferral by the CRA.
  - **Vacation selling:** In the event an employee “sells” vacation in exchange for additional flex credits under the flexible plan, the value of the amount so foregone is included in the employee’s income.
- (e) Calculate the claim amount that should have been paid by Zoomers plan for each certificate. State any assumptions and show your work.

**Commentary on Question:**

*In general, candidates had difficulty understanding the correct order for coordination of benefits for many of the dependents.*

- Certificate #1
  - Drugs
    - Scott's Plan
      - =  $(\$3,333.33 \times 70\%) + ((\$5,000 - \$3,333.33) \times 100\%)$
      - = \$4,000
      - First \$3,333.33 is 70%, 100% thereafter due to \$1,000 OOP Maximum*
    - Emma's Plan =  $\$5,000 - \$4,000 = \$1,000$
  - Massage
    - Emma's Plan =  $90\% \times \$300 = \$270$
    - Scott's Plan =  $\$300 - \$270 = \$30$
  - Vision
    - Emma's Plan = \$200
    - Scott's Plan = \$0

- Total
  - Scott's Plan =  $\$4,000 + \$30 + \$0 = \$4,030$
  - Emma's Plan =  $\$1,000 + \$270 + \$200 = \$1,470$
- Certificate #2
  - Basic Dental
    - Iris' Plan =  $\$300 \times 80\% = \$240$
    - Andrew's Plan =  $\$300 - \$240 = \$60$
  - Major Dental
    - Iris' Plan =  $\$0$
    - Andrew's Plan =  $\$0$
    - Not eligible under plan design*
  - Total
    - Iris' Plan =  $\$240 + \$0 = \$240$
    - Andrew's Plan =  $\$60 + \$0 = \$60$
- Certificate #3
  - Drugs
    - Kevin's Plan =  $\$800 \times 75\% = \$600$
    - Tom's Plan =  $\$800 - \$600 = \$200$
  - Major Dental
    - Tom's Plan =  $\$1,500$
    - Kevin's Plan =  $\$3,000 - \$1,500 = \$1,500$
  - Vision
    - Kevin's Plan =  $\$300$
    - Tom's Plan =  $\$400 - \$300 = \$100$
  - Total
    - Kevin's Plan =  $\$600 + \$1,500 + \$300 = \$2,400$
    - Tom's Plan =  $\$200 + \$1,500 + \$100 = \$1,800$

- (f) Identify the certificate(s) that have had errors during the claim adjudication process by the insurer. Justify your answer.

**Commentary on Question:**

*Candidates had difficulty with this part of the question if they could not correctly answer the prior part. Also, many candidates were not able to provide reasonable justification for the errors.*

- Certificate #1
  - Based on plan provisions and COB rules, Zoomers' plan should have only reimbursed \$4,030.
  - Difference of \$200 may be due to error in COB calculation of dependent's vision claim

- Certificate #2
    - Based on plan provisions and COB rules, this certificate appears to be adjudicated appropriately.
    - Note that under CLHIA G4, when both plans have an HCSA, at the covered Individuals discretion, any unpaid eligible expenses can be reimbursed under either the Covered Individual's HCSA coverage or the dependent coverage under a Spouse's HCSA.
    - Since the \$300 major dental is not showing up under the Zoomers' plan, it was most likely reimbursed under the spouse's HCSA
  - Certificate #3
    - Based on plan provisions and COB rules, Zoomers' plan should have reimbursed  $\$2,400 + \$1,800 = \$4,200$
    - Difference of \$100 may be due to error in COB calculation of dependent's vision claim (the \$100 went to Tania instead of Tom)
- (g) Explain how integration of provincial plan benefits differs from coordination of benefits between group insurance plans.

**Commentary on Question:**

*In general, candidates were not able to understand how integration of provincial plan benefits differs from COB between group insurance plans.*

- “Integration” is a method of calculating liability under a Group Plan which is different than coordination. When the Group Plan covered expense amount is reduced by the payment made by a Government Health Plan or Program, this process is commonly referred to as Integration.
  - Example Claimant purchases a wheelchair costing \$8,000. The Government Health Plan or Program allows \$5,600 towards the cost of the wheelchair. The Group Plan considers the covered expense amount to be \$2,400. The Group Plan deductible and coinsurance are applied to the covered expense amount of \$2,400.
- For coordination, the Group Plan that determines benefits first will calculate its benefits as though duplicate coverage does not exist. The Group Plan that determines benefits second limits its benefits for each individual item of expense listed on the claim, to the lesser of
  - The amount that would have been payable had it been the Group Plan that determines benefits first, or
  - 100% of the Eligible Expense reduced by all other benefits payable by the Group Plan that determines benefits first for the same expense.

## **GH FVC Fall 2022 #6.**

### **Learning Objectives:**

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### **Learning Outcomes:**

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### **Sources:**

The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016 (Current version: GH201-721-25: The Quebec Act Respecting Prescription Drug Insurance (ARPD)).

GH201-710-25: Termination of Benefits Coverage at Age 65 Declared Unconstitutional

GH201-671-25: CHLIA Guideline G4 - Coordination of Benefits

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016, Ch. 19: Employment Insurance

### **Commentary on Question:**

*Understanding of QPIP, Maternity leave and EI is required for this question. Candidates needed to share the key components of these programs and their relationship.*

### **Solution:**

- (a)
  - (v) Describe the Tribunal conclusions in Cassel's paper.
  - (vi) Explain how the Tribunal decisions can be applied to ABC.

### **Commentary on Question:**

*Candidates generally were unable to fully describe the Tribunal's conclusions, but were able to partially apply the conclusions to ABC.*

- (i)
- The Tribunal concluded that the financial viability of workplace benefit plans can be achieved without making the age 65 and older employees vulnerable to the loss of employment benefits without recourse to a potential human rights claim. These workers' rights were found to be more than minimally impaired.
  - The Tribunal also concluded that the benefits lost sought by the teacher (of approximately \$160,000) had no close relationship between health and dental costs and age.
  - The Tribunal determined that there were other alternatives available to the government that would impair the rights of workers age 65 and older to a lesser degree. An example was to require that any age-based differentiations in benefits plans be reasonable and bona fide with a protection against undue hardship available to employers.
  - The Tribunal did note that its decision is limited to group health, dental and life insurance benefits plans and that LTD and pension plans were not included in the constitutional challenge.
- (ii)
- The decision by the Tribunal can be applied to the health plan and therefore ABC's health plan should not be terminated at age 65. The case was not limited to LTD, but could open the door to future challenges that allege age discrimination in relation to other group benefits, including Long Term Disability.

- (b) Explain the drug coverage choices for both Kevin and Ella when Kevin will attain age 65.

**Commentary on Question:**

*Candidates were generally able to outline the choices for both Kevin and Ella in Quebec. The relationship between private plans and RAMQ is the key component to this question and candidates should be able to share the interplay between both programs.*

- Upon reaching age 65, Kevin will automatically be registered for the public plan (RAMQ). Therefore, he can choose to be insured by the public plan only.
- When employees or retirees reach age 65, they continue to be eligible for coverage under a private group plan that covers prescription drugs as it cannot exclude persons based on their age. Thus, Kevin and Ella can still choose to be covered under the private plan which must offer at least basic coverage.
- They then can choose to be insured by the public plan as the first payor and by a private plan offering supplemental coverage as a second payor.

- If Kevin chooses to keep the private plan, Ella can still be covered under the private plan through ABC. If Kevin chooses the public plan only, Ella will lose coverage through ABC's private plan. If she is eligible for a different private plan, she must be covered under that private plan, if not, she'll be covered under the public plan.
- (c) Recommend which scenario from part (b) Kevin and Ella should select in order to minimize the out-of-pocket cost. State any assumptions and show your work.

**Commentary on Question:**

*Candidates were able to determine the out-of-pocket costs for the public plan well. Some candidates were unable to determine the out-of-pocket expense for the private plan, but most did not include the appropriate premium taxes. Candidates mostly did not calculate the out-of-pocket expense for the environment for both the public and private plan together. Candidates needed to show understanding in how taxes may be applied to the private plan premiums.*

	Public Plan pay	Private Plan Pay	Kevin pay	Premium	Tax	Total Premium Paid	Total
Scenario - public plan only	\$996.45	\$0.00	\$803.55	\$1,420.00	0.00%	\$1,420.00	\$2,223.55
Scenario -private plan only	\$0.00	\$1,620.00	\$180.00	\$1,122.00	9.00%	\$1,222.98	\$1,402.98
Scenario -both public and private	\$996.45	\$803.55	\$0.00			\$2,642.98	\$2,642.98

Kevin and Ella should choose the private plan only since the disbursed amount is the lowest compared to the other 2 options (i.e. public plan only and both public/private)

- Under the public plan:
    - Kevin pays =  $12 \times (\text{minimum of } \$96.74 \text{ or } 35\% \text{ of } \$150 \text{ less } \$22.25)$
  - Under the private plan
    - Kevin pays = *minimum of \$1,000 or  $12 \times 10\% \times \$150$*
- (d) Compare and contrast the maternity benefit under EI versus the Quebec Parental Insurance Plan (QPIP).

**Commentary on Question:**

*Candidates were able to note some of the features of both Maternity EI benefits and QPIP, but did not provide enough information to gather full marks. To achieve full marks, candidates should show understanding in eligibility, length of benefits and the benefit amounts, including different options available.*

- Similarity:
  - The maternity benefit under EI and QPIP is payable only to the biological mother.

- Differences:
  - Length of benefits:
    - Maternity benefits under EI are payable for a maximum 15 weeks.
    - There are no extended benefit options under EI
    - Maternity benefits under QPIP are payable for 18 weeks under the basic plan and 15 weeks under the special plan
  - Benefit Amount
    - Maternity benefits under EI has a basic benefit rate of 55% of the individual's average insured weekly earnings up to a maximum amount with a 1 week elimination period
    - QPIP benefits could be as high as 75% of average weekly income starting without a waiting period
  - Eligibility
    - To receive benefits under EI, the claimant is required to have worked for 600 hours in the last 52 weeks or since the last claim
    - Maternity benefits under QPIP, a QC resident who has a biological or adopted child needs to have at least \$2000 of insurable income during the reference period and must have stopped working or have seen a reduction of at least 40% in their usual employment income
  
- (e) Calculate the maximum pre-tax replacement ratio that Maria and Leo can receive during the first 52 weeks of the leave. State any assumptions and show your work.

**Commentary on Question:**

*Many candidates did not attempt this question. Those who did generally were unable to adequately calculate all components of the benefit. Candidates needed to share an understanding of which parent should receive which benefit, which weekly earnings to consider and the length of benefits to receive full marks.*

		Unemployment Rate	Number of Best Weeks Required for Benefit Calculation		
	Toronto	7.9	20		
	20 best weeks will be required to calculate the average weekly earnings for both Mario and Leo				
		<b>Maria</b>	<b>Leo</b>		
	The sum of top 20 weekly earning	\$34,615	\$16,812		
	Average weekly earning	\$1,731	\$841		
	Average weekly benefit	\$652	\$462		
	2023 maximum yearly insurable earnings		\$61,600		
	Maximum weekly amount		\$652	Per week	
	Starting 2023-01-01	<b>Maria</b>	<b>Leo</b>	<b>Total</b>	<b>Replacement Ratio</b>
Week 1	Maria starts to take maternity leave. EI one week elimination. Total income = one week salary from Leo	\$0	\$865	\$865	1%
Week 2-16		\$9,773	\$12,981	\$22,754	17%
	Parental leave:				
	To maximize the replace ratio, standard option must be chosen. 35 weeks for parental benefits if standard option is chosen. If the parental benefits are shared between the two partners, an additional five weeks are payable when choosing the standard option.				
Week 17-51		<b>Maria</b>	<b>Leo</b>	<b>Total</b>	<b>Replacement Ratio</b>
	If Maria takes 35 weeks parental leave	\$22,804	\$30,288	\$53,092	39%
	If Leo takes 35 weeks parental leave	\$60,577	\$16,181	\$76,758	57%
	In order to receive the maximum replacement ratio, it's better that Leo take the 35 weeks of parental leave.				
Week 52					
	If the parental benefits are shared, an additional five weeks are payable.				
	Maria can take the parental leave in week 52	\$652	\$865	\$1,517	1%
	Total Income in 2023	\$101,894			
	Pre Annual Salary	\$135,000			
	Replacement Ratio	75%			75%

## **GH FVC Fall 2022 #9.**

### **Learning Objectives:**

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### **Learning Outcomes:**

- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### **Sources:**

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

GH201-647-25: Protecting Canadians' Long Term Disability Benefits

### **Commentary on Question:**

*Commentary listed underneath question component.*

### **Solution:**

- (a) Describe the tax implications in Alberta and Quebec for each benefit provided to the employee:
  - (i) on premiums paid by the employer
  - (ii) on benefits received by the employee

### **Commentary on Question:**

*Candidates should describe the tax implications from an employee's perspective to get full credits. While a chart was not required, full marks were awarded for candidates that successfully described all four benefits (Group Life, Long Term Disability, AD&D and Medical).*

	<b>Premium Paid by Employer</b>	<b>Benefits Received by Employee</b>
<b>Group Life</b>	Premiums paid by the employer create taxable income for employees.	Benefits received are not considered taxable.
<b>Long Term Disability</b>	Premiums paid by the employer do not create taxable income for employees.	Benefits received are considered taxable income since the employer pays for premiums.
<b>Accidental Death and Dismemberment</b>	Premiums paid by the employer create taxable income for employees.	Benefits received are not considered taxable.
<b>Medical</b>	Premiums paid by the employer do not create taxable income for employees in Alberta. However, it is taxable to employees in Quebec.	Benefits received are not considered taxable.

- (b) Calculate the different taxes that Meg’s Eggs will have to pay to the Governments of Alberta and Quebec. State any assumptions and show your work.

**Commentary on Question:**

*Partial points were given if the candidate did not use the appropriate tax rates (i.e., premium tax of 3.0% for Alberta and 3.48% for Quebec, and QRST of 9.0%).*

<p>Step 1 – Calculate the taxes in Alberta</p> <ul style="list-style-type: none"> <li>• Premium tax = <math>\\$158,400 \times 3.00\% = \\$4,752</math></li> <li>• Retail Sales Tax (RST) = <math>\\$0.00</math></li> <li>• Total tax = <math>\\$4,752 + \\$0.00 = \\$4,752</math></li> </ul>
<p>Step 2 – Calculate the taxes in Quebec</p> <ul style="list-style-type: none"> <li>• Premium tax = <math>\\$87,600 \times 3.48\% = \\$3,048</math></li> <li>• Quebec Retail Sales Tax on Insurance Premium (QTIP) = <math>\\$87,600.00 \times 9\% = \\$7,884</math></li> <li>• Total tax = <math>\\$3,048 + \\$7,884 = \\$10,932</math></li> </ul>

- (c) Explain to Meghan the advantages and disadvantages of a self-insured LTD plan.

**Commentary on Question:**

*Any reasonable answers were awarded credit.*

<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Plan sponsors are not required to set up a reserve and rely on cash flow each year to pay disability claims</li> <li>• During tough financial times, it would be difficult to ensure employees currently on disability would be protected.</li> <li>• In the event of insolvency or bankruptcy, often no funds are set aside to continue paying benefits in the future.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• There are immediate cost savings from not being required to set up a reserve</li> <li>• Potential cost savings from the pay-as-you-go model. Instead of being required to pay a premium each year, they are only required to pay the claims as they come</li> <li>• Potential to also earn a greater return by more aggressively investing their funds themselves, rather than turning them over to an insurer to fund a reserve</li> </ul>

## GH FVC Fall 2022 #10.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

Canadian Insurance Taxation, Swales, et. al., 4th Edition, 2015

- Ch. 6: Reserves (pp. 79-96)
- Ch. 9: Investment Income Tax (pp. 135-142)

GH201-637-25: Ch. 16 and 17 of Canadian Life & Health Insurance Law, Jones, H. E

GH201-705-25: Assuris for Group Insurance in Canada

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe how benefits provided by Pinewood will be protected by Assuris in case of insolvency.

#### Commentary on Question:

*Most candidate appropriately described the group life and disability benefit guarantee. Candidates needed to describe all four benefits below to receive full marks.*

#### Group Life:

- Benefit guarantee: greater of \$200,000 or 85% of death benefit

#### Disability Insurance:

- Benefit guarantee: greater of \$2,000 per month or 85% of monthly income benefit
- If the benefit is quarterly or annual, the minimum guarantee is prorated to \$6,000 per quarter or \$24,000 per year
- If the benefit is increasing or decreasing over time, the amount of benefit in force at the date the company fails will be used to determine Assuris protection. After transfer, the protected benefits will continue to change in accordance with the terms of the policy

Supplemental Medical Benefits:

- Benefit guarantee: greater of \$60,000 or 85% of coverage benefit
- The Assuris protection covers the insurer's obligations according to the benefit plan. The member is still responsible for cost sharing and claims in excess of any annual and internal limits.

Ancillary Benefits

- The guarantee on the Critical illness is the same as for health expense
- The guarantee on LTC policy is the same as for monthly disability income.
- The guarantee for other unique products is dictated by whether they would most closely be categorized as monthly income, cash value, or health expense.

~~(b) Calculate Pinewood's life insurance investment income tax for Year 4. State any assumptions and show your work.~~

~~Commentary on Question:~~

~~Partial marks were awarded for using the right formula and accurately showing all the components that make up the investment income tax.~~

MTAR Calculation		December 31, Year 3	December 31, Year 4
	reserve in respect to life insurance policies	\$2,269,000	\$2,469,000
	unearned premium reserves (UPR) in respect of group term policies	\$506,000	\$491,000
+	unpaid claims reserves	\$0	\$0
+	experience rating refund reserve (ERR)	\$245,000	\$506,000
=	Maximum Tax Actuarial Reserves (MTAR)	\$3,020,000	\$3,466,000

Investment Income Tax Calculation	
	life investment income
+	Experience Rating Refund (ERR) reserve adjustment
-	amounts reported to policyholders as includable in income of the policyholder
=	Canadian life investment income or loss for the year
-	Canadian life investment loss carryforward
=	taxable Canadian life investment income
x	15%
=	<b>Investment Income Tax</b>

		Year 4
	insurer's average MTAR for its taxable life insurance policies for the year	\$3,243,000
	prescribed yield	1.65%
	<b>Life Investment Income</b>	\$53,510
	Experience rating refund reserve adjustment	(\$6,196)
	Amounts reported to policyholders as includable in income of the policyholder	\$0
	Canadian life investment loss carryforward	\$0
	Taxable Canadian life investment income	\$47,314
	<b>Investment Income Tax</b>	<b>\$7,097</b>

~~(c) — Assess the consequences of this misreporting on the merger.~~

**Commentary on Question:**

~~Many candidates received partial marks for this question. Any reasonable answers were awarded credit.~~

- ~~• Pinewood has overstated their life IIT. As a result, they may be understating their net income, as IIT is a deduction from income for a life insurance business.~~
- ~~• Pinewood may be paying the incorrect installments under the compliance requirements.~~

(d) List and describe the standard policy provisions that Royale Pine would need to include in their group life insurance policy to ensure they are aligned with the Canadian market.

**Commentary on Question:**

Candidates were able to list some standard policy provisions. At least 8 points needed to be listed and described to receive full marks.

- **Entire contract** – the group policy, the policyholder’s application for the policy, and any application for coverage under the policy will constitute the entire contract between the insurer and the policyholder
- **Grace period** – all group life insurance policies will provide a grace period of at least 30 days for the payment of all renewal premiums
- **Termination of an individual’s coverage** – include provisions that describe when a group insured’s coverage becomes effective and when that coverage terminates
- **Termination of the policy** – a policyholder may decide to terminate a group life insurance policy at any time
- **Conversion** – when a group life insured’s coverage terminates, he or she can obtain replacement coverage even if he or she is then uninsurable
- **Benefit amounts** – the benefits payable upon the death of group life insureds must be fixed according to a non-discriminatory schedule
- **Beneficiaries** – in group life insurance, it is the group insured who has the statutory right under the Uniform Act to designate the beneficiary; Quebec does not grant a statutory right to anyone to designate the beneficiary
- **Settlement options** – the beneficiary usually receives the policy proceeds in a lump sum
- **Assignment** – many group insurance contracts prohibit a group insured from assigning rights under the contract

## GH VRC Spring 2023 #5.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.

### Sources:

The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016 (Current study note: GH201-721-25)

GH201-648-25: Canadian Life and Health Insurance Industry Agreement to Protect Canadians' Drug Coverage

### Commentary on Question:

*This question is designed to test candidates' knowledge of the drug pooling mechanism available in Canada. More specifically, candidates are asked to demonstrate an understanding of the interaction between different pooling arrangements.*

### Solution:

- (a) Critique the CEO's statements. Justify your answer.

### Commentary on Question:

*Candidate needed to critique the CEO's statement and justifications were required for full credit. Not all points listed below were required for full credit.*

- The CEO's statement is incorrect because ABC carries an EP3 certificate, and EP3 addresses the key principles for affordability, availability and transferability of coverage.
- Participating insurers of Canadian life and health insurance industry agreement cannot experience rate based on the number or value of pooled drug claims for ABC because ABC's current plan carries an EP3 certificate.
- Participating insurers cannot renew existing employers based on their own pooled drug claims experience, nor can they experience rate new business from another participating insurer based on that employer's own pooled drug claims.
- In Quebec, all insurers, including administrators in the case of self-insured plans, must pool the risks of groups of less than 6,000 certificates.
- In addition, the Canadian life and health insurance industry agreement addresses the CEO's concerns by:
  - Insulating eligible groups from the full financial impact of rare, but recurring, high-cost drug claims. Particularly beneficial to small and medium-sized businesses, who do not typically have the financial resources to absorb a significant increase in premiums.

- Allowing employers more ability to shop around for a new provider at reasonable prices, even if they experience a recurring high-cost drug claim.
- (b) Explain how the Canadian life and health insurance industry pooling agreement protects the EP3 and Industry Pool from anti-selection under the following two scenarios:

**Commentary on Question:**

*Candidates needed to explain the protections applicable to each scenario to get full credit.*

- (i) An Administrative Services Only (ASO) group with claims greater than the ongoing threshold in prior years wants to become fully-insured.
    - Mandatory exclusion from both EP3 and Industry Pool.
    - Exclusion must be removed if certificate subsequently falls below Ongoing Threshold for two consecutive years
  - (ii) A plan sponsor wants to introduce drug coverage for its employees.
    - The insurer can offer EP3 coverage.
    - At the end of year one, all high-cost claims must be audited by the insurer to establish if pre-existing.
    - Must exclude all pre-existing claims as per rules outlines below:
      - Claims greater than ongoing threshold in prior year: mandatory exclusion from both EP3 and Industry Pool. Exclusion must be removed if certificate subsequently falls below ongoing threshold for two consecutive years.
      - Claims less than ongoing threshold but greater than EP3 threshold in prior year: optional exclusion from EP3 pool; pre-ex can be removed; if excluded from EP3 pool must be excluded from Industry Pool.
- (c) Describe how the pooled drug claims cost is shared among participating insurers in the following pools:
- (i) Canada Drug Insurance Pooling Corporation (CDIPC)
  - (ii) Quebec Drug Insurance Pooling Corporation (QDIPC)

**Commentary on Question:**

*Candidates were not penalized by not listing all provinces in each pool under the CDIPC or knowing the exact claims strata for QDIPC.*

(i) Canada Drug Insurance Pooling Corporation

- Three industry pools are proposed based on differences in provincial drug programs:
  - (i) Pool 1- Residents of Alberta, Ontario, Nova Scotia, New Brunswick, Newfoundland and Labrador, Prince Edward Island, Yukon, North West Territories and Nunavut;
  - (ii) Pool 2- Residents of Quebec;
  - (iii) Pool 3- Residents of British Columbia, Manitoba and Saskatchewan
- The total pooled drug claims will be shared by all participating insurers based on their market share of total paid drug claims for all insured business in applicable provinces.

(ii) Quebec Drug Insurance Pooling Corporation

- A formula using cumulative strata is used.
- With this formula, claims below \$16,500 (in 2022) are pooled only among groups with fewer than 50 certificates.
- Claims between \$16,500 and \$32,500 are pooled among the first strata (fewer than 50 and 50 to 124 certificates) while claims above 300,000 are pooled among all strata in 2022, except the last one (6,000 certificates or more).

(d) Calculate the 2022 claims paid by the following:

- (i) HealthierPlus Insurance Company
- (ii) QDIPC
- (iii) CDIPC

**Commentary on Question:**

*Candidates were not required to describe their thought process as outlined in the solution below for full credit.*

### Quebec Drug Insurance Pooling Corporation (QDIPC)

- (1) The number of certificates used to determine the QDIPC pooling threshold is based on participants from all provinces. Therefore, the pooling threshold is \$55,000 because there are a total of  $125 \div 45 = 170$  certificates.
- (2) The QDIPC only recognizes the participants who reside in the province of Quebec.
- (3) The amount of claims pooled by QDIPC is the amount of paid claims above the QDIPC threshold.

Certificate	Province	2022 Claims	QDIPC Pooling Threshold	QDIPC Pooled Amount
Certificate 1	Quebec	150,000	\$55,000	\$95,000
Certificate 2	Quebec	165,000	\$55,000	\$110,000
Certificate 3	Quebec	34,000	\$55,000	\$0
Total				<b>\$205,000</b>

### Canada Drug Insurance Pooling Corporation (CDIPC)

- (1) Pooling is at a certificate level, and to qualify for the CDIPC pool, the certificate must exceed the initial threshold for at least two consecutive years. In year two and in each subsequent year where the drug certificate exceeds the ongoing threshold will be pooled.
- (2) The amount of claims pooled by CDIPC is the amount of paid claims above the ongoing threshold reduced by the coinsurance. A maximum amount of \$500,000 must also be considered.

Certificate	Province	2022 Claims	QDIPC Pooling Threshold	CDIPC Ongoing Threshold	CDIPC Eligible Expenses	CDIPC Pooled Amount
Certificate 1	Quebec	\$150,000	\$55,000	n/a	n/a	\$0
Certificate 2	Quebec	\$165,000	\$55,000	\$32,500	$=\$55,000 - \$32,500 = \$22,500$	$=\$22,500 * 85\% = \$19,125$
Certificate 3	Quebec	\$34,000	\$55,000	n/a	n/a	\$0
Certificate 4	Ontario	\$100,000	n/a	\$32,500	$=\$100,000 - \$32,500 = \$67,500$	$=\$67,500 * 85\% = \$57,375$
Certificate 5	Ontario	\$22,000	n/a	n/a	n/a	\$0
Certificate 6	Ontario	\$75,000	n/a	n/a	n/a	\$0
Certificate 7	Ontario	\$750,000	n/a	\$32,500	\$717,500	Maximum of \$500,000 reached
Total						<b>\$576,500</b>

### HealthierPlus Insurance Company

- (1) The amount of claims paid by HealthierPlus Insurance Company is the amount of claims not pooled by either QDIPC or CDIPC.
- (2) Total cost to HealthierPlus includes pooled claims and non-pooled claims.

Certificate	Province	2022 Claims	QDIPC Pooled Claims	CDIPC Pooled Claims	HealthPlus Insurance Co.
Certificate 1	Quebec	\$150,000	\$95,000	\$0	\$55,000
Certificate 2	Quebec	\$165,000	\$110,000	\$19,125	=\$165,000 - \$110,000 - \$19,125
Certificate 3	Quebec	\$34,000	\$0	\$0	\$34,000
Certificate 4	Ontario	\$100,000	n/a	\$57,375	\$42,625
Certificate 5	Ontario	\$22,000	n/a	\$0	\$22,000
Certificate 6	Ontario	\$75,000	n/a	\$0	\$75,000
Certificate 7	Ontario	\$750,000	n/a	\$500,000	\$250,000
All Other Certificates					=\$960*(125+45-7)
Total					\$670,980

## GH VRC Spring 2023 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3b) Describe the major applicable laws and regulations and evaluate their impact.

### Sources:

GH201-713-25: How Will the Potential Work-from-Anywhere Boom Post-Pandemic Impact Benefit Plans?

GH201-662-25: Firefighter Who Died of Cancer was Killed in the Line of Duty, Court Says

GH201-663-25: West Nile Victim Wins \$130,000 Insurance Payout

GH201-672-25: CHLIA Guideline G17 – Coordination of Benefits for Out-of-Country/Out-of-Province/Territory Medical Expenses

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe XYZ benefit plan considerations for employees working remotely outside of Ontario.

### Commentary on Question:

*Candidates received credit for any of the items below as long as their points were clearly articulated. The list below is not exhaustive, but includes the most common responses to receive credit.*

- Company XYZ will need to determine the payroll and taxation implications for employees that want to work within Canada but outside of Ontario.
- Provincial health-care eligibility requirements vary by province, which would impact overall coverage as benefits plans are integrated with provincial plans
- Provinces like Quebec would have additional challenges as the province requires employers' prescription drug plans to at least match RAMQ

- Canadian insurers often have contractual wording that says they will automatically comply with all provincial regulations. Even if an employer based outside of Quebec has a less generous plan than the RAMQ, an employee newly based in that province would automatically gain access to drug coverage that follows the provincial rule, potentially effecting total benefits cost.
  - For those working outside of the country, the cost for coverage could be significantly higher if there is no government plan.
  - Company XYZ will need to determine who is responsibility it is (employer or employee) to secure benefits coverage
  - Some insurers have implemented fine-print around whether employees can access their out-of-country coverage if they catch the coronavirus abroad, given early government mandates for Canadians to return home.
  - Long- and short-term disability insurance also have residency requirements, with employees required to return to Canada if they become disabled.
- (b) Justify whether the situation described above would be considered an eligible AD&D claim by referencing any applicable court rulings.

**Commentary on Question:**

*Candidates received credit for sharing pertinent details of the two court cases and then providing support for their conclusion that the AD&D claim was eligible or not. Candidates received credit for either opinion as long as they provided reasonable justification. The solution below includes justification for each position, although a candidate had to only select one.*

**Toronto Professional Firefighters' Association v. Toronto (City), (2007) 223 O.A.C. 146 (DC)**

- Firefighter developed cancer, which arbitrator considered an illness, but Ontario Superior Court of Justice overturned arbitrator decision Firefighter not entitled to AD&D benefits
- Court found that the cancer was due to multiple exposures to toxic substances over the course of the Firefighter's career
- Court ruled his death was caused by unexpected events causing exposure to toxins while performing his duties as a firefighter. He did not intend or expect to expose himself to the toxins, so the court considered the circumstances accidental. This sentiment could be argued for Company XYZ's case.

**Kolbuc v. ACE INA Insurance, 2007 ONCA 364 (CanLII)**

- A Toronto man was left paralyzed by the West Nile virus after being bitten by a mosquito while working in downtown Toronto
- Ontario Court of appeal ruled that cause of illness an accidental event, and that he could not have reasonably foreseen or expected to contract the virus from the type of work he was doing
- This is relevant to Company XYZ since the employee was following all COVID-19 protocols but still contracted the virus

**Examples of reasoning for why it is an eligible claim:**

- Occurred while at work; no reason to expect that they would contract it while following protocols.

**Examples of reasoning for why it would not be approved:**

- Although they contracted COVID-19, they would have survived if didn't have pre-existing health conditions; it is a pandemic so it is expected that one could get COVID-19; employee shared an elevator with a superspreader but could have contracted it elsewhere.

(c) Pertaining to this specific situation:

- (i) Explain how to determine the first carrier.
- (ii) Describe the responsibilities of the first carrier.
- (iii) Calculate the amount reimbursed by each plan. State any assumptions and show your work.

**Commentary on Question:**

*For part I, candidates were expected to explain how the first carrier was determined. Full credit was given for any of the explained points below, however candidates were not required to provide all the points listed below.*

**Part I**

- The First Carrier is the insurer or plan administrator that is first contacted in the event of a claim. The first contacted may or may not provide primary plan coverage.
- In this case, the retiree plan is the primary carrier.

- If the First Carrier determines that its claim assistance services, coverage(s) or benefits are not adequate to respond to the particular situation, it may negotiate with the Other Carriers to assume responsibility for the case management and payment of claims. (for example, if the First Carrier's potential liability will be \$10,000 and the claim is expected to be \$50,000 or more).
- As the retiree plan has a low lifetime maximum, it may want to negotiate with the individual plan to take this on.
- If the First Carrier determines it has no liability for the claim (for example, if a pre-existing condition has been clearly established), or it can clearly identify the Primary Plan, its responsibilities as First Carrier cease once it informs the Covered Individual and instructs him or her to contact the Other Carrier(s), if any, to pursue the claim.

**Commentary on Question:**

*For part II, candidates were expected to describe the responsibilities of the first carrier. Full credit was given for any of the points described below, however candidates were not required to provide all the points listed. The list below captured the common points provided.*

**Part II**

- Handle case management.
- Taking the initiative to involve an assistance group or service provider.
- Choosing a preferred provider organization.
- Monitoring medical care and/or repatriation.
- Establish as quickly as possible whether Other Carrier(s) exist.
- Personal information held by one insurer or plan administrator cannot be disclosed to another insurer or plan administrator without the consent of the Covered Individual.
- The First Carrier should seek such consent on its claim form or other initial contact.
- Once consent has been received, notify Other Carrier(s) as their prompt notification is critical to the coordination of benefits.
- In this case, the retiree plan should reach out to the spouse retiree plan and the individual plan.
- Provide notification for all in-patient hospitalization claims immediately. For all other claims, notification should be as soon as possible.
- Pay the claim with an amount that is equal to the coverage determined by the terms and conditions of its contract.
- Forward claims documents to the Other Carriers.

- Receive assessments from the Other Carriers and allocate liability amongst itself and the Other Carriers.
- As applicable, recover amounts owing from Other Carriers and GHIP.
- In assessing complex claims, and with express consent, the First Carrier may contact the Other Carrier(s) sharing in the claim liability.

**Commentary on Question:**

*For part III, candidates were asked to calculate the reimbursement under each plan (i.e the spouse plan, the retiree plan and the individual plan).*

**Part III**

- The spouse plan and the retiree plan are both primary while the individual plan is secondary since it includes a provision stating that it will pay in excess of all other plans.
- The spouse's plan does not pay since it has a lifetime maximum of \$50,000.
  - Where the group retiree plan has a lifetime limit of \$50,000 or less, this group retiree plan will always be secondary to other plan coverage without a lifetime limit, to avoid eroding this benefit.
- The retiree plan will pay only up to the amount remaining in excess of \$50,000 (\$75K - \$15K - \$50K = \$10K)
  - Where the group retiree plan provides for a lifetime limit in excess of \$50,000, COB will only be done for amounts of the lifetime limit remaining that are in excess of \$50,000.
- The individual plan will repay the outstanding amount (\$30K - \$10K = \$20K)

## GH VRC Fall 2023 #4.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within framework of social programs in Canada.

### Sources:

GH201-621-25: CLHIA: Guideline G3, Group Life and Health Insurance

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

Sustainability of the Canadian Health Care System and Impact of the 2014 Revision to the Canada Health Transfer, Sep 2013, Executive Summary and Ch. 11 only

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016 - Ch. Ch. 2: Government Pension Programs

### Commentary on Question:

*Candidates were expected to understand the regulatory and policy making process in Canada, including how the Canada Health Transfer payments are determined. Candidates were also expected to be able to critique recommendations with consideration to the impacts towards group and federal benefit programs and their internal mechanics. Most candidates showed an understanding towards CPP disability benefits and group disability insurance but were generally unable to describe the mechanics of the Canada Health Transfer payments and their 2014 changes.*

### Solution:

- (a)
  - (i) Critique the CFO's assertion concerning the CPP disability benefit.

- (ii) Describe how the disabled employee's group benefits would be impacted if the plan were to terminate.

**Commentary on Question:**

*Most candidates were able to critique the CFO's comments and understood how the CFO's requested changes impact group benefits coverage for current employees.*

- (i) CPP disability benefits are only available to the contributor if they meet certain conditions:
- The contributor must have a severe and permanent disability.
  - The contributor is unable to engage in any substantially gainful occupations with earnings in excess of \$5,800 per year (in 2020).
  - The contributor must meet the contribution requirements (i.e. contributed to the CPP for a certain period in their contributory periods to be eligible for a disability pension.
  - While the CPP disability benefit is available, the CPP disability monthly benefit is capped at a maximum for each year (\$1,536.67 in 2023). This provides a much lower replacement ratio than the current benefits design (66.67% up to \$5,000 of monthly salary).
- (ii) Every contract of Group Insurance with a Life Waiver of Premium provision should provide that, upon termination of the contract or benefit provision, the insurance on the life of a Plan Member who is disabled according to the definition of disability included in the contract of Group Insurance at the time of the termination will be continued as though the contract or benefit provision were in full force and effect. Similarly, every contract of Group Insurance with a Disability Income Benefit should provide that, upon termination of the contract or benefit provision, the Disability Income Benefit of a Plan Member who is disabled according to the definition of disability included in the contract of Group Insurance at the time of its termination will be continued as though the contract or benefit provision were in full force and effect. This assumes that the LTD benefit is insured.
- (b) With respect to the CFO's concerns over government offloading of costs, you review the 2014 revisions to the Canada Health Transfer (CHT) payment calculations.
- (i) List and describe how the federal government supports provinces and territories with the funding of health care expenditures.
- (ii) Describe the 2014 revisions to CHT payment calculations and what their expected impacts were.

- (iii) List approaches available to governments to safeguard the sustainability of Canada's health care system.

**Commentary on Question:**

*Most candidates were unable to describe how the federal government supports provinces and territories with health care funding. Few candidates were able to describe the 2014 CHT revisions.*

- (i) The federal government supports provinces and territories with the funding of health care expenditures using the Canada Health Transfer (CHT). Currently, it includes both tax points and cash transfers.

CHT tax points are a result of the federal government decreasing its income tax rates in the late 1970s, allowing the provinces/territories to use the additional tax space. The tax points that are appropriated to the CHT are impacted by the evolution of the tax base (personal and corporate income) and were expected to grow in line with the economy.

In 2004/05 and 2005/06, total CHT cash transfers were set at fixed amounts in accordance with the prescription of the Federal-Provincial Fiscal Arrangement Acts. They are increasing at a nominal annual rate of 6% until 2013/14.

Total CHT cash transfers are allocated to each province/territory so that each province/territory receiving a total CHT entitlement (cash transfer plus tax points) is proportional to its population (i.e. equal to per capita total CHT)

Using the current CHT calculation formula, the federal cash transfers associated with the CHT will be funding 22.9%, on average, of total health care expenditures of provinces/territories in 2037.

- (ii) CHT cash transfers will be allocated differently by province/territory. They are currently allocated on the basis of equal-per-capita total CHT entitlement (including tax points and cash transfers). Starting with fiscal year 2014-2015, they will be allocated on the basis of equal-per-capita CHT cash transfers. Aggregate CHT cash transfers will be increasing at an annual rate equal to a three-year moving average of the GDP growth. There is a further guarantee that total cash transfers will increase by at least 3 percent every year.

With these proposed changes, the CHT cash transfer would grow less than using the current calculation formula.

These changes will have different impacts for different provinces. Some will end up with a higher reduction in their total available revenues (PEI, NS, QC, BC), some will end up with a slightly less pronounced reduction (ON) and some can expect nearly no change to their cumulative CHT cash transfer over the projection period (AB).

The calculation formula will have a significant effect on the ability of provinces/territories to continue supporting the health care system. Provinces/territories will have to find new sources of funding to make up the difference.

- (iii) Research shows that in order to safeguard the sustainability of its healthcare system, Canada has to:
- Significantly limit health care cost increase.
  - Boost GDP growth.
  - Raise taxes/fees.
  - Substantially reduce or cut other government programs or services.
  - Implement some combination of the above.

(c) Calculate the following:

- (i) The budgeted group benefits plan costs for 20X2.
- (ii) The raise in employee salaries that the result in (i) would fund.

State any assumptions and show your work.

**Commentary on Question:**

*Nearly all candidates were able to calculate total costs per employee, except for application of premium tax and retail sales tax. Some candidates forgot to exclude certain benefits for the employee on disability.*

(i)

Employee profile	Basic Life Insurance	Calculation
Active_1	\$1,104.60	
Active_2	\$946.80	Volume x rate / 1000 x headcount x 12
Active_3	\$820.56	
Active_4	\$568.08	
Active_5	\$946.80	
Long Term Disabled_1	\$0.00	

  

Employee profile	Short Term Disability	Calculation
Active_1	\$1,999.04	Volume x rate / 10 x headcount x 12
Active_2	\$1,713.46	
Active_3	\$1,485.00	
Active_4	\$792.00	
Active_5	\$792.00	
Long Term Disabled_1	\$0.00	

  

Employee profile	Long Term Disability	Calculation
Active_1	\$4,162.38	Volume x rate / 100 x headcount x 12
Active_2	\$3,567.75	
Active_3	\$3,092.05	
Active_4	\$2,130.00	
Active_5	\$2,130.00	
Long Term Disabled_1	\$0.00	

  

Employee profile	Extended Health Care	Dental	Calculation
Active_1	\$7,200.00	\$5,160.00	rate x headcount x 12
Active_2	\$4,320.00	\$3,096.00	
Active_3	\$2,880.00	\$2,064.00	
Active_4	\$1,440.00	\$1,032.00	
Active_5	\$1,440.00	\$1,032.00	
Long Term Disabled_1	\$1,440.00	\$1,032.00	

  

Employee profile	Salary (20X1)	Health Care Spending Account (HCSA)	Calculation
Active_1	\$35,000	\$1,673.75	headcount x HSA amount x utilization x (1+admin exp)
Active_2	\$50,000	\$1,004.25	
Active_3	\$65,000	\$669.50	
Active_4	\$90,000	\$334.75	
Active_5	\$150,000	\$334.75	
Long Term Disabled_1	\$75,000 (pre-disability)	\$334.75	

	Basic Life Insurance	Short Term Disability	Long Term Disability	Extended Health Care	Dental	Health Care Spending Account
Annual Premium	\$4,386.84	\$6,781.50	\$15,082.18	\$18,720.00	\$13,416.00	\$4,351.75
Premium Tax	included	included	included	included	included	\$87.04
Retail sales tax	\$350.95	\$542.52	\$1,206.57	\$1,497.60	\$1,073.28	\$348.14

Total Cost in 20X1	\$67,844.36
Budgeted for 20X2	\$78,021.02

--> based on a 15% budgeted increase

(ii)

Salary Increase Percentage: **10.6%** --> use goal seek

Total increase to payroll: **\$73,564.26**

Employee	Salary	Headcount	Salary	Additional costs (per EE)					Total	Grand Total
				Salary	EI	CPP	EHT	Total		
Active_1	\$35,000	5	\$38,705	\$3,705	\$85	\$220	\$72	\$4,082	\$20,409	
Active_2	\$50,000	3	\$55,292	\$5,292	\$121	\$315	\$103	\$5,831	\$17,494	
Active_3	\$65,000	2	\$71,880	\$6,880	\$0	\$95	\$134	\$7,109	\$14,219	
Active_4	\$90,000	1	\$99,526	\$9,526	\$0	\$0	\$186	\$9,712	\$9,712	
Active_5	\$150,000	1	\$165,877	\$15,877	\$0	\$0	\$310	\$16,187	\$16,187	
									<b>\$78,021</b>	

(d) Recommend whether ABC Company should eliminate its group benefits plan in exchange for higher employee salaries. Justify your response.

**Commentary on Question:**

*Candidates were generally able to provide recommendations on why ABC should not eliminate its groups benefits program. However, if a candidate was unable to answer part (c), many times, they did not attempt part (d), even though there are points available that are not dependent on (c).*

I recommend keeping the benefits program because:

- Benefits are tax preferred while salaries attract income and payroll taxes.
- Some employees may have benefit requirements/needs that are beyond the magnitude of a raise.
- Some employees may be better off dollar-wise, but may lose their safety net, especially if they do not have access to a secondary plan (such as a spousal plan).
- Instead of eliminating benefits all together, ABC may consider reducing coverage or requiring additional employee contributions.

## GH VRC Fall 2023 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

GH201-621-25: Canadian Life and Health Insurance Association: Guideline G3, Group Life and Health Insurance

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

GH201-671-25: CHLIA Guideline G4 – Coordination of Benefits

### Commentary on Question:

*Candidates generally did well on this question.*

### Solution:

- (a) List the elements that a booklet should contain according to Guideline G3 from the CLHIA.

### Commentary on Question:

*This was a retrieval question where candidates had to list up to 12 elements included in the Guideline G3 from the CLHIA. Candidates did not have to list all the elements of the solution to get full marks.*

- the name of the insurer and identification of the contract
- the name of the Group Policyholder, and may include the division, subsidiary or affiliate of the Group Policyholder
- the amount, or the method of determining the amount, of insurance on the Plan Member and on any other persons insured under the contract of Group Insurance through the Plan Member
- a description of any exclusions or limitations
- a clarification that the document is intended to summarize some of the contract provisions. In the event of a difference of wording from those of the contract, the contract will prevail, to the extent permitted by law
- the circumstances in which the insurance terminates and the rights, if any, upon such termination, of the Plan Member and of any other person insured under the contract through the Plan Member

- in a prominent position, words to the effect that the insurance information contained in the document is important and the document should be kept in a safe place
- the procedure to be followed by a claimant in making a claim including:
  - to whom and where claims should be made
  - the time limit within which a claim must be made or within which a notice or proof of claim must be submitted
  - information about obtaining the form required for submission of a claim
  - where and from whom the Plan Member may obtain more detailed information about the benefit or other provisions under the contract of Group Insurance which are relevant to the Plan Member.

(b) List the advantages and disadvantages of a self-insured LTD plan.

**Commentary on Question:**

*This question was well answered as most candidates were able to get full marks. Candidates understood the advantages, disadvantages and risks related to self-insuring LTD.*

*Advantages:*

- There are immediate cost savings from not being required to set up a reserve.
- Potential cost savings from the pay-as-you-go model. Instead of being required to pay a premium each year, they are only required to pay the claims as they come.
- Potential to also earn a greater return by more aggressively investing their funds themselves, rather than turning them over to an insurer to fund a reserve.

*Disadvantages:*

- Plan sponsors are not required to set up a reserve and rely on cash flow each year to pay disability claims.
- During tough financial times, it would be difficult to ensure employees currently on disability would be protected.
- In the event of insolvency or bankruptcy, often no funds are set aside to continue paying benefits in the future.

(c)

- (i) Identify whether or not each of the group benefits are taxable for Alberta employees by completing the table below.

Benefit	Are premiums paid or contributions made by the employer taxable income for the employee?		Are benefits received by the employee taxable income for the employee?	
	Federal level	Provincial level	Federal level	Provincial level
Basic life				
Accidental Death and Dismemberment (AD&D) insurance				
LTD insurance				
Health and dental benefits				

- (ii) Identify changes to the table in (i), if any, for employees residing in Quebec.

**Commentary on Question:**

*This part of the question was well answered by most of the candidates.*

(i)

Benefit	Are premiums paid or contributions made by the employer taxable income for the employee?		Are benefits received by the employee taxable income for the employee?	
	Federal level	Provincial level	Federal level	Provincial level
Basic life	Yes	Yes	No	No
Accidental Death and Dismemberment (AD&D) insurance	Yes	Yes	No	No
LTD insurance	No	No	Yes (because the employer contributed to the plan)	Yes (because the employer contributed to the plan)
Health and dental benefits	No	No	No	No

- (ii) Only Health and Dental benefits will have a change in taxable status in the hands of Quebec employees.
- Premiums paid by the employer are not taxable for federal income tax purposes. However, they are taxable for Quebec provincial income tax purposes.
  - There is no change to the taxable status for the benefits received by the employee because the health and dental benefits are insured plan.
- (d) You are given the following information:

Provisions	Great Product's plan	Spouse's group plan
Deductible	\$0	\$100
Coinsurance	75%	80%
Annual paid maximum	\$750	\$1,500

- The CHRO's first claim is for \$1,000

Calculate the total amount paid by each plan. State any assumptions and show your work.

**Commentary on Question:**

*The majority of candidates got full marks on this question.*

- Great Product's plan is the first payer as John is an employee of Great Product and the group plan where John is a spouse is the second payer.
- As an employee of Great Product =  $\text{Min}(75\% \times \$1,000; \$750) = \$750$
- As a spouse under his spouse's plan =  $\text{Min}(\$1,000 - \$750; \text{Min}(80\% \times (\$1,000 - \$100); \$1,500)) = \$250$
- Total =  $\$750 + \$250 = \$1,000$

## GH VRC Spring 2024 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3b) Describe the major applicable laws and regulations and evaluate their impact.

### Sources:

GH201-648-25: Canadian Life and Health Insurance Industry Agreement to Protect Canadians' Drug Coverage

The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016 (current study note: GH201-721-25)

### Commentary on Question:

*The question was testing the candidates understanding of drug pooling in Canada and specifically in Quebec. The candidate was to understand on drug pooling works and how the Canadian Drug Insurance Pooling Corporation (CDIPC) and the Quebec Drug insurance Pooling Corporation (QDIPC) work in tandem along with EP3 pooling. Overall, candidates did not perform very well on this question. Many candidates understood that there were three levels but failed to correctly identify the differences between the three, especially when comparing the QDIPC and CDIPC. Many candidates did setup an Excel but had difficulties correctly calculating all the answers.*

### Solution:

- (a) Describe the three different forms of pooling in group insurance.

### Commentary on Question:

*Many candidates knew that three different types of pooling existed. The EP3, QDIPC, and the CDIPC. Candidates however they had some difficulties describing the three.*

In group insurance, there are traditionally three different forms of pooling:

- **Pooling within the group:** which is achieved by charging the same premium rates to all participants who have the same major characteristics (employment status, single or family coverage).
- **Pooling within an insurer's portfolio,** such as Extended Healthcare Policy Protection Plan (EP3): this is done mostly for smaller groups for which the premium rates are based at least partially on the combined experience of several groups.
- **Pooling among different insurers:** traditionally done through reinsurance arrangements or industry pooling, such as QDIPC and CDIPC.

- (b) Describe the rationale for the creation of the following industry pooling programs:
- (i) QDIPC
  - (ii) CDIPC

**Commentary on Question:**

*Many candidates had difficulties describing the rationale, specifically that drugs should be affordable for Quebec residents. Also, the financial implication was not well understood by most candidates.*

- (i) Quebec Drug Insurance Pooling Corporation (QDIPC)
  - This pooling mechanism aims at satisfying the government’s objectives as well as respecting, as much as possible, the free market conditions that prevail in the insurance industry.
  - Prescription drug insurance should be affordable to all residents of Quebec.
  - The members of a group should not be penalized by any large claim arising from one person.
- (ii) Canadian Drug Insurance Pooling Corporation (CDIPC)
  - Catastrophic drug costs are a growing problem growth in drug costs are undermining the sustainability of group drug plans, particularly for small and medium enterprises, and has far exceeded the overall level of inflation for decades.
  - The implications of recurrent, very high cost drug claims for the ongoing financial sustainability of supplementary drug plans, particularly for small and medium sized enterprises, are significant.
  - Even though the majority of insurers use internal pooling mechanisms, current approach to pooling was designed to manage unknown one-off claims and is poorly suited to manage known, recurrent catastrophic claims.
  - Current pooling approach tends to lock sponsors in with their current carrier, which limit their ability to switch carrier when they tender its business and then allowing them more ability to shop around for a new provider at reasonable prices, even if they experience a recurring high cost drug claim.
  - Insulating eligible groups from the full financial impact of rare, but recurring, high cost drug claims, particularly beneficial to small and medium-sized businesses, who don’t typically have the financial resources to absorb a significant increase in premiums.

- (c) Summarize QDIPC and CDIPC with respect to:
- (i) Participation of insurers
  - (ii) Covered plans
  - (iii) Pooling thresholds
  - (iv) Sharing of pooled claims among participating insurers
  - (v) Pricing of groups within a participating insurer

**Commentary on Question:**

*Candidates had difficulties identifying the following differences:*

- *If participation was mandatory or not*
- *If all plans are covered or only insured and self-insured plans*
- *Listing the 3 different pools*
- *Identifying the thresholds*

*Candidates did not need to list the exact number for each QDIPC strata to get the full credits. Candidates have not been penalized if their answer were based on the 2016 QDIPC protection levels, i.e. from the source material and as illustrated in the solution below, or the ones applicable for the year 2023, as provided in the question. Same logic were applied for the initial and ongoing threshold for CDIPC, i.e. candidates have not been penalized if they use the one from the source material or the ones applicable for the year 2023, as provided in the question.*

- (i) Participation of insurers
  - QDIPC – Participation is mandatory
  - CDIPC – Open to participation from any company in Canada that is a member, or is eligible to be member, of the CLHIA
- (ii) Covered plans
  - QDIPC - All insured and self-insured groups
  - CDIPC - Covers only “fully insured plans”, excluding ASO, refund accounting and ASO with stop loss

- (iii) Pooling thresholds
- QDIPC
    - Per certificate
    - The pooling thresholds vary by group size where the number of certificates is calculated considering participants in all provinces, but only claims incurred for Quebec residents are subject to pooling.
  - CDIPC
    - Per certificate (family)
    - To qualify, the certificate must exceed \$65,000 (Initial threshold) for at least two consecutive years
    - In year 2 and in each subsequent year where the drug certificate exceeds \$32,500 (ongoing threshold), the amount over 32,500 will be pooled.
- (iv) Sharing of pooled claims among participating insurers
- QDIPC
    - A formula using cumulative strata is used. With this formula, claims below \$18,000 (in 2016) are pooled only among groups with fewer than 50 certificates. On the other hand, claims between \$18,000 and \$32,500 are pooled among the first strata (fewer than 50 and 50 to 124 certificates) while claims above \$115,000 are pooled among all strata in 2016, except the last one (3,000 certificates or more).
  - CDIPC
    - Three industry pools are proposed based on differences in provincial drug programs.
    - Pool 1 – Alberta + Ontario + Maritimes + Territories
    - Pool 2 – Resident of Quebec
    - Pool 3 – BC + Manitoba + Saskatchewan
    - The total pooled drugs claims will be shared by all participating insurers based on their market share of total paid drug claims for all insured business in applicable provinces.

- (v) Pricing of groups within a participating insurer
- QDIPC
    - Insurers must charge the same QDIPC published annual pooling factors to all its groups based on group size
  - CDIPC
    - Carriers can have multiple EP3 solutions for different market segments if they choose.
    - Participating insurers must place all large drug claims in an EP3 pool.
  - Individual participating insurers can set premiums based on the experience of the entire EP3 pool, or based on any non-client level experience data.
  - All other aspects of the EP3 can be customized by each participating insurer including:
    - Pricing
    - the pooling threshold (must be  $\leq$  ongoing only)
    - whether the pooling is done at the individual or certificate level
    - requiring co-payments or deductibles (subject to a cap of \$1,100 for deductibles)
    - formulary design.

(d) Calculate the claim amounts for 20X3 assumed by:

- (i) Industry pooling mechanisms
- (ii) XYZ
- (iii) ABC

State any assumptions and show your work.

**Commentary on Question:**

*Many candidates did break down the numbers into the required buckets but did not fill in the amounts correctly.*

The model solution for this part is in the Excel spreadsheet.

- (e) Calculate the claim amounts in (d) assuming that this group's employees were located in Quebec. State any assumptions and show your work.

**Commentary on Question:**

*Many candidates did break down the numbers into the required buckets but did not fill in the amounts correctly.*

The model solution for this part is in the Excel spreadsheet.

- (f) Propose a change to the CDIPC pooling program that will help to further preserve the viability and affordability of employers' drug programs. Justify your answer.

**Commentary on Question:**

*Many candidates provided an answer and for the most part got marks as they identified solutions that made sense. Other answers were accepted if justified.*

- Extend coverage to self-insured groups and refund accounting groups.
- For self-insured groups and refund accounting groups, not pooling large recurrent drug claims under CDIPC could make their drug coverage not affordable in the long-term and some of them could potentially change or abolish their drugs plan. As an example, it took some years before the QDIPC decides to extend the pooling program to all self-insured groups in the Quebec market, so preserving the access to an affordable drugs coverage.

## GH VRC Spring 2024 #7.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.

### Sources:

GH201-705-25: Assuris for Group Insurance in Canada

### Commentary on Question:

*This question was testing the candidates understanding of Assuris for Group Insurance in Canada, including the structure, funding and how the guarantees are applied.*

*Overall, candidate could not describe the full structure and funding of Assuris. However, most candidate did extremely well in describing the benefit guarantee provided by Assuris. Some candidates were able to correctly calculate the guarantee amount while others failed to notice that the actual applicable guarantee should be not exceed the original benefit.*

### Solution:

- (a)
  - (xii) Describe the purpose and structure of Assuris.
  - (xiii) Describe the funding of Assuris.

### Commentary on Question:

- *This part of the question has been well answered by some candidates, while others did not provide enough descriptions.*
- *On part (i), successful candidate can describe both the structure and purpose of Assuris with at least five of the points as illustrated below.*
- *On part (ii), successful candidate demonstrates understanding of Assuris funding with at least three of the points as illustrated below.*

- (i)
  - Assuris is a Non-Profit organization under Canadian federal regulation
  - Its goal is to minimize the loss of benefits should a life insurer become insolvent.
  - Every life insurance company authorized to sell insurance policies in Canada must be a member.
  - Assuris guarantees apply to life insurance, critical illness, health expense, disability income, LTC, annuities, and segregated funds.
  - Assuris works closely with OFSI to perform financial analysis of member companies and monitor at risk companies.

- Assuris reviews regulatory filings (annual regulatory filing, financial statements, AA’s report, DCAT).
- As companies progress through regulatory concern stages, Assuris takes a more active role in review of business plans and auditor reports and developing preliminary restructuring plan.
- Assuris develops a detailed restructuring plan for a “troubled member”, estimate its coverage exposure, and formulate a detailed contingency plan for managing liquidation and funding coverage commitments.

(ii)

- Assuris receives funding through member companies via a risk assessment based on required capital.
- Assuris maintains a liquidity fund of at least \$100 million to provide immediate cash to meet obligations before assessing members
- If an event occurs beyond the existing liquidity fund, the structure allows additional member assessments.
- It is industry funded.

(b) Describe the benefit guarantee provided by Assuris for the following benefits:

(i) Group Life

(ii) Group Disability

(iii) Group Supplemental Health Expense

(iv) Group Critical Illness

**Commentary on Question:**

*This part of the question has been well answered by many candidates. Successful candidates are those that have been able to state the correct Assuris guaranteed benefits. Since Assuris has recently updated their benefit guarantee amounts on their website, then we accepted both the old and new benefit guarantee amounts, as illustrated in the solution below.*

(i) Group Life

- Old benefit = Greater of \$200,000 and 85% of the death benefit
- New benefit = Greater of \$1,000,000 and 90% of the death benefit

(ii) Group Disability

- Old benefit = Greater of \$2,000 per month and 85% of monthly income benefit
- New benefit = Greater of \$5,000 per month and 90% of monthly income benefit

(iii) Group Supplemental Health Expense

- Old benefit = Greater of \$60,000 and 85% of coverage benefit
- New benefit = Greater of \$250,000 and 90% of the coverage benefit

(iv) Group Critical Illness

- Old benefit = Greater of \$60,000 and 85% of coverage benefit
- New benefit = Greater of \$250,000 and 90% of the death benefit

- (c) Calculate the Assuris guaranteed amount for each member. State any assumptions and show your work.

**Commentary on Question:**

*This part of the question has been well answered by some candidates. Successful candidates are those that have been able to correctly calculate the Assuris guaranteed amount for each member. Some candidates failed to notice that the applicable guarantee should be less than the original benefit. For member 2, while the guarantee is the max of \$2,000 and 85% of monthly income, the original benefit was \$1,800. Therefore, the guaranteed amount is \$1,800. Since Assuris has recently updated their benefit guarantee amounts on their website, then we accepted both the old and new benefit guarantee amounts.*

The model solution to this part is provided in the Excel spreadsheet.

- (d) Calculate the additional amount each member will receive above the Assuris guaranteed amount calculated in (c). State any assumptions and show your work.

**Commentary on Question:**

*This part of the question has been well answered by some candidates. Successful candidates are those that have been able to correctly calculate the additional amount each member will receive above the Assuris guaranteed amount calculated in (c). Since Assuris has recently updated their benefit guarantee amounts on their website, then we accepted both the old and new benefit guarantee amounts.*

- The model solution to this part is provided in the Excel spreadsheet.

## GH VRC Spring 2024 #9.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

GH201-713-25: How will the potential work-from-home-anywhere boom post-pandemic impact benefit plans?

GH201-672-25: CHLIA Guideline G17 – Coordination of Benefits for Out-of-Country/Out-of-Province/Territory Medical Expenses

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6

### Commentary on Question:

*This question tested the understanding of candidates on government programs providing health and disability benefits in Canada. Candidates generally did not perform very well on this question and had difficulties to understand the difference between eligibility requirements for social programs and coordination of benefits payment between different parties.*

### Solution:

- (a) Describe concerns with respect to Company ABC's group benefits for these two employees.

### Commentary on Question:

*Candidates generally did well on this part of the question. Candidates were able to recognize the overall issues, however they had difficulties describing the applications of the issues to company ABC in order to receive full credits. Other reasonable explanations were awarded credits.*

- Plan sponsors with employees who move to another province may face taxation and payroll deduction implications. The group benefits plan includes life insurance which is a taxable benefit in all provinces, and medical/dental which is taxable in the province of Quebec.
  - Employers must think about the provincial health-care requirements. Some benefits plans require employees to be part of their province's health-care plan, but when someone moves to a new province, there's a three-month window before they can access the new province's system. Checking of benefit provisions to see if Company ABC plan requires employees to be part of the province's health-care plan. If not, then either modify the contract or review out-of-province coverage.
  - Employers with staff moving into or out of Quebec face additional complications, as the province requires employers' prescription drug plans to at least match the RAMQ drug plan. Depending on the provisions of the prescription drug coverage, Company ABC may incur additional costs in order to be compliant with RAMQ.
- (b) Compare and contrast eligibility requirements for government health insurance plans (GHIPs) in BC, Quebec and Ontario.

**Commentary on Question:**

*The vast majority of candidates had difficulties on this part of the question. Candidates received partial credits for assuming waiting period and physical presence period requirements as the similarities, but the majority of candidates did not recognize the differences in these requirements for eligibility in GHIP. A few candidates mentioned the differences in drug programs.*

**Similarities:**

- You are a Canadian citizen or have immigration status.
- You make your home (or reside) in the respective province.
- Must register or apply to the respective provincial plan to be eligible.

**Contrasts:**

BC

- New residents, regardless of whether they come from elsewhere in Canada or from outside Canada, become eligible on the first day of the third month following the date they establish permanent residency in B.C.
- You are physically present in B.C. at least 6 months in a calendar year.

### Quebec

- New residents who move from elsewhere in Canada, where they had provincial/territorial health coverage, become eligible on the first day of the third month following the date of their arrival in Quebec. All other new residents are entitled to coverage after a waiting period of up to three months.
- You are physically present in Quebec for at least 182 days in a given calendar year.

### Ontario

- New residents who move from elsewhere in Canada, where they had provincial/territorial health coverage, become eligible on the first day of the third month following the date of their arrival in Ontario. All other new residents are entitled to coverage after a waiting period of three full calendar months following the date of permanent residence in Ontario.
- You are in Ontario for at least 153 days in any 12-month period; and you are not outside Ontario for more than 212 days in a 12-month period.

(c) Describe how the costs of the services in the table above would be coordinated between:

- Each employee
- The Company ABC group benefits plan
- Other private coverage
- GHIPs

State any assumptions made.

#### **Commentary on Question:**

*Candidates had difficulties on this question. Most candidates did not take the employee's eligibility into consideration and did not understand the cost coordination between various parties under different provincial health plans. However, candidates did well in describing how the costs of these services would be coordinated between various parties for the travel coverage. Overall, candidates did not perform well on this part of the question.*

### **Claim 1: Employee 1 physician claim in February 20X1**

#### Eligibility

- The employee only becomes eligible for RAMQ on April 1, 20X1 (i.e. first day of the third month following the arrival date).
- Therefore, the employee is not yet eligible for RAMQ and coordination between GHIPs in BC and Quebec must occur.

#### Who pays?

- The patient. Quebec does not participate in the inter-provincial reciprocal billing agreement for physician services, so will bill the patient directly. The patient applies to MSP for reimbursement, which may not cover the full cost of the claim.

#### How does Company ABC's group plan fit in?

- If MSP payment does not cover physician fees, remainder can be submitted to through Company ABC's out-of-province coverage.

### **Claim 2: Employee 1 emergency surgery**

#### Eligibility

- Same as above (as we are not yet at April 1, 20X1).

#### Who pays?

- Unlike physician services, Quebec does participate in the inter-provincial reciprocal billing agreement for hospital stays, so will bill RAMQ directly. RAMQ will then seek payment from MSP.
- The patient pays nothing.

#### How does Company ABC's group plan fit in?

- If plan covers additional costs not covered by province (for example, semi-private room upcharge), then this can be submitted to the plan.

### **Claim 3: Out of country claim for Employee 2**

#### Eligibility:

- Similar to Employee 1, this employee is not yet eligible for the Ontario plan.

Private plans:

- This employee first contacted the individual insurer, and so they need to assume responsibility as “First Carrier”.
- The above assumes that the individual coverage is adequate for this particular claim. If not, then the individual plan can negotiate with the Company ABC group plan over First Carrier responsibility.

The First Carrier (i.e. the individual insurer) will:

- Handle the case management. This includes, but is not limited to taking the initiative to involve an assistance group or service provider, choosing a preferred provider organization, monitoring medical care and/or repatriation.
- Notify the Other Carriers (in this case, the Company ABC group benefits carrier).

The individual insurer must pay the claim with an amount that is equal to the coverage determined by the terms and conditions of its contract.

It then allocates liability amongst itself and the Other Carriers and, as applicable, recover amounts owing from Other Carriers and GHIP – including providing all associated paperwork.

In this case:

1. The GHIP plan from BC covers \$75.00 per day.
2. The exact provisions of the Company ABC and individual plans are not known, but if both plans covered the full claim, half the claim (net of reimbursement from BC) would be recoverable.

## GH VRC Fall 2024 #5.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada

### Sources:

GH201-653-25: Telus Health Note: How Much Does that Drug Cost?

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

GH201-694-25: Guide to Canada Benefits Legislation

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe how prices are set for brand name and generic drugs in Canada.

### Commentary on Question:

*Overall, candidates generally performed well on this part of the question. In order to receive full marks, details on methodology were necessary, as indicated below.*

### Brand

- Prices for brand drugs are set by the manufacturer but are regulated by the Patented Medicines Prices Review Board (PMPRB).
- The role of the PMPRB is to ensure that drug prices are not excessive.
- Prices are determined based on the median of seven OECD comparator countries.

**Generic**

- The PMPRB does not regulate generic prices.
  - For the most part, generic prices are set as a percentage of the equivalent brand price, by provincial governments.
  - As a result, generic prices can vary across provinces.
- (b) Calculate XYZ’s current year costs. State any assumptions and show your work.

**Commentary on Question:**

*Candidates were generally able to calculate the claim cost assuming 12 scripts per year. However, in order to get full marks, candidates were required to demonstrate they were able to apply Target Loss Ratio and Retail Sales Tax in addition to the expected claim costs.*

The model solution for this part is in the Excel spreadsheet.

- (c) Calculate XYZ’s projected costs next year if:
- (iii) A physician prescribes the generic drug
  - (iv) A physician prescribes the brand name drug and indicates “no substitution”

State any assumptions and show your work.

**Commentary on Question:**

*Candidates were generally able to replicate the methodology from part b), which required properly applying the target loss ratio and the retail sales tax. In order to get full marks, candidates were required to consider impact to costs depending on whether the member turning age 65 opted in or out of RAMQ. Additional consideration on which ingredient cost and dispensing fees were also required as part of this analysis.*

The model solution for this part is in the Excel spreadsheet.

- (d) Recommend four changes to the plan design that XYZ can consider to reduce plan costs. Justify your answer.

**Commentary on Question:**

*Candidates generally performed well on this part, able to identify ways that a plan sponsor can reduce plan costs. Other reasonable answers and justifications were accepted, other than the four examples provided below.*

- Require mandatory generic substitution to minimize costs.
- Reduce coinsurance to encourage employees to become better consumers.
- Require a surcharge and/or premium contributions at age 65 for Quebec that are well in excess of RAMQ's premium requirements in order to incentivize people to not opt-out of RAMQ.
- Review refill guidelines – e.g. maintenance drugs can be a standard 90-day refill – to keep dispensing fees as low as possible. As the drug in question is a maintenance drug, 90 days is reasonable.

## GH VRC Fall 2024 #7.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.

### Sources:

GH201-661-25: Employee Life and Health Trusts & Health and Welfare Trusts

### Commentary on Question:

*Commentary listed underneath questions component.*

### Solution:

- (a) Explain how an ELHT is more tax efficient than an HWT.

#### Commentary on Question:

*Many candidates did not perform well on this part of the question. Most candidates only briefly explained the difference in the application of deducting taxable vs non-taxable benefits but very few explained/ elaborated on the type of costs that can deducted and the “carry forward” and “carry back” provisions.*

- The reason an ELHT is notionally more tax efficient than an HWT is that the HWT is only able to deduct taxable benefits it pays out, whereas an ELHT is able to deduct all benefits, whether taxable or non-taxable in the hands of a beneficiary.
- An ELHT is also able to deduct all costs related to providing eligible benefits, including insurance premiums, claims and administrative costs.
- In computing its income, the ELHT will be able to deduct all amounts paid or payable to employee beneficiaries, as well as administrative costs of operating the ELHT including insurance premiums. If the amount so paid in a year exceeds income, the ELHT will be entitled to “carry forward” any unused portion of the deduction.
- Notably the “carry forward” and “carry back” provisions applicable to an ELHT for non-capital losses do not apply to an HWT (the “carry forward” rule applies only for three years).
- An employer contribution to an HWT can be deducted in the year in which there is a legal obligation to make payment to the extent that the contribution is reasonable in the circumstance. Many employers may thus prefer an HWT, so that they can obtain a deduction. Where employer contributions are not deducted in the year, they can normally be deducted in a subsequent year

where the trust uses those contributions to provide for benefits in that subsequent year.

- (b) Compare and contrast other characteristics of an HWT and ELHT.

**Commentary on Question:**

*No marks were awarded to candidates for repeated solution in part (a). Successful candidates were able to explain the differences between HWT and ELHT. Most candidates did not distinguish the presence of the “qualified multi-employer” rules under ELHT.*

- Compare:
  - Restricted to providing group sickness or accident insurance, private health services and group life insurance to employees.
  - The purpose of the trust must be limited to providing the permissible benefits describe in the above point.
  - Cannot be controlled by the funding plan sponsors.
  - Cannot make direct investments in the plan sponsor.
  - Subject to tax as a trust (e.g. at the highest marginal rate) on its investment income.
  
- Contrast:
  - ELHT is subject to the “key employee” concept, which is a high-income employee or those that hold significant shareholdings. Benefits cannot accrue more favorably to such employees than to other employees. Additionally, at least once class of beneficiaries of an ELHT must contain more than 25% of all employees and at least 75% of that class must not be a key employee.
  - Another distinguishing feature of ELHTs is the presence of the “qualified multi-employer” rules. While multiple employers can participate in the same HWT, the “qualified multi-employer” rules allow an ELHT with at least 15 employers under a collective bargaining agreement to, provided certain technical conditions are met, be able to claim a full current year deduction for all contributions made.

- (c) Revise ABC’s tax returns for 2021 to 2023 reflecting the results of the internal audit. State any assumptions and show your work.

**Commentary on Question:**

*Some candidates were not able to attempt this part. For those who attempted, candidates were able to calculate the current year deductions. To obtain full marks, the carry forward deductions must be calculated correctly.*

*The model solution for this part is in the Excel spreadsheet.*

- (d) Construct the projected tax return for 2024. State any assumptions and show your work.

**Commentary on Question:**

*Candidates did either very well or not at all on this part of this question. Successful candidates were able to include all given assumptions in the calculations. Most candidates either missed including the plan costs reduction % or carry forward losses in calculation.*

*The model solution for this part is in the Excel spreadsheet.*

# GH 201-C Model Solutions

## Learning Objective 4

### GH FVA Fall 2020 #4.

#### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

#### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

#### Sources:

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 4, 5, 6, 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6)

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016

- Ch. 2: Government Pension Programs
- Ch. 19: Employment Insurance.

#### Commentary on Question:

*The question tested candidates' ability to recall the eligibility requirements for social programs in Canada including the benefits provided. Candidates were also tested on the function of private group insurance plans within the framework of social programs in Canada.*

#### Solution:

- (a) List the eligibility criteria for:
  - (i) Old Age Security (OAS)
  - (ii) Guaranteed Income Supplement (GIS)

#### Commentary on Question:

- *Candidates had difficulty recalling more specific eligibility requirements and made general comments such as "low income"*

Old Age Security (OAS)

- Lived in Canada for at least 40 years after turning 18; or
- Reached the age of 25 on or before July 1, 1977, and at that time:
  - Lived in Canada (or had lived in Canada before that date, but after age 18), and
  - Lived in Canada for the 10 years immediately before the approval of your OAS application.
- In order to qualify for a partial pension, which is equal to 1/40th of the full pension for each complete year of residence after age 18, the following conditions must be met:
  - You lived in Canada for a minimum of 10 years after reaching age 18; and
  - You live in Canada when you receive your OAS pension.

#### Guaranteed Income Supplement (GIS)

- Any low-income person who receives the Old Age Security pension and meets certain residency criteria is eligible for the GIS.
  - Single persons Vs. Married couples both OAS pensioners Vs. OAS pensioner whose spouse is not receiving OAS

(b) Describe the general provisions included in Canadian/Quebec Pension Program (C/QPP).

#### **Commentary on Question:**

*Many candidates referenced specific benefit provisions of the C/QPP programs as opposed to the general provisions.*

- Indexing of Benefits
  - Indexation of benefits before retirement is based on a wage index through the indexation of the YMPE, whereas after retirement the indexation is based on the CPI.
- Income Tax
  - CPP/QPP benefits are taxable income to the beneficiary.
  - Contributions by employers are fully tax deductible, while employees receive a tax credit.
- Credit Splitting
  - When a marriage or common-law relationship ends, the CPP credits built up by a couple while they lived together can be divided equally between them.
- Assignment
  - A retirement pension in payment may be divided between the two spouses or common-law partners in proportion to the period of

cohabitation, provided that both spouses or common-law partners are at least age 60 and have ceased contributing to the CPP/QPP.

- On death, divorce, separation (after 12 months), or request of both spouses or common-law partners, the assignment will come to an end and the amount of the pension will revert to the same amount as if there had been no pension sharing.
  - Reciprocal Agreements with Other Countries
    - The federal government and the Quebec government have reciprocal social security agreements with various countries to help people qualify for benefits from either country (i.e., eligible service under the foreign plan may be taken into account to qualify for the CPP/QPP benefits).
  - Integration with CPP/QPP Benefits
    - Other private or public arrangements may reduce benefits to take into account the benefits payable from the CPP/QPP.
    - Many private pension plans may also integrate their benefit level with CPP/QPP.
- (c) List the acceptable arrangements for returning 5/12 of the premium reduction to employees.

**Commentary on Question:**

*Candidates generally recalled that the return of premium reduction could be in the form of enhanced benefits, but did not provide other acceptable arrangements.*

- A written mutual agreement on how the savings will be returned to the employees.
  - A cash rebate equal to 5/12 of the savings divided amongst the employees, which is treated as employment income subject to source deductions.
  - Providing new or increased benefits, including upgrading existing benefits, or providing more holidays or time off work.
- (d) Define the minimum requirements to qualify for the EI premium reduction.

**Commentary on Question:**

*Candidates generally recalled the first payer and waiting period minimums, but did not typically expand beyond these requirements.*

- Disability benefits that are at least equal to the EI sickness benefits (i.e., 55% of insurable earnings).
- Payment of benefits starting on or before the 15th day of disability (or 8th day starting in 2017).
- In the case of weekly indemnity plans, payment of benefits for at least 15 weeks for each disability occurrence.

- Eligibility to claim benefits within three months of continuous employment.
- 24-hour coverage.
- Designation of the plan as the first payer (preventing plan benefits from being integrated and/or coordinated with EI benefits).
- In the case of weekly indemnity plans, reinstatement of full disability coverage after a disability within one month of return to work for future disabilities not related to the initial disability cause, and within three months of return to work for a recurrence of the initial disability cause.

(e) Calculate the weekly CCB amounts for John and Diana under:

- (iii) EI program
- (iv) Employer plan

State any assumptions and show your work.

**Commentary on Question:**

*Candidates generally performed well in the calculation. Some were unable to locate the EI Maximum Yearly Insurable Earnings information provided in the case study or to recall the EI benefit percentage.*

	John	Diana
STD Weekly Income Benefit	504.81	1,000.00
EI Weekly Income Benefit	370.19	573.27
CCB from EI	370.19	573.27
CCB from ER plan	134.62	426.73

(f) Evaluate whether or not the short-term disability (STD) plan and the CCB plan of Another Day qualify under the EI premium reduction program. Justify your answer.

**Commentary on Question:**

*Candidates were typically only able to successfully comment on the qualification for EI premium reduction for one of the STD or CCB plans.*

- STD
  - Yes, the STD plan of Another Day qualifies under the EI premium reduction program since the STD plan is deemed to be the “first payer” and EI is deemed to be the “second payer” of disability benefits. Any payment received from a short-term disability plan reduces the EI benefit paid for the same week.

- In addition, the STD plan of Another Day provides disability benefits that are at least equal to the EI benefits in terms of benefit amount, duration, and contract provisions.
- CCB
  - No, the CCB plan of Another Day does not qualify under the EI premium reduction program since EI is deemed to be the “first payer” and Another Day is deemed to be the “second payer” of CCB benefits.

## GH FVCC Spring 2021 #2.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

GH201-651-25: The high states of medications, insurers and governments

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 4, 5, 6, 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6)

GH201-695-25: A Joint Statement from the pan-Canadian Pharmaceutical Alliance and the Canadian Generic Pharmaceutical Association

Morneau Shepell New & Views, Volume 15, Issue 9, Sep 2018, section 1; Cannabis: Employer Considerations in a Changing Landscape

### Commentary on Question:

*The objective of this question was to test the candidates understanding of a number of different topics as they relate to public social programs and private health care. Candidates were asked to recall specific topics and describe them for full credit. The calculation was designed to demonstrate knowledge of the integration of costs between private insurance, TDP, and the out-of-pocket expenses of an individual. In general candidates got stronger as the questions progressed.*

### Solution:

- (a) Calculate the following:
  - (i) Cost covered under ABC's extended healthcare plan
  - (ii) Costs covered by TDP
  - (iii) John's out-of-pocket cost

State any assumptions and show your work.

**Commentary on Question:**

Many candidates were able to calculate the amount covered by ABC, however most candidates did not include the per prescription deductible when calculating the out-of-pocket cost for John.

**Step 1 – Calculation of the drug costs (annually as described below)**

	<b>Generic Drugs</b>	<b>Brand-Name Drugs</b>	<b>Patented Drugs</b>	<b>Total</b>
Prescriptions / Month	3	2	1	6
Annual Prescriptions	36	24	12	72
Cost / Prescription	\$50	\$500	\$8,850	
Annual Cost	\$1,800	\$12,000	\$106,200	\$120,000

ABC’s drug plan reimbursement reaches the Annual maximum of \$20,000 after 2 months in the first quarter. **An important note is that ABC’s drug plan is also the 1<sup>st</sup> payor and 100% coinsured.**

**Step 2 – Calculating John’s out of pocket costs**

John’s costs are made up of 2 parts: A TDP deductible which is 4% of salary and a per prescription deductible.

**John’s TPD Deductible:**  $4\% \times \$60,000 = \$2,400$  per year or \$600 per quarter

**John’s prescription deductible is \$2 per prescription.** Each month John incurs 6 prescriptions, but in the first two months his employer plan (ABC) pays for those costs. Afterwards John must pay \$12 per month for these costs.

**The Table below summarizes the cost for each payor by quarter.**

	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Total</b>
Drug Cost	\$30,000	\$30,000	\$30,000	\$30,000	\$120,000
ABC	\$20,000	\$0	\$0	\$0	\$20,000
John	\$612	\$636	\$636	\$636	\$2,520
Trillium	\$9,388	\$29,364	\$29,364	\$29,364	\$97,480

ABC: \$20,000

John: \$2,520

TDP: \$97,480

- (b) List the strategies outlined in the pan-Canadian Pharmaceutical Alliance Initiative.

**Commentary on Question:**

*This part of the question was not well answered by most candidates. Candidates were required to group different strategic themes from the study note. Many candidates confused the pan-Canadian Pharmaceutical Alliance Initiative with the CIA’s Public Position on a National Pharmacare Plan. Full credit was given to candidates that could provide any of the four items with a reasonable description from the list below.*

<p><b>Inclusion of most Canadians</b></p> <p>5-year initiative that would apply for all Canadians who use prescription generic drugs, participating public drug plans, and employee drug plans.</p>
<p><b>Stabilize Supply</b></p> <p>Generic drugs covered in the initiative are manufactured by multiple generic companies, helping to ensure a stable supply.</p>
<p><b>Improve Costs</b></p> <p>As of April 1, 2018, the prices of nearly 70 of the most commonly prescribed drugs in Canada will be reduced by 25% - 40%. Applies to generic drugs only.</p> <p>Savings estimated to be \$3 billion over the next 5 years, through a combination of price reductions and launch of new generic drugs.</p>
<p><b>Target Highly Utilized drugs</b></p> <p>Includes drugs used to treat high cholesterol, high blood pressure and depression.</p>
<p><b>Improve Canada’s position in relation to international generic drug prices.</b></p> <p>Building on previous pCPA and CGPA efforts, Canada’s generic drug prices decreased by an average of 48% between 2010 and 2015.</p>
<p><b>Unify Tendering</b></p> <p>Brings provinces, territories, and federal drug plans together to negotiate prices for publicly covered drugs.</p> <p>Tendering will not be pursued by the participating drug plans.</p>

- (c) Identify ways John’s drug utilization and costs under the ABC plan can be managed.

**Commentary on Question:**

*Candidates did generally well in identifying ways to manage John’s drug and utilization costs. Candidates received full credit for providing any 4 of the list items below.*

- Add a lifetime maximum, in addition to the annual maximum already in place.
- Reduce coinsurance level from 100%
- Introduce mandatory generic substitution.
- Case management
- Make sure John applies to Trillium
- Explore the pooling mechanism in place under ABC’s policy
- Turn 65 next year – makes him fully eligible to ODB

- (d) List ABC’s considerations around adding medical cannabis coverage to their benefits plan.

**Commentary on Question:**

*Almost all candidates got full credits on this portion.*

- The cost of adding medical cannabis to a benefits plan.
- The appropriate policies and processes which will be required.
- The insurer offerings which match the organizational needs.
- How the organization will communicate decisions about medical cannabis to employees.

## GH FVCC Spring 2021 #4.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016, Ch. 17: Provincial Hospital and Medical Insurance Plans

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 4, 5, 6, 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6)

GH201-702-25: OHIP+ Pharmacy Redesign Update – FAQs For Patients

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the various funding mechanisms for the Ontario Health Insurance Plan (OHIP).

#### Commentary on Question:

*Most candidates knew payroll tax and general revenues, but very few knew that individual health premiums and federal fund transfers also fund the cost.*

- General revenues of the province
  - Employer health tax (EHT) – Rates range from 0.98% of total annual Ontario payroll less than \$200,000 to 1.95% of annual payroll in excess of \$400,000
  - Individual health premiums
  - Provincial hospital and medical plans that meet the criteria of the Canada Health Act continue to be financed in part from the federal government through transfer payments.
- (b) Calculate the funding OHIP would receive from Sally & Sam Inc. State any assumptions and show your work.

#### Commentary on Question:

*Many candidates knew about the payroll tax, but forgot about individual premium payments paid through provincial tax filings. Some candidates confused the funding of OHIP with the funding of CPP.*

$$\begin{aligned}\text{Employer payment} &= 1.95\% \times \text{total payroll} \\ &= 1.95\% \times (230\text{k} + 350\text{k} + 20\text{k} \times 500 \text{ EEs}) \\ &= 1.95\% \times 10,580,000 \\ &= 206,310\end{aligned}$$

Note that the 500 employees all earn \$20,000 so no individual health premium is paid. Also note that the total remuneration from the company is greater than \$5 million so any exemption of EHT is eliminated.

$$\begin{aligned}\text{Individuals payment} &= \text{Sally payment} + \text{Sam payment} + \text{Sam Spouse payment} \\ &= 900 + 900 + 0 \text{ (spouse is unemployed so no health premium)} \\ &= 1,800\end{aligned}$$

$$\begin{aligned}\text{Total payment} &= \text{Employer payment} + \text{Employee payment} \\ &= 206,310 + 1,800 \\ &= 208,110\end{aligned}$$

- (c) Calculate the average out of pocket cost per covered person in 2021 for the proposed prescription drug benefit plan. State any assumptions and show your work.

**Commentary on Question:**

*Most candidates did not recognize that OHIP only covers drug costs for those over age 65 (regardless of private plan) or under 25 (without a private plan).*

Those eligible for OHIP – Only Sally as she is post 65.

$$\begin{aligned}\text{Sally Cost} &= 2019 \text{ cost} \times (1 - \text{ODB coverage}) \times \text{cost sharing level} \times (1 + \text{Ontario tax rate}) \times (1 + \text{trend rate}) \\ &= \$100 \times (1 - 85\%) \times 10\% \times (1 + 8\% + 2\%) \times (1 + 5\%) \\ &= \$1.73\end{aligned}$$

Those not eligible for OHIP – all else  
Children aren't covered under OHIP + due to having private coverage

$$\begin{aligned}\text{All else Costs} &= 2019 \text{ cost} \times (1 - \text{ODB coverage}) \times \text{cost sharing level} \times (1 + \text{Ontario tax rates}) \times (1 + \text{trend rate})\end{aligned}$$

$$\begin{aligned}
&= (\$900 + \$1,000 + \$20,000 + \$50) \times (1-0\%) \times 10\% \times (1+8\%+2\%) \\
&\times (1+5\%) \\
&= \$2,535.23 \\
\text{S\&S Cost} &= \$1.73 + \$2,535.23 = \$2,536.96
\end{aligned}$$

$$\begin{aligned}
&\text{Average out of pocket per covered person} \\
&= \text{Total Cost} / \# \text{ of covered persons} \\
&= \$2,536.96 / 505 \\
&= \$5.02 \text{ per person}
\end{aligned}$$

- (d) Recommend whether Sam's family would be better off having family coverage, couple coverage or single coverage. Justify your answer.

**Commentary on Question:**

*Candidates needed to show the calculation for each coverage option to receive full credit.*

$$\begin{aligned}
&\text{OOP cost with family coverage} \\
&= \text{Average per person cost} \times 4 \\
&= \$5.02 \times 4 \\
&= \$20.08
\end{aligned}$$

$$\begin{aligned}
&\text{OOP cost with couple coverage} \\
&= \text{Average per capita cost} \times 2 + \text{kids costs} \\
&= \$5.02 \times 2 + (1-85\%) \times (\$20,000 + \$50) \text{ (kids would be covered under} \\
&\text{OHIP+)} \times 1.05 \\
&= \$3,167.92
\end{aligned}$$

$$\begin{aligned}
&\text{OOP cost with single coverage} \\
&= \text{Average per capita} \times 1 + \text{spouse cost} + \text{kids cost} \\
&= \$5.02 \times 1 + \$1,000 \times 1.05 + (1-85\%) \times (\$20,000 + \$50) \times 1.05 \\
&= \$4,212.90
\end{aligned}$$

Based on the OOP costs under each option, family coverage should be recommended to the family.

- (e) Explain whether or not Sam's family would have to pay for Kevin's medication under the following independent scenarios:
- (i) Sam's family recently reached their annual family plan maximum with their private health services plan.
  - (ii) Kevin's medication was removed from the prescription drug formulary of their private health services plan.

Justify your answer.

**Commentary on Question:**

*Most candidates did well on this part, realizing that OHIP+ is not applicable if a private plan is in place.*

- (i) Yes, the family would have to pay for Kevin's medication. Children and youth 24 years of age and under who have a private plan will not be eligible for OHIP+ regardless of if the child has reached their annual maximum under the private plan and no further coverage is available.
- (ii) Yes, the family would have to pay for Kevin's medication. Children and youth 24 years of age and under who have a private plan will not be eligible for OHIP+ regardless of if the private plan covers the particular drug for which coverage is sought.

## GH FVCC Fall 2021 #1.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020, Ch. 18: Workers' Compensation

### Commentary on Question:

*Most candidates did very well on parts b and c, but missed several key points in parts a, d and e.*

### Solution:

- (a) Describe employee groups who are covered for workers compensation benefits in Canada.

### Commentary on Question:

*The intent of the question was for candidates to recall who is required to have workers compensation coverage. In general, this question was not well answered by most candidates.*

- Workers' Compensation coverage is generally mandatory for all employees in industrial occupations.
- In some provinces, domestic employees, casual employees, employees in certain service industries, and employees in the "knowledge" industries, such as finance and insurance, are exempt from mandatory coverage.
- Employee groups exempt from mandatory coverage may still be covered for Workers' Compensation on application by the employer.
- Sole proprietors and executive officers are not subject to mandatory coverage, but may elect to be covered as employees.

- (b) Describe how workers compensation benefits are funded in Canada.

**Commentary on Question:**

*The intent of the question was for candidates to recall how these benefits are funded in Canada. In general, this question was well answered by most candidates.*

- The Workers' Compensation system is funded solely by assessments paid by covered employers.
  - The assessment rate is applied to the annual payroll of the covered employees, up to an assessable earnings maximum.
- Contributions from employees are not permitted.
- Assessments are based on either individual liability or collective liability.
  - The vast majority of industries in Canada are assessed on the basis of collective liability.
    - Employers are divided into industry classes and/or rate groups according to similar business activity and inherent accident and hazard risks.
  - Individual liability is the assessment basis frequently used for government or public agencies, Crown corporations, and large public transportation organizations.
    - Each employer is self-insured, or individually liable for accident and sickness costs as they occur.

- (c) List and describe the benefits provided by workers compensation coverage in Canada.

**Commentary on Question:**

*The intent of the question was to test candidates' knowledge of the benefits covered by workers compensation. In general, this question was well answered by most candidates.*

- **Health Care**
  - All medical expenses incurred as a result of a workplace accident or disease are paid by the Workers' Compensation system.
  - Covered medical expenses include hospital charges and physician and surgeon fees normally covered by the provincial health care schemes, as well as the cost of drugs and ancillary services usually covered by private medical insurance plans.

- **Short-Term Disability (STD)**
    - Income replacement benefits are payable to the disabled employee until the employee has recovered and is capable of returning to the pre-accident occupation or, having gone through a rehabilitation program, is estimated capable of earning at the same level as prior to the accident.
  - **Long-Term Disability (LTD)**
    - Income replacement benefits are payable to the disabled employee under Workers' Compensation and are adjusted for cost-of-living increases.
    - In addition, most jurisdictions provide for some form of pension for injured workers after age 65.
  - **Rehabilitation**
    - To facilitate a return to work, the injured employee may participate in a medical or vocational rehabilitation program.
    - Examples of some services provided include counseling, job search assistance, ergonomic modifications, tuition, homemaker assistance, and on-the-job training.
  - **Survivor**
    - The benefits for the spouse range from a relatively short-term pension with a larger lump-sum payment to benefits payable to age 65 or for life with or without a smaller lump-sum payment.
    - The amounts paid to the surviving spouse may be dependent upon the spouse's age, the number and ages of the dependent children, and whether or not the spouse is disabled.
- (d) Calculate the present value of workers compensation benefits for each of the listed employees above. State any assumptions and show your work.

**Commentary on Question:**

*The intent of the question was to test candidates' knowledge of how to calculate benefit costs. Most candidates failed to realize that Jennifer's injury was not work related and so worker's compensation would not pay out any benefits. Also, for Theodore's calculation, successful candidates applied COLA annually and trend monthly.*

### Alvin

- Health costs = months off x monthly health cost x discounting  
=  $100 / (1+3\%)^{(1/12)} = 99.75$
- STD costs = months off x monthly income x discounting x replacement ratio =  $6,000 \times 85\% / (1+3\%)^{(1/12)} = 5,087.45$
- Rehabilitation costs = months off x rehab cost x discounting  
=  $150 / (1+3\%)^{(1/12)} = 149.63$
- Total Alvin Cost = 5,336.84

### Jennifer

- Health issue is not related to a work accident and so worker's compensation pays nothing. \$0

### Theodore

- *Note: Costs are most easily calculated when spreadsheet is set up such that monthly cost for each benefit are calculated on a separate line and then discounted back to present value. Note that the question states that COLA is applied at end of year and all costs are paid at month end.*
- Health costs = PV(health cost at month 1) + PV(health cost at month 2)+ ... =  $500 \times (1+5\%)^0 / (1+3\%)^{1/12} + 500 \times (1+5\%)^{1/12} / (1+3\%)^{2/12} + \dots = 31,387.08$
- STD & LTD costs = months off x monthly income x discounting x COLA x replacement ratio = PV(income at month 1) + PV(income at month 2)+ ... =  $7,500 \times 85\% \times (1+4\%)^0 / (1+3\%)^{1/12} + 7,500 \times 85\% \times (1+4\%)^1 / (1+3\%)^{2/12} + \dots = 369,199.30$
- Pension costs = no pension payment is assumed
- Rehabilitation costs = 0 since the worker will never return to work.
- Total Theodore Cost = 400,586.39

- (e) Propose incentives to encourage Blades of Steel to better manage the cost of workplace accidents. Justify your answer.

### Commentary on Question:

*The intent of the question is to test candidates' critical thinking of cost management strategies. In general, this question was not well answered by most candidates.*

- Participate in accident prevention program
- Early return to work initiatives
- Experience rating methods:
  - Prospective – the average industry assessment rate is adjusted for an employer by applying discounts or surcharges to the rate for the current year, based on the experience of the employer in past years.
  - Retrospective – assessments are adjusted after the year has passed, by providing refunds or surcharges based on the actual experience of the employer for the year (or years).

## GH FVCC Fall 2021 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020, Ch. 2, 17, 18, 19

GH201-653-25: Telus Health Note: How Much Does that Drug Cost?

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) List and describe the three recommendations of the Canadian Life and Health Insurance Association (CLHIA) to ensure affordable prescription drugs in Canada.

### Commentary on Question:

*All candidates received partial mark on this question, but no full mark was given. No candidate was able to fully recall the three recommendations made by CLHIA.*

To ensure affordable prescription drugs in Canada, the CLHIA recommends:

- That the mandate of PMPRB be reformed to achieve the lowest possible price for Canadians and examine ways to be more aggressive in using value-based pricing approaches to set prices to encourage pharmaceutical innovation.
  - The VBP approach would incorporate a wider set of factors when determining price, such as the burden of the illness in society, whether the drug addresses an unmet need, how innovative the drug is and the wider social benefits it offers.

- Where a brand drug is currently on a provincial formulary and a generic has been approved as bio-equivalent with the Canadian brand reference product by Health Canada, that the generic be automatically interchangeable without the need for additional review by the provinces an automatically listed to prevent the delay in substituting the generic.
  - There can be a lag between the time it takes the generic to be approved and deemed bio-equivalent by Health Canada and the province to list the generic as interchangeable, during which time the more costly brand product continues to be dispensed.
- Regardless of whether a drug is listed on a provincial formulary, generic price caps apply to all generic drug approved for sale within a given province, as generics not listed under the formulary are not subject to the same generic pricing controls as those on formulary.

(b) Calculate the 2021 salary increase that would be cost neutral for ABC. State any assumptions and show your work.

**Commentary on Question:**

*All candidates received partial marks on this question, but no full mark was given. Most candidates did not calculate the appropriate impact for CPP and EI which resulted in marks deducted. Candidates failed to recognize that for higher income earners (i.e. those earning above EI maximum yearly insurable earnings and those earning above YMPE), salary increase has no impact on the employer paid EI / CPP amount.*

	2020 Cost	2021 Cost	Formula for 2020 Cost	
Benefit	\$176,640	\$0	Benefit	$\$176,640 = \$92 \times 160 \times 12$
EI	\$176,888	\$178,295	EI	$\$176,888 = 2.21\% \times (\$40,000 \times 50 + \$50,000 \times 30 + \$56,300 \times 80)$
CPP	\$425,318	\$431,165	CPP	$\$425,318 = 5.45\% \times [(\$40,000 - \$3,500) \times 50 + (\$50,000 - \$3,500) \times 30 + (\$60,000 - \$3,500) \times 40 + (\$61,600 - \$3,500) \times 40]$
WSIB	\$139,500	\$142,037	WSIB	$\$139,500 = 1.55\% \times \$9,000,000$
EHT	\$175,500	\$178,691	EHT	$\$175,500 = \$29,250 + 1.95\% \times (\$9,000,000 - \$1,500,000)$
<b>Total</b>	<b>\$1,093,846</b>	<b>\$930,188</b>	<b>Total</b>	<b>\$1,093,846</b>
Payroll	\$9,000,000	\$9,163,658	2020 payroll	\$9,000,000
<b>Total Cost</b>	<b>\$10,093,846</b>	<b>\$10,093,846</b>	<b>Total Cost</b>	<b>\$10,093,846</b>
Payroll Increase		1.82%		

Using goal seek, calculate the payroll increase in order to maintain the total 2020 cost while reducing benefit amount to \$0  
This gives 1.82%

**Notes**

- Salary increase only impact employer cost for employees under EI maximum yearly insurable earnings of \$56,300
- Salary increase only impact employer cost for employees under Year's Maximum pensionable Earnings (YMPE) of \$61,600
- Salary increase impacts employer cost for all employees under the Annual Maximum Assessable Earning of \$100,000

- (c) Assess the impact of the proposed change for employees. Justify your answer.

**Commentary on Question:**

*All candidates received partial mark on this question, but no full mark was given.*

- Cost-effectiveness of directing funds to salary increase rather than supplemental medical plan depends on the employee's income and work location.
- In most cases, there is a significant advantage for the employee to receive increased supplemental medical benefits as opposed to increased salary given the benefits plan is non-taxable (for most provinces).
- Employees may perceive a greater value in receiving benefits such as physiotherapy coverage, prescription drug coverage, etc. as opposed to receiving a salary increase.
- However, employees with little usage of the plan may perceive a greater value in receiving a salary increase.

- (d) Recommend cost saving options to address the CEO's concern regarding ABC's higher brand drug utilization relative to its peer companies. Justify your answer.

**Commentary on Question:**

*All candidates received partial mark on this question. Most candidates provided recommendation but failed to provide justification.*

- First, ensure that mandatory generic substitution is implemented to ensure payment for the lowest cost alternative.
- Alternatively, offering reimbursement of generics at a more generous level of reimbursement will encourage members and prescribers to use these products over newer, branded products.
- In addition, ABC can use the maximum allowable cost program to target limiting the cost to the lowest therapeutic alternative when more costly but similarly effective agents exist.

## GH FVC Spring 2022 #6.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020

- Ch. 2: Government Pension Programs
- Ch. 19: Employment Insurance

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 4, 5, 6, 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6

### Commentary on Question:

*Overall, this question was well answered by the majority of the candidates. Most candidates demonstrated an understanding of eligibility requirements for EI sickness benefits and CPP disability benefits.*

### Solution:

- (a) Describe the eligibility requirements for Employment Insurance (EI) sickness and Canada Pension Plan (CPP) disability benefits.

#### EI Sickness Benefits – Eligibility Requirements:

- Claimant is required to have worked for 600 hours in the last 52 weeks or since the last claim
- Normal weekly earnings have been reduced by more than 40%

#### CPP Disability Benefits – Eligibility Requirement:

- The individual has contributed to CPP/QPP in four of the last 6 years (3 of the last 6 years if the employee has contributed for 25 or more years)
- Contribution must be on earnings that are at least 10% of the YMPE
- The individual is deemed to have a severe and permanent disability
- The individual is under age 65

- (b) Describe how employer-provided short-term and long-term disability plans interact with government programs.

**Commentary on Question:**

*For full credit, candidates needed to demonstrate their understanding of how EI and CPP interact with employer plans, and how they are uniquely different when interacting with employer plans.*

- Short term disability would act as first payer compared to EI
  - Eligible for EI premium reduction program if plan meets government criteria
  - LTD benefit amount would typically be offset by any CPP disability benefit
- (c) Calculate the total benefit paid from EI and CPP. State any assumptions and show your work.

**Commentary on Question:**

*Overall, candidates demonstrated a good understanding of the benefits calculation. Candidates needed to show their work for full credit. Many candidates understood that benefits are payable for two years but missed the three-month waiting period (and that benefits begin April 1, not December 31).*

Total Benefits paid under EI

EI benefit = 55% of weekly earnings up to YMPE.

So weekly benefit is  $55\% \times \$52,000 / 52 = \$550$

Benefits are paid for a maximum of 15 weeks.

Total benefit paid =  $15 \times \$550 = \$8,250$

Total benefit paid under CPP disability

Payable on the first of the 4<sup>th</sup> month following the date of disability (April 1, 2021). Debbie is disabled till December 31, 2022, so 21 months is payable.

Variable portion is 75% of the contributor's retirement pension and contributor's retirement pension is 25% of their average monthly pensionable earnings  
=  $75\% \times 25\% \times \$2,333$   
= \$437.44 monthly benefit (variable portion only)

CPP benefit =  $\$437.44 + \$511 = \$948.44$

Total benefit paid =  $\$948.44 \times 21 = \$19,917.19$

- (d) Compare and contrast EI maternity and parental benefits.

**Commentary on Question:**

*Candidates needed to list both similarities and differences to get full credit. Many candidates missed the difference that maternity benefits cannot be extended, while parental benefits can.*

Similarities between Maternity and Parental benefits:

- Both are paid for a max number of weeks (15 weeks for Maternity and 35 weeks for Parental)
- To receive both benefits, the claimant is required to have worked for 600 hours in the last 52 weeks or since the last claim
- Both are considered special benefits under EI program

Differences between Maternity and Parental benefits

- Maternity benefits can only be paid to the biological mother, while Parental benefits can be paid to both biological or adoptive parents
- Maternity benefits cannot be shared between parents, while Parental benefits can
- No extended benefits for Maternity benefits while Parental benefits can be extended up to a maximum of 61 weeks taken over up to 18 months at a benefit rate of 33% of average weekly earnings.

- (e) Critique the client's supplemental plan design.

**Commentary on Question:**

*Candidate needed to critique each of the provisions as indicated below for full credit.*

**Provision:** Top up benefits to 90% of pre leave earnings during the first 8 weeks of receiving EI maternity or parental benefits

**Comments:** Supplemental payments are not deducted from EI benefits provided that the payment when added to the employee's EI weekly benefits, does not exceed the employee's normal weekly wage earnings (100% of gross salary). Since the employer is topping benefits to 90%, they are not exceeding the 100% threshold.

**Provision:** Benefits will begin during waiting period (9 weeks of benefits in total)

**Comments:** Supplemental plans can be paid during the EI waiting period without affecting the start of the EI benefits. This provision ensures that there are no gaps in pay when an employee goes on maternity or parental leave

**Provision:** The top up amount paid will reduce any sick bank amounts up to the current balance

**Comments:** Supplemental payments are not deducted from EI benefits provided that the payment is not used to reduce other accumulated employment benefits such as banked sick leave, vacation leave credits, or severance pay. The employer should consider changing this provision.

- (f) Calculate the total amount Margaret will receive from her employer supplemental plan and from EI during her time off work. State any assumptions and show your work.

**Commentary on Question:**

*This part of the question required candidates to state an assumption on the salary (any reasonable salary assumption was accepted) and perform the calculations based on that salary. Many candidates struggled to fully demonstrate how the top-up supplemental plan interacted with EI and the company's current benefit plan. Although a chart/table was used to illustrate the model solution, it was not necessary to receive full credit for this question.*

Assumed Salary: \$52,000 annual

EI Benefit

EI benefits payable for 25 weeks, with one week waiting period.

Maternity benefit for 15 weeks, Parental benefit for 10 weeks, up to \$638 weekly maximum:

Benefit =  $52,000/52 \times 0.55 = \$550$

Total Benefits Margaret is eligible for

Supplementary Plan:

Top up benefits to 90% of pre-leave earnings will be provided during the first 8 weeks of receiving EI maternity or parental benefits

Benefits of 90% of pre-leave earnings will also be provided during the EI waiting period

No benefits for remainder of EI benefit period (week 10 – 26)

Goal: 90% salary income replacement for first 9 weeks.

Total =  $52,000/52 \times 0.9 = \$900$  for week 0 – 9,

Only eligible for EI from week 10 – 26 (\$550)

Employer paid

The "top-up", or difference between total benefits Margaret should be eligible under the top-up plan benefits design and amount paid by government plan.

Total Paid by EI: \$13,750

Total Paid by Employer: \$3,700

See table below for full calculation

<b>Week</b>	<b>EI</b> (a)	<b>Total</b> (b)	<b>Employer</b> (c) = (b) - (a)
1	0.00	900.00	900.00
2	550.00	900.00	350.00
3	550.00	900.00	350.00
4	550.00	900.00	350.00
5	550.00	900.00	350.00
6	550.00	900.00	350.00
7	550.00	900.00	350.00
8	550.00	900.00	350.00
9	550.00	900.00	350.00
10	550.00	550.00	0.00
11	550.00	550.00	0.00
12	550.00	550.00	0.00
13	550.00	550.00	0.00
14	550.00	550.00	0.00
15	550.00	550.00	0.00
16	550.00	550.00	0.00
17	550.00	550.00	0.00
18	550.00	550.00	0.00
19	550.00	550.00	0.00
20	550.00	550.00	0.00
21	550.00	550.00	0.00
22	550.00	550.00	0.00
23	550.00	550.00	0.00
24	550.00	550.00	0.00
25	550.00	550.00	0.00
26	550.00	550.00	0.00
<b>Total</b>	<b>\$ 13,750</b>	<b>\$ 17,450</b>	<b>\$ 3,700</b>

## GH FVC Fall 2022 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016 (Current study note: GH201-721-25)

GH201-710-25: Termination of Benefits Coverage at Age 65 Declared Unconstitutional

GH201-671-25: CHLIA Guideline G4 - Coordination of Benefits

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016, Ch. 19: Employment Insurance

### Commentary on Question:

*Understanding of QPIP, Maternity leave and EI is required for this question. Candidates needed to share the key components of these programs and their relationship.*

### Solution:

- (a)
  - (vii) Describe the Tribunal conclusions in Cassel's paper.
  - (viii) Explain how the Tribunal decisions can be applied to ABC.

### Commentary on Question:

*Candidates generally were unable to fully describe the Tribunal's conclusions, but were able to partially apply the conclusions to ABC.*

- (i)
- The Tribunal concluded that the financial viability of workplace benefit plans can be achieved without making the age 65 and older employees vulnerable to the loss of employment benefits without recourse to a potential human rights claim. These workers' rights were found to be more than minimally impaired.
  - The Tribunal also concluded that the benefits lost sought by the teacher (of approximately \$160,000) had no close relationship between health and dental costs and age.
  - The Tribunal determined that there were other alternatives available to the government that would impair the rights of workers age 65 and older to a lesser degree. An example was to require that any age-based differentiations in benefits plans be reasonable and bona fide with a protection against undue hardship available to employers.
  - The Tribunal did note that its decision is limited to group health, dental and life insurance benefits plans and that LTD and pension plans were not included in the constitutional challenge.
- (ii)
- The decision by the Tribunal can be applied to the health plan and therefore ABC's health plan should not be terminated at age 65. The case was not limited to LTD, but could open the door to future challenges that allege age discrimination in relation to other group benefits, including Long Term Disability.

- (b) Explain the drug coverage choices for both Kevin and Ella when Kevin will attain age 65.

**Commentary on Question:**

*Candidates were generally able to outline the choices for both Kevin and Ella in Quebec. The relationship between private plans and RAMQ is the key component to this question and candidates should be able to share the interplay between both programs.*

- Upon reaching age 65, Kevin will automatically be registered for the public plan (RAMQ). Therefore, he can choose to be insured by the public plan only.
- When employees or retirees reach age 65, they continue to be eligible for coverage under a private group plan that covers prescription drugs as it cannot exclude persons based on their age. Thus, Kevin and Ella can still choose to be covered under the private plan which must offer at least basic coverage.
- They then can choose to be insured by the public plan as the first payor and by a private plan offering supplemental coverage as a second payor.

- If Kevin chooses to keep the private plan, Ella can still be covered under the private plan through ABC. If Kevin chooses the public plan only, Ella will lose coverage through ABC's private plan. If she is eligible for a different private plan, she must be covered under that private plan, if not, she'll be covered under the public plan.

(c) Recommend which scenario from part (b) Kevin and Ella should select in order to minimize the out-of-pocket cost. State any assumptions and show your work.

**Commentary on Question:**

*Candidates were able to determine the out-of-pocket costs for the public plan well. Some candidates were unable to determine the out-of-pocket expense for the private plan, but most did not include the appropriate premium taxes. Candidates mostly did not calculate the out-of-pocket expense for the environment for both the public and private plan together. Candidates needed to show understanding in how taxes may be applied to the private plan premiums.*

	Public Plan pay	Private Plan Pay	Kevin pay	Premium	Tax	Total Premium Paid	Total
Scenario - public plan only	\$996.45	\$0.00	\$803.55	\$1,420.00	0.00%	\$1,420.00	\$2,223.55
Scenario -private plan only	\$0.00	\$1,620.00	\$180.00	\$1,122.00	9.00%	\$1,222.98	\$1,402.98
Scenario -both public and private	\$996.45	\$803.55	\$0.00			\$2,642.98	\$2,642.98

Kevin and Ella should choose the private plan only since the disbursed amount is the lowest compared to the other 2 options (i.e. public plan only and both public/private)

- Under the public plan:
  - $Kevin\ pays = 12 \times (\text{minimum of } \$96.74 \text{ or } 35\% \text{ of } \$150 \text{ less } \$22.25)$
- Under the private plan
  - $Kevin\ pays = \text{minimum of } \$1,000 \text{ or } 12 \times 10\% \times \$150$

(d) Compare and contrast the maternity benefit under EI versus the Quebec Parental Insurance Plan (QPIP).

**Commentary on Question:**

*Candidates were able to note some of the features of both Maternity EI benefits and QPIP, but did not provide enough information to gather full marks. To achieve full marks, candidates should show understanding in eligibility, length of benefits and the benefit amounts, including different options available.*

- Similarity:
  - The maternity benefit under EI and QPIP is payable only to the biological mother.

- Differences:
    - Length of benefits:
      - Maternity benefits under EI are payable for a maximum 15 weeks.
      - There are no extended benefit options under EI
      - Maternity benefits under QPIP are payable for 18 weeks under the basic plan and 15 weeks under the special plan
    - Benefit Amount
      - Maternity benefits under EI has a basic benefit rate of 55% of the individual's average insured weekly earnings up to a maximum amount with a 1 week elimination period
      - QPIP benefits could be as high as 75% of average weekly income starting without a waiting period
    - Eligibility
      - To receive benefits under EI, the claimant is required to have worked for 600 hours in the last 52 weeks or since the last claim
      - Maternity benefits under QPIP, a QC resident who has a biological or adopted child needs to have at least \$2000 of insurable income during the reference period and must have stopped working or have seen a reduction of at least 40% in their usual employment income
- (e) Calculate the maximum pre-tax replacement ratio that Maria and Leo can receive during the first 52 weeks of the leave. State any assumptions and show your work.

**Commentary on Question:**

*Many candidates did not attempt this question. Those who did generally were unable to adequately calculate all components of the benefit. Candidates needed to share an understanding of which parent should receive which benefit, which weekly earnings to consider and the length of benefits to receive full marks.*

		Unemployment Rate	Number of Best Weeks Required for Benefit Calculation		
	Toronto	7.9	20		
	20 best weeks will be required to calculate the average weekly earnings for both Mario and Leo				
		<b>Maria</b>	<b>Leo</b>		
	The sum of top 20 weekly earning	\$34,615	\$16,812		
	Average weekly earning	\$1,731	\$841		
	Average weekly benefit	\$652	\$462		
	2023 maximum yearly insurable earnings		\$61,600		
	Maximum weekly amount		\$652	Per week	
	Starting 2023-01-01	<b>Maria</b>	<b>Leo</b>	<b>Total</b>	<b>Replacement Ratio</b>
Week 1	Maria starts to take maternity leave. EI one week elimination. Total income = one week salary from Leo	\$0	\$865	\$865	1%
Week 2-16		\$9,773	\$12,981	\$22,754	17%
	Parental leave:				
	To maximize the replace ratio, standard option must be chosen. 35 weeks for parental benefits if standard option is chosen. If the parental benefits are shared between the two partners, an additional five weeks are payable when choosing the standard option.				
Week 17-51		<b>Maria</b>	<b>Leo</b>	<b>Total</b>	<b>Replacement Ratio</b>
	If Maria takes 35 weeks parental leave	\$22,804	\$30,288	\$53,092	39%
	If Leo takes 35 weeks parental leave	\$60,577	\$16,181	\$76,758	57%
	In order to receive the maximum replacement ratio, it's better that Leo take the 35 weeks of parental leave.				
Week 52					
	If the parental benefits are shared, an additional five weeks are payable.				
	Maria can take the parental leave in week 52	\$652	\$865	\$1,517	1%
	Total Income in 2023	\$101,894			
	Pre Annual Salary	\$135,000			
	Replacement Ratio	75%			75%

## GH FVC Fall 2022 #11.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020, Ch. 2: Government Pension Programs (pp. 44-64, Canada & Quebec Pension Plans)

### Commentary on Question:

*This question was testing the candidate's ability to understand the changes to the CPP/QPP programs starting in 2019. It was important for candidates to both understand how the new structure works as well as know what the specific contribution rates and maximums are. Candidates did well on certain parts of the question, but struggled to put it all together.*

### Solution:

- (a) List and describe the types of benefits provided by the Canada and Quebec Pension Plans (CPP/QPP).

### Commentary on Question:

*Full credit was given for answering survivor benefit or benefit for dependent children. Many other descriptions were accepted.*

- Retirement Pension
  - The normal commencement age for a CPP/QPP retirement pension is age 65, but early retirement is possible for a pension contributor who has reached the age of 60.
- Disability Benefits
  - CPP/QPP disability benefits comprise a pension to the disabled contributor and a pension to dependent children who meet certain conditions.
- Survivor Benefits
  - Under a CPP/QPP, survivor benefits are paid to a surviving spouse or common-law partner, dependent children, and a deceased contributor's estate.
  - There are three different types of benefits: the survivor's pension, the dependent children's benefit and death benefits.

- Death Benefits
    - A lump-sum death benefit is also payable upon the death of a contributor, under the same eligibility provisions as for the survivor pension.
- (b) In 2016, the Canadian Federal and Provincial Finance Ministers agreed to expand the Canadian Pension Plan (CPP) between years 2019 and 2025.

List the key developments as a result of this agreement.

**Commentary on Question:**

*Candidates needed to mention 4 out of the 5 items below to get full credit.*

- The CPP replacement rate on pensionable income was set to increase from 25% to 33% on service accrued after January 1, 2019. This change is being phased-in over a five-year period from 2019 to 2023.
  - Over the same five-year period (from 2019 to 2023), the basic CPP contribution rate on earnings up to the YMPE is being increased by 1% for both employers and employees (increasing from 9.9% in year 2018 to 11.9% in year 2023).
  - A new tier of pensionable earnings will be introduced in 2024 called the Year's Additional Maximum Pensionable Earnings (YAMPE). The YAMPE will be 107% of the YMPE in 2024 and will be 114% of YMPE in 2025 and thereafter.
  - The contribution rate on pensionable earnings above the YMPE and below the YAMPE will be 4% of earnings for both employers and employees (8% in total), and these contributions will be tax-deductible, as opposed to being eligible for tax credits.
  - In 2017, the Quebec government tabled new provisions to enhance the QPP. The provisions of the additional QPP components are practically identical to the provisions of the CPP expansion and additional CPP components.
- (c) Calculate the difference in Another Day's CPP contributions for its current active employees between year 2018 before CPP enhancements and 2025 after changes are fully implemented. State any assumptions and show your work.

**Commentary on Question:**

*Many candidates missed the YAMPE or incorrectly applied it. Many candidates incorrectly increased the contribution rate to 12.9% instead of 11.9% in 2025.*

The CPP contribution rate will increase gradually every year from 2019 to 2023. The new tier of pensionable earnings will be introduced in 2024 and will be fully implemented in 2025. Therefore, prior the enhancement is year 2018 and after the enhancement is year 2025.

Age	Annual Salary	Total	2018		2025			Difference	1 point for no contribution for age 75. *Contributions for the CPP/QPP are required from persons who earn in excess of 3500 annually from attainment of age 18 to the date of death, commencement of retirement pension, or attainment of age 70, whichever comes first."	YBE	YMPE	Contribution Rate	Another Day's contribution Rate
			Maximum Contribution Earnings YMPE-YBE	Another Day's Contribution	Maximum Contribution Earnings YMPE-YBE	New tier	Another Day's Contribution-first tier						
25	\$50 000	225	\$46 500	\$517 894	\$46 500	-	622 519	\$0					
35	\$65 000	400	\$52 400	\$1 037 520	\$61 500	-	1 463 700	\$0					
45	\$80 000	425	\$52 400	\$1 102 365	\$71 630	4 870	1 811 340	\$82 792					
53	\$85 000	15	\$52 400	\$38 907	\$71 630	9 870	63 930	\$5 922					
55	\$100 000	325	\$52 400	\$842 985	\$71 630	10 518	1 385 142	\$136 736					
57	\$90 000	10	\$52 400	\$25 938	\$71 630	10 518	42 620	\$4 207					
65	\$105 000	75	\$52 400	\$194 535	\$71 630	10 518	339 648	\$31 555					
75	\$110 000	25	\$0	\$0	\$0	-	\$0	\$0					
<b>Total</b>		<b>1 500</b>		<b>\$3 760 144</b>			<b>\$5 708 899</b>	<b>\$261 213</b>	<b>\$2 209 968</b>				

(d) Calculate the monthly CPP disability benefits payable to John. State any assumptions and show your work.

**Commentary on Question:**

*Candidates did either very well or very poor on this part. Candidates either knew the formulas for disability benefit or did not.*

- Step (1) Calculating the adjusted average pensionable earnings (2018-2022): \$59,700
- Step (2) For each month in the contributory period, the adjusted pensionable earnings are calculated by multiplying the actual pensionable earnings for the month by the ratio of the average YMPE for the retirement year to the YMPE for the year in which the earnings were paid.
- Step (3) Total the adjusted monthly pensionable earnings for the whole contributory period and then divide the total by the number of months in the period to give the average adjusted monthly pensionable earnings: \$3,766
- Step (4) The monthly CPP retirement pension is 25% of the average monthly adjusted pensionable earnings and it is capped at the maximum of  $\$940.19 / 0.75 = \$1,253.59$   
 $\Rightarrow$  CPP retirement pension =  $\text{Min} (\$3,766 \times 25\%; 1,253.59) = \$941.57$
- Step (5) Monthly CPP disability benefit for John is equal to a flat-rate pension plus an earnings-related component equal to 75% of the contributor's retirement pension:  $\$524.64 + 0.75 \times \$941.57 = \$1,230.82$   
 $\Rightarrow$  CPP disability benefit =  $\text{Min} (\$1,464.83; \$1,230.82) = \$1,230.82$

(e) Explain two possible reasons for Ella's rejection for CPP disability benefits. Justify your answer.

**Commentary on Question:**

*Only 2 of the 3 points were needed for full marks. Few candidates incorrectly said Ella was not a resident and therefore did not receive CPP benefits, which would not be true since eligibility relies on the years of contribution.*

- Eligibility: He or she must have contributed to the CPP in four of the last six years on earnings that are at least 10% of the YMPE to be entitled to these disability pensions under the CPP.
  - Comment: As Ella started CPP contribution from 2020, she only contributed to the CPP less than 3 years. Therefore, she is not eligible."
- Eligibility: Bill-36 reduced the CPP contribution requirement to three of the last six years, but only if a contributor has contributed for at least 25 years.
  - Comment: As Ella only started to make CPP contributions from 2020, she is not eligible."
- Eligibility: These pensions are payable to a contributor who has a severe and permanent disability, and the contributor is unable to engage in any substantially gainful occupation with earnings in excess of \$5,800 per year in 2020.
  - Comment: Ella's condition is not provided. Even though she qualifies for disability benefits under Another Day's plan, her disability status may not meet the severe or permanent threshold of the CPP plan."

## GH VRC Spring 2023 #2.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020

- Ch. 2: Government Pension Programs
- Ch. 17: Provincial Hospital and Medical Insurance Plans

GH201-694-25: Guide to Canada Benefits Legislation

GH201-695-25: A Joint Statement From the pan-Canadian Pharmaceutical Alliance and the Canadian Generic Pharmaceutical Association

Biosimilars in Canada: building momentum in the wake of recent switching policies

### Commentary on Question:

*This question tested the candidates on their knowledge of public insurance coverage in Canada, the benefits that they provide, and how they integrate with private coverage.*

### Solution:

- (a) Compare and contrast how the provincial health insurance plans are financed in Ontario and in British Columbia (BC).

### Commentary on Question:

*Candidates generally received partial credits, but very few had full credits. Most candidates were able to mention provinces financing through general revenues and employer health tax, but few wrote about the federal transfer payments. Many candidates had difficulty identifying which province charged a health premium or not.*

### Similarities

- In both BC and Ontario, provincial hospitals and medical plans that meet the criteria of the Canada Health Act are financed in part from the federal government through transfer payments.
- Each province has established a method of financing the balance of the costs that are not covered by federal funding.

- In both provinces, the plan is financed through general revenues of the province and an Employer Health Tax (EHT)

#### Differences

- In addition to the general revenues of the province and an EHT, Ontario also funds its health plan with health premiums, while BC removed the individual premiums for their Medical Service Plan (MSP) and replaced it with an employer health tax

- (b) List and describe the main updates contained in the 2018 Joint Statement of the pan-Canadian Pharmaceutical Alliance (pCPA) and the Canadian Generic Pharmaceutical Association (CGPA).

#### **Commentary on Question:**

*Naming at least four of the items below with an accurate description of each was enough to obtain full credits, which some candidates were able to accomplish. Other candidates wrote about general actions to take to reduce costs unrelated to the specified joint statement and then scored lower with partial credits.*

#### Inclusion of most Canadians

- 5- year initiative that would apply for all Canadians who use prescription generic drugs, participating public drug plans, and employee drug plans.

#### Stabilize Supply

- Generic drugs covered in the initiative are manufactured by multiple generic companies, helping to ensure a stable supply.

#### Improve Costs

- As of April 1, 2018, the prices of nearly 70 of the most commonly prescribed drugs in Canada will be reduced by 25%-40%. Applies to generic drug only.
- Savings estimated to be \$3 billion over the next 5 years, through a combination of price reductions and launch of new generic drugs.

#### Target Highly Utilized Drugs

- Includes drugs used to treat high cholesterol, high blood pressure and depression.

#### Improve Canada's position in relation to international generic drug prices.

- Building on previous pCPA and CGPA efforts, Canada's generic drug prices decreased by an average of 48% between 2010 and 2015.

#### Unify Tendering

- Brings provinces, territories, and federal drug plans together to negotiate prices for publicly covered drugs.
- Tendering will not be pursued by the participating drug plans.

- (c)
- (i) Assess if Nancy's family is eligible for reimbursement under any of the public plans in Ontario. Justify your answer.
  - (ii) Calculate the claim amounts paid by ABC, the Ontario public plans and Nancy's family from August 2022 to July 2023. State any assumptions and show your work.

**Commentary on Question:**

*Several candidates correctly identified that Nancy's family was eligible for TDP, but not OHIP+. However, very few candidates correctly adjudicated claims using a quarterly deductible. Some candidates did not understand that \$4,000 was a plan maximum, and not an OOP max. Note that there was no point deduction for considering that the January 15 claim was either incurred in 2021 or 2023.*

- (i) Nancy's family is eligible for Trillium Drug Plan (TDP).
  - The plan was designed to assist Ontario Residents who have high prescription drug cost in relation to their net household income.
  - Those who don't have private insurance, or their private insurance doesn't cover 100% of their drug costs, may register in the program. The annual drug cost is above the 4% of the family's net income.
  - OHIP+ only apply to children and youth who do not have a private plan.
- (ii)
  - The annual deduction is  $\$4,800 = (\$55,000 + \$65,000) * 4\%$ .
    - The deductible is paid quarterly throughout the benefit year, August to July.
  - ABC health plan is the first payer, and it pays until Nick reaches the plan maximum: \$4,000
  - Nancy's Family pays until they reach the deductible of the Trillium Drug Plan.
    - In addition to the \$1,200 quarterly deductible, there is a \$2.00 per prescription deductible: \$4,828
  - Trillium drug plan pays the rest: \$10,692

Quarter	Claim amounts	Rx count	ABC payments	Nancy pays up to quarterly ded.	Nancy pays Rx Copay	TDP pays
Q1: Aug-Oct	\$5,700	4	\$4,000	\$1,200	\$8	\$492
Q2: Nov-Jan	\$4,820	4	-	\$1,200	\$8	\$3,612
Q3: Feb-Apr	\$4,500	3	-	\$1,200	\$6	\$3,294
Q4: May-Jul	\$4,500	3	-	\$1,200	\$6	\$3,294
Total	\$19,520	14	\$4,000	\$4,828		\$10,692

- (d) Calculate the difference in paid amount in 2023 by BC Pharmacare, ABC and John if John uses Remicade or Inflectra for all of 2023. State any assumptions and show your work.

**Commentary on Question:**

*This part tested the knowledge of candidates on BC biosimilar switching policies and very few correctly calculated that BC would not cover Remicade at all. Candidates usually scored better on the calculation for the Inflectra payment amounts. However, no candidates calculated the correct deductible and OOP max by using the salary from two years ago and many candidates did not calculate the difference in the payment amounts.*

Fair Pharmacare used income tax data from two years prior.

- Therefore, the net income in year 2021 is used to determine 2023's family deductible.
- John's 2021 net income:  $\$100,081.32 = \$120,000 / (1.095^2)$
- Deductible is \$3,000 and OOP maximum is \$4,000 for 2023

Since May 2019, BC has launched non-medical biosimilar switching policies requiring patients to use biosimilars of approved indications.

- Remicade is not paid by the public plan, but it will pay for the biosimilar Inflectra.

Option 1: using the originator Biologic Remicade costing \$37,330

- Pharmacare pays nothing.
- BC Pays  $\$36,930 = (\$2,000 \times 0.8) + ((\$37,330 - \$2,000) \times 100\%)$
- John pays  $\$400 = \$37,330 - \$36,930$

Option 2: using the biosimilar Inflectra

- Pharmacare is first payer and will pay once John meets the deductible of \$3,000.
- The OOP maximum will be reached when drug cost is above  $\$6,333.33 = (\$4,000 - \$3,000) / 0.3 + \$3,000$ .
- Inflectra cost:  $\$19,859.56 = \$37,330 \times (1 - 0.468)$

- Pharmacare pays  $\$15,859.56 = (0.7 \times (\$6,333.33 - \$3,000)) + (100\% \times (\$19,859.56 - \$6,333.33))$
- ABC and John will pay the remaining  $\$4,000 = \$19,859.56 - \$15,859.56$
- ABC Pays  $\$3,600 = (\$2,000 \times 0.8) + ((\$4,000 - \$2,000) \times 100\%)$
- John Pays  $\$400 = \$4,000 - \$3,600$

Differences between options 1 and 2

- Pharmacare pays  $\$15,859.56$  more with Inflectra ( $\$15,859.56 - 0$ )
- ABC pays  $\$33,330$  less with Inflectra ( $\$3,600 - \$36,930$ )
- John pays the same amount with Inflectra ( $\$400 - \$400$ )

(e)

- Describe the qualifying conditions for CPP disability benefits.
- Calculate the net monthly disability benefit that Kevin will receive from ABC if he is approved for CPP. State any assumptions and show your work.

**Commentary on Question:**

*This part of the question tested knowledge on the calculation of retirement and disability benefits under CPP. Candidates generally did well on this part. Many candidates lost points for not weighing adjusted monthly earnings by contributory months.*

Step 1: Calculating the adjusted average pensionable earnings (2019-2023)

- Average YMPE  $\$62,149 = (57,400+58,700+61,600+64,900+68,145)/5$

Step 2: For each month in the contributory period, the adjusted pensionable earnings are calculated by multiplying the actual pensionable earnings for the month by the ratio of the average YMPE for the retirement year to the YMPE for the year in which the earnings were paid.

Candidates need to adjust 2023 earning by the contributory months.

Year	Adjusted Ratio	Adjusted Monthly Earnings	Contributory Months
2017	$1.12 = 62,149/55,300$	$3,746 = 1.12 \times 40,000/12$	12
2018	$1.11 = 62,149/55,900$	$3,938 = 1.11 \times 42,500/12$	12
2019	$1.08 = 62,149/57,400$	$4,060 = 1.08 \times 45,000/12$	12
2020	$1.06 = 62,149/58,700$	$4,191 = 1.06 \times 47,500/12$	12
2021	$1.01 = 62,149/61,600$	$4,204 = 1.01 \times 50,000/12$	12
2022	$0.96 = 62,149/64,900$	$4,389 = 0.96 \times 55,000/12$	12
2023	$0.91 = 62,149/68,145$	$4,940 = 0.91 \times 65,000/12$	4

Step 3: Sum the adjusted monthly pensionable earnings for the whole contributory period and then divide the total by the number of months in the period to give the average adjusted monthly pensionable earnings.

- $\$4,132.81 = \text{SUMPRODUCT}(\text{Adjusted Monthly Earnings, Contributory Months}) / \text{SUM}(\text{Contributory Months})$

Step 4: The monthly CPP retirement pension is 33.33% (was 25% before the CPP enhancement) of the average monthly adjusted pensionable earnings.

- $\$1,377.47 = \$4,132.81 \times 33.33\%$

Step 5: CPP for Kevin is equal to a flat-rate pension plus an earnings-related component equal to 75% of the contributor's retirement pension up to the maximum of \$1,464.83

- $\$1,464.83 = \text{Min}(\$1,464.83 ; \$524.64 + (75\% \times \$1,377.47))$

Step 6: Calculate ABC's net monthly disability benefit.

- $\$2,146.46 = \text{Min}(\$5,000 ; 66.67\% \times \$65,000 / 12) - \text{CPP disability benefit of } \$1,464.83.$

## GH VRC Spring 2023 #5.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016 (Current study note: GH201-721-25)

GH201-648-25: Canadian Life and Health Insurance Industry Agreement to Protect Canadians' Drug Coverage

### Commentary on Question:

*This question is designed to test candidates' knowledge of the drug pooling mechanism available in Canada. More specifically, candidates are asked to demonstrate an understanding of the interaction between different pooling arrangements.*

### Solution:

- (a) Critique the CEO's statements. Justify your answer.

### Commentary on Question:

*Candidate needed to critique the CEO's statement and justifications were required for full credit. Not all points listed below were required for full credit.*

- The CEO's statement is incorrect because ABC carries an EP3 certificate, and EP3 addresses the key principles for affordability, availability and transferability of coverage.
- Participating insurers of Canadian life and health insurance industry agreement cannot experience rate based on the number or value of pooled drug claims for ABC because ABC's current plan carries an EP3 certificate.
- Participating insurers cannot renew existing employers based on their own pooled drug claims experience, nor can they experience rate new business from another participating insurer based on that employer's own pooled drug claims.

- In Quebec, all insurers, including administrators in the case of self-insured plans, must pool the risks of groups of less than 6,000 certificates.
- In addition, the Canadian life and health insurance industry agreement addresses the CEO's concerns by:
  - Insulating eligible groups from the full financial impact of rare, but recurring, high-cost drug claims. Particularly beneficial to small and medium-sized businesses, who do not typically have the financial resources to absorb a significant increase in premiums.

- Allowing employers more ability to shop around for a new provider at reasonable prices, even if they experience a recurring high-cost drug claim.
- (b) Explain how the Canadian life and health insurance industry pooling agreement protects the EP3 and Industry Pool from anti-selection under the following two scenarios:

**Commentary on Question:**

*Candidates needed to explain the protections applicable to each scenario to get full credit.*

- (iii) An Administrative Services Only (ASO) group with claims greater than the ongoing threshold in prior years wants to become fully-insured.
- Mandatory exclusion from both EP3 and Industry Pool.
  - Exclusion must be removed if certificate subsequently falls below Ongoing Threshold for two consecutive years
- (iv) A plan sponsor wants to introduce drug coverage for its employees.
- The insurer can offer EP3 coverage.
  - At the end of year one, all high-cost claims must be audited by the insurer to establish if pre-existing.
  - Must exclude all pre-existing claims as per rules outlines below:
    - Claims greater than ongoing threshold in prior year: mandatory exclusion from both EP3 and Industry Pool. Exclusion must be removed if certificate subsequently falls below ongoing threshold for two consecutive years.
    - Claims less than ongoing threshold but greater than EP3 threshold in prior year: optional exclusion from EP3 pool; pre-ex can be removed; if excluded from EP3 pool must be excluded from Industry Pool.
- (c) Describe how the pooled drug claims cost is shared among participating insurers in the following pools:
- (iii) Canada Drug Insurance Pooling Corporation (CDIPC)
- (iv) Quebec Drug Insurance Pooling Corporation (QDIPC)

**Commentary on Question:**

*Candidates were not penalized by not listing all provinces in each pool under the CDIPC or knowing the exact claims strata for QDIPC.*

(iii) Canada Drug Insurance Pooling Corporation

- Three industry pools are proposed based on differences in provincial drug programs:
  - (i) Pool 1- Residents of Alberta, Ontario, Nova Scotia, New Brunswick, Newfoundland and Labrador, Prince Edward Island, Yukon, North West Territories and Nunavut;
  - (ii) Pool 2- Residents of Quebec;
  - (iii) Pool 3- Residents of British Columbia, Manitoba and Saskatchewan
- The total pooled drug claims will be shared by all participating insurers based on their market share of total paid drug claims for all insured business in applicable provinces.

(iv) Quebec Drug Insurance Pooling Corporation

- A formula using cumulative strata is used.
- With this formula, claims below \$16,500 (in 2022) are pooled only among groups with fewer than 50 certificates.
- Claims between \$16,500 and \$32,500 are pooled among the first strata (fewer than 50 and 50 to 124 certificates) while claims above 300,000 are pooled among all strata in 2022, except the last one (6,000 certificates or more).

(d) Calculate the 2022 claims paid by the following:

- (i) HealthierPlus Insurance Company
- (ii) QDIPC
- (iii) CDIPC

**Commentary on Question:**

*Candidates were not required to describe their thought process as outlined in the solution below for full credit.*

### Quebec Drug Insurance Pooling Corporation (QDIPC)

- (4) The number of certificates used to determine the QDIPC pooling threshold is based on participants from all provinces. Therefore, the pooling threshold is \$55,000 because there are a total of  $125 \div 45 = 170$  certificates.
- (5) The QDIPC only recognizes the participants reside in the province of Quebec.
- (6) The amount of claims pooled by QDIPC is the amount of paid claims above the QDIPC threshold.

Certificate	Province	2022 Claims	QDIPC Pooling Threshold	QDIPC Pooled Amount
Certificate 1	Quebec	150,000	\$55,000	\$95,000
Certificate 2	Quebec	165,000	\$55,000	\$110,000
Certificate 3	Quebec	34,000	\$55,000	\$0
Total				<b>\$205,000</b>

### Canada Drug Insurance Pooling Corporation (CDIPC)

- (3) Pooling is at a certificate level, and to qualify for the CDIPC pool, the certificate must exceed the initial threshold for at least two consecutive years. In year two and in each subsequent year where the drug certificate exceeds the ongoing threshold will be pooled.
- (4) The amount of claims pooled by CDIPC is the amount of paid claims above the ongoing threshold reduced by the coinsurance. A maximum amount of \$500,000 must also be considered.

Certificate	Province	2022 Claims	QDIPC Pooling Threshold	CDIPC Ongoing Threshold	CDIPC Eligible Expenses	CDIPC Pooled Amount
Certificate 1	Quebec	\$150,000	\$55,000	n/a	n/a	\$0
Certificate 2	Quebec	\$165,000	\$55,000	\$32,500	$=\$55,000 - \$32,500 = \$22,500$	$=\$22,500 * 85\% = \$19,125$
Certificate 3	Quebec	\$34,000	\$55,000	n/a	n/a	\$0
Certificate 4	Ontario	\$100,000	n/a	\$32,500	$=\$100,000 - \$32,500 = \$67,500$	$=\$67,500 * 85\% = \$57,375$
Certificate 5	Ontario	\$22,000	n/a	n/a	n/a	\$0
Certificate 6	Ontario	\$75,000	n/a	n/a	n/a	\$0
Certificate 7	Ontario	\$750,000	n/a	\$32,500	\$717,500	Maximum of \$500,000 reached
Total						<b>\$576,500</b>

### HealthierPlus Insurance Company

- (3) The amount of claims paid by HealthierPlus Insurance Company is the amount of claims not pooled by either QDIPC or CDIPC.
- (4) Total cost to HealthierPlus includes pooled claims and non-pooled claims.

Certificate	Province	2022 Claims	QDIPC Pooled Claims	CDIPC Pooled Claims	HealthPlus Insurance Co.
Certificate 1	Quebec	\$150,000	\$95,000	\$0	\$55,000
Certificate 2	Quebec	\$165,000	\$110,000	\$19,125	=\$165,000 - \$110,000 - \$19,125
Certificate 3	Quebec	\$34,000	\$0	\$0	\$34,000
Certificate 4	Ontario	\$100,000	n/a	\$57,375	\$42,625
Certificate 5	Ontario	\$22,000	n/a	\$0	\$22,000
Certificate 6	Ontario	\$75,000	n/a	\$0	\$75,000
Certificate 7	Ontario	\$750,000	n/a	\$500,000	\$250,000
All Other Certificates					=\$960*(125+45-7)
Total					\$670,980

## GH VRC Fall 2023 #2.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

GH201-706-25: PMPRB-Framework Modernization

Biosimilars in Canada: Building Momentum in the Wake of Recent Switching Policies

Expert Panel: How National Dental Care Could Impact Group Benefits Plans

### Commentary on Question:

*This question focused on testing candidates' understanding of the PMPRB and National Dental Program. Candidates that excelled at this question demonstrated a well-rounded understanding of how each of these frameworks worked.*

### Solution:

- (a)
  - (i) Describe the mandate of the Patented Medicines Prices Review Board (PMPRB).
  - (ii) List challenges faced by the PMPRB.

### Commentary on Question:

*Not all points listed below was required for full credit. Many candidates focused on cost-related issues for the PMPRB. Pointing out PMPRB's involvement with research and development for part (i) and pointing out non-cost related aspects of challenges (i.e., Dated framework) for part (ii) was required for full credit.*

- (i)
  - To ensure that prices at which patentees sell their patented medicines in Canada are not excessive.
  - To report on pharmaceutical trends of all medicines and on research and development spending by patentees.
  
- (ii)
  - Canadian payers struggle to cope with the influx of high-cost drugs and often have to ration access.
  - Given the systemic fragmentation, Canada is unable to leverage the national buying power in the same way as other countries.
  - All payers, national or international, have little leverage in negotiating for the drugs that have few or no therapeutic options.
  - The framework is dated:
    - Further strengthen IP regime, higher prices and lower domestic R&D investment.
    - Inflated list prices and non-transparent rebates.
    - Specialty therapies increasingly dominating the drug landscape.
    - Medicines priced for value, a factor not currently in PMPRB toolbox.
    - A risk-based approach required for medicines with the most market power.
    - Premium priced comparator countries, including the US.
  - Challenge related to biosimilars: An investigation into the pricing of patented biosimilars will only be initiated if a complaint is filed.
  
- (b) List and describe the proposed changes to the Patented Medicines Regulations to protect Canadians from excessive prescription drug prices.

**Commentary on Question:**

*Candidates had to list and briefly describe the proposed changes for full credit. A full description (similar to what is listed below) was not necessary for full credit. Partial credit was given where candidates only listed the proposed changes.*

- Benchmarking prices against countries that are more like Canada economically and from a consumer price protection standpoint. The existing basket consists of 7 countries; it is proposed to include additional comparator countries and to drop 2 outliers.

- Regulating at the level of the actual prices being paid in Canada and not just the non-transparent manufacturer list prices.
    - As a result of significant discounts and rebates to third-party payers, actual prices paid in the market are significantly lower than list prices.
    - Without access to this information, the PMPRB is left to set its domestic price ceilings based on inflated prices.
  - Considering the value and the overall affordability of a medicine when setting the maximum price.
    - Consider value for money: a country should not pay for a drug more than the value it offers.
    - Consider the size of the market: a drug should not be priced at a level that may result in rationing by payers.
    - Consider GDP and GDP per capita: A medicine should not be priced at a level that patients and/or payer cannot afford.
- (e) ~~Summarize the challenges faced by the federal government in implementing its national dental care plan.~~

**Commentary on Question:**

*Most candidates demonstrated a good understanding of the Canada Dental Benefit. For full credit, candidates needed to summarize the current federal government challenges and not only give a description of the proposed plan. Not all points listed below was required for full credit.*

- ~~Timing: beginning in 2022, children under age 12 will become eligible for benefits, meaning they are behind in timelines.~~
- ~~Only 6.5 million people would benefit from the plan because of its stringent participation thresholds.~~
- ~~Costs of the program could be higher than estimated.~~
- ~~Complicated to establish a dedicated dental plan from scratch.~~
- ~~Lack of universality creates an incentive for premium-paying families to opt out of existing dental insurance plans.~~
- ~~Provinces, territories and employers that fund existing dental care plans could potentially discontinue their plans and refer patients to the federal dental care plan.~~
- ~~In a matter of months, the vast network of public and private dental care plans across Canada could be disrupted as patients are shuffled from one plan to another.~~
- ~~A two-tiered oral health system could result in private sector dentists refusing to treat patients insured by the federal dental care plan.~~

- ~~Means testing for access to dental plan insured services may open the door to means testing for certain health care insured services like cataract surgery and hip and knee replacements.~~

- (d) Calculate the required one-time cash payment that will allow the employee to remain on the biologic until retirement at no additional cost. State any assumptions and show your work.

**Commentary on Question:**

*Candidates generally did well on this calculation portion of this question. For full credit, candidates need to show their work.*

**Information on employee**

Age 60

Will retire at 65

**Assumptions**

Monthly cost of biologic	\$2,500
Annual increase of the biologic	7.00%
Monthly cost of biosimilar	\$1,875
Annual increase of the cost of biosimilar	6.00%
Annual interest rate	4.00%
Timing of prescription	One prescription per month, at the beginning of the month
Marginal tax rate	35.00%

<b>Sample calculation</b>		<b>Cost of biologic</b>			<b>Cost of biosimilar</b>	
	(A)	(B)	(C) = (A)*(B)	(D)	(E) = (A)*(D)	
Month	mid year discount @ 4%	Monthly Cost	PV of Monthly Cost	Monthly Cost	PV of Monthly Cost	
1	1.0000	\$2,500	\$2,500	\$1,875	\$1,875	
2	0.9967	\$2,500	\$2,492	\$1,875	\$1,869	
3	0.9935	\$2,500	\$2,484	\$1,875	\$1,863	
4	0.9902	\$2,500	\$2,476	\$1,875	\$1,857	
5	0.9870	\$2,500	\$2,468	\$1,875	\$1,851	
6	0.9838	\$2,500	\$2,459	\$1,875	\$1,845	
7	0.9806	\$2,500	\$2,451	\$1,875	\$1,839	
8	0.9774	\$2,500	\$2,443	\$1,875	\$1,833	
9	0.9742	\$2,500	\$2,435	\$1,875	\$1,827	
10	0.9710	\$2,500	\$2,428	\$1,875	\$1,821	
11	0.9678	\$2,500	\$2,420	\$1,875	\$1,815	
12	0.9647	\$2,500	\$2,412	\$1,875	\$1,809	
13	0.9615	\$2,675	\$2,572	\$1,988	\$1,911	
14	0.9584	\$2,675	\$2,564	\$1,988	\$1,905	
15	0.9553	\$2,675	\$2,555	\$1,988	\$1,899	
Table continues from month 1-60, covering 5 years of drug benefits.						
58	0.8300	\$3,277	\$2,720	\$2,367	\$1,965	
59	0.8273	\$3,277	\$2,711	\$2,367	\$1,958	
60	0.8246	\$3,277	\$2,702	\$2,367	\$1,952	

<b>Cost of biologic:</b>	\$156,086	(F) = Sum Column (C)
<b>Cost of biosimilar:</b>	<u>\$114,835</u>	(G) = Sum Column (E)
<b>One-time cash payment required</b>	\$41,251	(H) = (F) - (G)
<b>One-time cash payment required (pre-tax)</b>	<b>\$63,463</b>	(H)/(1-0.35)

- (e) Calculate the minimum annual rebate you need to negotiate. State any assumptions and show your work.

**Solution:**

Information

Employer will pay 60%  
 Rebate paid at end of year  
 Rebates are equal

Assumptions

Monthly cost of biologic      \$2,500  
 Annual interest rate            4%  
 Timing of rebate                End of year

One-time cash payment from employer	\$24,751	$(I) = (H) * 60\%$
Necessary present value of rebate	\$16,500	$(J) = (H) - (I)$
Sum of 5 year of discount factors	4.451822	(K)
One-time cash payment required	\$3,706.35	$(J)/(K)$

End of year	discount factor @ 4%	Rebate (check)	PV of Rebate
1	0.96153846	\$3,706	\$3,564
2	0.92455621	\$3,706	\$3,427
3	0.88899636	\$3,706	\$3,295
4	0.85480419	\$3,706	\$3,168
5	0.82192711	\$3,706	\$3,046
	Total		\$16,500

- (f) Recommend whether Company ABC should implement either of the below changes. Justify your answers.
- (i) Participating in the insurer's biosimilar program
  - (ii) Eliminating the employer dental program

**Commentary on Question:**

*Reasonable recommendations backed with justification were awarded full credit. For part (i), candidates needed to provide more justification than only saving money to be awarded full marks if they were recommending implementing the insurer's biosimilar program.*

- (i) Recommendation: The company should implement the biosimilar program.

Justification: Since May 2019, public drug plans in four provinces have launched non-medical biosimilar switching policies, requiring patients to use biosimilars of approved indications. Such policies are widely discussed and expected to be introduced across Canada. It would make sense for the company to follow suit of provincial programs.

- ~~(ii) Recommendation: The company should not remove their dental care program.~~

Justification: Only uninsured households earning less than \$90,000 per year would be entitled to benefits provided through the government program. It is likely that many of their employees have household incomes higher than this and would not qualify for the program, leaving them uninsured. In fact, the employee on the biologic earns \$100,000, so there is at least one employee who will be uninsured.

## GH VRC Fall 2023 #4.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within framework of social programs in Canada.

### Sources:

GH201-621-25: CLHIA: Guideline G3, Group Life and Health Insurance

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

Sustainability of the Canadian Health Care System and Impact of the 2014 Revision to the Canada Health Transfer, Sep 2013, Executive Summary and Ch. 11 only

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016 - Ch. Ch. 2: Government Pension Programs

### Commentary on Question:

*Candidates were expected to understand the regulatory and policy making process in Canada, including how the Canada Health Transfer payments are determined. Candidates were also expected to be able to critique recommendations with consideration to the impacts towards group and federal benefit programs and their internal mechanics. Most candidates showed an understanding towards CPP disability benefits and group disability insurance but were generally unable to describe the mechanics of the Canada Health Transfer payments and their 2014 changes.*

### Solution:

- (a)
  - (iii) Critique the CFO's assertion concerning the CPP disability benefit.

- (iv) Describe how the disabled employee's group benefits would be impacted if the plan were to terminate.

**Commentary on Question:**

*Most candidates were able to critique the CFO's comments and understood how the CFO's requested changes impact group benefits coverage for current employees.*

- (iii) CPP disability benefits are only available to the contributor if they meet certain conditions:
- The contributor must have a severe and permanent disability.
  - The contributor is unable to engage in any substantially gainful occupations with earnings in excess of \$5,800 per year (in 2020).
  - The contributor must meet the contribution requirements (i.e. contributed to the CPP for a certain period in their contributory periods to be eligible for a disability pension.
  - While the CPP disability benefit is available, the CPP disability monthly benefit is capped at a maximum for each year (\$1,536.67 in 2023). This provides a much lower replacement ratio than the current benefits design (66.67% up to \$5,000 of monthly salary).
- (iv) Every contract of Group Insurance with a Life Waiver of Premium provision should provide that, upon termination of the contract or benefit provision, the insurance on the life of a Plan Member who is disabled according to the definition of disability included in the contract of Group Insurance at the time of the termination will be continued as though the contract or benefit provision were in full force and effect. Similarly, every contract of Group Insurance with a Disability Income Benefit should provide that, upon termination of the contract or benefit provision, the Disability Income Benefit of a Plan Member who is disabled according to the definition of disability included in the contract of Group Insurance at the time of its termination will be continued as though the contract or benefit provision were in full force and effect. This assumes that the LTD benefit is insured.
- (b) With respect to the CFO's concerns over government offloading of costs, you review the 2014 revisions to the Canada Health Transfer (CHT) payment calculations.
- (iv) List and describe how the federal government supports provinces and territories with the funding of health care expenditures.
- (v) Describe the 2014 revisions to CHT payment calculations and what their expected impacts were.

- (vi) List approaches available to governments to safeguard the sustainability of Canada's health care system.

**Commentary on Question:**

*Most candidates were unable to describe how the federal government supports provinces and territories with health care funding. Few candidates were able to describe the 2014 CHT revisions.*

- (iv) The federal government supports provinces and territories with the funding of health care expenditures using the Canada Health Transfer (CHT). Currently, it includes both tax points and cash transfers.

CHT tax points are a result of the federal government decreasing its income tax rates in the late 1970s, allowing the provinces/territories to use the additional tax space. The tax points that are appropriated to the CHT are impacted by the evolution of the tax base (personal and corporate income) and were expected to grow in line with the economy.

In 2004/05 and 2005/06, total CHT cash transfers were set at fixed amounts in accordance with the prescription of the Federal-Provincial Fiscal Arrangement Acts. They are increasing at a nominal annual rate of 6% until 2013/14.

Total CHT cash transfers are allocated to each province/territory so that each province/territory receiving a total CHT entitlement (cash transfer plus tax points) is proportional to its population (i.e. equal to per capita total CHT)

Using the current CHT calculation formula, the federal cash transfers associated with the CHT will be funding 22.9%, on average, of total health care expenditures of provinces/territories in 2037.

- (v) CHT cash transfers will be allocated differently by province/territory. They are currently allocated on the basis of equal-per-capita total CHT entitlement (including tax points and cash transfers). Starting with fiscal year 2014-2015, they will be allocated on the basis of equal-per-capita CHT cash transfers. Aggregate CHT cash transfers will be increasing at an annual rate equal to a three-year moving average of the GDP growth. There is a further guarantee that total cash transfers will increase by at least 3 percent every year.

With these proposed changes, the CHT cash transfer would grow less than using the current calculation formula.

These changes will have different impacts for different provinces. Some will end up with a higher reduction in their total available revenues (PEI, NS, QC, BC), some will end up with a slightly less pronounced reduction (ON) and some can expect nearly no change to their cumulative CHT cash transfer over the projection period (AB).

The calculation formula will have a significant effect on the ability of provinces/territories to continue supporting the health care system. Provinces/territories will have to find new sources of funding to make up the difference.

- (vi) Research shows that in order to safeguard the sustainability of its healthcare system, Canada has to:
- Significantly limit health care cost increase.
  - Boost GDP growth.
  - Raise taxes/fees.
  - Substantially reduce or cut other government programs or services.
  - Implement some combination of the above.

(c) Calculate the following:

(iii) The budgeted group benefits plan costs for 20X2.

(iv) The raise in employee salaries that the result in (i) would fund.

State any assumptions and show your work.

**Commentary on Question:**

*Nearly all candidates were able to calculate total costs per employee, except for application of premium tax and retail sales tax. Some candidates forgot to exclude certain benefits for the employee on disability.*

(i)

Employee profile	Basic Life Insurance	Calculation
Active_1	\$1,104.60	Volume x rate / 1000 x headcount x 12
Active_2	\$946.80	
Active_3	\$820.56	
Active_4	\$568.08	
Active_5	\$946.80	
Long Term Disabled_1	\$0.00	

  

Employee profile	Short Term Disability	Calculation
Active_1	\$1,999.04	Volume x rate / 10 x headcount x 12
Active_2	\$1,713.46	
Active_3	\$1,485.00	
Active_4	\$792.00	
Active_5	\$792.00	
Long Term Disabled_1	\$0.00	

  

Employee profile	Long Term Disability	Calculation
Active_1	\$4,162.38	Volume x rate / 100 x headcount x 12
Active_2	\$3,567.75	
Active_3	\$3,092.05	
Active_4	\$2,130.00	
Active_5	\$2,130.00	
Long Term Disabled_1	\$0.00	

  

Employee profile	Extended Health Care	Dental	Calculation
Active_1	\$7,200.00	\$5,160.00	rate x headcount x 12
Active_2	\$4,320.00	\$3,096.00	
Active_3	\$2,880.00	\$2,064.00	
Active_4	\$1,440.00	\$1,032.00	
Active_5	\$1,440.00	\$1,032.00	
Long Term Disabled_1	\$1,440.00	\$1,032.00	

  

Employee profile	Salary (20X1)	Health Care Spending Account (HCSA)	Calculation
Active_1	\$35,000	\$1,673.75	headcount x HSA amount x utilization x (1+admin exp)
Active_2	\$50,000	\$1,004.25	
Active_3	\$65,000	\$669.50	
Active_4	\$90,000	\$334.75	
Active_5	\$150,000	\$334.75	
Long Term Disabled_1	\$75,000 (pre-disability)	\$334.75	

	Basic Life Insurance	Short Term Disability	Long Term Disability	Extended Health Care	Dental	Health Care Spending Account
Annual Premium	\$4,386.84	\$6,781.50	\$15,082.18	\$18,720.00	\$13,416.00	\$4,351.75
Premium Tax	included	included	included	included	included	\$87.04
Retail sales tax	\$350.95	\$542.52	\$1,206.57	\$1,497.60	\$1,073.28	\$348.14

Total Cost in 20X1	\$67,844.36	
Budgeted for 20X2	\$78,021.02	--> based on a 15% budgeted increase

(ii)

Salary Increase Percentage: **10.6%** --> use goal seek  
 Total increase to payroll: **\$73,564.26**

Employee	Salary	Headcount	Salary	Additional costs (per EE)					Total	Grand Total
				Salary	EI	CPP	EHT	Total		
Active_1	\$35,000	5	\$38,705	\$3,705	\$85	\$220	\$72	\$4,082	\$20,409	
Active_2	\$50,000	3	\$55,292	\$5,292	\$121	\$315	\$103	\$5,831	\$17,494	
Active_3	\$65,000	2	\$71,880	\$6,880	\$0	\$95	\$134	\$7,109	\$14,219	
Active_4	\$90,000	1	\$99,526	\$9,526	\$0	\$0	\$186	\$9,712	\$9,712	
Active_5	\$150,000	1	\$165,877	\$15,877	\$0	\$0	\$310	\$16,187	\$16,187	
									<b>\$78,021</b>	

(d) Recommend whether ABC Company should eliminate its group benefits plan in exchange for higher employee salaries. Justify your response.

**Commentary on Question:**

*Candidates were generally able to provide recommendations on why ABC should not eliminate its groups benefits program. However, if a candidate was unable to answer part (c), many times, they did not attempt part (d), even though there are points available that are not dependent on (c).*

I recommend keeping the benefits program because:

- Benefits are tax preferred while salaries attract income and payroll taxes.
- Some employees may have benefit requirements/needs that are beyond the magnitude of a raise.
- Some employees may be better off dollar-wise, but may lose their safety net, especially if they do not have access to a secondary plan (such as a spousal plan).
- Instead of eliminating benefits all together, ABC may consider reducing coverage or requiring additional employee contributions.

## GH VRC Spring 2024 #4.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020 – Chapter 19: Employment Insurance

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a)
  - (i) List the criteria that a STD plan needs to meet in order to qualify for the Employment Insurance (EI) Premium Reduction Program (PRP).
  - (ii) Evaluate whether or not the proposed STD plan qualifies for the EI PRP. Justify your answer.

### Commentary on Question:

- *For Part (i), not all items listed were required for full credit. Candidates generally missed the requirement on the eligibility period for the STD plan must be no longer than three months of continuous employment, the STD plan must be the first payer, and the STD plan reinstatement period must be less than three months.*
- *For Part (ii), the question asked for candidates to evaluate the plan. Although there was not enough information to determine whether the STD plan meets all criteria for PRP, candidates needed to provide an evaluation with a rationale for full credit.*
- *In addition to the solution for part (ii) as illustrated below, candidates can either:*
  1. Assumed the STD plan meets the criteria not listed – so the STD is eligible for PRP, or
  2. Mentioned there is not enough information to make a determination.

- (i)
- Disability benefits that are at least equal to the EI sickness benefits (i.e., 55% of insurable earnings)
  - Payment of benefits starting on or before the 8th day of disability
  - In case of weekly indemnity plans, payment of benefits for at least 15 weeks of each disability occurrence (or 26 weeks based on more recent EI developments)
  - Eligibility to claim benefits within three months of continuous employment
  - 24-hour coverage
  - Designation of the plan as the first payer (preventing plan benefits from being integrated and/or coordinated with EI benefits)
  - In case of weekly indemnity plans, reinstatement of full disability coverage after a disability within one month of return to work for future disabilities not related to the initial disability cause, and within three months of return to work for a recurrence of the initial disability cause
  - At least 5/12 of the premium reduction must be returned to the employees, either directly (e.g., a cash rebate) or indirectly (e.g., increasing benefits)
- (ii)
- It met the first three criterion above (i.e. 75% of weekly salary, 3 days elimination period and 26-week benefit period)
  - To qualify for the EI PRP, it needs to further qualify for the fourth and afterward criterion

~~(b) Calculate the additional cost to ABC to provide the proposed STD plan. State any assumptions and show your work.~~

**~~Commentary on Question:~~**

~~Overall, this section was done fairly well. Candidates needed to show their work for full credit. Most candidates performed the tabular calculation of EI and STD premium correctly but missed that 5/12 of the savings must be shared with the employees and therefore their actual savings is reduced to 7/12.~~

**~~Solution:~~**

- ~~• The model solution for this part is in the Excel spreadsheet.~~

- (c)
- (i) Calculate the minimum amount of EI savings that need to be returned to employees. State any assumptions and show your work.
- (ii) Describe considerations and available options for returning the EI savings to employees.

**Commentary on Question:**

*For Part (ii), candidate must list the two options and note the cash rebate option will have tax consequences.*

(i)

Employee portion of the EI premium savings is 5/12 of the EI premium reduction, or

$$5/12 * \$62,287.68 = \$25,953.20$$

The model solution for this part is also in the Excel spreadsheet.

(ii)

- Savings must be returned, directly or indirectly, to the employees
- A written mutual agreement on how the savings will be returned to the employees
- Options include:
  - A cash rebate equal to 5/12 of the savings divided amongst the employees, which is treated as employment income subject to source deduction (i.e., EI, Canada Pension Plan/Quebec Pension Plan)
  - Providing new or increased benefits, including upgrading existing benefits, or providing more holidays or time off work

- (d) Calculate the total cash rebate on a net basis for all employees. State any assumptions and show your work.

**Commentary on Question:**

*Candidates who have used incorrect EI premium reduction per employee as a result of a mistake in previous section but answered this question using the correct methodology and calculation received full credit.*

The model solution for this part is in the Excel spreadsheet.

## GH VRC Spring 2024 #6.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

GH201-648-25: Canadian Life and Health Insurance Industry Agreement to Protect Canadians' Drug Coverage

The Quebec Act Respecting Prescription Drug Insurance and Its Impacts on Private Group Insurance Plans, 2016 (Current study note: GH201-721-25)

### Commentary on Question:

*The question was testing the candidates understanding of drug pooling in Canada and specifically in Quebec. The candidate was to understand on drug pooling works and how the Canadian Drug Insurance Pooling Corporation (CDIPC) and the Quebec Drug insurance Pooling Corporation (QDIPC) work in tandem along with EP3 pooling. Overall, candidates did not perform very well on this question. Many candidates understood that there were three levels but failed to correctly identify the differences between the three, especially when comparing the QDIPC and CDIPC. Many candidates did setup an Excel but had difficulties correctly calculating all the answers.*

### Solution:

- (a) Describe the three different forms of pooling in group insurance.

#### Commentary on Question:

*Many candidates knew that three different types of pooling existed. The EP3, QDIPC, and the CDIPC. Candidates however they had some difficulties describing the three.*

In group insurance, there are traditionally three different forms of pooling:

- **Pooling within the group:** which is achieved by charging the same premium rates to all participants who have the same major characteristics (employment status, single or family coverage).
- **Pooling within an insurer's portfolio,** such as Extended Healthcare Policy Protection Plan (EP3): this is done mostly for smaller groups for which the premium rates are based at least partially on the combined experience of several groups.
- **Pooling among different insurers:** traditionally done through reinsurance arrangements or industry pooling, such as QDIPC and CDIPC.

- (b) Describe the rationale for the creation of the following industry pooling programs:
- (iii) QDIPC
  - (iv) CDIPC

**Commentary on Question:**

*Many candidates had difficulties describing the rationale, specifically that drugs should be affordable for Quebec residents. Also, the financial implication was not well understood by most candidates.*

- (i) Quebec Drug Insurance Pooling Corporation (QDIPC)
  - This pooling mechanism aims at satisfying the government’s objectives as well as respecting, as much as possible, the free market conditions that prevail in the insurance industry.
  - Prescription drug insurance should be affordable to all residents of Quebec.
  - The members of a group should not be penalized by any large claim arising from one person.
- (ii) Canadian Drug Insurance Pooling Corporation (CDIPC)
  - Catastrophic drug costs are a growing problem growth in drug costs are undermining the sustainability of group drug plans, particularly for small and medium enterprises, and has far exceeded the overall level of inflation for decades.
  - The implications of recurrent, very high cost drug claims for the ongoing financial sustainability of supplementary drug plans, particularly for small and medium sized enterprises, are significant.
  - Even though the majority of insurers use internal pooling mechanisms, current approach to pooling was designed to manage unknown one-off claims and is poorly suited to manage known, recurrent catastrophic claims.
  - Current pooling approach tends to lock sponsors in with their current carrier, which limit their ability to switch carrier when they tender its business and then allowing them more ability to shop around for a new provider at reasonable prices, even if they experience a recurring high cost drug claim.
  - Insulating eligible groups from the full financial impact of rare, but recurring, high cost drug claims, particularly beneficial to small and medium-sized businesses, who don’t typically have the financial resources to absorb a significant increase in premiums.

- (c) Summarize QDIPC and CDIPC with respect to:
- (vi) Participation of insurers
  - (vii) Covered plans
  - (viii) Pooling thresholds
  - (ix) Sharing of pooled claims among participating insurers
  - (x) Pricing of groups within a participating insurer

**Commentary on Question:**

*Candidates had difficulties identifying the following differences:*

- *If participation was mandatory or not*
- *If all plans are covered or only insured and self-insured plans*
- *Listing the 3 different pools*
- *Identifying the thresholds*

*Candidates did not need to list the exact number for each QDIPC strata to get the full credits. Candidates have not been penalized if their answer were based on the 2016 QDIPC protection levels, i.e. from the source material and as illustrated in the solution below, or the ones applicable for the year 2023, as provided in the question. Same logic were applied for the initial and ongoing threshold for CDIPC, i.e. candidates have not been penalized if they use the one from the source material or the ones applicable for the year 2023, as provided in the question.*

- (ii) Participation of insurers
  - QDIPC – Participation is mandatory
  - CDIPC – Open to participation from any company in Canada that is a member, or is eligible to be member, of the CLHIA
- (ii) Covered plans
  - QDIPC - All insured and self-insured groups
  - CDIPC - Covers only ‘‘fully insured plans’’, excluding ASO, refund accounting and ASO with stop loss

- (iii) Pooling thresholds
- QDIPC
    - Per certificate
    - The pooling thresholds vary by group size where the number of certificates is calculated considering participants in all provinces, but only claims incurred for Quebec residents are subject to pooling.
  - CDIPC
    - Per certificate (family)
    - To qualify, the certificate must exceed \$65,000 (Initial threshold) for at least two consecutive years
    - In year 2 and in each subsequent year where the drug certificate exceeds \$32,500 (ongoing threshold), the amount over 32,500 will be pooled.
- (iv) Sharing of pooled claims among participating insurers
- QDIPC
    - A formula using cumulative strata is used. With this formula, claims below \$18,000 (in 2016) are pooled only among groups with fewer than 50 certificates. On the other hand, claims between \$18,000 and \$32,500 are pooled among the first strata (fewer than 50 and 50 to 124 certificates) while claims above \$115,000 are pooled among all strata in 2016, except the last one (3,000 certificates or more).
  - CDIPC
    - Three industry pools are proposed based on differences in provincial drug programs.
    - Pool 1 – Alberta + Ontario + Maritimes + Territories
    - Pool 2 – Resident of Quebec
    - Pool 3 – BC + Manitoba + Saskatchewan
    - The total pooled drugs claims will be shared by all participating insurers based on their market share of total paid drug claims for all insured business in applicable provinces.

- (v) Pricing of groups within a participating insurer
  - QDIPC
    - Insurers must charge the same QDIPC published annual pooling factors to all its groups based on group size
  - CDIPC
    - Carriers can have multiple EP3 solutions for different market segments if they choose.
    - Participating insurers must place all large drug claims in an EP3 pool.
  - Individual participating insurers can set premiums based on the experience of the entire EP3 pool, or based on any non-client level experience data.
  - All other aspects of the EP3 can be customized by each participating insurer including:
    - Pricing
    - the pooling threshold (must be  $\leq$  ongoing only)
    - whether the pooling is done at the individual or certificate level
    - requiring co-payments or deductibles (subject to a cap of \$1,100 for deductibles)
    - formulary design.

(d) Calculate the claim amounts for 20X3 assumed by:

(iv) Industry pooling mechanisms

(v) XYZ

(vi) ABC

State any assumptions and show your work.

**Commentary on Question:**

*Many candidates did break down the numbers into the required buckets but did not fill in the amounts correctly.*

The model solution for this part is in the Excel spreadsheet.

- (e) Calculate the claim amounts in (d) assuming that this group's employees were located in Quebec. State any assumptions and show your work.

**Commentary on Question:**

*Many candidates did break down the numbers into the required buckets but did not fill in the amounts correctly.*

The model solution for this part is in the Excel spreadsheet.

- (f) Propose a change to the CDIPC pooling program that will help to further preserve the viability and affordability of employers' drug programs. Justify your answer.

**Commentary on Question:**

*Many candidates provided an answer and for the most part got marks as they identified solutions that made sense. Other answers were accepted if justified.*

- Extend coverage to self-insured groups and refund accounting groups.
- For self-insured groups and refund accounting groups, not pooling large recurrent drug claims under CDIPC could make their drug coverage not affordable in the long-term and some of them could potentially change or abolish their drugs plan. As an example, it took some years before the QDIPC decides to extend the pooling program to all self-insured groups in the Quebec market, so preserving the access to an affordable drugs coverage.

## GH VRC Spring 2024 #9.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

GH201-713-25: How will the potential work-from-home-anywhere boom post-pandemic impact benefit plans?

GH201-672-25: CHLIA Guideline G17 – Coordination of Benefits for Out-of-Country/Out-of-Province/Territory Medical Expenses

GH201-694-25: Guide to Canada Benefits Legislation, 2018, sections 7.1, 7.2, 7.2.1, 7.2.5 & 7.2.6

### Commentary on Question:

*This question tested the understanding of candidates on government programs providing health and disability benefits in Canada. Candidates generally did not perform very well on this question and had difficulties to understand the difference between eligibility requirements for social programs and coordination of benefits payment between different parties.*

### Solution:

- (a) Describe concerns with respect to Company ABC's group benefits for these two employees.

### Commentary on Question:

*Candidates generally did well on this part of the question. Candidates were able to recognize the overall issues, however they had difficulties describing the applications of the issues to company ABC in order to receive full credits. Other reasonable explanations were awarded credits.*

- Plan sponsors with employees who move to another province may face taxation and payroll deduction implications. The group benefits plan includes life insurance which is a taxable benefit in all provinces, and medical/dental which is taxable in the province of Quebec.
  - Employers must think about the provincial health-care requirements. Some benefits plans require employees to be part of their province's health-care plan, but when someone moves to a new province, there's a three-month window before they can access the new province's system. Checking of benefit provisions to see if Company ABC plan requires employees to be part of the province's health-care plan. If not, then either modify the contract or review out-of-province coverage.
  - Employers with staff moving into or out of Quebec face additional complications, as the province requires employers' prescription drug plans to at least match the RAMQ drug plan. Depending on the provisions of the prescription drug coverage, Company ABC may incur additional costs in order to be compliant with RAMQ.
- (b) Compare and contrast eligibility requirements for government health insurance plans (GHIPs) in BC, Quebec and Ontario.

**Commentary on Question:**

*The vast majority of candidates had difficulties on this part of the question. Candidates received partial credits for assuming waiting period and physical presence period requirements as the similarities, but the majority of candidates did not recognize the differences in these requirements for eligibility in GHIP. A few candidates mentioned the differences in drug programs.*

**Similarities:**

- You are a Canadian citizen or have immigration status.
- You make your home (or reside) in the respective province.
- Must register or apply to the respective provincial plan to be eligible.

**Contrasts:**

BC

- New residents, regardless of whether they come from elsewhere in Canada or from outside Canada, become eligible on the first day of the third month following the date they establish permanent residency in B.C.
- You are physically present in B.C. at least 6 months in a calendar year.

### Quebec

- New residents who move from elsewhere in Canada, where they had provincial/territorial health coverage, become eligible on the first day of the third month following the date of their arrival in Quebec. All other new residents are entitled to coverage after a waiting period of up to three months.
- You are physically present in Quebec for at least 182 days in a given calendar year.

### Ontario

- New residents who move from elsewhere in Canada, where they had provincial/territorial health coverage, become eligible on the first day of the third month following the date of their arrival in Ontario. All other new residents are entitled to coverage after a waiting period of three full calendar months following the date of permanent residence in Ontario.
- You are in Ontario for at least 153 days in any 12-month period; and you are not outside Ontario for more than 212 days in a 12-month period.

(c) Describe how the costs of the services in the table above would be coordinated between:

- Each employee
- The Company ABC group benefits plan
- Other private coverage
- GHIPs

State any assumptions made.

#### **Commentary on Question:**

*Candidates had difficulties on this question. Most candidates did not take the employee's eligibility into consideration and did not understand the cost coordination between various parties under different provincial health plans. However, candidates did well in describing how the costs of these services would be coordinated between various parties for the travel coverage. Overall, candidates did not perform well on this part of the question.*

### **Claim 1: Employee 1 physician claim in February 20X1**

#### Eligibility

- The employee only becomes eligible for RAMQ on April 1, 20X1 (i.e. first day of the third month following the arrival date).
- Therefore, the employee is not yet eligible for RAMQ and coordination between GHIPs in BC and Quebec must occur.

#### Who pays?

- The patient. Quebec does not participate in the inter-provincial reciprocal billing agreement for physician services, so will bill the patient directly. The patient applies to MSP for reimbursement, which may not cover the full cost of the claim.

#### How does Company ABC's group plan fit in?

- If MSP payment does not cover physician fees, remainder can be submitted to through Company ABC's out-of-province coverage.

### **Claim 2: Employee 1 emergency surgery**

#### Eligibility

- Same as above (as we are not yet at April 1, 20X1).

#### Who pays?

- Unlike physician services, Quebec does participate in the inter-provincial reciprocal billing agreement for hospital stays, so will bill RAMQ directly. RAMQ will then seek payment from MSP.
- The patient pays nothing.

#### How does Company ABC's group plan fit in?

- If plan covers additional costs not covered by province (for example, semi-private room upcharge), then this can be submitted to the plan.

### **Claim 3: Out of country claim for Employee 2**

#### Eligibility:

- Similar to Employee 1, this employee is not yet eligible for the Ontario plan.

Private plans:

- This employee first contacted the individual insurer, and so they need to assume responsibility as “First Carrier”.
- The above assumes that the individual coverage is adequate for this particular claim. If not, then the individual plan can negotiate with the Company ABC group plan over First Carrier responsibility.

The First Carrier (i.e. the individual insurer) will:

- Handle the case management. This includes, but is not limited to taking the initiative to involve an assistance group or service provider, choosing a preferred provider organization, monitoring medical care and/or repatriation.
- Notify the Other Carriers (in this case, the Company ABC group benefits carrier).

The individual insurer must pay the claim with an amount that is equal to the coverage determined by the terms and conditions of its contract.

It then allocates liability amongst itself and the Other Carriers and, as applicable, recover amounts owing from Other Carriers and GHIP – including providing all associated paperwork.

In this case:

3. The GHIP plan from BC covers \$75.00 per day.
4. The exact provisions of the Company ABC and individual plans are not known, but if both plans covered the full claim, half the claim (net of reimbursement from BC) would be recoverable.

## GH VRC Fall 2024 #2.

### Learning Objectives:

4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada.

### Sources:

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 17th Edition, 2020

- Ch. 2: Government Pension Programs (pp. 44-64, Canada & Quebec Pension Plans)
- Ch. 18: Workers' Compensation
- Ch. 19: Employment Insurance

### Commentary on Question:

*On part (a), candidates did well answering how Workers Compensation and Employment Insurance relate to disability benefits. However, many candidates were challenged by the disability benefits under the Canada Pension Plan.*

*On part (b), candidates either did very well or were quite challenged. Those that got the calculation incorrectly, but showed and labelled their work would award partial credit.*

### Solution:

- (a) Describe the following government social programs as it relates to disability benefits:
  - (v) Workers Compensation
  - (vi) Employment Insurance (EI)
  - (vii) Canada Pension Plan (CPP)

### Commentary on Question:

*The following answers are examples – points were given to other relevant answers.*

### Workers Compensation

- Disability income for workplace accidents or diseases is provided by the Workers' Compensation system.
- STD benefits are payable to the disabled employee until the employee has recovered and is capable of returning to the pre-accident occupation or,

having gone through a rehabilitation program, is estimated capable of earning at the same level as prior to the accident.

- The percentage of earnings used to calculate the benefit amounts vary from jurisdiction to jurisdiction; however, it usually ranges from 75% to 90% of net earnings.
- For LTD, the dual award system is both a monthly benefit based on an earnings loss system (usually calculated as a percentage, such as 90% of net loss of income), which is usually paid out until age 65, and a lump sum payment awarded for the non-economic impacts of the permanent impairment.

### **Employment Insurance**

- For regular benefits the basic benefit rate is 55% of the individual's average insured weekly earnings up to the maximum amount.
- Waiting period for sickness benefits is one week.
- Sickness benefits may be paid up to 26 weeks to an individual who is unable to work because of sickness, injury, or quarantine, but who would otherwise be available for work if not for their incapacity due to medical reasons. *(Marks are given if the candidate answered 15 weeks.)*
- To receive sickness benefits, the claimant is required to have worked for 600 hours in the last 52 weeks or since the last claim and your normal weekly earnings have been reduced by more than 40%.

### **Canada Pension Plan**

- These pensions are payable to a contributor who has a severe and permanent disability and the contributor is unable to engage in any substantially gainful occupation with earnings in excess of a specified threshold.
- Disability benefits are payable monthly from the first of the fourth month following the date of disability and are payable until age 65, at which time the Retirement Pension automatically becomes payable.
- Retirement benefits are based on the benefit at the time of disability indexed for inflation.
- A disabled contributor is entitled to receive a pension that is equal to a flat-rate pension plus an earnings-related component equal to 75% of the contributor's retirement pension, up to a specified maximum.

- (b) Calculate the total STD and LTD benefit costs for each employee at January 1, 2024. State any assumptions and show your work.

**Commentary on Question:**

- *Many candidates did not notice the disability prognosis and applied CPP offset to both Management and Union employees. Additionally, many candidates did not have a reasonable assumption on the starting point of CPP offset. The standard assumption is 24 months, but points were given to candidates if a reasonable assumption (with an appropriate justification).*
- *Candidates did not need to provide all the labelling shown in the model solution on the right-hand side for full credit.*

The model solution for this part is in the Excel spreadsheet.

## GH VRC Fall 2024 #5.

### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.

### Learning Outcomes:

- (3b) Describe the major applicable laws and regulations and evaluate their impact.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided
- (4b) Describe how private group insurance plans work within the framework of social programs in Canada

### Sources:

GH201-653-25: Telus Health Note: How Much Does that Drug Cost?

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

GH201-694-25: Guide to Canada Benefits Legislation

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe how prices are set for brand name and generic drugs in Canada.

#### Commentary on Question:

*Overall, candidates generally performed well on this part of the question. In order to receive full marks, details on methodology were necessary, as indicated below.*

#### Brand

- Prices for brand drugs are set by the manufacturer but are regulated by the Patented Medicines Prices Review Board (PMPRB).
- The role of the PMPRB is to ensure that drug prices are not excessive.
- Prices are determined based on the median of seven OECD comparator countries.

**Generic**

- The PMPRB does not regulate generic prices.
  - For the most part, generic prices are set as a percentage of the equivalent brand price, by provincial governments.
  - As a result, generic prices can vary across provinces.
- (b) Calculate XYZ’s current year costs. State any assumptions and show your work.

**Commentary on Question:**

*Candidates were generally able to calculate the claim cost assuming 12 scripts per year. However, in order to get full marks, candidates were required to demonstrate they were able to apply Target Loss Ratio and Retail Sales Tax in addition to the expected claim costs.*

The model solution for this part is in the Excel spreadsheet.

- (c) Calculate XYZ’s projected costs next year if:
- (v) A physician prescribes the generic drug
  - (vi) A physician prescribes the brand name drug and indicates “no substitution”

State any assumptions and show your work.

**Commentary on Question:**

*Candidates were generally able to replicate the methodology from part b), which required properly applying the target loss ratio and the retail sales tax. In order to get full marks, candidates were required to consider impact to costs depending on whether the member turning age 65 opted in or out of RAMQ. Additional consideration on which ingredient cost and dispensing fees were also required as part of this analysis.*

The model solution for this part is in the Excel spreadsheet.

- (d) Recommend four changes to the plan design that XYZ can consider to reduce plan costs. Justify your answer.

**Commentary on Question:**

*Candidates generally performed well on this part, able to identify ways that a plan sponsor can reduce plan costs. Other reasonable answers and justifications were accepted, other than the four examples provided below.*

- Require mandatory generic substitution to minimize costs.
- Reduce coinsurance to encourage employees to become better consumers.
- Require a surcharge and/or premium contributions at age 65 for Quebec that are well in excess of RAMQ's premium requirements in order to incentivize people to not opt-out of RAMQ.
- Review refill guidelines – e.g. maintenance drugs can be a standard 90-day refill – to keep dispensing fees as low as possible. As the drug in question is a maintenance drug, 90 days is reasonable.

# GH 201-C Model Solutions

## Learning Objective 5

### GH VRC Fall 2023 #4.

#### Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on insurance companies and plan sponsors in Canada.
4. The candidate will understand how to describe and evaluate government programs providing health and disability benefits in Canada.
5. The candidate will understand how to describe the flow of funds in the health care system and the role of providers in the system.

#### Learning Outcomes:

- (3a) Describe the regulatory and policy making process in Canada.
- (3c) Understand the impact of the taxation of both insurance companies and the products they provide.
- (4a) Describe eligibility requirements for social programs in Canada and the benefits provided.
- (4b) Describe how private group insurance plans work within framework of social programs in Canada.
- (5a) Establish a framework of how funds flow through the health care system.

#### Sources:

GH201-621-25: CLHIA: Guideline G3, Group Life and Health Insurance

GH201-644-25: TACCESS: An Advisor's Guide to Understanding How Taxes Impact Group Insurance Benefits in Canada

Sustainability of the Canadian Health Care System and Impact of the 2014 Revision to the Canada Health Transfer, Sep 2013, Executive Summary and Ch. 11 only

Morneau Shepell Handbook of Canadian Pension Benefit Plans, 16th Edition, 2016 - Ch. Ch. 2: Government Pension Programs

**Commentary on Question:**

*Candidates were expected to understand the regulatory and policy making process in Canada, including how the Canada Health Transfer payments are determined. Candidates were also expected to be able to critique recommendations with consideration to the impacts towards group and federal benefit programs and their internal mechanics. Most candidates showed an understanding towards CPP disability benefits and group disability insurance but were generally unable to describe the mechanics of the Canada Health Transfer payments and their 2014 changes.*

**Solution:**

(a)

- (i) Critique the CFO's assertion concerning the CPP disability benefit.
- (ii) Describe how the disabled employee's group benefits would be impacted if the plan were to terminate.

**Commentary on Question:**

*Most candidates were able to critique the CFO's comments and understood how the CFO's requested changes impact group benefits coverage for current employees.*

- (i) CPP disability benefits are only available to the contributor if they meet certain conditions:
  - The contributor must have a severe and permanent disability.
  - The contributor is unable to engage in any substantially gainful occupations with earnings in excess of \$5,800 per year (in 2020).
  - The contributor must meet the contribution requirements (i.e. contributed to the CPP for a certain period in their contributory periods to be eligible for a disability pension.
  - While the CPP disability benefit is available, the CPP disability monthly benefit is capped at a maximum for each year (\$1,536.67 in 2023). This provides a much lower replacement ratio than the current benefits design (66.67% up to \$5,000 of monthly salary).
- (ii) Every contract of Group Insurance with a Life Waiver of Premium provision should provide that, upon termination of the contract or benefit provision, the insurance on the life of a Plan Member who is disabled according to the definition of disability included in the contract of Group Insurance at the time of the termination will be continued as though the contract or benefit provision were in full force and effect. Similarly, every contract of Group Insurance with a Disability Income Benefit should provide that, upon termination of the contract or benefit provision, the Disability Income Benefit of a Plan Member who is disabled according to the definition of disability included in the contract of Group Insurance at the time of its termination will be continued as though the contract or

benefit provision were in full force and effect. This assumes that the LTD benefit is insured.

- (b) With respect to the CFO's concerns over government offloading of costs, you review the 2014 revisions to the Canada Health Transfer (CHT) payment calculations.
- (i) List and describe how the federal government supports provinces and territories with the funding of health care expenditures.
  - (ii) Describe the 2014 revisions to CHT payment calculations and what their expected impacts were.
  - (iii) List approaches available to governments to safeguard the sustainability of Canada's health care system.

**Commentary on Question:**

*Most candidates were unable to describe how the federal government supports provinces and territories with health care funding. Few candidates were able to describe the 2014 CHT revisions.*

- (i) The federal government supports provinces and territories with the funding of health care expenditures using the Canada Health Transfer (CHT). Currently, it includes both tax points and cash transfers.

CHT tax points are a result of the federal government decreasing its income tax rates in the late 1970s, allowing the provinces/territories to use the additional tax space. The tax points that are appropriated to the CHT are impacted by the evolution of the tax base (personal and corporate income) and were expected to grow in line with the economy.

In 2004/05 and 2005/06, total CHT cash transfers were set at fixed amounts in accordance with the prescription of the Federal-Provincial Fiscal Arrangement Acts. They are increasing at a nominal annual rate of 6% until 2013/14.

Total CHT cash transfers are allocated to each province/territory so that each province/territory receiving a total CHT entitlement (cash transfer plus tax points) is proportional to its population (i.e. equal to per capita total CHT)

Using the current CHT calculation formula, the federal cash transfers associated with the CHT will be funding 22.9%, on average, of total health care expenditures of provinces/territories in 2037.

- (ii) CHT cash transfers will be allocated differently by province/territory. They are currently allocated on the basis of equal-per-capita total CHT entitlement (including tax points and cash transfers). Starting with fiscal year 2014-2015, they will be allocated on the basis of equal-per-capita CHT cash transfers. Aggregate CHT cash transfers will be increasing at an annual rate equal to a three-year moving average of the GDP growth. There is a further guarantee that total cash transfers will increase by at least 3 percent every year.

With these proposed changes, the CHT cash transfer would grow less than using the current calculation formula.

These changes will have different impacts for different provinces. Some will end up with a higher reduction in their total available revenues (PEI, NS, QC, BC), some will end up with a slightly less pronounced reduction (ON) and some can expect nearly no change to their cumulative CHT cash transfer over the projection period (AB).

The calculation formula will have a significant effect on the ability of provinces/territories to continue supporting the health care system. Provinces/territories will have to find new sources of funding to make up the difference.

- (iii) Research shows that in order to safeguard the sustainability of its healthcare system, Canada has to:
- Significantly limit health care cost increase.
  - Boost GDP growth.
  - Raise taxes/fees.
  - Substantially reduce or cut other government programs or services.
  - Implement some combination of the above.

- (c) Calculate the following:

(i) The budgeted group benefits plan costs for 20X2.

(ii) The raise in employee salaries that the result in (i) would fund.

State any assumptions and show your work.

**Commentary on Question:**

*Nearly all candidates were able to calculate total costs per employee, except for application of premium tax and retail sales tax. Some candidates forgot to exclude certain benefits for the employee on disability.*

(i)

Employee profile	Basic Life Insurance	Calculation
Active_1	\$1,104.60	Volume x rate / 1000 x headcount x 12
Active_2	\$946.80	
Active_3	\$820.56	
Active_4	\$568.08	
Active_5	\$946.80	
Long Term Disabled_1	\$0.00	

  

Employee profile	Short Term Disability	Calculation
Active_1	\$1,999.04	Volume x rate / 10 x headcount x 12
Active_2	\$1,713.46	
Active_3	\$1,485.00	
Active_4	\$792.00	
Active_5	\$792.00	
Long Term Disabled_1	\$0.00	

  

Employee profile	Long Term Disability	Calculation
Active_1	\$4,162.38	Volume x rate / 100 x headcount x 12
Active_2	\$3,567.75	
Active_3	\$3,092.05	
Active_4	\$2,130.00	
Active_5	\$2,130.00	
Long Term Disabled_1	\$0.00	

  

Employee profile	Extended Health Care	Dental	Calculation
Active_1	\$7,200.00	\$5,160.00	rate x headcount x 12
Active_2	\$4,320.00	\$3,096.00	
Active_3	\$2,880.00	\$2,064.00	
Active_4	\$1,440.00	\$1,032.00	
Active_5	\$1,440.00	\$1,032.00	
Long Term Disabled_1	\$1,440.00	\$1,032.00	

  

Employee profile	Salary (20X1)	Health Care Spending Account (HCSA)	Calculation
Active_1	\$35,000	\$1,673.75	headcount x HSA amount x utilization x (1+admin exp)
Active_2	\$50,000	\$1,004.25	
Active_3	\$65,000	\$669.50	
Active_4	\$90,000	\$334.75	
Active_5	\$150,000	\$334.75	
Long Term Disabled_1	\$75,000 (pre-disability)	\$334.75	

	Basic Life Insurance	Short Term Disability	Long Term Disability	Extended Health Care	Dental	Health Care Spending Account
Annual Premium	\$4,386.84	\$6,781.50	\$15,082.18	\$18,720.00	\$13,416.00	\$4,351.75
Premium Tax	included	included	included	included	included	\$87.04
Retail sales tax	\$350.95	\$542.52	\$1,206.57	\$1,497.60	\$1,073.28	\$348.14

Total Cost in 20X1	\$67,844.36
Budgeted for 20X2	\$78,021.02

--> based on a 15% budgeted increase

(ii)

Salary Increase Percentage: **10.6%** --> use goal seek

Total increase to payroll: **\$73,564.26**

Employee	Salary	Headcount	Salary	Additional costs (per EE)					Total	Grand Total
				Salary	EI	CPP	EHT	Total		
Active_1	\$35,000	5	\$38,705	\$3,705	\$85	\$220	\$72	\$4,082	\$20,409	
Active_2	\$50,000	3	\$55,292	\$5,292	\$121	\$315	\$103	\$5,831	\$17,494	
Active_3	\$65,000	2	\$71,880	\$6,880	\$0	\$95	\$134	\$7,109	\$14,219	
Active_4	\$90,000	1	\$99,526	\$9,526	\$0	\$0	\$186	\$9,712	\$9,712	
Active_5	\$150,000	1	\$165,877	\$15,877	\$0	\$0	\$310	\$16,187	\$16,187	
									<b>\$78,021</b>	

(d) Recommend whether ABC Company should eliminate its group benefits plan in exchange for higher employee salaries. Justify your response.

**Commentary on Question:**

*Candidates were generally able to provide recommendations on why ABC should not eliminate its groups benefits program. However, if a candidate was unable to answer part (c), many times, they did not attempt part (d), even though there are points available that are not dependent on (c).*

I recommend keeping the benefits program because:

- Benefits are tax preferred while salaries attract income and payroll taxes.
- Some employees may have benefit requirements/needs that are beyond the magnitude of a raise.
- Some employees may be better off dollar-wise, but may lose their safety net, especially if they do not have access to a secondary plan (such as a spousal plan).
- Instead of eliminating benefits all together, ABC may consider reducing coverage or requiring additional employee contributions.