



# Case Study

**SPRING 2019**

Group & Health Core, US Exam

EXAM GHCORU

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GHCORU Afternoon Session

# Table of Contents

- Case Study – Group & Health, Core US..... 3
  - Introduction..... 3
  - Firm Description ..... 3
- Skyfall’s Clients..... 4
  - C. Royale Health & Life Insurance Company (Royale Health)..... 4
    - Large Group Products/Administrative Services Only..... 4
  - Goldfinger Insurance Company (GIC) ..... 9
    - Medicare Advantage/Part D..... 9
    - Medicaid ..... 14
  - Your Eyes and Smiles Insurance Company (Your Eyes) ..... 17
  - The Thunderball Corporation (Thunderball) ..... 19
    - Long-Term Disability ..... 19
    - Long-Term Care..... 21
    - Group Life..... 24
  - Moonraker Energy (Moonraker)..... 25
  - Dr. No’s Herbal Tea (Dr. No’s) ..... 28
  - Live Twice, Inc. (Live Twice) ..... 30
  - Another Day, Inc. (Another Day) ..... 31

## Case Study – Group & Health, Core US

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### Introduction

In this case study, you are the President at the Skyfall Actuarial Consulting firm (Skyfall or Firm). The case study will outline the characteristics of the Firm and provide details regarding the various current clients and prospective clients of Skyfall.

All numbers found in this case study are for illustrative purposes only and are not representative of true costs or actual relationships. Any similarities with actual company results are coincidental. Plan design and plan limitations for a given plan year may not be in compliance with current year guidance, regulations, or laws.

### Firm Description

Skyfall is a medium-sized consulting firm that was founded in 1965 in London, Texas and provides actuarial services to life and health insurance companies, state and federal regulatory agencies, and employers. The Firm's staff consists of over 50 actuaries that are located in the United States.

Additionally, Skyfall has a location in London, Ontario, which provides actuarial services to clients, employers and insurance carriers in Canada. The Canadian office consists of over 25 actuaries that are located throughout Canada.

Skyfall employs roughly 50 actuarial students between the two locations. These students assist in daily tasks and client management. Skyfall is committed to the development and training of future actuaries, and this can be seen in the level of training and types of projects that actuarial students assist with.

The Firm's areas of expertise include:

- Individual and Small Group Major Medical Plans
- Large Group Major Medical Plans
- Medicare Advantage and Part D Plans
- Medicaid Plans
- Retiree Health Benefit Plans
- Group Disability Plans
- Individual and Small Group Dental Plans
- Large Group Dental Plans
- Group Life
- Group Long-Term Care
- Cafeteria Plans/ Flexible Benefits.

The corporate goal is to provide affordable and quality actuarial services to its clients to ensure that they have the tools to be successful in their business endeavors. Skyfall aims to build long-lasting client relationships and strives to provide excellent services for its clients. Due to its size, the Firm caters to individual client's unique needs and aims to exceed the client's expectations.

Below is a list of some of Skyfall's current and prospective clients.

## Skyfall's Clients

### C. Royale Health & Life Insurance Company (Royale Health)

#### Large Group Products/Administrative Services Only

Royale Health, incorporated in 1980, offers coverage options for large group employers, including fully insured options and administrative services only (ASO) options. Health coverage plan options offered by Royale Health include medical and prescription plans, which are marketed primarily through agents and brokers. Royale Health has been successful in establishing its own preferred provider networks in the Midwestern states and has the second largest market share in the large group market of the Midwest Region. The medical plan portfolio includes PPO plans and qualified high deductible health plans (HDHP), which can be combined with a Health Savings Account (HSA). Royale Health also administers Health Reimbursement Arrangements (HRA) offered by employers. The Royale Health's Board is considering a proposition for incorporating a managed care business division that can leverage its fast growing provider networks to offer competitively priced HMO, POS, and PPO plans.

Royale Health witnessed material enrollment gains in the HDHP/HSA market in 2015, increasing from 42% of its total enrollment in 2014 to 61% in 2015. They are currently analyzing if its current pricing model needs to be recalibrated to reflect induced demand utilization factors that are closer to what their experience shows.

Rates for large groups are experience rated on either a prospective or retrospective basis. Royale Health's underwriting department will, at its discretion, consider retrospective experience rating for groups with more than 2,000 enrolled enrollees.

The manual rates (claim costs) PMPM for large groups are provided in Exhibit 2. The manual rate adjustment factors include industry factors based on SIC code (Exhibit 6), demographic factors (based on age and gender), and HSA/HRA deductible funding factor (Exhibit 4). The HSA/HRA deductible funding factor accounts for the anticipated increase in utilization of services due to "first dollar" coverage provided when an employer group funds a portion of the plan deductible.

Each group is charged a pooling charge of 8.5% for large claims exceeding an attachment point of \$100,000. The calendar year trend factors used to project historical experience of the group to the proposed rating period are shown in Exhibit 3. The credibility factor (Exhibit 5) for a group is determined by the number of member months in the experience period.

Non-claim expenses used in development of premium, expressed as a percent of premium is listed below:

<b>Exhibit 1 - Non-Claim Expenses (2017)</b>	
General Administration	7.2%
Profit Margin	3.0%
Premium Tax	1.8%
ACA Health Insurer Tax	2.0%
Broker Load	1.5%

<b>Exhibit 2 - Manual Claim Costs PMPM (Q1 2017)</b>		
<b>Plan</b>	<b>Product Type</b>	<b>Manual Rate</b>
PPO500	PPO	\$399.50
PPO1000	PPO	\$370.15
PPO2000	PPO	\$320.20
HDHP2500	HDHP	\$260.25
HDHP3000	HDHP	\$238.50
HDHP3500	HDHP	\$215.20

<b>Exhibit 3 - Calendar Year Trend Factors</b>		
<b>Calendar Year</b>	<b>Allowed Medical Trend</b>	<b>Allowed Pharmacy Trend</b>
2015	10.90%	4.50%
2016	6.70%	8.10%
2017+	5.50%	9.20%

<b>Exhibit 4 - HSA/HRA Deductible : Employer Funding Adjustment Factors</b>		
<b>Single Deductible</b>	<b>25%-75% Funding</b>	<b>76%-100% Funding</b>
\$2,000	1.30%	2.70%
\$2,250	1.40%	2.80%
\$2,500	1.50%	2.90%
\$2,750	1.80%	3.60%
\$3,000	2.20%	4.40%
\$3,250	2.60%	5.20%
\$3,500	3.10%	5.90%
\$4,000	3.10%	5.90%

<b>Exhibit 5 - Credibility Factors</b>	
<b>Member Month Range</b>	<b>Credibility Factor</b>
51 to 499	0%
500 to 2,499	20%
2,500 to 3,499	30%
3,500 to 4,999	40%
5,000 to 5,999	50%
6,000 to 7,199	60%
7,200 to 8,399	70%
8,400 to 9,599	80%
9,600 to 12,199	90%
12,200 and over	100%

<b>Exhibit 6 - Industry Factors</b>		
<b>SIC</b>	<b>SIC Description</b>	<b>Factor</b>
111	Wheat	0.89
112	Rice	0.89
241	Dairy Farms	1.00
721	Crop Planting, Cultivating, and Protecting	0.89
762	Farm Management Services	0.89
1241	Coal Mining Services	1.13
1311	Crude Petroleum and Natural Gas	1.04
1381	Drilling Oil and Gas Wells	1.04
1731	Electrical Work	1.00
2037	Frozen Fruits, Fruit Juices, and Vegetables	0.89
2038	Frozen Specialties, NEC	0.89
2111	Cigarettes	1.04
2389	Apparel and Accessories, NEC	1.00
2421	Sawmills and Planing Mills, General	1.13
5147	Meats and Meat Products	1.00
5148	Fresh Fruits and Vegetables	0.89
5149	Groceries and Related Products, NEC	0.89
5531	Auto and Home Supply Stores	1.04
5541	Gasoline Service Stations	1.10
7371	Computer Programming Services	0.89
7996	Amusement Parks	1.13
7997	Membership Sports and Recreation Clubs	1.13
7999	Amusement and Recreation Services, NEC	1.10
8011	Offices and Clinics of Doctors of Medicine	1.13
8021	Offices and Clinics of Dentists	1.13
8031	Offices and Clinics of Doctors of Osteopathy	1.13
8041	Offices and Clinics of Chiropractors	1.13
8051	Skilled Nursing Care Facilities	1.13
8651	Political Organizations	1.13
9211	Courts	1.13
9221	Police Protection	1.13
9224	Fire Protection	1.13
9229	Public Order and Safety, NEC	1.13
9411	Administration of Educational Programs	1.13
9711	National Security	1.13

<b>Exhibit 7 - Financial Statements</b>			
<b>Royale Life Insurance Company</b>		<b>Income Statement</b>	
(In thousands)		For the Years Ending December 31,	
<b>Revenue</b>		<b>2015</b>	<b>2014</b>
Premiums		\$66,599	\$57,686
Administrative fees Income		5,050	4,152
Other revenue		45	79
<i>Total operating revenue</i>		<i>71,694</i>	<i>61,917</i>
Net investment income		749	755
Net realized gains (losses) on investments		321	423
<b>Total Revenues</b>		<b>\$72,764</b>	<b>\$63,095</b>
<b>Expenses</b>			
Benefit expense		\$57,230	\$49,252
Commissions		1,541	1,591
General and administrative expense		9,246	8,143
Premium Taxes		1,332	1,154
Interest Expense		752	598
Amortization of other intangible assets		298	287
<b>Total Expenses</b>		<b>\$70,399</b>	<b>\$61,025</b>
Income before income tax expense		2,365	2,070
Income tax expense		1,251	1,253
<b>Net Income</b>		<b>\$1,114</b>	<b>\$817</b>

<b>Exhibit 7 - Financial Statements (continued)</b>		
<b>Royale Life Insurance Company</b>	<b>Balance Sheet</b>	
(In thousands)		
<b>Assets</b>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
<b>Current Assets</b>		
Cash and cash equivalents	\$1,729	\$2,210
Investments available-for-sale, at fair value		
Fixed maturity securities (amortized cost)	16,950	15,913
Equity securities	1,835	1,515
Accrued investment income	159	149
Premium Receivables	3,858	3,748
Other receivables	995	897
Other current assets	1,712	1,829
Assets held for sale	859	901
<b>Total Current Assets</b>	<b>\$28,097</b>	<b>\$27,162</b>
Long-term investments	\$2,102	\$2,055
Net property, plant, and equipment	1,811	1,729
Goodwill	15,971	15,942
Other intangible assets	7,931	7,955
Other noncurrent assets	458	299
<b>Total Assets</b>	<b>\$56,370</b>	<b>\$55,142</b>
<b>Liabilities and Shareholder's Equity</b>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
<b>Liabilities</b>		
<b>Current Liabilities</b>		
Policy Liabilities:		
Medical claims payable	\$6,058	\$6,095
Reserves for future policy benefits	59	55
Other policyholder liabilities	2,023	2,125
<b>Total Policy Liabilities</b>	<b>\$8,140</b>	<b>\$8,275</b>
Unearned Income	811	875
Accounts payable and accrued expenses	3,299	2,975
Short-term borrowings	389	212
Current portion of long-term debt	467	489
Other current liabilities	1,594	1,647
<b>Total Current Liabilities</b>	<b>\$14,700</b>	<b>\$14,473</b>
Long-term debt, less current portion	11,253	12,121
Reserves for future policy benefits, noncurrent	655	661
Deferred tax liabilities, net	2,987	2,857
Other noncurrent liabilities	787	895
<b>Total Liabilities</b>	<b>\$30,382</b>	<b>\$31,007</b>
<b>Shareholder's Equity</b>		
Paid-in capital - Common Stock	\$12,094	\$11,976
Retained earnings	13,513	11,950
Accumulate other comprehensive income	381	209
<b>Total Shareholder's Equity</b>	<b>\$25,988</b>	<b>\$24,135</b>
<b>Total Liabilities and Owner's Equity</b>	<b>\$56,370</b>	<b>\$55,142</b>



## **Goldfinger Insurance Company (GIC)**

### **Medicare Advantage/Part D**

Goldfinger Insurance Company provides Medicare Advantage Plans and Part D Plans (MAPD), Medicaid and CHIP plans to the applicable target groups. GIC is domiciled in Fort Knox, Kentucky. The only MAPD offering is a Dual-Eligible Special Needs Plan (SNP). Total membership in the MAPD program is roughly 50,000 members. Until recently, this product was available only in Kentucky; however, the program was expanded into parts of Tennessee in 2016. Membership in Tennessee is very low and little claims experience is available.

Skyfall provides actuarial support for GIC's Medicare products and aids in product design and bid submission, as necessary. The following are selections from the email correspondence between Goldfinger and Skyfall regarding the latest round of pricing.

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**\*\*Goldfinger Email 1\*\***

From: Jill Masterson <JMasterson@goldfingeric.com>  
To: You <JB007@Skyfall.com>  
Sent: February 25th, 2016  
Subject: Medicare Advantage Cost Sharing

Hello again, we can't thank you enough for performing so many "odd jobs" related to our Medicare Advantage products. You have certainly been essential to our success with the MAPD plan.

Our product development team has proposed waiving the skilled nursing facility (SNF) copay for the first four days and applying it instead to days five through eight. This is more in line with our primary competitor, and they believe it will increase new enrollment. However, I'm a little worried it might be too expensive. Please take a look at that and let us know whether we can make this change without losing too much on the profit side.

I wasn't sure what information you'd need, but I had Auric pull some historical information on the SNF benefit. I attached a summary of our historical experience with SNF length-of-stay, as well as the 2015 experience by benefit. The attached trend tables were published by a respected research group and they might be a good starting point for prospective trend estimates going forward. If you need anything else, don't hesitate to ask.

Thanks again,  
Jill Masterson  
Chief Financial Officer  
Goldfinger Insurance Company

Enclosures:

**Goldfinger Insurance SNF Continuance (MAPD):**

<b>Exhibit 1 - Skilled Nursing Facility</b>	
Length of Stay (Days)	Cumulative Frequency
1	0.10
2	0.17
3	0.23
4	0.28
5	0.33
6	0.36
7	0.38
8	0.40
100	1.00

<b>Exhibit 2 - Medicare Advantage Kentucky - 2015 Experience</b>						
<b>Medical</b>	Utilization Units	Utilization /1000	Unit Cost	Allowed PMPM	Net Paid PMPM	Cost Share PMPM
Inpatient Facility	Days	750	\$6,000	\$375.00	\$360.00	\$15.00
Skilled Nursing Facility	Days	600	\$1,000	\$50.00	\$49.50	\$0.50
Home Health	Visits	200	\$210	\$3.50	\$3.50	\$0.00
Ambulance	Trips	120	\$700	\$7.00	\$6.65	\$0.35
DME/Prosthetics/Supplies	Other	600	\$240	\$12.00	\$10.80	\$1.20
Emergency Room	Visits	300	\$1,200	\$30.00	\$26.10	\$3.90
Outpatient Surgery	Procedures	150	\$3,000	\$37.50	\$33.75	\$3.75
Professional	Visits	6000	\$200	\$100.00	\$97.00	\$3.00
Other Medicare Part B	Other	1000	\$1,500	\$125.00	\$106.25	\$18.75
<b>Total</b>				\$740.00	\$693.55	\$46.45
<b>Prescription</b>		Scripts /1000	Unit Cost	Allowed PMPM	Net Paid PMPM	Cost Share PMPM
Preferred Generic		5000	\$24	\$10.00	\$10.00	\$0.00
Non-Preferred Generic		20000	\$33	\$55.00	\$45.83	\$9.17
Preferred Brand		1000	\$360	\$30.00	\$25.88	\$4.13
Non-Preferred Brand		1800	\$900	\$135.00	\$90.45	\$44.55
Specialty		3.6	\$2,700	\$0.81	\$0.63	\$0.18
<b>Total</b>				\$230.81	\$172.79	\$58.03

Exhibit 3 shows the publicly-available prospective trends for Kentucky and Tennessee.

<b>Exhibit 3 - Medicare Advantage Annual Trend Factors - Kentucky</b>				
Service Category	2015-2016		2016-2017	
	Unit Cost	Utilization/1000	Unit Cost	Utilization/1000
Inpatient Hospital	3.00%	-0.50%	1.00%	0.00%
Skilled Nursing and Home Health	1.50%	0.00%	0.25%	0.25%
Outpatient Hospital	2.00%	0.00%	2.00%	0.50%
Physician	0.00%	2.00%	0.50%	3.50%
Other	-1.00%	0.00%	0.50%	1.00%

<b>Exhibit 3 (con't) - Medicare Advantage Annual Trend Factors - Tennessee</b>				
Service Category	2015-2016		2016-2017	
	Unit Cost	Utilization/1000	Unit Cost	Utilization/1000
Inpatient Hospital	3.00%	-0.50%	-5.50%	0.00%
Skilled Nursing and Home Health	1.50%	0.00%	-0.50%	0.25%
Outpatient Hospital	2.00%	0.00%	2.00%	0.50%
Physician	0.00%	2.00%	-2.00%	3.50%
Other	-1.00%	0.00%	0.50%	1.00%

<b>Exhibit 4 - Cost Sharing for Goldfinger MAPD Plans</b>			
MA Benefit Category	2015	2016	2017
Deductible	\$200	\$200	\$200
General Coinsurance	20%	20%	20%
Maximum Out-of-Pocket	\$6,500	\$6,500	\$6,000
Inpatient	No cost sharing for first three days, then \$150 copay per day.	No cost sharing for first three days, then \$150 copay per day.	No cost sharing for first three days, then \$150 copay per day.
Skilled Nursing Facility	\$50 copay per day for first five days, no cost sharing afterwards	\$50 copay per day for first five days, no cost sharing afterwards	\$40 copay per day for first four days, no cost sharing afterwards
Home Health Services	No cost sharing	No cost sharing	No cost sharing
Emergency Care Copay	\$75	\$75	\$50
Primary Care Copay	\$30	\$35	\$35
Specialist Copay	\$55	\$50	\$50
Other Medicare-Covered	Deductible/ Coinsurance	Deductible/ Coinsurance	Deductible/ Coinsurance
PD Benefit Category	2015	2016	2017
Annual Deductible	\$320	\$260	\$400
Preferred Generic Rx	\$0 Copay	\$5 Copay	\$0 Copay
Non-Preferred Generic Rx	\$5 Copay	\$7 Copay	\$5 Copay
Preferred Brand Rx	\$45 Copay	\$25 Copay	\$45 Copay
Non-Preferred Brand Rx	30% Coinsurance	30% Coinsurance	30% Coinsurance
Specialty Rx	20% Coinsurance	20% Coinsurance	20% Coinsurance

**\*\*Goldfinger Email 2\*\***

From: Jill Masterson <JMasterson@goldfingeric.com>  
 To: You <JB007@Skyfall.com>  
 Sent: March 15, 2016  
 Subject: Dual-Eligible (DE) Inpatient Costs

Hello again! As you know, one important element of our Medicare Advantage bid development pertains to projected population changes. Because different demographics have very different costs, we have to project as accurately as possible the changes in both our revenue and our expenses due to aging, new enrollees, and other factors that represent a change in the demographic mix. The reviewers usually expect detailed documentation of our process, so make sure to keep that in mind as we develop those projections.

Since we are continually expanding, we want to keep a close eye on any major shifts in membership. Auric suggested that maybe our factors for some of those demographic characteristics might be too simplistic and recommended we look at the cost differentials for inpatient costs separately from other costs. He is still working on getting all of the data from the providers across the state, but below is our admission experience for last year for one of our hospitals. Hopefully this will help you get a head start on

projecting changes in cost. I have also included the factors we have used in the past for projected new enrollees, along with enrollment projections from our sales team.

Please start looking at this data, and we'll get you the data from our other providers as soon as possible.

Thanks, Jill

Enclosures:

<b>Exhibit 5 - Goldfinger Inpatient Claims at Fort Knox Hospital, 2015</b>						
Member	Age	Gender	Dual Eligible (DE) Status	Admit Date	Discharge Date	DRG
George	68	Male	DE	08/14/2015	09/05/2015	4
Auric	81	Male	DE	02/07/2015	02/26/2015	7
Auric	81	Male	DE	03/01/2015	03/31/2015	7
Ian	65	Male	Non-DE	04/05/2015	05/05/2015	6
Tilly	71	Female	Non-DE	03/15/2015	04/05/2015	3
Tilly	71	Female	Non-DE	05/04/2015	05/30/2015	1
Tilly	71	Female	Non-DE	10/04/2015	10/19/2015	1
Q	66	Male	DE	11/27/2015	11/28/2015	5
Olivia	70	Female	Non-DE	06/06/2015	06/12/2015	5
Moneypenny	91	Female	Non-DE	06/07/2015	06/27/2015	2
Felix	68	Male	Non-DE	08/23/2015	08/30/2015	4
Bonita	74	Female	Non-DE	09/02/2015	09/11/2015	3
Shirley	66	Female	DE	04/04/2015	04/13/2015	1

<b>Exhibit 6 - Regional Factors</b>			
		2015 MAPD	2016 MAPD
Region	Factor	Members	Members
North	1.09	15,124	17,145
East	0.98	16,745	15,977
South	1.05	8,235	10,542
West	0.82	7,896	7,336

<b>Exhibit 7 - Age Factors</b>			
		2015 MAPD	2016 MAPD
Age	Factor	Members	Members
Under 70	0.93	24,804	31,524
70 to 74	1.04	15,331	14,112
75 to 79	1.08	4,450	4,852
80+	1.22	3,415	512

<b>Exhibit 8 - Gender Factors</b>			
		2015 MAPD	2014 MAPD
Gender	Factor	Members	Members
Male	1.03	20,546	21,213
Female	0.98	27,454	29,787

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### **Medicaid**

GIC has also entered into a Financial Alignment Demonstration contract with Kentucky and CMS, which became effective on July 1<sup>st</sup>, 2015. This demonstration will be carried out under the Capitated Model. The target population of the demonstration is limited to dual-eligible beneficiaries over the age of 80. As a result, the per-member per-month (PMPM) costs for the demonstration members are expected to be materially higher than average for the MAPD plan. The primary source of enrollment is pre-existing Goldfinger members. The majority of Goldfinger's members over the age of 80 have elected to participate in the demonstration due to its more generous benefits. Skyfall was asked to assist in the calculation of prospective capitation payments over the life of the demonstration. The past two years of income statements and balance sheets for GIC is provided below:

<b>Exhibit 9 - Financial Statements</b>			
<b>Goldfinger Insurance Company (GIC) - Income Statement</b>			
(In thousands)		For the Years Ending December 31,	
<b>Revenue</b>		<b>2015</b>	<b>2014</b>
	Premiums	\$196,810	\$141,687
	Medicare Advantage	173,412	134,876
	Medicare Part D	10,620	6,811
	<i>Total MAPD</i>	<i>\$184,032</i>	<i>\$141,687</i>
	Dual-Eligible Demonstration	12,778	-
	<i>Total operating revenue</i>	<i>\$196,810</i>	<i>\$141,687</i>
	Net investment income	6,273	5,269
	<b>Total Revenues</b>	<b>\$203,083</b>	<b>\$146,956</b>
<b>Expenses</b>			
	Benefit expense	\$168,112	\$119,367
	Medicare Advantage	149,481	113,476
	Medicare Part D	9,027	5,891
	<i>Total MAPD</i>	<i>\$158,508</i>	<i>\$119,367</i>
	Total Dual-Eligible Demonstration	9,604	-
	Commissions	3,543	2,210
	General administrative expense	17,786	14,693
	Premium Taxes	3,787	2,914
	Interest Expense	961	1,095
	Amortization of other intangible assets	311	300
	<b>Total expenses</b>	<b>\$194,500</b>	<b>\$140,579</b>
	Income before income tax expense	8,583	6,377
	Income tax expense	3,090	2,296
	<b>Net Income</b>	<b>\$5,493</b>	<b>\$4,081</b>

<b>Exhibit 9 (con't) - Financial Statements</b>		
<b>Goldfinger Insurance Company (GIC) - Balance Sheet</b>		
<i>(In thousands)</i>		
<b>Assets</b>	<b>December 31, 2019</b>	<b>December 31, 2018</b>
Current Assets	\$82,982	\$86,983
Long-term investments	9,524	6,165
Net property, plant, and equipment	4,865	5,187
Net Intangible Assets	31,969	27,109
<b>Total Assets</b>	<b>\$129,340</b>	<b>\$125,444</b>
<b>Liabilities and Shareholder's Equity</b>		
<i>Liabilities</i>		
Policy liabilities:		
Claims unpaid	\$16,965	\$17,066
Reserves for future policy benefits	321	154
Other policyholder liabilities	4,789	5,746
<i>Total policy liabilities</i>	<i>\$22,075</i>	<i>\$22,966</i>
Unearned Premium	3,456	2,651
Premiums received in advance	18,014	14,904
Long-term debt	29,785	33,938
Reserves for future policy benefits, noncurrent	345	290
Deferred tax liabilities, net	3,129	4,524
Payable for securities	2,203	2,506
<b>Total Liabilities</b>	<b>\$56,932</b>	<b>\$58,813</b>
<i>Shareholder's Equity</i>		
Common capital stock	\$25,521	\$20,945
Retained earnings	46,887	45,686
<b>Total Shareholder's Equity</b>	<b>\$72,408</b>	<b>\$66,631</b>
<b>Total Liabilities and Owner's Equity</b>	<b>\$129,340</b>	<b>\$125,444</b>



## **Your Eyes and Smiles Insurance Company (Your Eyes)**

Your Eyes and Smiles Insurance Company, a leading provider of dental and vision benefits, offers managed care and indemnity programs. Since 1995, this private insurance company has offered innovative programs designed to control costs and provide quality vision and dental care. Your Eyes has been one of the early pioneers whose marketing methods underscored the impact of oral health on overall wellness. In early 2012, Your Eyes started adopting an accountable care approach to contract with dental providers that focus on various performance measures and has become one of the first dental carriers to earn URAC accreditation as a demonstration of its commitment to quality care. In tandem with its recent growth, Your Eyes' business strategy includes increasing their investment in mobile apps and online tools, such as cost estimator and assessment tools, which would enable its customers to engage with the company on a 24/7 basis.

Your Eyes' vision care network is comprised of independent ophthalmologists, optometrists, and retail chain locations nationwide. They cover well over 1.5 million members for vision benefits, primarily through employer-sponsored coverage.

The goal of Milos Columbo, the newly appointed CEO, is to expand its presence in the individual market. While the health insurance challenges faced by the underinsured and uninsured is rightfully grabbing national attention in recent years, Milos believes that dental health is receiving a lot less time and attention although its effects can be just as critical to overall health. Incidentally, his sister, Melina, had co-authored a widely acclaimed 2008 study published in the *American Journal of Public Health*, showing positive association between oral health and heart health. With more than half of the US population lacking even basic dental insurance coverage, Milos' business goal is to push the boundaries of traditional dental care insurance using cost-effective strategies. Under his leadership, Your Eyes is in the process of revamping its product suites to better suit the individual market.

Dental plan options currently offered include DHMO and PPO product suites sold to over 2.5 million enrollees primarily in the employer group market. The DHMO plans require enrollees to select a participating (network) dentist and have no deductibles or waiting period. DHMO plan options can be tailored to meet a group's needs, ranging from a plan that has no enrollee cost sharing for Class I, II, and III services to plans that cover Class I services at no enrollee charge. The higher priced PPO plans give access to dental care both inside and outside of its networks by simply paying a discounted fee for service.

Your Eyes has two dental provider networks: a Tight network with high discount levels and limited provider participation and a Broad network with greater provider participation but average discount levels. Network providers have agreed to accept these network allowances as payment in full for Your Eyes' covered members. In addition, a 90<sup>th</sup> percentile payment mechanism is offered with no specific provider network. Exhibit 3 shows the provider discount and penetration for the PPO plans varying by the associated network option.

The cost sharing provisions for the Your Eyes’ highest selling dental PPO50 plan are outlined below:

<b>Exhibit 1 - Dental PPO50 Plan Benefits</b>	
<b><u>Deductible per Insured per Benefit Year</u></b>	
Preferred Provider	
Class I Services	None
Class II and Class III Services	\$50
Non-Preferred Provider	
Class I, Class II, and Class III Services	\$50
<b><u>Annual Maximum per Covered Person</u></b>	
Annual Maximum per Covered Person	\$1,500
<b><u>Waiting Period</u></b>	
Class I and Class II Services	None
Class III Services	12 Months

<b>Exhibit 2 - Dental Network Payment Rates</b>		
	<b>Preferred Provider Rates</b>	<b>Non- Preferred Provider Rates</b>
Class I	100%	80%
Class II	90%	60%
Class III	60%	30%

<b>Exhibit 3 - Provider Discount</b>		
<b>Network</b>	<b>Discount</b>	<b>Penetration</b>
Tight	35%	40%
Broad	20%	65%
90th Percentile	5%	N/A

Since 2016, Your Eyes has started offering pediatric dental benefits as a stand-alone-dental-plan carrier in both individual and SHOP Exchanges. Despite material investments on advertising campaigns and expansion of its network of pediatric dentists, they have not been able to gain significant market share in the pediatric dental market. The CFO envisions that an actuarially sound business strategy is needed to expand its market share from 4,500 pediatric enrollees in 2016 to 25,000 in 2018.

## The Thunderball Corporation (Thunderball)

The Thunderball Corporation is a large insurance company operating in the United States and Canada. The corporate vision is to be a comprehensive provider of long term insurance products. Thunderball seeks to offer competitive products earning reasonable return for stockholders while growing at a financially sustainable rate.

Thunderball offers Group Long-Term Disability, Group Life, and Group and Individual Long-Term Care.

### Long-Term Disability

Thunderball has experienced steady growth in Long-Term Disability sales. Exhibit 1 lists the incidence rates by gender. Exhibits 2a and 2b list the death and recovery rates<sup>1</sup> assumed for males in the LTD plans with 3 month elimination period and 6 month elimination period respectively.

<b>Exhibit 1 - Claim Reserve Table for Open Claim per \$100 of Monthly Benefit</b>			
		Elimination Period = 3 months	Elimination Period = 6 months
Sex	Age	Claim Incident Rate (per 1000 lives)	Claim Incident Rate (per 1000 lives)
F	under 30	1.0	0.5
F	30-39	1.6	1.0
F	40-49	2.5	2.1
F	50-59	3.0	2.6
F	60-64	4.0	3.7
F	65-66	5.0	4.8
M	under 30	1.0	0.5
M	30-39	1.4	1.0
M	40-49	2.6	2.1
M	50-59	3.4	3.0
M	60-64	4.5	4.2
M	65-66	5.5	5.3

<sup>1</sup> Earlier durations (usually until 24 months) are typically listed more granular by month. Assume annualized rates for the sake of simplicity.

Exhibit 2a - Death & Recovery - Males (3-month elimination period)									
Duration of Disablement	Age at Disablement								
	22	27	32	37	42	47	52	57	62
1st year	0.51	0.47	0.44	0.42	0.40	0.37	0.34	0.30	0.28
2nd year	0.48	0.45	0.40	0.35	0.31	0.25	0.21	0.15	0.15
3rd year	0.37	0.34	0.28	0.22	0.18	0.15	0.13	0.11	0.08
4th year	0.25	0.21	0.17	0.15	0.12	0.11	0.09	0.08	0.07
5th year	0.16	0.15	0.12	0.10	0.09	0.09	0.09	0.08	0.09
6th year	0.09	0.08	0.07	0.06	0.06	0.06	0.06	0.05	0.06
7th year	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.07	0.06
8th year	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.07	0.08
9th year	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.07	0.08
10th year	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.07	0.08
11th year	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.07	0.08
12th year	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.09
13th year	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.09	0.11
14th year	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.09	0.13
15th year	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.11	0.15
16th year	0.04	0.04	0.04	0.05	0.06	0.08	0.11	0.13	0.16
17th year	0.04	0.04	0.04	0.05	0.06	0.08	0.11	0.15	0.17
18th year	0.04	0.04	0.04	0.05	0.06	0.09	0.11	0.16	0.19
19th year	0.04	0.04	0.04	0.05	0.06	0.09	0.11	0.17	0.20
20th year	0.04	0.04	0.04	0.05	0.06	0.09	0.12	0.17	0.26
21st year	0.04	0.04	0.04	0.05	0.06	0.09	0.12	0.19	0.29
22nd year	0.04	0.04	0.04	0.05	0.06	0.09	0.12	0.21	0.31
23rd year	0.04	0.04	0.05	0.05	0.06	0.10	0.15	0.23	0.34
24th year	0.04	0.04	0.05	0.05	0.06	0.12	0.16	0.25	0.35
25th year	0.04	0.04	0.05	0.06	0.08	0.12	0.16	0.27	0.36
26th year	0.04	0.04	0.05	0.06	0.08	0.13	0.16	0.27	0.38
27th year	0.04	0.04	0.05	0.06	0.08	0.13	0.16	0.27	0.41
28th year	0.05	0.05	0.06	0.09	0.11	0.19	0.23	0.25	0.42
29th year	0.05	0.05	0.06	0.09	0.11	0.19	0.23	0.27	0.43
30th year	0.05	0.05	0.06	0.09	0.11	0.19	0.23	0.27	0.45
31st year	0.05	0.05	0.06	0.09	0.11	0.21	0.27	0.31	0.46
32nd year	0.05	0.05	0.06	0.09	0.11	0.21	0.27	0.34	0.46
33rd year	0.05	0.05	0.06	0.09	0.13	0.23	0.28	0.35	0.48
34th year	0.07	0.07	0.08	0.10	0.13	0.25	0.31	0.36	0.50
35th year	0.07	0.07	0.08	0.10	0.13	0.26	0.33	0.40	0.52
36th year	0.08	0.08	0.08	0.12	0.15	0.26	0.35	0.45	0.55
37th year	0.08	0.08	0.08	0.12	0.15	0.27	0.37	0.49	0.60
38th year	0.08	0.08	0.08	0.12	0.19	0.27	0.40	0.55	0.65

Exhibit 2b - Death & Recovery - Males (6-month elimination period)									
Duration of Disablement	Age at Disablement								
	22	27	32	37	42	47	52	57	62
1st year	0.40	0.36	0.33	0.31	0.25	0.22	0.19	0.15	0.10
2nd year	0.37	0.34	0.29	0.24	0.20	0.14	0.10	0.08	0.08
3rd year	0.22	0.19	0.17	0.17	0.13	0.12	0.10	0.08	0.08
4th year	0.16	0.12	0.10	0.09	0.08	0.07	0.07	0.06	0.06
5th year	0.14	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.06
6th year	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06
7th year	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.06
8th year	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.06
9th year	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.07
10th year	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.07
11th year	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.07
12th year	0.02	0.03	0.03	0.03	0.04	0.03	0.04	0.05	0.07
13th year	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.07	0.08
14th year	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.07	0.09
15th year	0.02	0.02	0.02	0.03	0.04	0.04	0.05	0.07	0.11
16th year	0.02	0.02	0.02	0.03	0.04	0.05	0.08	0.10	0.12
17th year	0.02	0.02	0.02	0.04	0.04	0.05	0.08	0.11	0.13
18th year	0.02	0.02	0.02	0.04	0.04	0.05	0.08	0.12	0.15
19th year	0.02	0.02	0.02	0.04	0.04	0.05	0.08	0.12	0.16
20th year	0.02	0.02	0.02	0.04	0.04	0.05	0.12	0.17	0.22
21st year	0.02	0.02	0.02	0.04	0.05	0.05	0.12	0.19	0.25
22nd year	0.02	0.02	0.02	0.04	0.05	0.05	0.12	0.20	0.27
23rd year	0.02	0.02	0.03	0.04	0.05	0.06	0.13	0.22	0.28
24th year	0.02	0.02	0.03	0.04	0.05	0.06	0.15	0.23	0.28
25th year	0.02	0.02	0.03	0.04	0.05	0.06	0.15	0.25	0.29
26th year	0.02	0.02	0.03	0.05	0.06	0.06	0.15	0.25	0.31
27th year	0.02	0.02	0.03	0.05	0.06	0.07	0.16	0.25	0.33
28th year	0.03	0.03	0.04	0.05	0.06	0.07	0.21	0.25	0.33
29th year	0.03	0.03	0.04	0.05	0.06	0.07	0.22	0.27	0.35
30th year	0.03	0.03	0.04	0.05	0.06	0.08	0.22	0.27	0.35
31st year	0.03	0.03	0.04	0.06	0.07	0.09	0.22	0.27	0.37
32nd year	0.03	0.03	0.04	0.06	0.07	0.11	0.17	0.28	0.38
33rd year	0.03	0.03	0.04	0.06	0.07	0.13	0.17	0.29	0.38
34th year	0.05	0.05	0.06	0.06	0.07	0.13	0.21	0.29	0.38
35th year	0.05	0.05	0.06	0.07	0.08	0.14	0.22	0.30	0.39
36th year	0.06	0.06	0.06	0.07	0.09	0.14	0.23	0.30	0.40
37th year	0.06	0.06	0.06	0.07	0.11	0.15	0.23	0.30	0.40
38th year	0.06	0.06	0.06	0.07	0.12	0.15	0.25	0.34	0.41

### Long-Term Care

Thunderball expanded into Long-Term Care (LTC) in late 1980's. Initially, Thunderball offered only group coverage. After a few years, experience with individual coverage conversion quickly convinced management that Thunderball should also sell direct individual coverage. Today, all LTC policies are administered together whether issued through a group or directly to individuals. Thunderball offers 3 plans with different elimination periods and benefit periods with monthly premiums. The benefits and claim costs are seen below:

<b>Exhibit 3 - Benefits</b>		
Benefit Level	Elimination Period (Months)	Benefit Period (Years)
1	3	2
2	6	5
3	12	Lifetime

<b>Exhibit 4 - Policy Data</b>						
Policy #	Annualized Premium	Benefit Period	Elimination Period	Daily Benefit	Issue Year	Issue Age
1	2,136.25	2 Years	3 Months	70.00	1990	58
2	4,448.89	2 Years	3 Months	90.00	1991	70
3	3,923.56	Lifetime	12 Months	90.00	1994	65
4	878.35	5 Years	6 Months	100.00	1995	52
5	2,059.50	2 Years	3 Months	100.00	1996	64
6	719.18	5 Years	6 Months	100.00	1998	57
7	778.51	Lifetime	12 Months	70.00	1999	57
8	4,974.12	Lifetime	12 Months	90.00	2000	75
9	2,144.93	5 Years	6 Months	120.00	2001	65
10	1,513.92	Lifetime	12 Months	180.00	2002	45
11	1,265.04	2 Years	3 Months	120.00	2003	65
12	7,760.27	2 Years	3 Months	190.00	2004	82
13	5,530.56	5 Years	6 Months	120.00	2005	70
14	2,703.54	Lifetime	12 Months	140.00	2006	52

<b>Exhibit 5 - Claim Costs per \$100 Daily Benefit</b>						
Attained Age	Benefit Level 1 - Male	Benefit Level 1 - Female	Benefit Level 2 - Male	Benefit Level 2 - Female	Benefit Level 3 - Male	Benefit Level 3 - Female
<40	58.40	73.00	121.67	165.91	243.34	663.64
41	59.57	73.73	124.10	167.57	244.56	670.28
42	60.76	74.47	126.58	169.25	245.78	676.98
43	61.98	75.21	129.13	170.93	247.01	683.75
44	63.22	75.96	131.71	172.64	248.25	690.59
45	64.48	76.72	134.33	174.36	249.49	697.50
46	65.77	77.49	137.02	176.11	250.74	704.48
47	67.09	78.26	139.77	177.86	251.99	711.52
48	68.43	79.04	142.56	179.64	253.25	718.64
49	69.80	79.83	145.42	181.43	254.52	725.83
50	71.20	80.63	148.33	183.25	255.79	733.09
51	72.62	81.44	151.29	185.09	257.07	740.42
52	74.07	82.25	154.31	186.93	258.36	747.82
53	75.55	83.07	157.40	188.80	259.65	755.30
54	77.06	83.90	160.54	190.68	260.95	762.85
55	78.60	84.74	163.75	192.59	262.25	770.48
56	80.17	85.59	167.02	194.52	267.23	778.18
57	81.77	86.45	170.35	196.48	272.56	785.96
58	83.41	87.31	173.77	198.43	278.03	793.82
59	85.08	88.18	177.25	200.41	283.60	801.76
60	89.33	89.94	178.66	195.52	285.86	809.78
61	93.80	92.64	187.60	201.39	300.16	817.88
62	98.49	96.35	196.98	209.46	315.17	830.15
63	103.41	100.20	206.82	217.83	330.91	842.60
64	108.58	104.21	217.16	226.54	347.46	855.24
65	119.44	109.42	229.69	237.87	356.02	868.07
66	137.36	114.89	264.15	249.76	409.43	885.43
67	164.83	132.12	305.24	287.22	473.12	903.14
68	206.04	151.94	381.56	330.30	591.42	921.20
69	267.85	174.73	496.02	379.85	768.83	944.23
70	361.60	200.94	645.71	436.83	968.57	967.84
71	488.16	231.08	871.71	481.42	1,307.57	992.04
72	659.02	265.74	1,176.82	553.63	1,765.23	1,016.84
73	889.68	318.89	1,533.93	664.35	2,300.90	1,042.26
74	1,156.58	398.61	1,994.10	830.44	2,991.15	1,328.70
75	1,503.55	518.19	2,505.92	1,079.56	3,633.58	1,727.30
76	1,879.44	699.56	3,132.40	1,399.12	4,541.98	2,238.59
77	2,255.33	944.41	3,758.88	1,888.82	5,199.28	3,022.11
78	2,593.63	1,274.95	4,183.27	2,549.90	5,856.58	3,952.35
79	2,852.99	1,657.44	4,457.80	3,314.88	6,240.92	5,138.06
80	2,995.64	2,154.67	4,538.85	4,309.34	6,242.76	6,679.48

### **Group Life**

Thunderball offers group life coverage for employers to provide to the employees. Below are the monthly manual claim rates per \$1,000 of coverage.

<b>Exhibit 6 - Monthly Manual Claim Rate per \$1,000 of coverage</b>		
<b>Age</b>	<b>Male</b>	<b>Female</b>
20-25	0.61	0.32
26-30	0.78	0.35
31-35	0.87	0.45
36-40	0.98	0.63
41-45	1.39	0.90
46-50	2.16	1.25
51-55	3.64	1.95
56-60	6.41	3.46
61-65	11.65	6.80



## Moonraker Energy (Moonraker)

Moonraker Energy is a large company that has a network of laboratories and offices to support energy industries. Moonraker offers a broad range of consulting engagements including strategies for improving efficiencies in manufacturing and logistics, testing, inspection, and certification of a wide variety of products.

As of 2016, Moonraker’s employee census includes 11,875 full-time (working 30 hours or more) and 700 part-time employees. Exhibit 2 shows a census of the full-time employees. Moonraker plans to expand its core services to pharmaceutical and biotech industries. Moonraker is actively hiring research chemists, inspectors, and biostatisticians to expand its market reach.

Due to its statistically credible size, Moonraker’s health insurance plans are 100% experience rated. Moonraker currently offers two fully-insured group health plan options to its full-time employees. Employees have the option of a PPO plan with different cost-sharing for in and out of network and a high deductible health plan (HDHP). Exhibit 3 shows the plans available to their employees.

The newly appointed Benefit Director is exploring if it is advantageous to replace the fully-insured plans with a self-insured plan and an ASO arrangement. Possible self-insured plan options include mirroring the fully insured benefit models or adapting it to meet the specific needs of employees through a customized suite of benefit and product options.

Moonraker offers a group disability for all its employees.

<b>Exhibit 1 - Group Disability Plan Benefits</b>		
<b>Description</b>	<b>Plan 1</b>	<b>Plan 2</b>
Monthly Benefit	50% of Monthly Salary	80% of Monthly Salary
Monthly Maximum Benefit	\$3,500	\$5,000
Elimination/Waiting Period	3 Months	3 Months
Cost of Living Adjustment	0%	3%
Premium Cost Sharing	100% Employer Paid	80% Employer Paid

At no additional cost, Moonraker offers a group term life insurance benefit equal to the annual salary and Accidental Death and Dismemberment benefit equal to twice the annual salary. Employees are provided the option to buy supplemental life insurance with a coverage level of 2.0, 3.0, or 4.0 times the annual salary.

The employee census is given below:

<b>Exhibit 2 - Census</b>			
Sex	Age	# Full Time Employees	Average Annual Salary
F	<25	23	\$26,000
F	25-29	178	42,000
F	30-34	950	51,000
F	35-39	1,128	59,000
F	40-44	1,425	68,000
F	45-49	831	74,000
F	50-54	207	79,000
F	55-59	40	84,000
F	60-64	22	89,000
M	<25	47	31,000
M	25-29	237	45,000
M	30-34	1,068	56,000
M	35-39	1,425	63,500
M	40-44	1,900	71,000
M	45-49	1,425	76,000
M	50-54	593	82,000
M	55-59	356	89,000
M	60-64	20	98,000
Total		11,875	

Exhibit 3 - Medical Benefits		
	PPO	HDP
	In-Network	Out-of-Network
		Benefits
<b>Annual Deductible</b> Deductible does not apply to services denoted with *	\$500 per member of \$1,500 per family	\$500 per member of \$1,500 per family
<b>Member Coinsurance</b>	10%	0%
<b>Out-of-Pocket Limit</b>	\$2,500 per member or \$7,500 per family	\$3,000 per member or \$6,000 per family
<b>Office Visits</b>	\$25 copay per visit	0% coinsurance after deductible
<b>Preventative Care Services</b>	Covered in Full *	Covered in Full *
<b>Maternity Care</b> Routine outpatient prenatal and postpartum visits	Covered in Full *	Covered in Full *
<b>Chiropractic/Manipulative Therapy</b> 10 visits per calendar year	10% coinsurance	0% coinsurance after deductible
<b>Acupuncture</b> 12 visits per calendar year	10% coinsurance	0% coinsurance after deductible
<b>Emergency care</b>	\$150 copay + 10% coinsurance	0% coinsurance after deductible
<b>Skilled Nursing</b> 60 days per calendar year	10% coinsurance	0% coinsurance after deductible \$10,000 Calendar Year Maximum
<b>Adult Vision</b> 1 routine exam per year; annual hardware allowance	\$10 primary/ \$10 specialty copay per visit \$100 toward glasses or contact lenses*	\$20 primary/ \$20 specialty copay per visit \$100 toward glasses or contact lenses*
<b>Pediatric Vision</b> 1 routine exam per year; Hardware - 1 paid of lenses and frames or contacts per year	Covered in Full *	Covered in Full *
<b>Pediatric Dental</b> Preventative and restorative services	Preventative services covered in full * Other services subject to dental deductible and coinsurance	Preventative services covered in full * Other services subject to dental deductible and coinsurance
<b>Prescription Drugs</b> Cost per 30-day supply	<b>Filled at pharmacy:</b> \$10 preferred generic*; 20% preferred brand* including specialty brand* <b>Filled by mail order:</b> \$5 preferred generic*; 15% preferred brand* including specialty brand*	<b>Filled at pharmacy:</b> 20% coinsurance; including specialty brand*

\* Deductible does not apply to services denoted with \*

### Dr. No’s Herbal Tea (Dr. No’s)

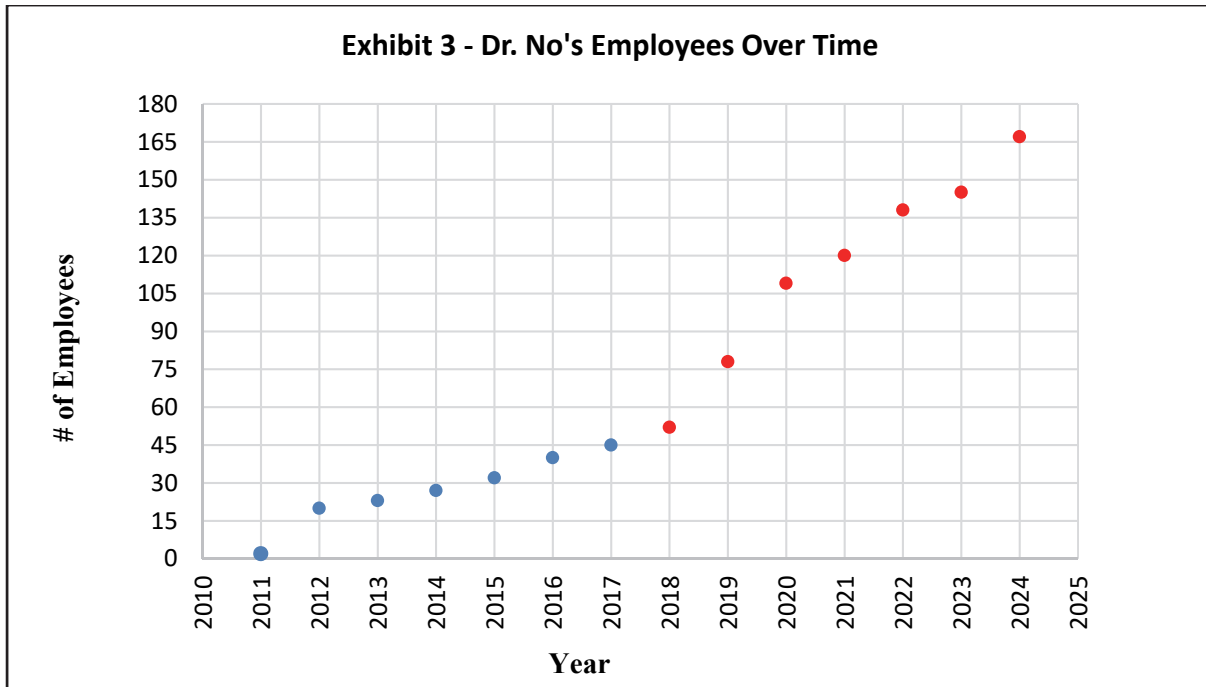
Dr. No’s Herbal Tea is a startup firm, co-founded by Dr. No and Dr. Honey in 2011. Dr. No’s currently employs 45 non-union employees. Due to the increasing popularity of its organic spiced herbal tea products, Dr. No’s has plans to significantly increase its employee size in the next several years to meet its growing operational and marketing needs.

Dr. No’s started offering a fully insured managed care health plan, with generous disease management programs for chronic illnesses (such as diabetes, asthma), to its employees in 2013. Dr. No’s provides all employees with a subsidy of \$100 PMPM towards the 2016 health insurance premium shown below:

<b>Exhibit 1 - Premium PMPM</b>			
<b>Single</b>	<b>EE + Spouse</b>	<b>EE + Children</b>	<b>Family</b>
\$351	\$705	\$452	\$857

The 2016 census and projected number of employees in 2017-2024 is given below:

<b>Exhibit 2 - Census</b>			
<b>Sex</b>	<b>Age</b>	<b># of Employees</b>	<b>Annual Salary</b>
F	<25	0	N/A
F	25-29	2	\$28,500
F	30-34	5	\$33,000
F	35-39	7	\$37,500
F	40-44	3	\$48,400
F	45-49	2	\$55,900
F	50-54	1	\$66,700
F	55-59	1	\$79,300
F	60-64	1	\$91,700
M	<25	1	\$22,000
M	25-29	0	N/A
M	30-34	5	\$33,000
M	35-39	6	\$37,000
M	40-44	6	\$46,750
M	45-49	1	\$55,400
M	50-54	2	\$67,600
M	55-59	1	\$78,250
M	60-64	1	\$90,500
	<b>Total</b>	<b>45</b>	



Despite the employer subsidy, the co-founders are concerned by the low participation in the health plan. Company management is also evaluating strategies to control premium costs that have steadily risen in the recent years. They are considering many possible alternatives, such as:

- Replacing the currently offered managed care plan option with an EPO plan with a more restricted network and lower premium,
- Self-insurance, or
- Dropping the employer sponsored health insurance and providing coverage through the SHOP Exchange.

## Live Twice, Inc. (Live Twice)

Live Twice, incorporated in Florida, is a mature firm that offers a generous retiree medical and pharmacy package to its union employees. The plan is fully insured with the employer fully subsidizing the premium for its retirees. Active employees, pre-Medicare retirees, and Medicare-eligible retirees pay the same premium. Live Twice’s 2016 monthly rates and census data are given below:

Exhibit 1 - Monthly Rate	
Active & Retiree	\$455.00

Summary of active employees and retirees are provided in Exhibit 2 and Exhibit 3.

Exhibit 2 - Active Employee Data		
Headcount	Age (years)	Service (years)
225	30	8
110	40	14
70	50	22

Exhibit 3 - Retiree Data			
Headcount	Age (years)	Family Status	Spouse Age (years)
40	70	Married	65
30	70	Single	n/a
70	80	Single	n/a

Skyfall assists Live Twice in preparation of its financial statements for post-retirement benefits. The average cost of the retiree medical plan in 2014, as per Skyfall’s estimates, is given in Exhibit 4 below:

Exhibit 4 - Retiree Medical Data	
Age (years)	Annual Cost Per Person (\$)*
60-64	10,200
65-69	2,600
70-74	2,950
75-79	3,250
80 +	3,750

## Another Day, Inc. (Another Day)

Another Day, located in Toronto, Ontario offers medical and pharmacy coverage to its 400 active employees and 200 retirees. The plan is fully insured with the employer fully subsidizing the premium for its retirees.

Exhibit 1 - Monthly Rate	
Active & Retiree	\$185.00

A summary of the benefits plan is provided in Exhibit 2 below:

Exhibit 2 - Plan Provisions	
Benefit	Coverage Level
Life Insurance	\$10,000
Drugs	80% (\$1,000 annual OOP max)
Hospital	100% (semi-private)
Paramedical	100% (\$500 per calendar year per practitioner max)
Vision	100% (\$200/24 mth max)
Dental	No coverage
Emergency out of country	60 day max (\$500,000 lifetime max)
Other Medical	100%

Summaries of the employees and retirees of Another Day are provided in Exhibit 3 and Exhibit 4 below.

Exhibit 3 - Active Employee Data			
Headcount	Age (years)	Service (years)	Average Annual Salary (\$)
100	30	10	50,000
200	40	15	80,000
100	50	25	100,000

Exhibit 4 - Retiree Data				
Headcount	Age (years)	Average Annual Salary at Retirement(\$)	Family Status	Spouse Age (years)
50	70	80,000	Married	65
50	70	80,000	Single	n/a
100	80	80,000	Single	n/a

Another Day employs Skyfall Canada to assist with preparation of its financial statements for the post-retirement benefit plan.

The average cost of the retiree medical plan in 2016 was determined by the consulting firm as follows:

<b>Exhibit 5 - Retiree Medical Data</b>	
Age (years)	Annual Cost Per Person (\$)*
60-64	2,000
65-69	1,000
70-74	1,100
75-79	1,300
80 +	1,500

\* Includes administration costs and taxes

Skyfall Canada also determined the actuarial present value of medical and life insurance benefits for active employees as follows:

<b>Exhibit 6 - PV Future Benefits for Medical and Life Insurance Companies</b>		
Age (years)	Medical Costs (\$)	Life Insurance (\$)
30	5,000	1,000
40	10,000	1,500
50	20,000	2,000