SPRING 2012

EXAM DP-GH

Design and Pricing
GROUP & HEALTH

CASE STUDY

DP-GH morning

Course: Group Health – Design and Pricing

CASE STUDY

I. INTRODUCTION

This case study starts with general information followed by internal and external correspondences which includes more specific information.

All numbers found in this case study are for illustration only and may not be representative of true costs or actual relationships. Any similarities with actual company results are purely coincidental.

II. A TALE OF TWO COMPANIES

Great Expectations Insurance Company

Great Expectations Insurance Company (Great Expectations) is a large insurance company operating exclusively in the United States. The company's corporate vision is to be a leader in the insurance industry, to earn a competitive return for its stockholders, to offer a good value to its policy holders while operating in a financially sustainable way, and to attract and retain valuable employees.

Great Expectations has several divisions including a managed care organization, Barnaby Rudge Inc. (BRI), operating in a single location.

Great Expectations currently offers a full line of products, including but not limited to:

- Indemnity and preferred provider organization (PPO) group medical benefits, including high-deductible health plans (HDHPs)
- Group life,
- Group long-term-disability, and
- Specialty products.

Great Expectations has 5,000 employees supporting four primary business divisions:

- Administrative Services Only (ASO),
- Medical Division (including all Indemnity, PPO, and Managed Care areas),
- Group Life and Disability (GLD), and
- Ancillary Products.

Great Expectations has a strong reputation in the self-insured and fully insured group major medical market. The company has spent considerable resources in developing its own preferred provider networks across the country. As a result, Great Expectations is strongly positioned nationally as a provider of ASO and fully insured group insurance products.

Copperfield Insurance Company

Copperfield Insurance Company (Copperfield) is a large insurance company operating exclusively in Canada. Its corporate vision is the same as Great Expectations: to be a leader in the insurance industry, to earn a competitive return for its stockholders, to offer a good value to its policy holders while operating in a financially sustainable way, and to attract and retain valuable employees.

Copperfield's primary product offerings include:

- Supplemental medical benefits,
- Group life,
- Disability insurance, and
- Ancillary products, including dental and vision.

Copperfield employs 2,000 people throughout Canada.

Copperfield also has a strong reputation in their markets. However, it is interested in growing into other markets and possibly internationally.

III. PROSPECTIVE CLIENTS

Dombey and Sons, Inc. (Dombey)

Dombey is a firm specializing in the wholesale and retail of manufactured products. They currently operate exclusively in the United States but want to expand into Canada. They employ approximately 1,000 union employees and 500 non-union employees. Their consultant has approached Great Expectations about providing a number of employee benefit plans, including medical, group life, and long-term disability.

Dombey currently offers its union employees a choice of two medical plans on a two-tier basis. The majority of the employees are enrolled in a $250 deductible, 80%/60% coinsurance PPO plan. They offer their non-union employees only one medical plan - a high deductible health plan with a health savings account. Dombey provides all employees life insurance coverage of one times salary at no cost to the employee. Employees may elect to "buy-up" to a coverage level of 1.5, 2.0, 2.5, or 3.0 times salary. Dombey self-insures its short-term disability program and fully-insures its long-term disability program. The LTD program has a three-month elimination period that corresponds to the maximum possible duration of the STD program.

Little Dorrit Kipper Cannery (LDKC, or Little Dorrit)

LDKC is a family-owned firm specializing in the processing and packaging of fish and other seafood products for the retail market. They currently operate a single plant in the United States with 100 full-time and 75 part-time and seasonal employees. They offer a relatively generous employee benefit package to full-time employees including medical, group life, and long-term disability.

Despite its small size, LDKC has been an early adopter of innovative concepts in employee benefits, particularly for its medical program. They moved all employees to a Consumer-Driven Health Plan (CDHP) design several years ago and have continued to make frequent changes to their benefit designs as other new and innovative programs become available. LDKC currently offers a high and low deductible option CDHP design. The low deductible option is a \$1500/\$3000 single/family deductible paired with a \$1000/\$2000 HRA contribution. The higher deductible option includes \$2000/\$4000 deductible with a \$750/\$1500 LDKC contribution to the employee's HSA.

Their workforce is relatively uneducated with high turnover and a high incidence of smoking, obesity, hypertension, diabetes and other lifestyle-driven conditions. However, LDKC has found that their employees have been very receptive to programs including financial incentives tied to behavioral and lifestyle changes related to their medical programs.

LDKC currently has medical coverage with a local competitor to Great Expectations due to perceived advantages in unit costs driven by their concentrated geographic footprint. However, they have recently become interested in moving their medical plan to a national carrier such as Great Expectations due to their greater experience in innovative benefit designs including CDHP designs and their associated wellness and employee engagement programs. Their current carrier has been slow to develop capabilities in this area. They are also considering moving their group life and disability business to the same carrier as their medical plan. These lines are not offered by their current carrier.

Their medical plan is currently offered under a prospective experience rated arrangement. LDKC believes that they do not currently get full credit for the wellness and engagement programs that they sponsor because their experience rates are not fully credible and slow to adjust to their actual experience. Because of this, they are considering a switch to a retrospective experience rated product offered by Great Expectations which they believe will allow them to pay premiums that track more closely to their actual experience in the long-term while still protecting them from year-to-year volatility. This funding arrangement is not offered by their incumbent carrier.

Email 1

From: Charles Dickens <cdickens@greatexp.com>
To: You
Sent: March 3, 2011
Subject: Welcome Aboard

Hello. I hope you have enjoyed your initial few days here.

While I know you are busy with your day-to-day work, there is a major initiative with which I need you to take a lead role.

As you know, we currently offer only group insurance. Due to market pressures and the recent political activity, the Board and I are very keen on expanding into all lines of individual insurance. However, we have little experience in the individual market place. We would like you to lead a group of senior executives to explore this expansion. In particular, we'd like your team's review to include (but not be limited to) how our current expertise in group products may overlap with the individual marketplace, potential marketing approaches, and any financial concerns about this initiative.

As you are also no doubt aware, due to the recent passage of health care reform legislation (PPACA), you will need to include a review of those provisions in your evaluation of the individual market.

Again, welcome aboard. This is certainly an exciting time to be at Great Expectations.

- Charles

Email 2

From:	Mr. Wemmick
To:	Charles Dickens
Sent:	March 8, 2011
Subject:	Claims Experience Table From Rate Filing

Dear Mr. Dickens,

As you requested, I am sending Exhibit 1.a. from our small group rate filing so that you can see how our actual experience (on a normalized basis) has compared to our current rates.

Note that there are special adjustments made that attempt to normalize our experience:

- Wear-off Adjustment: Newer groups tend to have better experience than older groups and this factor normalizes for this expected result.
- Age-Sex Factors: All things being equal, older people are expected to cost more, as are women in the child-bearing years.
- Area: The average cost of services tends to vary area to area.
- Group Size: Because of selection, smaller groups tend to use more benefits than larger groups.
- Large claims fluctuate greatly over time and within products, and thus need to be pooled in order to smooth out the experience. As a result, we remove actual large claims experience and substitute expected experience.

Let me know if you have any questions or need more information.

Regards,
Mr. Wemmick

Email 3

From: Mr. Wemmick
To: Charles Dickens
Sent: March 15, 2011
Subject: Rate Development for Small Group Medical

Dear Mr. Dickens,

As you requested, I have outlined the key steps used to develop the premium rates charged to a small group customer.

Base Rate Assumptions
Base rates represent manual rates: that is, the rates filed with the state insurance department. For groups with less than 5 lives, base rates are used directly to determine the group's premium. For groups with more than 5 lives, we use a combination of the group's experience and the base rates.

We review the base rates for each market on a quarterly basis to determine if a rate increase is needed. As shown in Exhibit 1.a. that I sent you last week, this review compares our current rates to actual experience on a normalized basis, adjusted for large claims fluctuations. We then trend the experience to the applicable policy period. A little more detail:

- We know that claims vary greatly from group to group based on characteristics of the group: demographics, area, size, etc. As a result, our claims experience does not reflect any specific group. To adjust for that in rating, we normalize the experience to reflect a standard census using factors. Each factor is based on an annual study. The specific factors we adjust for include:
    - Wear-off (Exhibit 1.b.). New groups tend to have better experience than groups with longer duration because of underwriting. This factor normalizes for that.
    - Age-Sex (Exhibit 1.c.). All other things being equal, younger people tend to have lower claims than older people, except perhaps for women in the child-bearing years
    - Area (Exhibit 1.d.). The average cost of services for a specific market basket of services tends to vary area to area. This factor assumes a market basket approach and does not reflect other factors that may vary by area, such as practice patterns.
    - Group Size. (Exhibit 1.e.). Because of selection, smaller groups tend to use more benefits than larger groups.
- Large claims fluctuate greatly period to period. As a result we remove actual large claims experience and substitute in expected experience. In years when large claims experience has been favorable, this increases rates and conversely reduces rates in years when the experience is unfavorable.
- Trends are based on a "passive renewal" basis. That is, the trends are those used if a customer does not change benefits.

Customer Data
As discussed above in order to develop a customer specific premium, we need certain information about the group. At the group level, the key factor is the effective date, since that determines the wear-off factor. At the individual level, the key facts are the age-sex, area and claims experience for each member.

Manual Rate
Once we have the customer data, the system calculates the group specific manual rate as shown in Exhibit 3.a. This is just the base rate from Exhibit 1.a. multiplied by group-specific normalizing factors which are calculated as shown in Exhibits 3b. – 3.c.

Final Rates
As the last part of the process, the underwriter calculates the group specific premiums in 2 steps

- The adjusted PMPM is calculated, which is the weighted average of the manual rate and the customer experience adjusted for large claims (Exhibit 4.a.)
- Rates by tier are calculated as shown in Exhibit 4.a.

The rates apply to all employees in the group, including new employees. For example, the rate for a family employee is $xxxx. If a new family employee joins the group, then the customer will be charged $xxxx regardless of the age-sex of that employee.

I hope this answers your questions, if not, then let's set up time to discuss.

Sincerely,
Mr. Wemmick

Exhibit 1.a.
Great Expectations
Base Rate Review for Old London Market
Small Business 2- 50 Lives
Summary

	HMO	POS	PPO	HRA	HSA	Total	Comments
1. Actual Loss Ratio CY 2009							
a. Member Months	6,000	120,000	66,000	36,000	12,000	240,000	Actual Experience
b. Average Members	500	10,000	5,500	3,000	1,000	20,000	1.a./12
c. Incurred PMPM	$ 250.00	$ 275.00	$ 280.00	$ 217.00	$ 205.00	$ 263.55	Actual Experience
d. Revenue PMPM	$ 300.00	$ 375.00	$ 327.16	$ 320.00	$ 355.93	$ 350.77	Actual Experience
e. **Loss Ratio**	**83.3%**	**73.3%**	**85.6%**	**67.8%**	**57.6%**	**75.1%**	1.c./1.d.
2. Adjusted Experience							
a. Experience PMPM	$ 250.00	$ 275.00	$ 280.00	$ 217.00	$ 205.00	$ 263.55	1.c.
b. Actual Catastrophic Claims	$ (33.00)	$ (24.00)	$ (35.00)	$ (10.00)	$ (5.00)	$ (24.20)	Claims > $200,000 excluded
c. Expected Catastrophic Claims	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	Expected Claims > $200,000
d. Sub-total	$ 237.00	$ 271.00	$ 265.00	$ 227.00	$ 220.00	$ 259.35	2.a. + 2.b. + 2.c.
e. Wear-off Adjustment	98.3%	97.8%	97.9%	97.3%	97.2%	97.8%	See "Exhibit 1.b."
f. Sub-total: Adjusted PMPM	$ 241.17	$ 277.01	$ 270.56	$ 233.20	$ 226.40	$ 265.24	2.d./2.e.
g. Pricing Trend Factor	122.7%	122.7%	122.7%	122.7%	122.7%	122.7%	See "Exhibit 1.f."
h. Projected Claims 1/1/11 Effective Date	$ 295.85	$ 339.81	$ 331.90	$ 286.07	$ 277.73	$ 325.37	2.f. x 2.g.
i. Target Loss Ratio	78.0%	78.0%	78.0%	78.0%	78.0%	78.0%	Pricing Assumption
j. **Needed Revenue for 1/1/2011 Effective Date**	**$ 379.29**	**$ 435.66**	**$ 425.51**	**$ 366.76**	**$ 356.06**	**$ 417.14**	2.h./2.i.
3. Current Manual Rate							
a. Current Medical Base Rate	$ 225.00	$ 285.00	$ 270.00	$ 240.00	$ 235.00	$ 270.13	Based on current portfolio
b. Current Pharmacy Base Rate	$ 55.00	$ 55.00	$ 55.00	$ 55.00	$ 55.00	$ 55.00	Based on current portfolio
c. Sub-total: Current Base Rate	$ 280.00	$ 340.00	$ 325.00	$ 295.00	$ 290.00	$ 325.13	3.a. + 3.b.
d. Age-Sex Factors	92.8%	102.6%	103.4%	98.2%	98.3%	101.7%	See "Exhibit 1.c."
e. Area Factors	100.2%	101.1%	101.1%	100.9%	99.8%	101.0%	See "Exhibit 1.d."
f. Size Factor	93.5%	96.4%	102.9%	101.6%	100.8%	99.1%	See "Exhbit 1.e."
g. Sub-total: Current Premium Level	$ 322.03	$ 340.08	$ 302.21	$ 292.95	$ 293.52	$ 319.82	3.c./(3.d. x 3.e. x 3.f.)
h. Trend factor	122.7%	122.7%	122.7%	122.7%	122.7%	122.7%	2.g.
i. **"Do Nothing" Premium for 1/1/2011 Effective Date**	**$ 395.04**	**$ 417.19**	**$ 370.73**	**$ 359.37**	**$ 360.06**	**$ 392.33**	3.g. x 3.h.
4. **Supportable Pricing Adjustment**	**-4.0%**	**4.4%**	**14.8%**	**2.1%**	**-1.1%**	**6.3%**	2.j./3.i.-1
5. **Recommended Action**				$ 359.37		**8.0%**	

Exhibit 1.b.
Great Expectations
Base Rate Review for Old London Market
Small Business 2- 50 Lives
Wear-off Factors

		HMO	POS	PPO	HRA	HSA
Duration	Factor	**0.983**	**0.978**	**0.979**	**0.973**	**0.972**
1	0.670	5	175	118	83	22
2	0.780	8	321	98	79	23
3	0.820	9	185	92	40	15
4	0.860	6	133	77	53	21
5	0.890	7	79	56	47	26
6	0.910	9	55	75	52	29
7	0.930	8	83	33	61	27
8	0.950	4	87	61	41	18
9	0.950	5	75	68	36	15
10	0.970	2	120	52	42	23
11	0.970	3	135	49	24	15
12	0.990	4	152	46	42	16
13+	1.000	430	8400	4675	2400	750
Total Members		500	10,000	5,500	3,000	1,000

Notes:

Represents: Underwriting wear-off; that is, the tendency of groups to use fewer benefits at the lower durations

Source: Study, based on actual experience adjusted for age-sex, area and other variables that might skew the results

Exhibit 1.c.
Great Expectations
Base Rate Review for Old London Market
Small Business 2- 50 Lives
Age-Sex Calculations

		HMO	POS	PPO	HRA	HSA
Average Factor		**0.928**	**1.026**	**1.034**	**0.982**	**0.983**
MALE						
M-Children	0.558	109	1,877	977	415	115
<25	0.437	10	147	108	209	105
25-29	0.492	21	256	186	255	97
30-34	0.574	25	375	211	130	50
35-39	0.657	25	449	225	110	50
40-44	0.864	18	398	198	130	37
45-49	1.123	12	339	243	102	32
50-54	1.509	7	553	213	74	25
55-59	2.001	5	241	105	57	19
60-64	2.657	3	130	72	39	13
65+	3.215	5	96	53	29	10
FEMALE						
F-Children	0.558	106	1,895	950	435	110
<25	1.057	12	180	90	139	23
25-29	1.446	22	354	242	109	44
30-34	1.406	26	525	289	128	52
35-39	1.216	27	540	346	136	54
40-44	1.202	18	503	277	160	50
45-49	1.380	16	373	243	112	37
50-54	1.638	12	279	203	84	28
55-59	1.880	9	219	121	66	22
60-64	2.272	7	155	85	46	15
65+	2.749	6	116	64	35	12
Total Members		500	10,000	5,500	3,000	1,000

Notes:

Represents: Relative costs by age-sex

Source: Study, based on actual experience adjusted for area,wear-off and other variables that might skew the results

Exhibit 1.d.
Great Expectations
Base Rate Review for Old London Market
Small Business 2- 50 Lives
Area Factors

		HMO	POS	PPO	HRA	HSA
Average Factor		**1.002**	**1.011**	**1.011**	**1.009**	**0.998**
Area 1	1.050	211	4,472	2,400	1,134	398
Area 2	0.960	158	2,368	1,661	850	323
Area 3	0.910	87	1,785	726	515	196
Area 4	1.100	44	1,375	713	501	83
Total Members		500	10,000	5,500	3,000	1,000

Notes:

Represents: Unit costs for a market basket of goods and services

Source: Projected increases by provider, supplied by the network area

Exhibit 1.e.
Great Expectations
Base Rate Review for Old London Market
Small Business 2- 50 Lives
Size Adjustments

Size Band	Factor	HMO	POS	PPO	HRA	HSA
		0.935	0.964	1.029	1.016	1.008
1 - 3	1.2074	45	1,653	1,781	83	295
4 - 5	1.0199	55	1,123	981	79	120
6 - 9	0.9438	93	2,509	1,453	40	244
10 - 25	0.8690	221	3,506	634	53	253
25+	0.9000	86	1,209	651	47	88
Total Members		500	10,000	5,500	302	1,000

Notes:

Represents: Anti-selection by size of group

Source: Study, based on actual experience adjusted for age-sex, area and other variables that might skew the results

Exhibit 1.f.
Great Expectations
Base Rate Review for Old London Market
Small Business 2- 50 Lives
Pricing Trend Development

	2010	2011	Combined	Comments
Core Utilization	2.0%	3.0%	5.1%	Based on economic model tying to disposable income, etc
Mix of Services/Providers	1.0%	1.0%	2.0%	Tendency to gradually use more intense services
Health Technology Pipeline	0.3%	0.5%	0.8%	New drugs, guidelines, etc
Unit Cost Impact	5.0%	6.0%	11.3%	Based on market basket of services, similar to area factors
Regulatory Impacts	0.3%	-0.3%	0.0%	New state mandates, etc
Great Expectations Policy Process Changes	-0.4%	0.0%	-0.4%	Changes initiatiated by Great Expectations (claims processing, etc)
Work/Calendar Day Adjustments	-0.3%	0.1%	-0.2%	Reflects tendency of people to use services more on work days
Allowed Trend	**7.9%**	**10.3%**	**18.6%**	
Leveraging	0.5%	0.5%	1.0%	Impact of fixed deductible
Demographics	0.5%	0.5%	1.0%	Gradual aging of population
Other	0.0%	-0.5%	-0.5%	
Net Paid, Before Marign	**8.9%**	**10.8%**	**20.7%**	
Margin	1.0%	1.0%	2.0%	
Pricing Trend	**9.9%**	**11.8%**	**22.7%**	

Allowed costs represent the combined amount paid to a provider from the insurance carrier and the member. For an in-network provider, the allowed cost represents the provider negotiated amount. For example, assume the carrier has negotiated a 20% discount off billed charges for a service that has a $100 billed charge and the member has a $10 copay, then the net paid amount is $70 and the allowed cost is $80.

Billed Charge	$100
Provider Discount	$20
Allowed Cost	$80
Member Copay	($10)
Net Paid	$70

For an out-of-network provider, the allowed charge represents the lesser of the billed charges and the usual, customary, and reasonable (UCR) amount.

Exhibit 2.
Great Expectations
Customer Specific Data: Joe's Garage

Experience Analysis

Employee Number	Employee Last Name	Employee First Name	Tier	Member First Name	Age-Sex/ Gender	Relationship	Area	Member Months	Allowed Claims	Total Net Paid Claims	Paid Excluding Large Claims
1	Smith	John	Employee Only	John	25M	Employee	Area 1	6	$ -	$ -	$ -
2	Doe	Jane	Family	Jane	32F	Employee	Area 3	12	$ 260,000	$ 250,000	$ 25,000
2	Doe	Jane	Family	Daniel	33M	Spouse	Area 3	12	$ 300	$ 250	$ 250
2	Doe	Jane	Family	Mary	4F	Child	Area 3	12	$ 100	$ 70	$ 70
2	Doe	Jane	Family	Billy	5M	Child	Area 3	12	$ 1,000	$ 900	$ 900
3	Brown	Barry	Employee + Spouse	Barry	49M	Employee	Area 2	12	$ 3,000	$ 2,550	$ 2,550
3	Brown	Barry	Employee + Spouse	Betty	39F	Spouse	Area 2	12	$ 1,000	$ 600	$ 600
								78	$ 265,400	$ 254,370	$ 29,370

Unique Members =		7
Member Months		78
Average Members		6.5
Total Claims =	$	254,370
PMPM, including Large Claims =	$	3,261.15
Total Claims excluding large claims	$	29,370
PMPM, Excluding Large Claims	$	376.54
Retention		22%
Group Specific Experience Rate	$	482.74

Group Effective Date	1/1/2009
Premium Rate Effective Dage	1/1/2011

Exhibit 3.a.
Great Expectations
Customer Specific Data: Joe's Garage
Manual Rate Calculation

Item	Value	Comments
1.a. Base PMPM	$ 359.37	Base rate, see Exhibit 1.a
1.b. Wear-off Factor	0.820	Plan will be in duration 3, effective 1/1/2011 (See Exhibit 1.b)
1.c. Age-Sex Factor	0.847	See Exhibit 3.b.
1.d. Size Adjustment	0.944	Based on 7 members, see Exhibit 1.e.
1.e Final Manual Rate	$ 235.49	1.a. x 1.b. x 1.c. x 1.d.

Exhibit 3.b.
Great Expectations
Customer Specific Data: Joe's Garage
Age-Sex Calculations

Average Factor		**0.847**
MALE		
M-Children	0.558	1
<25	0.437	0
25-29	0.492	1
30-34	0.574	1
35-39	0.657	0
40-44	0.864	0
45-49	1.123	1
50-54	1.509	0
55-59	2.001	0
60-64	2.657	0
65+	3.215	0
FEMALE		
F-Children	0.558	1
<25	1.057	0
25-29	1.446	0
30-34	1.406	1
35-39	1.216	1
40-44	1.202	0
45-49	1.380	0
50-54	1.638	0
55-59	1.880	0
60-64	2.272	0
65+	2.749	0
Total Members		7

Notes:

Represents: Relative costs by age-sex

Source: Study, based on actual experience adjusted for area,wear-off and other variables that might skew the results

Exhibit 3.c.
Great Expectations
Customer Specific Data: Joe's Garage
Area Factor Calculations

Average Factor		**0.944**
Area 1	1.050	1
Area 2	0.960	2
Area 3	0.910	4
Area 4	1.100	0
Total Members		7

Notes:

Represents: Unit costs for a market basket of goods and services

Source: Projected increases by provider, supplied by the network area

Exhibit 4.a.
Great Expectations
Customer Specific Data: Joe's Garage
4-Tier Rate Development

Credibility-Weighted PMPM Calculation

Manual Rate	$	235.49	Exhibit 3.a.
Group Specific Experience Rate	$	482.74	Exhibit 2.
Credibility Factor		5%	Exhibit 4.b.
Credibility-Weighted PMPM	$	247.85	

	Standard Employee Distribution	Assumed Contract Size	Tier Factors		4-Tier Rates
Single	**35%**	1.00	1.000	$	301.61
EE + SP	**10%**	2.00	2.000	$	603.23
EE + CH(+)	**30%**	2.50	1.800	$	542.91
EE + FAM.	**25%**	4.00	3.200	$	965.17
	100%				
	Average Contract Size	2.30			

Cost Per Employee	$	570.05
Average Tier Factor		1.89
Single Rate	$	301.61

Exhibit 4.b.
Great Expectations
Customer Specific Data: Joe's Garage
Credibility Factors

Number of Members		Credibility Factor
0	5	0%
6	25	5%
26	100	10%
101	500	15%
501	1,000	28%
1,001	2,000	40%
2,001	3,000	49%
3,001	4,000	56%
4,001	5,000	63%
5,001	6,000	69%
6,001	7,000	75%
7,001	8,000	80%
8,001	9,000	85%
9,001	10,000	89%
10,001	11,000	93%
11,001	12,000	98%
12,001 and above		100%

Email 4

From: Kate Nickleby <knickleb@greatexp.com>
To: You
Sent: March 23, 2011
Subject: Barnaby Rudge, Inc. Trend Information

Hello.

I am one of your actuarial students. Per your request to my supervisor, I have included a summary output table (Table 1) of the claims data showing PMPMs for both rolling 6-month and 12-month periods.

Please let me know if you have any additional questions. Note, though, that I am out Tuesdays and Thursdays studying for exams.

Kate

Table 1

Barnaby Rudge, Inc.
PMPM Trend Table

Summary Output								
Month	**Members (in 1,000s)**	**Claims Paid (in $1,000s)**	**Incurred & Paid (in $1,000s)**	**Completion Factors**	**Incurred Estimate (in $1,000s)**	**Incurred PMPM Estimate**	**6-month Rolling (PMPM)**	**12-month Rolling (PMPM)**
Jan-08	930		$45,500	1.0000	$45,500	$48.92		
Feb-08	943		$41,400	1.0000	$41,400	$43.90		
Mar-08	944		$46,900	1.0000	$46,900	$49.68		
Apr-08	945		$46,700	1.0000	$46,700	$49.42		
May-08	944		$43,700	1.0000	$43,700	$46.29		
Jun-08	944		$43,500	1.0000	$43,500	$46.08	$47.38	
Jul-08	943		$43,700	1.0000	$43,700	$46.34	$46.95	
Aug-08	939		$42,000	1.0000	$42,000	$44.73	$47.09	
Sep-08	934		$42,500	1.0000	$42,500	$45.50	$46.40	
Oct-08	933		$46,900	1.0000	$46,900	$50.27	$46.53	
Nov-08	936		$43,500	1.0000	$43,500	$46.47	$46.56	
Dec-08	937		$47,800	1.0000	$47,800	$51.01	$47.39	$47.38
Jan-09	937	$51,600	$48,100	1.0000	$48,100	$51.33	$48.22	$47.58
Feb-09	940	$43,100	$44,100	1.0000	$44,100	$46.91	$48.58	$47.84
Mar-09	942	$46,200	$48,800	1.0000	$48,800	$51.80	$49.64	$48.01
Apr-09	942	$44,000	$48,900	1.0000	$48,900	$51.91	$49.91	$48.22
May-09	940	$55,700	$46,800	1.0000	$46,800	$49.79	$50.46	$48.51
Jun-09	939	$43,800	$49,500	1.0000	$49,500	$52.72	$50.74	$49.07
Jul-09	943	$58,300	$50,700	1.0000	$50,700	$53.76	$51.15	$49.69
Aug-09	939	$45,000	$48,500	0.9993	$48,533	$51.69	$51.95	$50.27
Sep-09	937	$44,000	$49,500	0.9990	$49,550	$52.88	$52.12	$50.88
Oct-09	945	$55,000	$52,200	0.9976	$52,324	$55.37	$52.70	$51.31
Nov-09	945	$45,100	$50,200	0.9966	$50,370	$53.30	$53.29	$51.88
Dec-09	945	$56,600	$54,300	0.9950	$54,575	$57.75	$54.13	$52.44
Jan-10	945	$48,700	$51,200	0.9937	$51,526	$54.52	$54.26	$52.71
Feb-10	966	$46,700	$49,700	0.9911	$50,147	$51.91	$54.28	$53.12
Mar-10	964	$50,400	$57,600	0.9879	$58,305	$60.48	$55.56	$53.85
Apr-10	968	$64,900	$54,100	0.9828	$55,046	$56.87	$55.81	$54.27
May-10	967	$49,400	$52,400	0.9771	$53,628	$55.46	$56.16	$54.74
Jun-10	968	$49,500	$54,800	0.9682	$56,601	$58.47	$56.29	$55.22
Jul-10	969	$60,900	$55,000	0.9494	$57,934	$59.79	$57.16	$55.73
Aug-10	974	$53,800	$55,100	0.9270	$59,439	$61.03	$58.68	$56.51
Sep-10	974	$53,100	$53,300	0.8830	$60,365	$61.98	$58.94	$57.26
Oct-10	976	$72,100	$49,300	0.8022	$61,457	$62.97	$59.96	$57.90
Nov-10	980	$51,400	$39,200	0.5934	$66,057	$67.41	$61.95	$59.08
Dec-10	979	$68,500	$8,100	0.0759	$106,725	$109.01	$70.40	$63.39

Email 5

From: Dr. Alexander Manette <amanette@greatexp.com>
To: You
Sent: March 3, 2011
Subject: Medical Management Help

Hello and welcome aboard.

Let me introduce myself. I'm Dr. Alexander Manette, but please call me Alex. I am VP of our Medical Management area.

We currently are split up into two primary areas: disease management and case management. Unfortunately, we are light on any kind of metrics. Here is some information we have gathered regarding 2010 experience.

Service Category	2010 Utilization	2010 Claims Paid (in $1,000s)
Hospital Inpatient	57,600 Admits	$133,880
Hospital Outpatient	192,000 Services	$153,962
Physician	576,000 Visits	$267,760
Rx	768,000 Scripts	$113,798
Total		$669,400

We are proposing a new case management initiative to cut our inpatient costs by imposing new admission requirements. This initiative would include eight nurse case-managers and one nurse supervisor. The cost of the program will be:

Nurse category	Number	Fully loaded Salary	Total Costs
Case managers	8	$125,000	$1,000,000
Supervisor	1	$150,000	$150,000
Total	9		$1,150,000

We believe we can cut our admission rate by 4% with this new initiative.

I understand you have some experience in this area and I'd like to talk with you further about it. I'll set up some time so we can speak.

Regards - Alex

Email 6

From: Dr. Alexander Manette <amanette@greatexp.com>
To: You
Sent: March 15, 2011
Subject: Pricing Help

Thank you for your recent actuarial input helping our medical management practices. Even though I'm a clinician, I think I actually understood the concepts you were talking about! The reason I'm contacting you today is that Mr. Dickens would like for us to help with some pricing work that Great Expectations is working on. With the rising medical and pharmacy trends we've been experiencing and the provider contracting work we have consulted on, we certainly deserve to be a part of the discussion.

More specifically, he is asking us to assist with pricing the National HMO plan. In the email I sent you March 3, I provided you with some 2010 cost and utilization data from that plan. I am sending you some additional information below that should be of help as we work with Mr. Dickens.

Here is the 2010 and proposed 2012 benefit structure that Mr. Dickens gave me.

	National HMO Benefit Grid	
	2010	**2012 Planned**
Deductible	None	None
OOP Limit	Unlimited	Unlimited
Hospital IP	$500/admit	$550/admit
Hospital OP	$200/service	$250/service
Physician	$20/visit	$25/visit
RX	$20/script	$25/script

Here is the historic and projected cost structure for this plan that he obtained from the Finance Department.

	National HMO Cost Structure	
	2010 Actual	**2012 Projected**
Fixed Admin (PMPM)	$10.00	$11.00
Capitation Expense (PMPM)	None	$30.00
Variable Admin	5.0%	5.5%
Profit Target	3.4%	4.4%
Plan Members	200,000	210,000
Premium (PMPM)	$315	?

And finally, here are the utilization trends and projected unit cost assumptions that he wants in pricing.

	National HMO Trend Assumptions	
	Annual Utilization Trend	**2012 Projected Cost Per Unit (to GEIC)**
Hospital IP	2%	$4,600
Hospital OP	3%	$1,200
Physician	1%	$125
RX	7%	$100

He said it was too early in the year for emerging 2011 experience to be of any use. I thought it could be helpful, but he gave me an actuarial lesson on seasonality and claim run-out. It was clear as mud to me, but I'm sure you get it!

Please begin looking over the information I have provided. Mr. Dickens and I will be in touch over the coming days. I have a hunch that the pricing will come out too high, and that I will be asked to drive down costs via medical management. I guess that's why they pay me the big bucks!

Regards
- Alex

Email 7

From: Charles Dickens <cdickens@greatexp.com>
To: You
Sent: March 5, 2011
Subject: Sales Request

I don't know if you've had the pleasure to meet or VP of marketing. In any case, please review the following e-mail.

Forwarded by Charles Dickens <cdickens@greatexp.com> ________________

From: Oliver Twist <otwist@greatexp.com>
To: Charles Dickens
Sent: March 3, 2011
Subject: NEED YOUR HELP

Chuck,

As you know, we've had troubles across the board selling our products. I feel like our actuaries are trying to pick our pockets by keeping the rates so high!!

In talking with our brokers and sales staff, the consensus is that for the upcoming year, we need to lower our book rates on our medical products by an additional 10% (not including the 5% you already committed to last week). In so doing, we think we can grow our medical enrolment by 15%, offsetting the decreased premium.

Our top producer in Region 1, Arthur Dodger, has been particularly vociferous in his comments. I'd hate to lose Artie as a broker. However, he is concerned about his ability to sell our products. I've been thinking – he and his staff are experts in the individual and retiree health arena. Is it possible to team up with him in developing new products in these areas?

Regarding the premium issue – I think we're really going to need some relief in the coming year – especially with the changes in the market due to healthcare reform.

With all due respect – please, sir, we want some more.

Ollie

Memo 1

Great Expectations

Memo

To: Charles Dickens

From: Wilkins Macawber

CC:

Date: 3/16/2012

Re: Employee Pilot program for Wellness

Wellness programs are an essential part of employee benefits and groups are asking for advice and direction in their design. As a result, the benefits design and planning committee wants to sell a wellness program to go along with the PPO product.
We need to figure out how to do this right so I think we need to develop our own in-house program – the numbers for outsourcing don't pencil out. Then after we have a track record and have some success we can start to sell a branded wellness product. I suggest we develop a program for our employees as a first step and consider incorporating spouses and children at a later time.

I see the program having the following the following components:

Component	Target Issue
Fit for Life	Fitness
Slim-n-Trim at Work	Weight management
De-Stress Your Life	Stress management
No Puffin	Tobacco use
Positive Outlook	Anti-depression

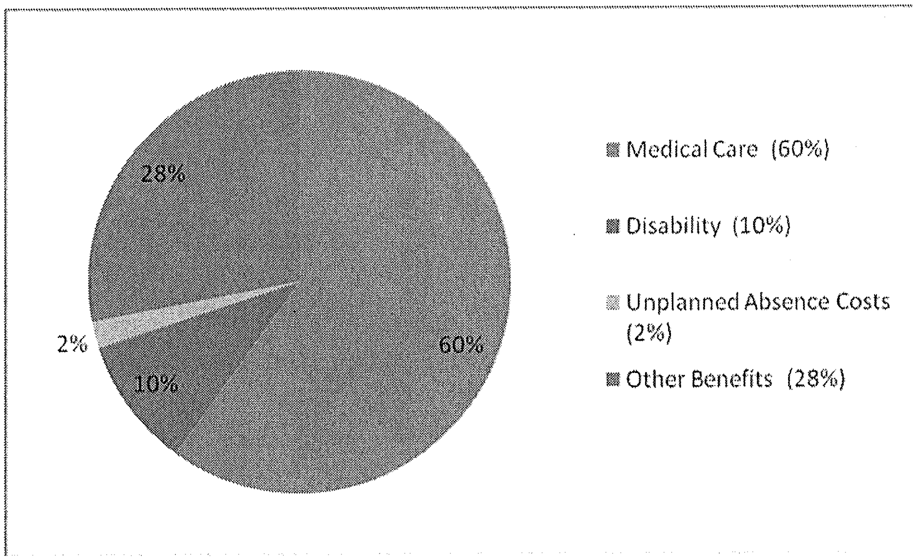
I have attached additional details about how the numbers would work on the program, but we have not finalized how the outreach would happen. I will follow up on that as details gel.

One last thing we're going to need from you is to make sure you've calculated the ROI on this program. We know it will be good, but don't forget…

ROI = All benefits/All Expenses

Additional Details about the Wellness program:

We see the cost of benefits for an average employee distributed as follows:



We did some research on typical results from wellness programs based on the characteristics of the populations. The population is divided into four groups:

- Chronically Ill – these people have diagnosed conditions such as heart disease, diabetes, severe depression, morbid obesity or back conditions.
- Unhealthy Habits – this category includes such people who smoke or are obese, sedentary, chronically stressed, indulge in risky behavior or have depression.
- Mean Well – Most members will be in this category. They don't exercise enough (or too much), could make more healthful food choices, could wear sunscreen more frequently, may have some stress, could be more faithful about health screenings and take other prudent measures to ensure a long and healthy life, but in general they try to do the best they can and most do not have any serious issues.
- Vigorously Healthy. This is the smallest group and they are a rare breed. They are at an appropriate weight, exercise frequently and reasonably, are current on health screenings, practice active stress management, have an active social network or other emotional support and have low risk for developing health issues.

Here are some tables that show some of the attributes of these people:

Prevalence and Likelihood of enrolling in a program

Employee Risk		Prevalence		Program Uptake
Chronically Ill		6%		15%
Unhealthy Habits		10%		20%
Mean Well		79%		10%
Vigorously Healthy		5%		15%

Relative Cost Factors

Employee Risk		Medical Care		Absenteeism		Disability Costs
Chronically Ill		2.20		2.00		4.00
Unhealthy Habits		1.10		1.20		1.10
Mean Well		1.02		1.10		1.10
Vigorously Healthy		0.80		0.80		0.80

Savings Estimates

Employee Risk		Medical Care		Absenteeism		Disability Costs
Chronically Ill		8%		10%		20%
Unhealthy Habits		15%		15%		20%
Mean Well		12%		20%		10%
Vigorously Healthy		1%		1%		1%

Email 8

From: Ebenezer Scrooge <escrooge@greatexp.com>
To: You
Sent: March 20, 2011
Subject: RE: Weight Loss Coaching Program

In talking to the Underwriter, I was able to obtain the following information about Little Dorrit Kipper Cannery:

- Current full-time employees: 100
- Average salary: 50,000
- Annual salary increase: 3%
- Marginal tax rate: 30%

Category	Obese	Overweight	Healthy
2011 Distribution	45%	30%	25%
% of days missed	10%	5%	2%
2011 Medical Cost/month	$600	$200	$50

I also spoke to the Wellness Director and she stressed that the value of the program to the company is greatly enhanced by giving the employees an incentive to participate. We need to incorporate this into the ROI. Here are some numbers and assumptions I got from her that she obtained from Tiny Tim Weight Loss, LLC, a weight loss coaching vendor:

Category	Obese	Overweight	Healthy
Participation Rate (no incentives)	20%	4%	0%
Participation Rate (with incentives)	80%	60%	20%
Program Completion Rate	40%	30%	100%

- Cost of incentive: $50 per participant
- Each employee who completes in the program shifts one category toward healthy.
- Cost of Weight Loss coaching program: $10 PEPM

\- Mr. Scrooge
CFO, Great Expectations

Email 9

From: Oliver Twist <otwist@greatexp.com>
To: Ebeneezer Scrooge <scrooge@greatexp.com>
Sent: March 21, 2011
Subject: Weight Loss Coaching Program

Scrooge,

After dozens of discussions with the HR lead at Little Dorrit Kipper Cannery, I got them on board with the Wellness message. They seem ready to buy the Weight Loss Coaching Program. Only hindrance is their CFO needs an assurance that the program saves money, so we need to guarantee a strong ROI for them.

Can you put this together? Need something ASAP, as they're making a decision next week.

-Ollie

Email 10

To: Actuarial
From: Wilkins Macawber
Executive Director
Provider Contracting
Great Expectations
Sent: March 29, 2011
Subject: Provider list

Attached is the provider information you asked for – names, specialties, reimbursement, and location. The material is current as of this month; I will let you know if anything changes. I am sure that if we put our minds to it we can get a solid network put together.

Call me if you have any questions.

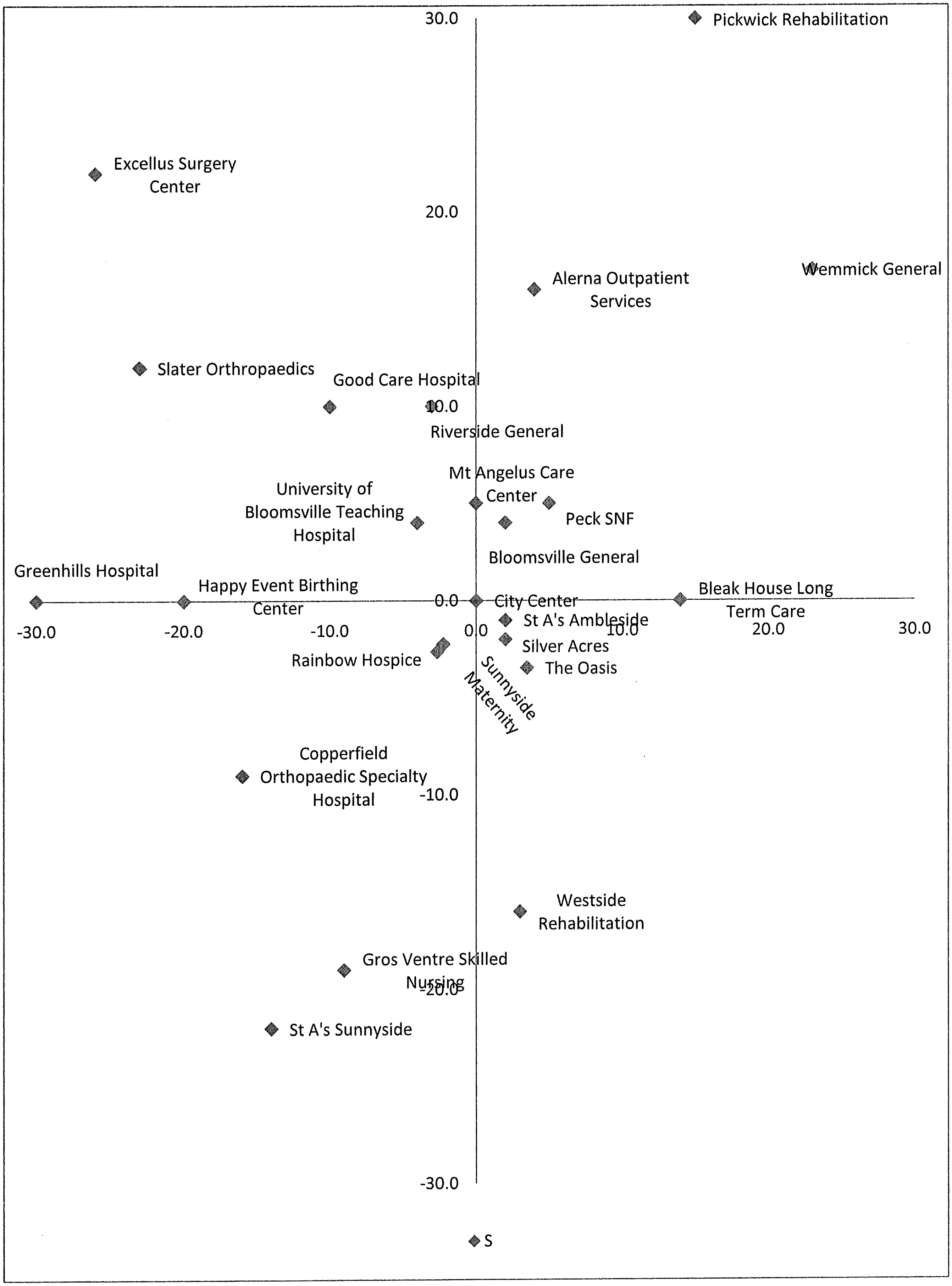
Wilkie

Table 2

Hospitals Available for Contracting

Hospital	Type of Hospital	Payment Method	Average Payment		Quality Score	% of claims under control	Distance From Center
Excellus Surgery Center	ASC	Per Case	$	3,310	A	40%	34.1 km NW
Silver Acres	Behavioral Health	Per Diem	$	1,200	B	40%	2.8 km SE
The Oasis	Behavioral Health	Per Diem	$	1,500	C	60%	4.9 km SE
Mt Angelus Care Center	Hospice	Per Diem	$	975	B	55%	5.0 km N
Rainbow Hospice	Hospice	Per Diem	$	1,075	A	45%	3.7 km SW
Bleak House Long Term Care	LTC	Per Diem	$	1,000	B	90%	14.0 km E
Sunnyside Maternity	Maternity	Per Case	$	3,000	A	37%	3.2 km SW
Happy Event Birthing Center	Maternity	Per Case	$	3,220	B	53%	20.0 km W
St A's Sunnyside	Primary	Discount from Charges		15%	B	40%	26.1 km SW
Greenhills Hospital	Primary	DRG	$	2,650	B	33%	30.0 km W
Wemmick General	Primary	Per Diem	$	900	A	27%	28.6 km NE
Pickwick Rehabilitation	Rehabilitation	Per Diem	$	650	B	40%	33.5 km NE
Westside Rehabilitation	Rehabilitation	Per Diem	$	700	A	60%	16.3 km SE
Good Care Hospital	Secondary	Discount from Charges		30%	C	26%	14.1 km NW
Riverside General	Secondary	DRG	$	4,300	B	41%	10.4 km NW
Bloomsville General	Secondary	Per Diem	$	1,375	B	33%	4.5 km NE
Peck SNF	SNF	Per Diem	$	450	D	20%	7.1 km NE
Gros Ventre Skilled Nursing	SNF	Per Diem	$	500	C	80%	21.0 km SW
Copperfield Orthopaedic Specialty Hospital	Specialty	Per Case	$	4,200	A	90%	18.4 km SW
Slater Orthropaedics	Specialty	Per Case	$	5,500	B	10%	25.9 km NW
Alerna Outpatient Services	ASC	Per Case	$	3,750	B	20%	16.5 km NE
University of Bloomsville Teaching Hospital	Tertiary	DRG	$	17,000	A	40%	5.7 km NW
St A's Ambleside	Tertiary	Per Diem	$	6,200	B	60%	2.2 km SE

Table 3 Map of Hospitals



Email 11

From: Jaggers
To: Charles Dickens
Sent: March 10, 2011
Subject: LTC Claims Process

Mr. Dickens,

In response to your inquiry about our practices at the claims adjudication unit of the Long-Term Care division, I offer the following.

Our Long Term Care policies pay a daily benefit for eligible claims. A claim is eligible for payment when the policyholder is cognitively impaired and requires supervision or is unable to perform at least two of the following six activities of daily living (ADLs):

- Bathing
- Continence (bladder and bowel control)
- Dressing
- Eating
- Toileting
- Transferring (moving between a bed and chair)

When we receive a claim, the claim adjudicator verifies from the physician statement that the benefit eligibility requirements are met, and follows up with the physician if there are any questions. Once approved, a case-specific plan is put together to monitor continuing claim eligibility.

Eligible claims pay a monthly benefit subject to the elimination period, benefit period, and daily maximum as stated in the policy. The standard policy limits payments to actual charges for long-term-care services, but we sell a popular rider that makes a fixed cash payment regardless of the cost of services.

Please let me know if you have any more questions.

Sincerely,

Mr. Jaggers

Email 12

From:	Mr. Wemmick
To:	Charles Dickens
Sent:	March 15, 2011
Subject:	Recommendation for Rate Increase on LTC Block

Dear Mr. Dickens,

We have been monitoring our claim experience on our young LTC block of business, and as I'm sure you've noticed, the financial results are disappointing. As I explain below, we need a 40% rate increase for this block in order to meet our profit objectives.

The poor results are driven by low claim termination rates and the deteriorating returns on our investment portfolio, and are partially offset by lower-than-expected claim incidence rates.

Original Pricing Assumptions
We entered the LTC market in 2005. The original product was based upon claim incidence and termination rates that were provided to us by the actuarial consultants at Pumblechook. The incidence and termination rates were used to calculate attained-age claim costs for various age/sex/class/benefit combinations. Subsequently, the claim costs were loaded into an asset share model for key cells, and the gross premiums were calculated.

The worksheet *2005 Asset Share Model* shows the model for a representative pricing cell.

Experience Analysis
Since the first policy was issued in February of 2005, we've kept track of how many new claims we expected, based upon our actual exposure and the assumed incidence rates that went into pricing. We then compared that to how many actual claims were incurred. Worksheet *AE* (not provided) shows the actual-to-expected ratio for incurred claims for every month between February 2005 and March 2010. In aggregate, we've expected 6,049 claims to be incurred, but only had 5,599 claims for an A/E ratio of 93%.

While we are happy that fewer claims were incurred than expected, it's disappointing that once somebody goes on claim, they are slow to recover. Columns F:H show the actual to expected claim terminations for every time period. The expected claim terminations were calculated using the pricing claim termination rates on the actual claim deck at the start of every month. We would expect a total of 2,848 claim terminations, but only had 2,303 for an A/E rate of 81%.

Re-pricing
We don't have enough detailed credible data to recalculate the incidence and termination rates based upon our own data. However, I was able to calibrate our existing rates to our own experience by multiplying them by the A/E's we calculated. I used these new rates (and a new discount rate) to calculate new claim costs and subsequently redid the asset share model using the

updated portfolio expectations. This exercise demonstrates that we need a 40% rate increase in order to achieve our desired profit objectives.

The worksheet *2010 Old Rates* shows the that the present-value of profit as a percent of premium will be a **negative** 7.21% without a rate increase. The worksheet *2010 New Rates* shows that we can expect an 8.63% profit margin with the rate increase.

Sincerely,
Mr. Wemmick

Exhibit 5.a.

2005 Asset Share Model

Asset Share

		Inforce		Revenue		CLA
	Attained Age at t	Total Decrements (Mortality and Lapse)	Number of In Force Policies (EOP)	Total Premium Income	Investment Income	Claim Cost
0	60		1.000			
1	61	5.0%	0.950	1,284.00	(3.85)	489.49
2	62	4.0%	0.912	1,219.80	88.08	513.96
3	63	3.0%	0.885	1,171.01	109.84	539.66
4	64	2.0%	0.867	1,135.88	130.98	566.64
5	65	2.0%	0.850	1,113.16	151.63	594.97
6	66	2.0%	0.833	1,090.90	171.59	624.72
7	67	2.0%	0.816	1,069.08	190.79	655.96
8	68	2.0%	0.800	1,047.70	209.21	688.76
9	69	2.0%	0.784	1,026.74	226.78	723.20
10	70	2.0%	0.768	1,006.21	243.46	759.36
11	71	2.0%	0.753	986.08	259.20	797.33
12	72	2.0%	0.738	966.36	273.92	837.20
13	73	2.0%	0.723	947.04	287.58	879.06
14	74	2.0%	0.708	928.09	300.09	923.01
15	75	2.0%	0.694	909.53	311.40	969.16
16	76	2.5%	0.677	891.34	321.41	1,017.62
17	77	3.0%	0.657	869.06	329.96	1,068.50
18	78	3.5%	0.634	842.99	337.00	1,121.93
19	79	4.0%	0.608	813.48	342.52	1,178.03
20	80	4.5%	0.581	780.94	346.51	1,236.93
21	81	5.0%	0.552	745.80	349.01	1,298.78

Exhibit 5.b.

2005 Asset Share Model

Asset Share

	IMS	Expenses					Reserves
	Incurred Claims	Acquisition Expenses	Maintenance Expenses	Total Gross Expenses	APV Ben	APV $1	Net Premium
0					10,614.54	12.41	855.61
1	465.01	1,348.20	0.00	1,348.20	11,213.05	12.57	
2	468.73	0	182.97	182.97	11,730.69	12.64	
3	477.40	0	175.65	175.65	12,147.08	12.59	
4	491.25	0	170.38	170.38	12,442.88	12.41	
5	505.49	0	166.97	166.97	12,731.35	12.22	
6	520.15	0	163.63	163.63	13,010.56	12.02	
7	535.24	0	160.36	160.36	13,278.35	11.80	
8	550.76	0	157.15	157.15	13,532.35	11.57	
9	566.74	0	154.01	154.01	13,769.95	11.32	
10	583.17	0	150.93	150.93	13,988.26	11.05	
11	600.09	0	147.91	147.91	14,184.09	10.76	
12	617.49	0	144.95	144.95	14,353.96	10.46	
13	635.40	0	142.06	142.06	14,494.03	10.13	
14	653.82	0	139.21	139.21	14,600.10	9.78	
15	672.78	0	136.43	136.43	14,667.55	9.40	
16	688.76	0	133.70	133.70	14,768.33	9.04	
17	701.50	0	130.36	130.36	14,903.45	8.70	
18	710.80	0	126.45	126.45	15,074.39	8.36	
19	716.49	0	122.02	122.02	15,283.20	8.04	
20	718.46	0	117.14	117.14	15,532.57	7.72	
21	716.67	0	111.87	111.87	15,825.87	7.41	

Exhibit 5.c.

2005 Asset Share Model

Asset Share

				Profit		
	Policy Reserve Per-Policy	Policy Reserve In Force	Increase in Statutory Reserve	Gross Profit before Tax & Dividends	Tax Payable By Office	Net Income
0	0.00					
1	453.82	431.13	431.13	(964.20)	(337.47)	(626.73)
2	915.94	835.34	404.21	251.97	88.19	163.78
3	1,376.27	1,217.50	382.17	245.63	85.97	159.66
4	1,823.71	1,581.06	363.55	241.68	84.59	157.09
5	2,274.58	1,932.50	351.44	240.89	84.31	156.58
6	2,727.71	2,271.14	338.64	240.06	84.02	156.04
7	3,181.78	2,596.21	325.08	239.19	83.72	155.47
8	3,635.28	2,906.93	310.72	238.27	83.39	154.87
9	4,086.54	3,202.43	295.49	237.28	83.05	154.23
10	4,533.69	3,481.77	279.35	236.22	82.68	153.54
11	4,974.61	3,743.98	262.21	235.07	82.28	152.80
12	5,406.96	3,987.99	244.01	233.83	81.84	151.99
13	5,828.15	4,212.68	224.68	232.48	81.37	151.11
14	6,235.30	4,416.83	204.15	231.00	80.85	150.15
15	6,625.21	4,599.16	182.33	229.38	80.28	149.10
16	7,033.61	4,760.61	161.44	228.84	80.10	148.75
17	7,463.69	4,900.15	139.54	227.61	79.66	147.95
18	7,919.07	5,017.15	117.00	225.74	79.01	146.73
19	8,403.92	5,111.36	94.21	223.28	78.15	145.13
20	8,923.09	5,182.90	71.54	220.31	77.11	143.20
21	9,482.23	5,232.29	49.39	216.88	75.91	140.97

Asset Share

		Inforce		Revenue		CLA
	Attained Age at t	Total Decrements (Mortality and Lapse)	Number of In Force Policies (EOP)	Total Premium Income	Investment Income	Claim Cost
0	60		1.000			
1	61	5.0%	0.950	1,284.00	(2.57)	611.86
2	62	4.0%	0.912	1,219.80	64.29	642.45
3	63	3.0%	0.885	1,171.01	84.10	674.58
4	64	2.0%	0.867	1,135.88	103.29	708.30
5	65	2.0%	0.850	1,113.16	122.00	743.71
6	66	2.0%	0.833	1,090.90	140.16	780.90
7	67	2.0%	0.816	1,069.08	157.74	819.95
8	68	2.0%	0.800	1,047.70	174.71	860.95
9	69	2.0%	0.784	1,026.74	191.02	904.00
10	70	2.0%	0.768	1,006.21	206.64	949.20
11	71	2.0%	0.753	986.08	221.53	996.66
12	72	2.0%	0.738	966.36	235.63	1,046.50
13	73	2.0%	0.723	947.04	248.89	1,098.83
14	74	2.0%	0.708	928.09	261.27	1,153.76
15	75	2.0%	0.694	909.53	272.71	1,211.45
16	76	2.5%	0.677	891.34	283.14	1,272.03
17	77	3.0%	0.657	869.06	292.46	1,335.63
18	78	3.5%	0.634	842.99	300.62	1,402.41
19	79	4.0%	0.608	813.48	307.61	1,472.54
20	80	4.5%	0.581	780.94	313.42	1,669.86
21	81	5.0%	0.552	745.80	315.19	1,753.35

Exhibit 5.e.

2010 Old Rates

Asset Share

IMS		Expenses			Reserves		
	Incurred Claims	Acquisition Expenses	Maintenance Expenses	Total Gross Expenses	APV Ben	APV $1	Net Premium
0					13,641.27	12.41	1,099.59
1	581.27	1,348.20	0.00	1,348.20	14,427.65	12.57	
2	585.91	0	182.97	182.97	15,112.54	12.64	
3	596.76	0	175.65	175.65	15,669.64	12.59	
4	614.06	0	170.38	170.38	16,073.88	12.41	
5	631.86	0	166.97	166.97	16,471.41	12.22	
6	650.19	0	163.63	163.63	16,859.98	12.02	
7	669.05	0	160.36	160.36	17,237.09	11.80	
8	688.45	0	157.15	157.15	17,599.98	11.57	
9	708.42	0	154.01	154.01	17,945.57	11.32	
10	728.97	0	150.93	150.93	18,270.51	11.05	
11	750.11	0	147.91	147.91	18,571.05	10.76	
12	771.86	0	144.95	144.95	18,843.10	10.46	
13	794.25	0	142.06	142.06	19,082.13	10.13	
14	817.28	0	139.21	139.21	19,283.20	9.78	
15	840.98	0	136.43	136.43	19,440.86	9.40	
16	860.95	0	133.70	133.70	19,651.20	9.04	
17	876.88	0	130.36	130.36	19,917.15	8.70	
18	888.50	0	126.45	126.45	20,242.55	8.36	
19	895.61	0	122.02	122.02	20,632.33	8.04	
20	969.92	0	117.14	117.14	20,968.96	7.72	
21	967.50	0	111.87	111.87	21,364.93	7.41	

Exhibit 5.f.

2010 Old Rates

Asset Share

	Policy Reserve Per-Policy	Policy Reserve In Force	Increase in Statutory Reserve	Profit		
				Gross Profit before Tax & Dividends	Tax Payable By Office	Net Income
0	0.00					
1	600.44	570.41	570.41	(1,218.45)	(426.46)	(791.99)
2	1,213.97	1,107.14	536.73	(21.53)	(7.53)	(13.99)
3	1,827.54	1,616.72	509.57	(26.87)	(9.40)	(17.47)
4	2,426.65	2,103.78	487.06	(32.34)	(11.32)	(21.02)
5	3,032.89	2,576.77	472.99	(36.67)	(12.83)	(23.83)
6	3,644.98	3,034.87	458.10	(40.87)	(14.30)	(26.56)
7	4,261.49	3,477.22	442.35	(44.93)	(15.73)	(29.21)
8	4,880.76	3,902.87	425.65	(48.85)	(17.10)	(31.76)
9	5,500.95	4,310.83	407.96	(52.62)	(18.42)	(34.20)
10	6,119.97	4,700.01	389.18	(56.22)	(19.68)	(36.55)
11	6,735.49	5,069.26	369.25	(59.65)	(20.88)	(38.78)
12	7,344.86	5,417.33	348.07	(62.90)	(22.01)	(40.88)
13	7,945.18	5,742.90	325.57	(65.95)	(23.08)	(42.87)
14	8,533.19	6,044.56	301.66	(68.79)	(24.07)	(44.71)
15	9,105.25	6,320.79	276.23	(71.40)	(24.99)	(46.41)
16	9,710.93	6,572.72	251.93	(72.10)	(25.24)	(46.87)
17	10,355.95	6,799.01	226.29	(72.02)	(25.21)	(46.81)
18	11,046.89	6,998.79	199.78	(71.13)	(24.89)	(46.23)
19	11,791.42	7,171.67	172.88	(69.42)	(24.30)	(45.12)
20	12,474.80	7,245.88	74.21	(66.91)	(23.42)	(43.49)
21	13,212.40	7,290.60	44.72	(63.09)	(22.08)	(41.01)

Exhibit 5.g.

2010 New Rates

Asset Share

		Inforce		Revenue		CLA
	Attained Age at t	Total Decrements (Mortality and Lapse)	Number of In Force Policies (EOP)	Total Premium Income	Investment Income	Claim Cost
0	60		1.000			
1	61	5.0%	0.950	1,800.00	(3.60)	611.86
2	62	4.0%	0.912	1,710.00	83.61	642.45
3	63	3.0%	0.885	1,641.60	105.16	674.58
4	64	2.0%	0.867	1,592.35	126.05	708.30
5	65	2.0%	0.850	1,560.50	146.44	743.71
6	66	2.0%	0.833	1,529.29	166.14	780.90
7	67	2.0%	0.816	1,498.71	185.09	819.95
8	68	2.0%	0.800	1,468.73	203.27	860.95
9	69	2.0%	0.784	1,439.36	220.65	904.00
10	70	2.0%	0.768	1,410.57	237.17	949.20
11	71	2.0%	0.753	1,382.36	252.81	996.66
12	72	2.0%	0.738	1,354.71	267.51	1,046.50
13	73	2.0%	0.723	1,327.62	281.23	1,098.83
14	74	2.0%	0.708	1,301.07	293.91	1,153.76
15	75	2.0%	0.694	1,275.05	305.51	1,211.45
16	76	2.5%	0.677	1,249.55	315.97	1,272.03
17	77	3.0%	0.657	1,218.31	325.12	1,335.63
18	78	3.5%	0.634	1,181.76	332.91	1,402.41
19	79	4.0%	0.608	1,140.40	339.33	1,472.54
20	80	4.5%	0.581	1,094.78	344.38	1,669.86
21	81	5.0%	0.552	1,045.51	345.20	1,753.35

Exhibit 5.h.

2010 New Rates

Asset Share

	IMS	Expenses					Reserves
	Incurred Claims	Acquisition Expenses	Maintenance Expenses	Total Gross Expenses	APV Ben	APV $1	Net Premium
0					16,032.58	13.65	1,174.19
1	581.27	1,890.00	0.00	1,890.00	16,895.71	13.82	
2	585.91	0	256.50	256.50	17,631.95	13.86	
3	596.76	0	246.24	246.24	18,212.77	13.78	
4	614.06	0	238.85	238.85	18,611.81	13.56	
5	631.86	0	234.08	234.08	18,999.70	13.32	
6	650.19	0	229.39	229.39	19,373.98	13.07	
7	669.05	0	224.81	224.81	19,731.96	12.80	
8	688.45	0	220.31	220.31	20,070.72	12.52	
9	708.42	0	215.90	215.90	20,387.02	12.22	
10	728.97	0	211.59	211.59	20,677.35	11.90	
11	750.11	0	207.35	207.35	20,937.87	11.57	
12	771.86	0	203.21	203.21	21,164.39	11.21	
13	794.25	0	199.14	199.14	21,352.36	10.83	
14	817.28	0	195.16	195.16	21,496.82	10.43	
15	840.98	0	191.26	191.26	21,592.38	10.00	
16	860.95	0	187.43	187.43	21,745.45	9.60	
17	876.88	0	182.75	182.75	21,958.10	9.21	
18	888.50	0	177.26	177.26	22,233.29	8.83	
19	895.61	0	171.06	171.06	22,574.99	8.47	
20	969.92	0	164.22	164.22	22,864.64	8.12	
21	967.50	0	156.83	156.83	23,214.83	7.78	

Exhibit 5.i.

2010 New Rates

Asset Share

				Profit		
	Policy Reserve	Policy Reserve In Force	Increase in Statutory Reserve	Gross Profit before Tax & Dividends	Tax Payable By Office	Net Income
0	0.00					
1	670.36	636.84	636.84	(1,311.71)	(459.10)	(852.61)
2	1,352.62	1,233.59	596.75	354.45	124.06	230.39
3	2,032.15	1,797.72	564.13	339.63	118.87	220.76
4	2,692.99	2,334.68	536.96	328.53	114.99	213.54
5	3,358.60	2,853.49	518.81	322.20	112.77	209.43
6	4,027.49	3,353.35	499.86	315.99	110.60	205.39
7	4,697.99	3,833.39	480.04	309.90	108.47	201.44
8	5,368.27	4,292.71	459.31	303.93	106.38	197.55
9	6,036.24	4,730.31	437.61	298.07	104.33	193.75
10	6,699.63	5,145.17	414.86	292.33	102.32	190.02
11	7,355.89	5,536.19	391.01	286.70	100.34	186.35
12	8,002.22	5,902.17	365.98	281.17	98.41	182.76
13	8,635.51	6,241.88	339.71	275.74	96.51	179.23
14	9,252.38	6,554.00	312.12	270.42	94.65	175.77
15	9,849.06	6,837.13	283.13	265.19	92.82	172.37
16	10,478.76	7,092.41	255.28	261.85	91.65	170.20
17	11,147.02	7,318.37	225.96	257.84	90.24	167.59
18	11,860.14	7,514.03	195.66	253.25	88.64	164.61
19	12,625.40	7,678.91	164.88	248.18	86.86	161.32
20	13,327.55	7,741.19	62.28	242.74	84.96	157.78
21	14,082.55	7,770.74	29.55	236.83	82.89	153.94

Email 13

From:	Joe Gargey
To:	Charles Dickens
Sent:	March 15, 2011
Subject:	Rate Calculation Process

Dear Mr. Dickens,

After some initial market research, Great Expectations came to the conclusion that too many "bells and whistles" on our competitors' Long-Term Care products cause a lot of confusion and make the products harder to sell.

In order to allow the sales agents to focus on the underlying need of Long-Term Care coverage, we made the strategic decision to only offer high-quality comprehensive products with minimal options. This makes it particularly easy to calculate the rates for our products.

Our products are sold in units of $100 per-day, and partial units are allowed. To calculate the rate, you look up the base rate, which is a function of age-at-issue, benefit period, and inflation-protection option. That is then multiplied by the number of units chosen, a class-adjustment factor, a marital discount, an elimination-period factor, and the cash-benefit rider factor. The underwriter has no authority to deviate from these rates.

For example, say a 60-year old man purchases 1.5 units of coverage. He gets this with the 3-year benefit period, 5% compound inflation protection, and 180-day elimination period. He's married and in the preferred rating class, and selects the cash benefit rider.

Using the rate book in the attached excel file, the final monthly rate would be:

$$\begin{aligned} Rate &= base \times units \times class \times spouse \times EP \times CB \\ &= 215 \times 1.5 \times 0.95 \times .85 \times .95 \times 1.1 \\ &= 272.14 \end{aligned}$$

Best wishes,

Joe

Table 4

Base Rate						
	3-year BP			Lifetime BP		
Issue Age	No IP	5% Simple	5% Compound	No IP	5% Simple	5% Compound
30	33	50	88	40	89	174
31	33	50	88	40	89	174
32	33	50	88	40	89	174
33	33	50	88	40	89	174
34	33	50	88	40	89	174
35	33	50	88	40	89	174
36	33	50	88	40	89	174
37	33	50	88	40	89	174
38	33	50	88	40	89	174
39	33	50	88	40	89	174
40	34	52	91	41	92	179
41	35	54	95	43	95	184
42	36	56	98	44	98	190
43	38	58	102	45	101	196
44	39	60	105	47	104	202
45	40	62	109	48	107	208
46	42	64	112	50	110	214
47	43	66	116	51	113	220
48	44	68	119	52	116	227
49	46	70	123	54	119	234
50	48	74	130	56	125	246
51	51	78	137	59	131	258
52	53	82	144	62	138	271
53	56	86	151	65	145	285
54	59	90	158	68	152	299
55	62	95	166	72	160	314
56	65	100	175	76	168	330
57	68	105	184	79	176	347
58	72	110	193	83	185	364
59	75	116	203	87	194	389
60	80	123	215	93	206	416
61	85	130	228	98	218	445
62	90	138	242	104	231	476
63	95	146	256	110	245	509
64	101	155	271	117	260	545
65	107	164	287	124	276	583
66	114	175	306	133	295	624
67	122	187	327	142	316	668
68	130	200	350	152	338	715
69	139	214	375	163	362	765
70	149	229	401	174	387	819
71	161	247	433	188	418	876
72	174	267	468	203	451	937
73	187	288	505	219	487	1003
74	202	311	545	237	526	1073
75	218	336	589	256	568	1148
76	241	370	648	281	625	1228
77	265	407	713	310	688	1314
78	291	448	784	341	757	1406
79	320	493	862	375	833	1504
80	352	542	948	412	916	1609

Table 5

Class Adjustment	
Preferred Plus	0.85
Preferred	0.95
Standard	1.15

Spouse Adj Factor	
Single	1.00
Married	0.85

EP Factor	
0-Day	1.17
30-Day	1.05
90-Day	1.00
180-Day	0.95

Cash Benefit Rider	
Yes	1.10
No	1.00

Email 14

From:	Mr. Wemmick
To:	Charles Dickens
Sent:	March 30, 2011
Subject:	LTD Table

Dear Mr. Dickens,

As you requested, attached (Table 6) is our LTD Reserves Table that we have just updated after concluding our recent experience analysis.

If you have any questions regarding the rates, please feel free to let me know.

Regards,

Mr. Wemmick

Table 6

Great Expectations Initial LTD Reserve Table

Elimination Period = 90 days

Initial Reserve for Open Claim per $100 of Monthly Benefit

Great Expectations Reserves Table

Sex	**Age**	**Claim Incident Rate (per 1000 lives)**	**Reserve (per $100 monthly benefit)**
F	<25	1.1	$ 2,870
F	25-29	1	$ 4,180
F	30-34	1.4	$ 3,820
F	35-39	1.8	$ 5,460
F	40-44	2.3	$ 5,320
F	45-49	2.7	$ 7,010
F	50-54	2.8	$ 5,970
F	55-59	3.1	$ 8,010
F	60-64	3.9	$ 4,090
M	<25	0.8	$ 2,890
M	25-29	1.2	$ 3,580
M	30-34	1.2	$ 3,770
M	35-39	1.5	$ 4,740
M	40-44	2.4	$ 5,190
M	45-49	2.7	$ 6,440
M	50-54	3.1	$ 5,860
M	55-59	3.7	$ 7,160
M	60-64	4.5	$ 3,510

Email 15

From: Mr. Wemmick
To: Charles Dickens
Sent: March 30, 2011
Subject: LTD Demographics and Benefits

Dear Mr. Dickens,

We have been asked to provide actuarial assistance for 2 companies that are considering merging, and they need to evaluate their long-term disability benefit offerings.

Attached, you will find company demographics (Table 7), as well as specifics around benefit plan design and claims experience for the companies (Table 8).

I am sure we will be in touch soon to discuss this information. In the meantime, if you have questions please feel free to contact me.

Sincerely,

Mr. Wemmick

Table 7

Company Demographics Table

Sikes & Dawkins Security Consultants Demographics

Sex	Age	# FTEs	Avg Salary
F	<25		
F	25-29	75	$ 24,000
F	30-34		
F	35-39	75	$ 36,000
F	40-44		
F	45-49		
F	50-54		
F	55-59		
F	60-64		
M	<25		
M	25-29		
M	30-34		
M	35-39		
M	40-44	100	$ 45,600
M	45-49	50	$ 48,000
M	50-54		
M	55-59		
M	60-64		

Fagin Security, Inc. Demographics

Sex	Age	# FTEs	Avg Salary
F	<25		
F	25-29		
F	30-34		
F	35-39	40	$ 36,000
F	40-44	40	$ 38,400
F	45-49		
F	50-54		
F	55-59		
F	60-64		
M	<25		
M	25-29		
M	30-34		
M	35-39		
M	40-44		
M	45-49	30	$ 48,000
M	50-54		
M	55-59	10	$ 72,000
M	60-64		

Tax Rates:

Working Employees	30%
Disabled Employees	20%

Table 8

Company Experience for the Last Five Years

LTD PLAN DESIGNS		
Description	**Sikes & Dawkins**	**Fagin Security**
Monthly benefit	50% of monthly salary	70% of monthly salary
Monthly maximum benefit	$4,000	$15,000
Elimination period	3 months	6 months
Cost of living adjustment	None	6%
Premium cost-sharing	100% employer paid	100% employee paid

Elimination Period = 90 days

Sikes & Dawkins Experience				
Year	**Total Life-Years**	**Total Claims Paid**	**Total Reserves**	**Projection Interest Rate**
2005	220	$112,200	$336,600	4.0%
2006	210	$119,070	$321,930	4.0%
2007	240	$135,792	$454,608	4.0%
2008	285	$164,502	$468,198	4.0%
2009	270	$155,520	$492,480	4.0%

Elimination Period = 180 days

Fagin Security Experience				
Year	**Total Life-Years**	**Total Claims Paid**	**Total Reserves**	**Projection Interest Rate**
2005	65	$56,550	$169,650	4.0%
2006	75	$65,610	$177,390	4.0%
2007	90	$65,826	$220,374	4.0%
2008	105	$90,090	$256,410	4.0%
2009	110	$88,704	$280,896	4.0%

Credibility

Great Expectations uses a Bayesian credibility with the assumption that k = 5,000 life-years.

Benefit Conversion

Based on Great Expectations analysis, it is assumed that the differences in benefits between Sikes/Dawkins and Fagin (elimination period, maximum coverage, etc.) results in Sikes having a benefit worth 85% of Fagin's benefit, on average.

Retention Requirement

It is Great Expectations policy to load Group LTD rates with 14% retention charge for administrative expenses and margin.

Email 16

From: Reginald M. Dombey IV <rmdomb@dombsons.com>
To: You
Sent: March 31, 2011
Subject: Prescription Drug Benefit Offering

Hello, I was told to contact you regarding the pricing of our prescription drug benefit plan. We have managed to compile the information you asked for regarding the experience of our plan:

Union Employees

Drug Tier	Average Tier AWP	Average Annual Prescriptions per Employee
I	$100	4.00
II	$275	2.00
III	$350	1.00

Non-Union Employees

Drug Tier	Average Tier AWP	Average Annual Prescriptions per Employee
I	$100	3.00
II	$250	2.00
III	$300	0.50

Also, our current PBM, Tale Scripts gave me this information about our current prescription drug discounts to pass along to you:

Tale Scripts Discounts

Drug Tier	AWP Discount
I	70%
II	20%
III	15%

I want to take this opportunity to reiterate that we are first and foremost looking for opportunities to save costs. I am aware that your company utilizes a different PBM and the possibility of us switching to them for our prescription drug plan has been raised. If they can save us enough, we will consider it.

-Reginald
Reginald M. Dombey IV
VP of HR of Dombey and Sons

Email 17

From: Ebenezer Scrooge <escrooge@greatexp.com>
To: You
Sent: April 2, 2011
Subject: RE: Two Cities Info

I talked to my contact at our PBM (Two Cities Rx) and he got the information you needed regarding their pricing:

Two Cities Rx Discounts

Drug Tier	AWP Discount
I	80%
II	15%
III	10%

Our contact mentioned that under the current Dombey benefit offering, they would expect the utilization and average cost of drugs to be the same as that experienced currently with their PBM (Tale Scripts). However, they indicated that by installing Two Cities Rx as the new PBM and making a change to the benefits would yield some savings. Below are the existing and proposed benefit designs from Two Cities Rx:

Existing:

Union Employees

Drug Tier	Copay*
I	$5
II	$20
III	$30

Non-Union Employees

Drug Tier	Copay*
I	$10
II	$30
III	$45

*It is assumed that copays are always assessed, even if the cost of a specific drug is less than its discounted AWP.

Proposed:

Union Employees

Drug Tier	Copay*
I	$5
II	$30
III	$50

Non-Union Employees

Drug Tier	Copay*
I	$10
II	$35
III	$60

*It is assumed that copays are always assessed, even if the cost of a specific drug is less than its discounted AWP.

Two Cities Rx states that if the new plan design is utilized, then about 30% of the utilization in drug tiers II and III for both the union and non-union plans would shift to alternatives in tier I, with these alternatives having an AWP 20% more than the current average AWP in tier I. Dombey's contact at Tale Scripts has stated that if this new plan design is used with its formulary it does not expect any utilization shift.

- Mr. Scrooge