****BEGINNING OF EXAMINATION****
HEALTH, GROUP LIFE & MANAGED CARE
MORNING SESSION

1. *(3 points)*

(a) Explain non-financial uses of reinsurance.

(b) Describe limitations of reinsurance.

2. *(3 points)* You are the actuary for a US health insurance company. You have been asked to make a presentation to your Board of Directors regarding the regulatory environment for your company.

(a) Describe goals and objectives of insurance regulation.

(b) Describe the legal framework for insurance regulation and means of enforcement.

3. *(7 points)* You are a consulting actuary retained by an employer group. Following the presentation of renewal rates to the group, you have been asked to attend a meeting to review trend calculations.

You are given the following information:

- Allowed trend: 15%
- Incurred claims: $5,250,000
- Average monthly membership of the group: 2,000 members
- The current plan is Plan A, but the group is considering Plan B:

	Plan A	Plan B
Deductible	$250	$1,500
Coinsurance	20%	30%
Value of the member cost sharing (PMPM)	$50	$100

- Assume the value of the deductible does not vary from year to year.

(a) Describe in detail external sources of trend that you think might be helpful in your trend discussion.

(b) Describe common problems in computing trends that you might need to investigate.

(c) Calculate the net trend for the two plans and explain why there might be a difference. Show your work.

(d) Describe major issues which might need to be addressed if Plans A and B were to both be offered as a dual option.

Questions 4-7 pertain to the Case Study

4. *(7 points)* You are the actuary at Wonderful Life and have received a request for proposal from JLB Company (JLB) for a multi-option health quote effective January 1, 2005. JLB currently offers only a $100 deductible indemnity plan.

Using data found in Tables MM-2a and MM-2b and the following additional information:

- Total claims incurred for July 1, 2003 to June 30, 2004 were $4,063,000.
- Claim amounts in excess of $50,000 were $278,000.
- Average employee enrollment during this period was 500 single and 750 family contracts.
- Wonderful Life's PPO network discount is 30%.
- In-network utilization is 85%.
- Use of the network reduces utilization by 5% as compared to indemnity.

(a) Discuss pricing considerations in a multi-option environment.

(b) Calculate 2-tier gross premium rates for a $100 deductible indemnity option, and a $500 deductible PPO option, assuming no selection impact. Show your work.

(c) Outline considerations if JLB's current plan was a managed care plan instead of an indemnity plan.

Questions 4-7 pertain to the Case Study

5. *(9 points)* Wonderful Life's management is evaluating the company's profit and surplus requirements. You are given the data in Table C-1 and the assumption that Risk-Based Capital (RBC) is 18% of premium.

(a) *(1 point)* Discuss methods of measuring profit.

(b) *(2 points)* Discuss distortions that may require adjustment to avoid misrepresentation of profits.

(c) *(3 points)* Describe implications of the following when modeling required surplus for Wonderful Life:

i. Reinsurance strategy
ii. Dividend philosophy
iii. Expense management controls
iv. Premium growth

(d) *(3 points)* Determine if Wonderful Life achieved the targeted 12.5% return on equity for 2004. Show your work.

Questions 4-7 pertain to the Case Study

6. *(9 points)* You are the group pricing actuary for Wonderful Life Insurance Company. You are preparing a proposal for Bailey Industries which includes an analysis of prior experience. You are given the data in Table BI-1b and the following assumptions:

- The only items causing differences in claims costs are plan design and utilization differences caused by plan design.
- The average members per contract for both the PPO and HMO plans is 2.2.
- Member Cost as a percentage of claims is as follows:

Service Type	% of Cost	Utilization Adjustment Range Low	Utilization Adjustment Range High	Member Cost Sharing Range Low	Member Cost Sharing Range High
Facility	50.0%	0.0%	5.0%	0.0%	25.0%
Professional	30.0%	-5.0%	20.0%	0.0%	40.0%
Pharmacy	20.0%	0.0%	20.0%	0.0%	25.0%
Total	100.0%				

Average Member Cost Sharing

Service Type	PPO	HMO
Facility	17.5%	0.0%
Professional	25.0%	5.0%
Pharmacy	18.0%	18.0%

(a) *(3 points)* Describe the criteria that Wonderful Life would use to underwrite Bailey Industries.

(b) *(2 points)* Describe the models you might use to predict selection in a multi-option environment.

(c) *(4 points)* Calculate the expected change in utilization for the HMO plan using the member utilization cost model. Show your work.

Questions 4-7 pertain to the Case Study

7. *(7 points)* You are an actuary at Wonderful Life and have been asked to discuss sources of profit using Group 1 data as an example.

In addition to the data in Tables MM-1, MM-2a, MM-2b, and MM-3a, assume:

- Single/Family manual rates for 2005 are the result of trending historical manual rates.
- Expenses, taxes, and investment income are expressed as the percentages from Table MM-1 for 2004.

(a) Discuss major factors affecting financial results for the group line of business.

(b) Outline the various sources of profit for group insurance.

(c) Calculate profits by source for Group 1 for the experience period. Show your work.

8. *(7 points)* You are the consulting actuary for ACME, Inc. They are interested in offering a Patient Directed Healthcare Benefit (PDHB) plan with the following structure:

<u>Option 1</u>

- Multi-plan option plus Flexible Spending Account (FSA),
- Employer provides core contribution, offers multiple health plan choices, and sets menu.

<u>Option 2</u>

- High Deductible Plan plus FSA plus Personal Health Account (PHA),
- Employer provides core contribution, access to multiple high deductible plans, and segregated PHA's.

(a) Describe factors that are making consumerism a significant trend.

(b) Compare and contrast the key dimensions of PDHB's as they relate to the two options ACME is considering.

(c) Describe the healthcare challenges that can be addressed by PDHB's with respect to:

 i. Employees
 ii. Employers

9. *(5 points)* You are the pricing actuary for Enamel Insurance Company (EIC). EIC is interested in adding a dental product to its portfolio and has asked you to prepare a report to senior management.

(a) Describe ways to control dental claims costs.

(b) Describe the underwriting and rating parameters used for dental insurance.

10. *(3 points)* You are the Valuation Actuary for Belt and Suspenders Health Insurance Company. Your company offers a variety of health products that may require a variety of methods for determining claim liabilities.

(a) Describe considerations which might influence the level of conservatism targeted for a given block of business.

(b) Describe approaches to introducing conservatism into each of the common methods used to compute claim liabilities.

****BEGINNING OF EXAMINATION****
MANAGED CARE SEGMENT
Beginning with Question 11

11. *(4 points)* Regarding claims practices for short term disability (STD) coverages:

(a) Describe the tools available to challenge questionable STD claims.

(b) Discuss methods, including the pros and cons for measuring overall STD claims levels.

(c) Describe the sources of information available to a claims examiner regarding STD claims.

12. *(4 points)* You are an actuary responsible for developing your company's financial forecast models. Recently your company has improved access and quality of data. The Chief Actuary is now encouraging you to incorporate additional situations in forecast modeling.

(a) *(3 points)* Discuss basic principles for designing forecast models.

(b) *(1 point)* Outline ways in which forecast modeling can influence company actions to help achieve business objectives.

13. *(8 points)* You are the chief actuary for ABC Insurance Company. You are considering purchasing an individual insurance block of business but are concerned about ABC's ability to administer such business.

(a) Discuss the steps an agent goes through in selling and servicing individual health insurance policies.

(b) Describe considerations in plan design, pricing, and distribution channels.

(c) Describe the typical underwriting considerations for individual health insurance.

(d) Describe elements included in rating classification systems.

(e) Explain types of premium guarantees that could be offered.

14. *(4 points)* You are the valuation actuary for TAT Health Insurance Company. You are concerned about the increase in turn around time for claim payment and have been working with the manager of the claims area to address this concern.

(a) Describe the basic purposes of claims and benefits administration.

(b) Discuss the common problems seen in claims and benefits administration and their ramifications.

(c) Outline the basic principles of inventory management and mechanisms for inventory control.

Questions 15 – 18 pertain to the Case Study

15. *(4 points)* Your CFO is considering hiring a medical management vendor that specializes in reducing physical medicine and chiropractor utilization. The CFO wants to test whether the vendor can lower HMO claim costs in 2005. The vendor states that they can reduce utilization for each of these two services by 8% and reduce costs by $3.00 per unit in 2005. Without the program, medical unit cost is expected to increase from 2004 to 2005 by 10% and utilization by 2%. This program will also increase the Disease Management administrative costs in 2005 by 20%.

Using Tables MC-4, MC-5, MC-6

(a) Calculate the financial impact of this program assuming the medical management vendor's assumptions are realized. Show your work

(b) List actions the plan and vendor should take to ensure compliance with their medical management obligations while minimizing their liability exposure.

Questions 15 – 18 pertain to the Case Study

16. *(12 points)* The Bedford Group is expanding into a new market and needs to contract with Rural Healthplans Inc (Rural), a physician health organization, to cover inpatient and physician services. Rural is the sole hospital provider in this new market. Rural does not provide skilled nursing services.

To be competitive, your Marketing Manager requests a premium of $180 PMPM (excluding prescription drugs). Your CFO requires a pricing margin of 3%.

You are given the data in Tables MC-1, MC-2, MC-4, MC-7, and MC-8.

For developing 2005 expected claims costs for the new region:

- Assume there will be 120,000 member months.
- Hospital utilization for 2005 will be the same as the 2004 combined services for Hospitals ID 1, ID 2 and ID 3.
- Rural will be reimbursed based on the Hospital ID 2 fee schedule.
- Assume every Rural admission is at least a two-day stay.
- Physician costs are expected to represent 45% of total medical costs.

You plan to offer provider incentives:

- Rural will be offered an incentive similar to Hospital ID 2 except the target average length of stay is 90% of the expected average length of stay.
- Physicians will have a 20% withhold to be repaid three months after the end of the year.
- Any institutional surplus will be split with the physicians but will first be used to offset any withhold deficits.
- For incentive purposes you have targeted utilization to be as follows:

Service	Admits/1000	Days/1000
Medical	25.0	80
Surgical	15.0	70
Psychiatric	4.0	40
Alcohol & Drug Abuse	1.5	10
Maternity	15.0	30

(a) List potential sources of data to supplement your own data and concerns you may have with each of these sources.

(b) Calculate the 2005 expected hospital inpatient PMPM claim cost for Rural. Show your work.

16. Continued

(c) Calculate the hospital incentive that would be paid to Rural for 2005 if they achieve targeted utilization. Show your work.

(d) Calculate outpatient facility claims costs assuming you charge the $180 premium and using results from your prior calculations. Show your work.

(e) Develop the physician withhold and hospital incentive liabilities at the end of 2005 assuming that actual incurred claims are $9 million for physician services, $10 million for institutional services, and that targeted utilization is achieved. Use the results from your prior calculations. Show your work.

Questions 15 – 18 pertain to the Case Study

17. *(5 points)* Through provider profiling efforts, you observed that Hospital ID 2 performs an unusually high number of caesarian section (C-Sections) deliveries. Your discussions with this hospital resulted in an implementation of a new program that will lower their rate of C-Sections by 10%. The one-time cost of this program is $50,000 which you have agreed to fund. In return, Hospital ID 2 will agree to change their reimbursement to a per case basis.

You are given the following:

- Tables MC-2, MC-3, and MC-7
- Incurred maternity claims at all hospitals were $7,800,000 for 2004.
- Incurred maternity claims at Hospital ID 3 were $800,000 for 2004.
- Prior to this new program, 30% of all deliveries at Hospital ID 2 were C-Sections and C-Sections cost 80% more than normal deliveries.

(a) Discuss the advantages and concerns when using inpatient claims data for quality improvement and utilization management purposes.

(b) Calculate the average cost per admit for C-Sections and Normal Deliveries at Hospital ID 2. Show your work.

(c) Calculate expected savings resulting from implementing this new program and changing reimbursement to Hospital ID 2 to a maternity case rate. Show your work.

Questions 15 – 18 pertain to the Case Study

18. *(6 points)* You are an actuary for the Bedford Group, the managed care division of Wonderful Life Insurance Company. The CFO has committed to the Board that contribution to surplus will grow by 20%.

You are given the following in addition to information in Tables MC-1, MC-3, and MC-6:

- Ending 2004 Surplus = $100 million.
- The average premium increase is 7% from 2004 to 2005.
- Claim trend for 2005 is estimated to be 8% for medical and 15% for prescription drugs.
- No change in provider liability from 2004 to 2005
- A one-time $3,000,000 expense charge for Sarbanes-Oxley and HIPAA compliance in 2005 was immediately expensed.
- Administrative and Facility costs were the same as in 2004.
- No IT capital expenditures were paid in 2004 nor expected for 2005.
- MIS & IT costs in 2004 were 30% higher than expected due to non-recurring consultant fees.
- Salaries and other administrative costs increased on average 3.5% from 2004.
- 2005 total membership did not change from 2004.
- Commissions and Premium Tax as a percent of premium is as shown in Table MC-1.
- Corporate Taxes are expected to be 37.5% of Operating Earnings before Taxes.
- No Other Income was recorded in 2005.

(a) *(5 points)* Calculate the expected 2005 investment income based on the above assumptions which would be needed to meet the CFO's contribution to surplus target and comment on the reasonableness of the CFO's commitment. Show your work.

(b) *(1 point)* Describe actions that can be taken to increase surplus.

19. *(4 points)* Whitecoat Health Plan (WHP) pays laboratory providers at a fixed percentage of billed charges. Over the last two years, costs for these services have escalated rapidly, and WHP has decided to introduce a fee schedule for some provider types and services.

Effective January 2006, WHP will contract with one clinical lab for specific lab procedures at a flat fee per procedure. You have been given the following information:

	2006 Rate per Service	3/1/2004 – 2/28/2005 Billed Charges	3/1/2004 – 2/28/2005 Procedures
Procedure 1	$20	$7,361,770	146,067
Procedure 2	$17	$10,226,250	252,500
Procedure 3	$30	$6,841,766	85,844

- WHP currently reimburses laboratory services at 70% of billed charges.
- Annual trend for billed charges per service is 4%.
- Total billed charges are expected to increase by 15% per year.
- All services for the three procedures are expected to be delivered through WHP.

(a) Calculate whether the arrangement for 2006 will produce savings over the current reimbursement. Show your work.

(b) Discuss other methods WHP can employ to reduce ancillary costs.

20. *(6 points)* Wrinkle-Be-Gone Cosmetics (WBGC), a large employer group has approached your Prescription Benefit Manager (PBM) to quote their self-funded retiree drug plan. You were given their current and proposed benefit plans.

	Benefit Percentage	
Claims Cost	Current Plan	New Plan
$0 - $3,000	75%	75%
$3,001-$5,000	50%	0%
$5,001-$7,500	50%	50%
$7,501-$10,000	0%	90%
$10,001 +	0%	90%

- The plan is a closed formulary drug plan
- Administration fees are targeted to be $1.50 PMPM

All claim costs indicated below are billed charges net of discounts, but before member cost sharing.

Annual Rx Costs	Members	Avg no. of scripts	Annual cost per member	Percent Generic	Percent Brand
$0 - $3,000	2,220	12.5	$615	80%	20%
$3,001-$5,000	925	44	$3,216	65%	35%
$5,001-$7,500	370	68	$6,018	30%	70%
$7,501-$10,000	111	84	$8,127	10%	90%
$10,001 +	74	110	$12,375	0%	100%

WBGC will remain self-insured and proposes to pay no administrative fees to the PBM, but the PBM will retain rebates as their fee. Assume that all members in the group have at least one script per year. Rebates are paid to the PBM for brand drugs only at a rate of $1.20 per script.

(a) *(1 point)* Describe the effects of benefit maximums and their advantages and disadvantages as part of a prescription drug plan design.

(b) *(3 points)* Calculate the difference in expected costs to WBGC under the current and proposed plan designs. Show your work.

(c) *(2 points)* Calculate the projected rebates under the proposed plan design to determine if the proposal meets the targeted administrative fee. Show your work.

21. *(3 points)*

(a) Describe the steps needed to develop a clinical pathway for an inpatient episode.

(b) Describe alternative formats used for information displays of clinical pathways and the advantages and disadvantages of each.