REPORT OF THE
DEPARTMENT OF PERSONNEL AND TRAINING ON

The Feasibility and Potential Cost Benefits of Implementing Risk-Rated Health Insurance for State Employees and Retirees

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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EXECUTIVE SUMMARY

I. INTRODUCTION

In view of the rising cost of health care and the potential for controlling these increases through healthier employee lifestyles, the 1991 General Assembly passed House Joint Resolution (HJR) 345 (see Appendix A). HJR 345 directed the Department of Personnel and Training (DPT) to evaluate the feasibility and potential cost benefits of providing risk-rated health insurance for all state employees and retirees.

As health insurance companies, employers, and others search for a means to control health care costs, one group of health care expenses which has received increasing attention are those associated with illnesses or accidents which the patient could have prevented. Studies have shown that a significant portion of health care costs could have been avoided if persons exhibited healthier lifestyles.

"Healthy" lifestyles typically describe persons who:

- o do not smoke or abuse alcohol;
- o exercise regularly;
- o maintain appropriate body weight, cholesterol, and blood pressure levels; and
- o exhibit safe driving habits (e.g. wear safety belts and do not drink alcohol and drive).

To respond to the issues presented in HJR 345, DPT employed three major study methods. DPT surveyed other states, local governments, and private employers; reviewed the current literature pertaining to risk-rated health insurance; and estimated the potential cost benefits of risk-rated health insurance.

II. FINDINGS

A. Overview of Risk-Rated Health Insurance

1. Description and Objectives of Risk-Rated Health Insurance (see page II-1)

- Risk-rated health insurance attempts to control costs by encouraging healthy or preventive behaviors, and penalizing unhealthy or risky behaviors.

- The encouragement is provided by adjusting an individual's premium or level of benefit reimbursement according to one's lifestyle. Thus, persons with unhealthy lifestyles are charged a higher premium or receive lower benefit reimbursements than those persons with healthy lifestyles.

2. Types of Risk-Rated Health Insurance (see page II-2)

   - There are two critical components of a risk-rated health insurance program:

     - the lifestyle behaviors (e.g. smoking, alcohol abuse, failing to exercise, etc.) used to determine which employees are considered to be "at risk"; and

     - the means by which an incentive or disincentive is used to encourage employees to adopt healthier lifestyles.

   - Risk-rated health insurance programs typically address one or a combination of the following lifestyle behaviors: smoking, diet and exercise, and automobile driving habits.

   - Employers must decide whether an incentive or a disincentive will be used to encourage healthy lifestyles (or discourage unhealthy lifestyles). The three basic approaches are: premium reductions, benefit enhancements, and financial disincentives.

3. Advantages and Disadvantages of Risk-Rated Health Insurance (see page II-3)

   - The principal advantage of risk-rated health insurance is that risk-rating provides an incentive for employees to become healthier.

- By improving employees' health, risk-rating should help control health care costs. (However, because risk-rating is such a new concept, further research is necessary to develop accurate estimates of the savings.)

- The primary disadvantages of risk-rated health insurance are:

  - Risk-rating contradicts a basic concept of traditional group insurance pricing, that of spreading the risk equally among all group members.

  - Some employees classified as being "non-healthy" will view the program as "punishment" for not being a healthier person.

  - Some health conditions, such as obesity, high cholesterol, and high blood pressure may be beyond the employee's control. Thus, an employee may not be able to change the physiological condition. Risk-rating may lead to charges of illegal discrimination.

  - Risk-rated health insurance programs, particularly the more complex designs, will incur administrative costs.

B. Other Employers' Use of Risk-Rated Health Insurance

1. Recent Employer Surveys (see page III-1)

- A 1990 survey conducted by a national benefits consulting firm found that only four of the 910 employers responding had implemented a risk-rated health insurance program.

- Johnson & Johnson Health Management Inc. reports that only 1 to 2% of major United States corporations currently use financial incentives in their employee health benefits plans.

2. The Department of Personnel and Training's Survey of Employers (see page III-1)

   - The Department of Personnel and Training (DPT) sent surveys to all other states, 42 local governments, and 41 private employers to determine what types of risk-rated health insurance are being utilized by other employers.

   - None of the private employers who responded to the survey have implemented any form of risk-rated health insurance. Only five of the government respondents (four states and one local government) reported that they had instituted a risk-rating program.

   - Two states, Kansas and Colorado, currently charge smokers a higher premium than non-smokers. Oregon has decided to institute a similar program in 1993.

   - The state of Utah and Ventura County, California provide financial incentives to employees who achieve and/or maintain healthy lifestyles.

   - Those employers responding to the survey who have not implemented a risk-rated health insurance program indicated that the primary reasons for not instituting such a program were administrative costs, union and labor group concerns about the fairness of risk-rated health insurance, and concerns about potential charges of illegal discrimination.

C. Potential Cost Benefits of Risk-Rated Health Insurance for State Employees and Retirees

1. General (see page IV-1)

   - The potential cost benefits of four risk-rated program designs were estimated. These estimates should be used only as a very general guide to savings which may be obtained from any risk-rated program that the Commonwealth might implement.

- o William M. Mercer, Inc. (Mercer), DPT's actuary and benefits consultant, provided actuarial estimates of the potential cost savings of the four risk-rated health insurance program designs.

2. Estimated Cost Savings of Four Risk-Rated Health Insurance Programs (see page IV-1)

   - o Design #1: Premium Differential for Smokers and Non-Smokers

     - Under this design, state employees and retirees would pay a higher premium if they or anyone covered under their health benefits policy smoke tobacco products. The premium differential would be an incentive for smokers to quit smoking.

     - Mercer estimated that by increasing the number of non-smokers, the Commonwealth's medical claims could be reduced by approximately $540,000 during the five year period 1991-1995.

   - o Design #2: Benefit Differential For Insured Who Causes An Alcohol-Related Automobile Crash

     - Under this design, state employees and retirees (or any covered dependent) injured as a result of an automobile crash that they caused while under the influence of alcohol will have to pay 10% more out-of-pocket for medical services related to those injuries.

     - Assuming that a 10% benefit penalty could reduce alcohol-related crashes by 5%, Mercer estimates that this program could save approximately $680,000 per year in medical claims paid by the Commonwealth.

   - o Design #3: Benefit Differential For Insured Who Is Not Wearing A Seat Belt At The Time Of An Automobile Crash

     - Under this design, there would be a

5% penalty (maximum of $1,000) imposed on the benefit payments made on behalf of state employees, retirees, and their dependents who utilize their medical benefits as a result of an automobile crash in which the injured person(s) was not wearing a seat belt.

- Assuming that a 5% benefit penalty would increase seat belt usage, Mercer estimates that this program could save approximately $1.3 million in medical claims payments per year.

o Design #4: Offering Financial Incentives To Employees And Retirees To Lower Their Health Risks

- Under this design, an incentive (e.g. cash award, or premium rebate) would be provided to employees and retirees who maintain or achieve healthy lifestyles (i.e. appropriate weight, cholesterol and blood pressure levels, and proper amount of exercise). An incentive also would be provided to encourage covered dependents to maintain/achieve healthy lifestyles.

- Assuming that financial incentives would increase the number of healthy employees, retirees, and dependents, Mercer estimated that the potential savings for the period 1991-1995 could range from $1.2 million to $3.7 million.

- A critical component of this type of program is the amount of the incentive. The greater the incentive provided, the more likely the medical claims savings will approach $3.7 million. However, the net savings of the program would be reduced according to the amount of cash incentives provided.

III. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions (see page V-1)

1. Based on the advice of the Office of the Attorney General, a risk-rated health insurance program should be limited to factors which are largely unrelated to the issue of disability, such as smoking/non-smoking.

2. While a risk-rated health insurance program which attempts to reduce smoking likely would not violate the Americans with Disabilities Act, smokers and various interest groups likely will oppose such a program.

3. While there are significant cost savings associated with Design #2 and Design #3, DPT concludes that because of the negative reaction that would result from reducing a person's health benefits at the very time the benefits are of critical importance, neither of these alternatives should be implemented at this time.

4. Due to the administrative costs (e.g. medical testing, record-keeping, etc.) of implementing Design #4, the uncertainty of the cost savings of this type of program, and the potential for the program to be viewed as discriminatory, DPT concludes that this type of risk-rated health insurance should not be implemented at this time.

B. Recommendations (see page V-2)

1. Should the Commonwealth decide to implement risk-rated health insurance for state employees and retirees, the program recommended would be Design #1. Thus, the Commonwealth would charge smokers a higher premium than that charged to non-smokers. The premium differential should be revenue neutral.

2. If Design #1 is adopted, Section 2.1-20.1 of the Code of Virginia should be amended to allow

premium payments to be required from all smokers.

3. To assist employees and their families in lowering their health risks, the CommonHealth wellness program should continue to be promoted and expanded as necessary to provide wellness activities, medical screenings, and other effective interventions.

I. INTRODUCTION

A. Purpose of Study

In view of the rising cost of health care and the potential for controlling these increases through healthier employee lifestyles, the 1991 General Assembly passed House Joint Resolution (HJR) 345 (see Appendix A). HJR 345 directed the Department of Personnel and Training (DPT) to evaluate the feasibility and potential cost benefits of providing risk-rated health insurance for all state employees and retirees.

B. Background

In the United States, the total amount spent on health care in 1990 was estimated to be $671 billion, approximately 12% of the nation's gross national product. Health care expenses are increasing at twice the rate of general inflation. In Virginia, the Commonwealth has increased the amount it spends on employee health insurance from $121.8 million in fiscal year (FY) 1988, to $228.9 million in FY 1991, an increase of $107.1 million.

As health insurance companies, employers, and others search for a means to control health care costs, one group of health care expenses which has received increasing attention are those associated with illnesses or accidents which the patient could have prevented. Studies have shown that a significant portion of health care costs could have been avoided if persons exhibited healthier lifestyles.

"Healthy" lifestyles typically describe persons who:

- do not smoke or abuse alcohol;
- exercise regularly;
- maintain appropriate body weight, cholesterol, and blood pressure levels; and

- o exhibit safe driving habits (e.g. wear safety belts and do not drink alcohol and drive).

There are numerous methods of defining and measuring "preventable" health care costs. Thus, depending on the definitions and measurements used, there are widely varying estimates of the amount of money that could be saved if individuals maintained healthier lifestyles.

A recent study conducted by the Johnson & Johnson Company concluded that 15 to 25 percent of the health care costs incurred by their employees is due to preventable illnesses.

Claims data for Commonwealth of Virginia employees indicate that 30% of the hospital inpatient expenses ($25.5 million) incurred in 1990 were "lifestyle-related" claims (e.g. accidents, alcohol consumption, and other preventable illnesses or disorders).

The National Association of Insurance Commissioners (NAIC) estimated that as much as 60 to 70% of health care claims stem from accidents or illnesses that could have been prevented.

There are many other estimates of preventable or lifestyle-related claims expenditures. However, the "bottom line" conclusion is the same: increasing the number of employees who maintain healthy lifestyles reduces medical claims costs.

C. Study Methods

To respond to the issues presented in HJR 345, DPT employed three major study methods.

1. A survey of other states, local governments, and private employers was conducted to obtain information regarding the use of risk-rated health insurance by other employers.

2. A comprehensive review of the current literature pertaining to risk-rated health insurance was conducted to obtain

information regarding the prevalence of risk-rated health insurance among other employers, the advantages and disadvantages of risk-rating, and the impact of this approach in controlling health care costs.

3. William M. Mercer, Inc. (Mercer), DPT's independent benefits consultant and actuary, provided estimates of the potential cost benefits of risk-rated health insurance.

II. OVERVIEW OF RISK-RATED HEALTH INSURANCE

A. Description and Objectives

One recent initiative that some employers have implemented to increase the number of employees who maintain healthy lifestyles is "risk-rated health insurance." Risk-rating individuals' health insurance premiums attempts to control costs by encouraging healthy or preventive behaviors, and penalizing unhealthy or risky behaviors. The encouragement is provided by adjusting an individual's premium or level of benefit reimbursement according to one's lifestyle. Thus, persons with unhealthy lifestyles are charged a higher premium or receive lower benefit reimbursements than those persons with healthy lifestyles.

Rather than basing health insurance premiums on the claims experience of the entire group, risk-rated health insurance establishes premiums, in part, on modifiable lifestyle behaviors (i.e. those over which the individual is in control and can change) thought to place the individual at risk for illness or injury. Risk-rated health insurance adjusts an individual's premium such that costs are shifted away from those with health-promoting lifestyles to those with health-damaging lifestyles. For employers, the result is healthier employees and lower health care costs.

The objectives of risk-rated health insurance are to:

- o motivate employees, by means of financial incentive, to adopt healthier lifestyles;
- o redistribute the expected costs of health care such that those employees expected to use the benefits the most pay a larger share of the total cost; and
- o control the overall cost of health care.

B. Types of Risk-Rated Health Insurance

There are two critical components of a risk-rated health insurance program:

- o the lifestyle behaviors (e.g. smoking, alcohol abuse, failing to exercise, etc.) used to determine which employees are considered to be "at risk"; and
- o the means by which an incentive or disincentive is used to encourage employees to adopt healthier lifestyles.

1. Lifestyle Behaviors

Based on DPT's review of the current literature regarding risk-rated health insurance and information obtained from other employers, risk-rated health insurance programs typically address one or a combination of the following lifestyle behaviors.

a. Smoking: Persons who smoke tobacco products pay a higher premium than non-smokers.

b. Diet and exercise: Employees who, through proper diet and exercise, maintain appropriate body weight, cholesterol, and blood pressure, and consume moderate amounts of alcohol pay a lower premium or receive some other incentive.

c. Safe driving habits: Employees involved in an automobile crash who are not wearing a seat belt, or who are under the influence of alcohol at the time of the crash receive lower benefit reimbursements than those wearing safety belts, and not under the influence of alcohol.

2. Program Incentives/Disincentives

In addition to selecting which lifestyle behaviors to encourage, an employer must decide whether an incentive or a disincentive will be used to encourage healthy lifestyles (or

discourage unhealthy lifestyles). There are three basic approaches.

a. Premium Reductions Incentive: In this type of risk-rating, employees who engage in healthy lifestyles pay a lower health care premium than those employees who do not maintain healthy lifestyles. Some employers provide a premium "rebate" at the end of the year to employees who achieve certain health-related objectives (e.g. reduced body weight or blood pressure). For example, Southern California Edison's "Good Health Rebate" program provides a $10 rebate on monthly premiums to all employees whose score on a battery of tests (cholesterol, weight, blood pressure, smoking habits, and blood sugar level) falls within an acceptable range.

b. Benefit Enhancement Incentive: Employees who engage in healthy lifestyles receive a higher level of health insurance benefits than the standard benefit package. For example, The Adolph Coors Company reduces the health insurance co-payment required of employees from 15% to 10%, for employees who achieve a satisfactory score on the company's health risk appraisal (measure of various health indicators).

c. Financial Disincentive: In this type of risk-rated health insurance, employees who do not maintain healthy lifestyles pay a financial penalty or receive lower benefit reimbursements. For example, the state of Kansas charges employees who smoke a $10 monthly premium surcharge. To avoid the surcharge, employees must sign a form verifying non-use of any tobacco product.

C. Advantages and Disadvantages of Risk-Rated Health Insurance

While the advantages and disadvantages of risk-rated health insurance depend largely on the type of program implemented, the following paragraphs summarize the key issues that must be considered.

1. Advantages

The principal advantages of risk-rated health insurance include:

- o Risk-rating provides an incentive for employees to become healthier. If the program is successful, employees also become more productive, and have less absenteeism from work.

- o Employees who are expected to incur the greatest health care costs pay a greater share of the overall cost of health insurance.

- o By improving employees' health, risk-rating should help control health care costs. (However, because risk-rating is such a new concept, and few employers have implemented this type of program, further research is necessary to develop accurate estimates of the savings.)

2. Disadvantages

The primary disadvantages of risk-rated health insurance include:

- o Risk-rating contradicts a basic concept of traditional group insurance pricing, that of spreading the risk equally among all group members.

- o Regardless of whether an incentive or disincentive is used to get employees to engage in healthier lifestyles, some of the employees classified as being "non-healthy" will view the program as "punishment" for not being a healthier person.

- o Some health conditions, such as obesity, high cholesterol, and high blood pressure may be beyond the employee's control. Thus, an employee may not be able to change the physiological condition, regardless of the incentive or

disincentive to do so. There may be hereditary and environmental factors that affect an employee's ability to adopt and maintain healthy lifestyles. Thus, risk-rating may lead to charges of illegal discrimination.

- If incentives are used, overall costs for the employer (e.g. the Commonwealth) likely would increase in the short term, not decrease. By providing an incentive (e.g. premium rebate or discount) to healthy employees, premium income is reduced. Because the cost savings that may result from risk-rating are not realized immediately, (improved lifestyles generate savings in the long term, not short term), the Commonwealth would have to increase the amount of income it contributes to the health insurance program to make up the lost income received from employees who earn the premium rebate.

- A risk-rated health insurance program will require administrative costs. Programs with simple designs, such as a premium differential for smokers, are relatively simple, and are not costly to administer. However, the more complicated designs, such as administering a battery of medical tests (e.g. blood pressure, cholesterol, body weight, alcohol use) to determine which employees receive incentives or disincentives, can be costly.

III. OTHER EMPLOYERS' USE OF RISK-RATED HEALTH INSURANCE

A. Recent Employer Surveys

A 1990 survey conducted by Hewitt and Associates (a national benefits consulting firm) found that only four of the 910 employers responding had implemented a risk-rated health insurance program. Only 7% of the respondents said they were considering implementing this type of program.

Johnson & Johnson Health Management Inc. reports that while only 1 to 2% of major United States corporations currently use financial incentives in their employee health benefits plans, the percentage is expected to rise to more than 50 percent by 1995.

B. The Department of Personnel and Training's Survey of Employers

1. Employers Which Use Risk-rating

The Department of Personnel and Training (DPT) sent surveys to all other states, 42 local governments, and 41 private employers to determine what types of risk-rated health insurance are being utilized by other employers. The survey included local governments and private employers in and out of Virginia. (A listing of the employers included in the survey is attached at Appendix B.)

A total of 90 surveys were returned for a response rate of 68%. Thirty-seven states, 29 local governments, and 24 private employers responded. None of the private employers who responded to the survey have implemented any form of risk-rated health insurance. Only five of the government respondents (four states and one local government) reported that they had instituted a risk-rating program. These five respondents were:

- o Kansas: As previously noted, the state of Kansas charges smokers an additional $10 per month in health insurance premiums.

- Colorado: The state of Colorado offers a $6 per month discount for employees who do not smoke.

- Oregon: Effective January 1, 1993, Oregon plans to implement premium discounts for employees who do not smoke. The amount of the discount is not known at this time.

- Utah: In Utah, employees and retirees who minimize their use of health insurance benefits earn rebates at the end of the year. For example, employees with family coverage can earn up to $240 in premium rebates. Utah employees and retirees also can earn premium rebates by participating in approved fitness events, losing weight, reducing blood pressure, or lowering cholesterol.

  Utah is the only employer responding to the survey which includes retirees in its risk-rating program.

- County of Ventura, California: In Ventura County, employees can enroll in the county's "Reach Out for Wellness Program." The wellness program offers a variety of wellness activities such as medical screenings, nutrition classes, weight management, and smoking cessation. The county rewards employees for achieving and/or maintaining healthy lifestyles, including lowering blood pressure and cholesterol levels, losing weight, and exercising.

  Employees earn "wellness points" depending on their achievements (e.g. maintaining healthy lifestyles or reducing health risks). Employees who earn 75-99 points receive a $200 cash bonus, and employees who earn 100 or more points receive a $300 cash bonus.

2. Employers' Reasons For Not Implementing a Risk-Rated Health Insurance Program

Those employers responding to the survey who have not implemented a risk-rated health insurance program offered the following reasons for not instituting such a program:

- o risk-rated health insurance requires extensive administrative oversight and cost, particularly with the more complex programs;
- o unions and other labor groups have expressed concern about the fairness of risk-rated health insurance; and
- o a risk-rated health insurance program may be viewed as illegally discriminating against certain employees who are physically or otherwise unable to change certain health conditions.

IV. POTENTIAL COST BENEFITS OF RISK-RATED HEALTH INSURANCE FOR STATE EMPLOYEES AND RETIREES

A. General

There is limited information available on the potential cost-savings of risk-rated health insurance. Because there are so few programs currently in place, and because these programs have been implemented only in recent years, the long-term impact of risk-rated health insurance has not been quantified. Even with the information that is available, it is difficult to make direct comparisons among different employer groups due to numerous variables (e.g. benefit levels, employer contributions, and employee demographics) that impact the utilization and cost of an employer's health benefits program.

In estimating the potential cost benefits of risk-rated health insurance, DPT used four different risk-rated program designs. These estimates should be used only as a very general guide to savings which may be obtained from any risk-rated program which the Commonwealth might implement because:

- there are other types of risk-rated health insurance programs that could be implemented;
- the parameters (e.g. premium and benefit differentials) of the programs could be modified in many ways; and
- the assumptions (e.g. number of employees who quit smoking, or level of participation in programs to reduce weight and cholesterol) used to estimate the potential savings could vary widely.

B. Estimated Savings of Four Risk-Rated Health Insurance Programs

William M. Mercer, Inc. (Mercer), DPT's actuary and benefits consultant, provided actuarial estimates of the potential cost savings of four risk-rated health insurance program designs. Due

to the complex methodologies that were utilized by Mercer to estimate the cost-savings, only the critical components and assumptions of the methodologies are described here. A complete description of the various methodologies is presented in Appendix C.

1. Design #1: Premium Differentials for Smokers and Non-Smokers

   a. Description

      Under this design, state employees and retirees would pay a higher premium if they or anyone covered under their health benefits policy smoke tobacco products. The key assumption of this program is that the premium differential will serve as an incentive for smokers to quit smoking. (Mercer's complete methodology is presented on page C-1 of Appendix C.)

   b. Estimated Savings

      Mercer utilized Commonwealth of Virginia demographic data and statistics published by the American Lung Association, the Health Care Financing Administration, and the United States Department of Health and Human Services in estimating the potential savings of this program.

      Because the positive effects of smoking cessation occur over time rather than immediately, Mercer calculated an estimate of the savings that may be realized over a five year time period (1991-1995). Mercer assumed that a premium differential would increase the number of persons who try to quit smoking each year from the national norm of 17% to a rate of 21% for state employees and retirees. Also, it was assumed that the percentage of persons who try to quit smoking, and are successful, would increase from the national norm of 9% to a rate of 15% for state employees and retirees. Finally, Mercer assumed that the premium differential would be either $5.00

or $10.00 per month. (Mercer indicated that the potential medical claim savings would be the same with either a $5.00 or $10.00 differential.)

Based on these assumptions, Mercer estimates that this program could reduce the Commonwealth's medical claims by approximately $540,000 during the five year period 1991-1995. In the first year of the program, it is estimated that 196 smokers will quit smoking, producing savings of approximately $11,600. However, as more smokers continue to quit, the savings increase during the next several years. By 1995, it is estimated that 1,000 smokers will have quit, producing savings for 1995 estimated at $263,000.

While no specific estimate of the savings beyond 1995 was calculated, Mercer indicated that annual savings for the next several years likely would approximate the 1995 estimate of $263,000. (Actual future savings would depend on numerous variables, including continued smoking cessation, medical cost inflation, etc.)

In addition to medical claims savings, the total amount of program savings depends in large part on how the premium differential is implemented. There are three ways to establish a premium differential:

- Revenue Neutral: If the premium differential is calculated to be "revenue neutral" to the program (i.e. the differential would be calculated such that total premium income is not affected), the only program savings would be the medical claims savings. These savings would result in lower premiums for future years. In this scenario, non-smokers would pay an amount somewhat less than the actuarially determined premium, and smokers would pay a somewhat greater amount such that the net effect on

total premium income would be negligible.

- o Premium Discount: If the differential is calculated such that smokers paid the normal, actuarially determined premium for health insurance, and non-smokers were given a true premium "discount" below the actuarially determined amount, the health insurance program would lose a significant amount of income. The lost income from the discount would have to be paid by the Commonwealth in order to have sufficient funds to pay claims.

- o Premium Surcharge: If the differential is calculated such that non-smokers pay the normal, actuarially determined premium for health insurance, and smokers paid an additional "premium surcharge," the total program savings would increase substantially. These additional premium dollars would be used to help offset future premium increases for the entire health insurance program.

    - If smokers paid a $5 monthly surcharge, Mercer estimates that approximately $2.5 million in additional premium income would be generated each year.

    - A $10 monthly surcharge would generate approximately $4.8 million in additional premium income each year.

c. Discussion

A smoker/non-smoker risk-rated health insurance program would require additional administrative oversight to manage the program. Currently, the state's health insurance program does not keep any records pertaining to employees' smoking habits.

This type of risk-rated health insurance program would require such record keeping. The state of Kansas requires employees to sign a form each year which states that they will not use tobacco products for the entire year. A similar process could be used in Virginia. Verifying that employees do not smoke can be somewhat problematic. However, officials from Kansas indicated that peer pressure among employees has been effective in maintaining the integrity of the program. Verifying retirees' and dependents' smoking habits would be much more difficult.

To require all smokers to pay a portion of their insurance premium, the Code of Virginia would have to be amended. Section 2.1-20.1 of the Code of Virginia states that the Commonwealth will pay 100% of the cost of employees' coverage under the statewide health benefits plan. As such, employees enrolled in employee-only coverage under the Blue Cross and Blue Shield of Virginia (BCBSVA) Basic health benefits plan pay nothing for their health insurance. Requiring all smokers to pay a portion of their insurance premium will necessitate amending the Code.

Implementing this program likely will generate negative reactions from smokers and various interest groups. Even if the premium differential is implemented as a "premium discount" for non-smokers, smokers may insist that they are being treated unfairly.

2. Design #2: Benefit Differential for Insured Who Causes An Alcohol-Related Automobile Crash

   a. Description

      Under this alternative, state employees and retirees (or any covered dependent) injured as a result of an automobile crash that they caused while under the influence of alcohol will have to pay 10% more out-of-pocket (i.e. more than they ordinarily would have

under their health insurance plan) for medical services related to those injuries. Under this design, the penalty would be applied only if the employee, retiree, or covered dependent (driver) caused the crash. Employees, retirees, or covered dependents involved in crashes caused by the other driver would not be penalized. Also, the health benefits used by passengers involved in any alcohol-related crash would not be affected.

b. Estimated Savings

Mercer utilized statistics regarding the incidence of alcohol-related crashes produced by the National Highway Traffic Safety Administration (NHTSA) to estimate the potential savings of this program. Mercer assumed that a 10% benefit penalty would reduce alcohol-related crashes by 5%. (Mercer's complete methodology is presented on page C-7 of Appendix C.)

Based on the above assumptions, Mercer estimates that this program could save approximately $680,000 per year. This estimate includes the savings that would be generated by reducing the number of alcohol-related crashes by 5% (avoidance of medical claims), and by applying the 10% penalty in the appropriate instances (reduction in benefit reimbursements).

c. Discussion

Effective procedures would have to be established by the Commonwealth's health benefits program administrator (BCBSVA) to obtain complete information from police accident reports and hospital data to confirm the cause of the accident and whether alcohol was involved in the crash (i.e. driver was found to be under the influence of alcohol). These additional tasks performed by BCBSVA likely would increase the administrative fee that the Commonwealth pays to BCBSVA to administer

the health benefits program.

Reducing an employee's benefits at the very time the benefits are of critical importance likely will generate negative reactions by employees affected by this program. Even though driving under the influence of alcohol is unlawful, requiring an employee to pay up to 10% of his/her medical bills may be viewed negatively.

3. Design #3: Benefit Differential for Insured Who Is Not Wearing A Seat Belt At The Time Of An Automobile Crash

   a. Description

      Under this alternative, there would be a 5% penalty (maximum of $1,000) imposed on the benefit payments made on behalf of state employees, retirees, and their dependents who utilize their medical benefits as a result of an automobile crash in which the injured person(s) was not wearing a seat belt. (The 5% penalty would apply to any covered person not wearing a seat belt.)

   b. Estimated Savings

      Mercer utilized statistics regarding automobile crashes and the use of seat belts published by NHTSA and the Journal of the American Medical Association (JAMA). Based on JAMA statistics, Mercer assumed that a 5% benefit penalty would increase seat belt usage by state employees and their dependents, thus, reducing the medical costs associated with automobile crashes by 8%. (Mercer's complete methodology is presented on page C-9 of Appendix C.)

      Based on the above assumptions, Mercer estimates that this program could save approximately $1.3 million in medical claims payments per year. This estimate includes the savings that would be generated by an 8% reduction in medical costs due to an assumed 10% reduction in injuries, and the

application of the 5% penalty in those instances when seat belts were not used.

c. Discussion

The same issues and concerns associated with Design #2 apply to this design. However, non-use of seat belts generally is not considered as "reckless" as driving while under the influence of alcohol. Thus, employees, retirees, and dependents whose benefits are reduced as a result of not wearing a seat belt also are likely to complain.

4. Design #4: Offering Financial or Other Incentives To Employees And Retirees To Lower Their Health Risks

a. Description

Under this design, an incentive (e.g. cash award, or premium rebate) would be provided to employees and retirees who <u>maintain</u> healthy lifestyles (i.e. appropriate weight, cholesterol and blood pressure levels, and proper amount of exercise) and employees and retirees who <u>achieve</u> healthy lifestyles by reducing their health risks (exercising, losing weight, reducing high blood pressure, or reducing cholesterol levels).

Incentives would also be provided to encourage covered dependents to maintain and/or achieve healthy lifestyles. By increasing the number of persons who reduce their health risks, the amount of money spent on medical claims could be reduced.

b. Estimated Savings

Mercer analyzed demographic statistics on employees, retirees, and covered dependents, and reviewed other information (including medical claims, JAMA health statistics, and other actuarial analyses), to project the amount of potential savings that would be generated if employees, retirees, and their

covered dependents reduced their health risks.

Mercer calculated a range of estimated savings that could be generated depending on the number of persons who reduced their health risks. First, Mercer estimated the number of employees, retirees, and dependents in four "high risk" categories: little or no exercise, high blood pressure, obesity, and high cholesterol. Then, a range of estimated savings was calculated based on an assumed percentage of persons who would improve their health such that they would no longer be included in the high risk category.

The "low" range savings was based on the assumption that, each year, 1% of the high risk persons would be removed from the high risk groups. The "middle" and "high" range savings estimates assume that, each year, the percentage of persons removed from the high risk categories would be 2% and 3%, respectively. (Mercer's complete methodology is presented on page C-11 of Appendix C.)

Based on these assumptions, Mercer estimated the potential savings for the period 1991-1995 to be approximately $1.2 million for the "low" range savings; $2.5 million for the "middle" range savings; and $3.7 million for the "high" range savings. Savings would continue to accrue beyond 1995. However, due to the number of variables and unpredictability of health care costs, savings estimates beyond 1995 were not calculated.

A critical component of this type of program is the incentive or award offered to employees, retirees, and their covered dependents to maintain their healthy lifestyles and/or lower their health risks. Obviously, the greater the incentive provided, the more likely the medical claims savings will approach the "high" range

estimate of $3.7 million. However, if cash incentives are provided, the net savings of the program would be reduced according to the amount of cash incentives provided.

As an alternative to cash incentives, another way of increasing the number of "healthy" persons is to maintain and promote a wellness program with no monetary incentives or disincentives. DPT currently administers a comprehensive wellness program for employees and their families. The program, called "CommonHealth," includes smoking cessation classes, exercise classes, stress management education, nutrition education, medical screenings (cholesterol, blood pressure, etc.) and other interventions to help employees and their covered dependents reduce their health risks.

CommonHealth has been successful, and has grown significantly over the last few years to meet an increasing demand for health promotion services. While CommonHealth is advertised and promoted in state agencies, participation in the program likely would increase if additional promotional efforts were made. However, any further promotion of the program would require additional funding.

In sum, there are significant savings that could be realized if employees, retirees, and their covered dependents lowered their health risks. However, determining the appropriate type and amount of incentive to maximize program savings is a difficult issue to resolve. Once historical information is available from other similar programs, a more accurate assessment of the potential cost savings of this type of risk-rated health insurance can be calculated.

c. Discussion

This type of program would require extensive administrative costs. A significant amount

of medical testing and record keeping would be necessary to track each individual's progress in losing weight, reducing cholesterol levels, etc. These administrative functions would have to be performed through contracted services, or additional staff would have to be hired.

Another aspect of this design that may be difficult to administer is the process of providing incentives for employees who are enrolled in a family membership. For instance, if two covered members of the employee's family maintained healthy lifestyles, and two other covered members did not maintain healthy lifestyles, would the employee qualify for an incentive? Many administrative issues would have to be examined, and detailed program regulations would have to be developed prior to implementing this type of program.

As noted earlier in Section II of this report, it may not be possible for some persons to exercise, lose weight, or maintain proper blood pressure and cholesterol levels. Some persons may have medical conditions, or possess hereditary traits that preclude them from lowering their health risks. Thus, this type of program may cause these persons to claim that the program illegally discriminates against them.

DPT sought the advice of the Office of the Attorney General (OAG) regarding whether such a program would be in violation of any law, particularly the Americans with Disabilities Act. The OAG advised DPT that such a program could be implemented as long as the risk-rating is done in accordance with accepted principles of insurance risk classification, and such risk-rating is not a subterfuge for discrimination against the disabled. As such, a risk-rated health insurance program must address risk factors which, in fact, are related to higher medical costs. Programs which differentiate

among employees based upon factors that are unrelated to higher medical costs could be viewed as illegal discrimination.

V. CONCLUSIONS AND RECOMMENDATIONS

Risk-rated health insurance is a very new concept in the health insurance industry. As such, few employers have implemented this type of health insurance program. The primary reasons why risk-rated health insurance has not gained widespread acceptance among employers are concerns that the program may be viewed as discriminatory, and the additional administrative costs associated with this type of health insurance. However, given the ever-increasing cost of health care, the number of employers utilizing some form of risk-rated health insurance is expected to increase during the next several years.

Based on the information that DPT was able to obtain through this study, the most common type of risk-rated health insurance program appears to be one in which smokers pay a higher monthly health insurance premium than non-smokers (Design #1). While this type of program requires some record-keeping and administrative oversight, it is much less costly to administer than programs which require medical testing of blood pressure, cholesterol, and body weight. Further, it is generally accepted that smoking is harmful to one's health. Studies have shown that the per capita claims costs of persons who smoke are, on average, more than 18% greater than the claims costs of non-smokers. Thus, smoking cessation is beneficial to the employee as well as the employer.

The Office of the Attorney General advised DPT that it may be best to limit any risk-rated health insurance program to factors which are largely unrelated to the issue of disability, such as smoking/non-smoking. While a risk-rated health insurance program which attempts to reduce smoking likely would not violate the Americans with Disabilities Act, smokers and various interest groups likely will oppose such a program.

There are significant cost savings associated with Design #2 (benefit reductions for alcohol-related automobile accidents) and Design #3 (benefit reductions for persons in accidents not wearing seat belts). However, DPT concludes that because of the negative reaction that would result from reducing a person's health benefits at the very time the benefits are of

critical importance, neither of these alternatives should be implemented at this time.

Due to the administrative costs (e.g. medical testing, record-keeping, etc.) of implementing Design #4 (offering incentives to lower health risks), the uncertainty of the cost savings of this type of program, and the potential for the program to be viewed as discriminatory, DPT concludes that this type of risk-rated health insurance should not be implemented at this time. Moreover, the objectives of this type of program can be pursued through more vigorous promotion of the CommonHealth wellness program.

Based on the findings and conclusions presented in this report, DPT offers the following:

- Should the Commonwealth decide to implement risk-rated health insurance for state employees and retirees, the program recommended would be Design #1. Thus, the Commonwealth would charge smokers a higher premium than that charged to non-smokers. The premium differential should be revenue neutral.

- If Design #1 is adopted, Section 2.1-20.1 of the Code of Virginia should be amended to allow premium payments to be required from all smokers.

- To assist employees and their families in lowering their health risks, the CommonHealth wellness program should continue to be promoted and expanded as necessary to provide wellness activities, medical screenings, and other effective interventions.

APPENDIX A

HP6227466

1991 SESSION
ENGROSSED

HOUSE JOINT RESOLUTION NO. 345

House Amendments in [ ] - January 30, 1991

Requesting the Department of Personnel and Training [~~to undertake a demonstration project~~] to evaluate the feasibility and potential cost benefits of providing risk-rated health insurance for all state employees and retirees.

Patrons—Glasscock, DeBoer, Clement and Hamilton; Senators: Scott, Colgan and Holland, E.M.

Referred to the Committee on Corporations, Insurance and Banking

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WHEREAS, during the course of its study, the Joint Subcommittee Studying Means of Reducing Preventable Death and Disability in the Commonwealth and the Feasibility of Implementing a Comprehensive Prevention Plan in Virginia (HJR 179, 1990) learned that, while historic public health measures have been stimulated by the need to control communicable diseases, the emphasis now is on health promotion and prevention efforts; and

WHEREAS, while the number of deaths attributable to acute infectious diseases has dropped sharply, deaths due to major chronic diseases—heart disease, cancer, stroke—have increased more than 250 percent between 1900 and 1970; and

WHEREAS, emerging in the medical community is the realization that death and disabilities from these diseases may be reduced effectively through health promotion and disease prevention; and

WHEREAS, in the Commonwealth, it is estimated that at least 40 percent of lives lost to cardiovascular disease, cancer, liver disease, and automobile accidents in 1988 were directly attributable to unhealthy behaviors such as smoking, obesity, alcohol abuse, and lack of exercise; and

WHEREAS, spiralling health care costs and rising insurance premiums have strained budgets in the public and private sectors, leaving more individuals without health care coverage, and by the year 2000 health care costs are expected to comprise 15 percent of the Gross National Product; and

WHEREAS, escalating expenditures for indigent care have challenged federal and state governments to develop cost-effective alternatives which focus on disease prevention and health promotion; in Virginia, the Medicaid budget now exceeds $1 billion a year; and general fund appropriations for Medicaid have increased 103 percent in the last five years; and

WHEREAS, prevention efforts have proven to be cost effective in terms of both human life and have caused a reduction in lost wages and productivity, loss of tax revenue, and use of health care benefits; and

WHEREAS, risk-rated health insurance not only provides incentives to employees and employers to engage in positive health lifestyles, but also rewards such behavior with reductions in health care premiums and represents a total cost savings; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department of Personnel and Training [~~undertake~~ a ~~demonstration project which~~] will evaluate the feasibility and potential cost benefits of providing risk-rated health insurance for all state employees and retirees. The Department shall [~~make an interim report to the Governor and the 1992 Session of the General Assembly. Upon completion of this project the Department shall~~] report its findings to the Governor and General Assembly as provid in the procedures of the Division of Legislative Automated Systems for the processing legislative documents.

APPENDIX B

APPENDIX B

Employers Included in DPT Survey on Risk Rating

STATES

Alabama*
Alaska*
Arizona
Arkansas*
California
Colorado*
Colorado Retirees*
Connecticut*
Delaware*
Florida*
Georgia*
Hawaii
Idaho*
Illinois*
Indiana*
Iowa*
Kansas*
Kentucky*
Louisiana
Maine*
Maryland*
Massachusetts*
Michigan
Minnesota*
Mississippi
Missouri*
Montana
Nebraska
Nevada
New Hampshire
New Jersey*
New Mexico
New York
North Carolina*
North Dakota*
Ohio
Oklahoma
Oregon*
Pennsylvania*
Rhode Island
South Carolina
South Dakota*
Tennessee*
Texas Public School Retirees*
Texas, University of*
Texas*
Utah*
Vermont*
Washington*
West Virginia*
Wisconsin*
Wyoming*

* Surveys were received from these employers.

LOCAL GOVERNMENTS (Members of State and Local Government Benefits Association and larger local governments in Virginia)

Anderson, IN*
Arlington Co., VA
Atlanta, GA
Austin, TX*
Baltimore Co., MD*
Bloomington. MN
Boise, ID
Chesterfield Co., VA*
Fairfax Co., VA*
Fresno Co., CA*
Harris Co., TX*
Henrico Co., VA*
Houston, TX Public Schools*
Indianapolis, IN*
Key West, FL*
Los Angeles Co., CA
Marion Co., IN
Mesa, AZ*
Metro Dade Co., FL
Miami Beach, FL*
Michigan Municipal League
Monterey Co., CA
New York City, NY*
Norfolk, VA*
Orange Co., CA*
Palm Beach Co., FL*
Phoenix, AZ*
Richmond, VA*
Richmond, VA Public Schools*
Sacramento Co., CA*
St. Paul, MN*
San Bernardino Co., CA*
San Diego, CA*
San Diego, CA Public Schools*
Santa Barbara Co., CA*
Shaker Hts., OH*
Spokane, WA*
Stanislaus Co., CA
Texas Municipal League*
Virgin Islands Govt. Employees
Virginia Beach, VA*
Ventura Co., CA*

* Surveys were received from these employers.

PRIVATE BUSINESSES (Members of Richmond Area Business Group on Health, and State and Local Government Benefits Association)

A. Foster Higgins
A. H. Robins Co.*
Alexander & Alexander*
Allied-Signal, Inc.
American Filtrona Corp.*
American Tobacco Co.*
Blue Cross/Blue Shield of Okla.
Brown Distributing Co., Inc.*
C&P Telephone Co. of Va.
Cadmus Communications Corp.
Chesapeake Corp.*
Colonial Life & Accident Insurance Co.
Continental Health Promotions
Crawford Health Management Services
Crestar Bank*
E. I. DuPont*
Ethyl Corp.*
Federal Reserve Bank of Richmond*
Hunton & Williams*
Infilco Degremont, Inc.*
Interbake Foods, Inc.*
James River Corp.*
Johnson & Higgins of Va., Inc.
John Randolph Medical Center (Hopewell)*
Martin E. Segal Co.
McGuire, Woods, Battle & Boothe
Media General, Inc.*
Overnite Transportation Co.*
Philip Morris, USA
Pinkerton Tobacco Co.*
Reynolds Metals Co.*
Signet Bank*
Southern States Cooperative, Inc.*
Tredegar Industries, Inc.*
Ukrop's Super Markets*
Universal Leaf Tobacco Co.
Virginia Farm Bureau*
William M. Mercer, Inc.
Williams, Thatcher & Rand

* Surveys were received from these employers.

APPENDIX C

Commonwealth of Virginia

Smoking vs Not Smoking

Calculation of Estimated Savings
(Actives, Early Retirees, and their spouses)

	CY 1990	SOURCE
(1) Total Lives Covered (Commonwealth of Virginia)	196,767	Estimated from 1990 Commonwealth Data
(2) Commonwealth population (active employees, early retirees, and their spouses)	114,939	Based on 1990 Commonwealth Data, (as of December 1990)
(3) Smoking incidence rate among US adults over age 19	28%	American Lung Association
(4) Estimated Commonwealth Smokers (adult, over 19)	32,183	(2) * (3)
(5) Estimated Commonwealth Non-Smokers (adult, over 19)	82,756	(2) * {1 – (3)}

Estimated Savings from Changes in Smoking Habits

(6) Estimated Commonwealth smokers who are successful in quitting (due to the program)		169	See Table 1
(7) Estimated smoking related medical costs (per US smoker) for calendar year 1990		$533.40	See Table 2
(8) Estimated reduction factor *		10%	US Department of Health and Human Services
(9) Estimated Savings (1990) from changes in smoking habits.		$9,014	(6) * (7) * (8)
**	Assuming $5 Monthly Premium Differential	$1,856,257	These estimated are based on the incidence percentages shown below. Therefore, the proposed
**	Assuming $10 Monthly Premium Differential	$3,685,470	surcharge will be levied on a Commonwealth household with at least one smoker (EE or Spouse).

* Reduction factor assumed to reflect a documented reduction in the risk of developing smoking related diseases among those individuals who are successful in quitting smoking. 10% reflects an assumption that those individuals who are successful in quitting smoking will reduce their risk of developing smoking related diseases by 10% immediately. Department of Health and Human Services reports show that successful quitters will reduce their risk of death by 50% in the next 15 years compared to those who continue to smoke.

(10) Estimated Projected Savings (1991 – 1995) — See Table 3

** *Derivation of the number of employees who will be charged a surcharge for smoking.*

	Single EEs	EEs with Dependents	TOTAL
(A) Total	43,204	39,853	83,057
(B) Incidence of at least one smoker	28%	46%	NA
(C) Estimated number of employees who will be assessed a surcharge (A) x (B)	12,097	18,390	30,487

(Incidence rates recalculated to levy per Commonwealth contract with at least one smoker.)

Commonwealth of Virginia

Smoking vs Not Smoking

Calculation of Estimated Savings
(Post 65 Retirees and their spouses)

	CY 1990	SOURCE
(1) Commonwealth Post 65 Retirees and Spouses	15,000	Average 1990 enrolled (1990 Commonwealth Data)
(2) Smoking incidence rate among US adults over age 19	28%	American Lung Association
(3) Estimated Commonwealth Retired Smokers	4,200	(2) * (3)
(4) Estimated Commonwealth Retired Non-Smokers	10,800	{(1) * {1 - (2)}

Estimated Savings from Changes in Smoking Habits

(5) Estimated Commonwealth retired smokers who are successful in quitting (due to the program)	22	Based on American Lung Association Data (See Table 1)
(6) Estimated smoking related medical costs (per post 65 retired smoker) for calendar year 1990	$106.68	See Table 2, Section D.
(7) Estimated reduction factor *	10%	US Department of Health and Human Services
(8) Estimated Savings (1990)	$235	(5) * (6) * (7)
Assuming $5 Monthly Premium Differential	$330,300	Since 1990 marital status of post 65 retirees is not available, it is assumed the surcharge will be levied on a Commonwealth retiree household with at least one smoker.
Assuming $10 Monthly Premium Differential	$660,600	

* Reduction factor assumed to reflect a documented reduction in the risk of developing smoking related diseases among those individuals who are successful in quitting smoking. 10% reflects an assumption that those individuals who are successful in quitting smoking will reduce their risk of developing smoking related diseases by 10% immediately. Department of Health and Human Services reports show that successful quitters will reduce their risk of death by 50% in the next 15 years compared to those who continue to smoke.

(9) Estimated Projected Savings (1991 - 1995) — See Table 3a

TABLE 1

Estimated Commonwealth Smokers

Estimated Commonwealth Smokers	Estimated Commonwealth Non-Smokers
32,183 (adults, over 19)	82,756 (adults, over 19)

Based on the American Lung Association smoking incidence rate of 28%.

Program and Non-Program Related Smokers who try to quit...

	Estimated Program and Non-Program	Non-Program Only	Program Only
Adult Smokers who try to quit *	6,758	5,632	1,126
Adult Smokers who do not quit	25,425		
Adult Non-Smokers	82,756		
TOTAL	114,939		

* Based on American Lung Association data which shows that 17.5% of adult smokers will try to quit each year. Assuming a anti-smoking program influences 21% of smokers to try to quit, 6,758 will attempt to quit. Subtracting the number of smokers assumed to have tried quitting without the program (5,623) yields 1,126 smokers who will try to quit as a result of the program.

Revised estimate of adult smokers based on estimated smoking habit changes among those smokers who try to quit and are actually successful (due to the anti-smoking program).

	Estimated
Adult Smokers who actually quit ** due to the Commonwealth's program	169
Adult Smokers who do not quit	32,014
Adult Non-Smokers	82,756
TOTAL	114,939

** Based on an assumption in which 15% of those people who try to quit as a result of the Commonwealth's anti-smoking program are successful in doing so. (1,126 x .15) = 169

TABLE 2

HCFA Cost of Smoking Estimates - 1985 Study

Estimated ANNUAL HEALTH RELATED costs of smoking (per capita US smoker)

Costs		1985	1986	1987	1988	1989	1990
ANNUAL	Health (ERs)	$329.46	$349.89	$368.78	$403.45	$455.89	$533.40
ANNUAL	Health (FED GOVT)	$62.90	$66.80	$70.40	$77.02	$87.03	$101.83
ANNUAL	Lost Prod.	$581.05	$617.07	$650.40	$711.53	$804.03	$940.72
	TOTAL	$973.41	$1,033.76	$1,089.58	$1,192.00	$1,346.96	$1,575.94

The above projected costs are based on the following assumptions:

(A) HCFA commissioned a 1985 study on the estimated costs of smoking. Their costs estimates were as follows:

Annual estimated cost of smoking due to lost productivity: $43 Billion

Annual estimated cost of smoking due to health problems: $22 Billion
(These costs are borne by employers and individuals)

Annual estimated cost of smoking due to health problems: $4.2 Billion
(These costs are borne by Medicare and Medicaid)

(B) Per capita costs for US smokers were estimated by assuming that 28% of the 1985 US population smokes (1985 US population was approximately 239 million). This percentage has been assumed to remain constant through 1990.

(C) The resulting health related per capita estimates were trended forward to 1990 using Commonwealth of Virginia actual historical medical trend.

(D) To isolate employer costs borne when Medicare pays primary, it has been assumed that Medicare will pay 80% of the cost. Therefore, $533.40 x .2 = $106.68.

TABLE 3

	1991	1992	1993	1994	1995
Estimated Commonwealth Adult Population	117,812	120,757	123,776	126,871	130,042
Estimated Smoking Incidence Rate	28.0%	27.4%	26.8%	26.3%	25.7%
Estimated Commonwealth Adult Smokers	32,987	33,812	33,930	34,047	34,166
Estimated Commonwealth Program Related Smokers who will try to quit	1,155	1,183	1,188	1,192	1,196
Estimated Commonwealth Program Related Smokers who will be successful in quitting	173	178	178	179	179
Estimated Per Capita Medical Cost per Adult, US Smoker (Smoking Related Health Cost)	$651.31	$795.28	$971.08	$1,185.74	$1,447.85
Estimated Savings for Commonwealth	$11,280	$34,777	$76,790	$146,311	$255,847
Assuming a $5 Premium Differential	$1,928,175	$1,999,594	$2,048,435	$2,124,809	$2,241,219
Assuming a $10 Premium Differential	$3,845,071	$3,964,412	$4,020,081	$4,103,306	$4,226,592

Assumptions

(A) Commonwealth Adult Population is assumed to grow at an annual rate of 2.5%.

(B) Commonwealth smoking incidence in assumed to decrease reflecting population growth, and the effects of all Commonwealth employees who quit smoking.

(C) 17.5% of all adult US smokers are assumed to try to quit annually, of those who try, 9% are assumed to be successful. We assume the Commonwealth's program increases these percentages to 21% and 15%, as applied to the Commonwealth's smoking population.

(D) The per capita health related costs of an adult US smoker are assumed to increase based on an annual trend of 16%. It was also assumed that the per capita cost will further increase due to an assumed decline in smoking incidence among the US adult population.

(E) Commonwealth estimated savings were calculated by multiplying the per capita health related smoking costs for a US adult. The savings estimate includes an implicit assumption that there is a positive cumulative effect of continued smoking cessation. Specifically, annual estimated savings assume that a former smoker will reduce their health related smoking costs by 10% during the first year of smoking cessation. Costs will continue to decrease by an additional 5% for each year that person continues to not smoke.

(F) Premium differentials are assumed to remain constant each year. These totals reflect the addition of the expected savings due to health related costs and an assumed $5 and $10 monthly premium surcharge to be paid by Commonwealth smokers.

Expected Future Savings

American Lung Association studies show that the reversal of health problems which may have been related to smoking may reach a maximum level after 15 years of smoking cessation. Therefore, the Commonwealth may expect continued savings after 1995, however, those savings will probably increase at a decreasing rate. Future savings will be a function of increases in medical technology and the general success of smoking cessation programs. Future estimated savings are subject to substantial variability.

TABLE 3a

	1991	1992	1993	1994	1995
Estimated Commonwealth Post 65 Retirees	15,337	15,720	16,113	16,516	16,929
Estimated Smoking Incidence Rate	28.0%	27.4%	26.8%	26.3%	25.7%
Estimated Commonwealth Retired Smokers	4,294	4,402	4,417	4,432	4,448
Estimated Commonwealth Retired Smokers who will try to quit (program related only)	150	154	155	155	156
Estimated Commonwealth Retired Smokers who will be successful in quitting	23	23	23	23	23
Estimated Per Capita Medical Cost per Adult, US Smoker (Reduced from Table 3 estimates by 80% due to Medicare as Primary)	$130.26	$159.06	$194.22	$237.15	$289.57
Estimated Savings for Commonwealth	$294	$905	$1,999	$3,809	$6,661
Assuming a $5 Premium Differential	$249,839	$256,889	$258,672	$261,374	$265,121
Assuming a $10 Premium Differential	$499,384	$512,473	$515,345	$518,939	$523,581

Assumptions

(A) Commonwealth Post 65 Retiree Population is assumed to grow at an annual rate of 2.5%.

(B) Previous assumptions from Table 3 are still applicable.

(C) The estimated per capita medical related costs have been reduced based on the assumption that Medicare will be primary. It has been assumed that medicare will cover 80% of the estimated health related costs due to smoking.

Commonwealth of Virginia

Drinking and Driving

Calculation of Estimated Savings
(Actives, Early Retirees, and their dependents)

	CY 1990	SOURCE or Detail of Calculation
(1) Total Lives Covered (Commonwealth of Virginia)	196,767	Estimated from 1990 Commonwealth Data
(2) Probability of being involved in a traffic accident (police reported) within a 12 month period.	1.50%	NHTSA
(3) Total estimated covered lives involved in police reported accidents during 12 month period.	2,952	(1) * (2)
(4) The probability of sustaining a minor to serious injury given one is in a police reported traffic accident.	41.00%	NHTSA
(5) Estimated number of Commonwealth covered lives in police reported accidents within a 12 month period who sustained minor or serious injuries.	1,210	(3) * (4)
(6) Estimated number of drivers among those people estimated to have sustained minor to serious injuries. The penalty is to be imposed on driver injuries only.	931	(5) / 1.3; Assuming there are approximately 1.3 people per vehicle.
(7) Average per capita medical cost per automobile accident. (Nationwide average, minor to serious injuries)	$20,000	NHTSA
(8) Expected Commonwealth medical claims cost (during a 12 month period) related to minor or serious injuries (driver only) sustained in auto crashes.	$18,620,000	(6) * (7)
(9) Percent of all US auto accidents that were alcohol related.	49.56%	NHTSA
(10) Percent of alcohol related accidents in which the Commonwealth employee is the abuser.	50.00%	ASSUMED
(11) Expected Commonwealth medical claims related to auto-related alcohol usage (minor to serious injuries, limiting the penalty to the Commonwealth beneficiary who is the abusing driver).	$4,614,036	(8) * (9) * (10)

	Assumed Avoided Injuries	*Assumed Unavoided Injuries*	
(12) Percent	5.00%	95.00%	Assuming this program will reduce incidence of DWI and alcohol related accidents by 5%.
(13) Cost	$230,702	$4,383,334	(11) * (12)
(14) Savings	$230,702	$438,333	Penalty on unavoided injuries is assumed to be 10%.
(15) Total Estimated Savings		$669,035	Addition of savings from avoided and unavoided injuries.

Commonwealth of Virginia

Drinking and Driving

Calculation of Estimated Savings
(Post 65 Retirees and their Spouses)

	CY 1990	SOURCE or Detail of Calculation
(1) Total Lives Covered (Commonwealth of Virginia)	15,000	Estimated from 1990 Commonwealth Data
(2) Probability of being involved in a traffic accident (police reported) within a 12 month period.	1.50%	NHTSA
(3) Total estimated covered lives involved in police reported accidents during 12 month period.	225	(1) * (2)
(4) The probability of sustaining a minor to serious injury given one is in a police reported traffic accident.	41.00%	NHTSA
(5) Estimated number of Commonwealth covered lives in police reported accidents within a 12 month period who sustained minor or serious injuries.	92	(3) * (4)
(6) Estimated number of drivers among those people estimated to have sustained minor to serious injuries. The penalty is to be imposed on driver injuries only.	71	(5) / 1.3; Assuming there are approximately 1.3 people per vehicle.
(7) Average per capita medical cost per automobile accident. (Nationwide average, minor to serious injuries)	$20,000	NHTSA
(8) Assumed payment reduction due to Medicare paying as Primary.	$4,000	(7) * .2 (Assuming Medicare covers 80% of the charges.)
(9) Expected Commonwealth medical claims cost (during a 12 month period) related to minor or serious injuries (driver only) sustained in auto crashes.	$284,000	(6) * (8)
(10) Percent of all US auto accidents that were alcohol related.	49.56%	NHTSA
(11) Percent of alcohol related accidents in which the Commonwealth employee is the abuser.	50.00%	ASSUMED
(12) Expected Commonwealth medical claims related to auto-related alcohol usage (minor to serious injuries, limiting the penalty to the Commonwealth beneficiary who is the abusing driver).	$70,375	(9) * (10) * (11)

	Assumed Avoided Injuries	*Assumed Unavoided Injuries*	
(13) Percent	5.00%	95.00%	Assuming this program will reduce incidence of DWI and alcohol related accidents by 5%.
(14) Cost	$3,519	$66,856	(12) * (13)
(15) Savings	$3,519	$6,686	Penalty on unavoided injuries is assumed to be 10%.
(16) Total Estimated Savings		$10,204	Addition of savings from avoided and unavoided injuries.

ESTIMATED TOTAL SAVINGS *$679,240*

Includes Active Employees, Early Retirees, Post 65 Retirees, Spouses and Dependents.

Commonwealth of Virginia

Seatbelts vs No Seatbelts

Calculation of Estimated Savings
(Actives, Early Retirees, and their dependents)

	CY 1990	SOURCE or Detail of Calculation
(1) Total Lives Covered (Commonwealth of Virginia)	196,767	Estimated from 1990 Commonwealth Data
(2) Probability of being involved in a traffic accident (police reported) within a 12 month period.	1.50%	NHTSA
(3) Total estimated covered lives involved in police reported accidents within a 12 month period.	2,952	(1) * (2)
(4) The probability of sustaining a minor to serious injury given one is in a police reported traffic accident.	41%	NHTSA
(5) Estimated number of Commonwealth covered lives in police reported accidents within a 12 month period who sustained minor or serious injuries.	1,210	(3) * (4)
(6) Average per capita medical cost per automobile accident. (Nationwide average, minor to serious injuries)	$20,000	NHTSA
(7) Expected Commonwealth medical claims cost (during a 12 month period) related to minor or serious injuries sustained in auto crashes.	$24,200,000	(5) * (6)
(8) Percent of minor to serious injured auto accident victims reporting that they were NOT wearing seatbelts when they were injured.	43%	JAMA
(9) Expected Commonwealth medical claims related to seatbelt non–usage (minor to serious injuries).	$10,406,000	(7) * (8)

	Assumed Avoided Injuries	*Assumed Unavoided Injuries*	
(10) Percent incurred in seatbelt use.	10.00%		JAMA (13% decrease in serious injuries expected from seatbelt use. This is based on a JAMA study showing an expected 13% decrease in serious injuries in states that had a mandatory seatbelt usage law. The statistics included in items 10 through 12 are "imbedded" in the results of this study which included a population from Virginia.)
(11) Percent reduced medical associated with auto accidents	8.00%		
(12) Percent who do not change seatbelt habits		90.00%	
(13) Cost	$832,000	$9,365,000	Avoided: (11) * (9); Unavoided: (12) * (9)
(14) Savings	$832,000	$468,000	Penalty on unavoided injuries is assumed to be 5%. *
(15) Total Estimated Savings		$1,300,000	Addition of savings from avoided and unavoided injuries.

* Implementation of this penalty will likely take the form of a $1000 Special Deductible.

Commonwealth of Virginia

Seatbelts vs No Seatbelts

Calculation of Estimated Savings
(Post 65 Retirees and their Spouses)

	CY 1990	SOURCE or Detail of Calculation
(1) Total Lives Covered (Commonwealth of Virginia)	15,000	Estimated from 1990 Commonwealth Data
(2) Probability of being involved in a traffic accident (police reported) within a 12 month period.	1.50%	NHTSA
(3) Total estimated covered lives involved in police reported accidents within a 12 month period.	225	(1) * (2)
(4) The probability of sustaining a minor to serious injury given one is in a police reported traffic accident.	41%	NHTSA
(5) Estimated number of Commonwealth covered lives in police reported accidents within a 12 month period who sustained minor or serious injuries.	92	(3) * (4)
(6) Average per capita medical cost per automobile accident. (Nationwide average, minor to serious injuries)	$20,000	NHTSA
(7) Assumed payment reduction due to Medicare paying as Primary.	$4,000	(6) * .2 (Assuming Medicare covers 80% of the charges.)
(8) Expected Commonwealth medical claims cost (during a 12 month period) related to minor or serious injuries sustained in auto crashes.	$368,000	(5) * (7)
(9) Percent of minor to serious injured auto accident victims reporting that they were NOT wearing seatbelts when they were injured.	43%	JAMA
(10) Expected Commonwealth medical claims related to seatbelt non-usage (minor to serious injuries).	$158,240	(8) * (9)

	Assumed Avoided Injuries	*Assumed Unavoided Injuries*	
(11) Percent incurred in seatbelt use.	10.00%		JAMA (13% decrease in serious injuries expected from seatbelt use. This is based on a JAMA study showing an expected 13% decrease in serious injuries in states that had a mandatory seatbelt usage law. The statistics included in items 10 through 12 are "imbedded" in the results of this study which included a population from Virginia.)
(12) Percent reduced medical associated with auto accidents	8.00%		
(13) Percent who do not change seatbelt habits		90.00%	
(14) Cost	$13,000	$142,000	Avoided: (11) * (10); Unavoided: (13) * (10)
(15) Savings	$13,000	$7,000	Penalty on unavoided injuries is assumed to be 5%. *
(16) Total Estimated Savings		$20,000	Addition of savings from avoided and unavoided injuries.

* Implementation of this penalty will likely take the form of a $1000 Special Deductible.

ESTIMATED TOTAL SAVINGS	$1,320,000
Includes Active Employees, Early Retirees, Post 65 Retirees, Spouses and Dependents.	

Commonwealth of Virginia

Lifestyle Study

INTRODUCTION

The Commonwealth of Virginia asked William M. Mercer, Incorporated to evaluate potential medical cost savings associated with various lifestyle related risk factors that are currently a part of "CommonHealth", the State's wellness program.

Our approach begins with the assumption that the Commonwealth of Virginia's total adult (including early retirees) population can be considered a demographically stable yet normal group. Therefore, savings estimates are based on studies of other normal populations which show non-maternity claim cost percentage savings relating to various risk factors. Our estimations will focus on the following lifestyle related risk factors:

- Exercise
- Weight
- Hypertension
- Cholesterol level

Credible data showing the effect of these risk factors on maternity claims was unavailable. To the extent that these risk factors contribute to maternity claim cost, the potential savings estimated in this report are understated. Also, to the extent that dependents participate in CommonHealth, savings are also understated.

METHODOLOGY

This study is based on actual Commonwealth of Virginia claim data. Our analysis of the incurred medical claim experience shows the average 1990 monthly per employee estimate to be $232.19. Based on over 36 months of historic claim experience for this population, an annual trend of 20.7% is assumed.

To isolate non-maternity medical claims, we are assuming that approximately 8% of the Commonwealth's medical claims are maternity related. Therefore, $213.71 (232.29 reduced by 8%), would be the non-maternity average incurred claim cost estimate for calendar year 1990. This data includes the experience of the Commonwealth's early retirees.

Based on clinical opinions of wellness experts (Paul Berger, M.D., William M. Mercer, Incorporated; Bill Whitmer, Wellness Systems of America, Incorporated) we have estimated the number of Commonwealth active lives at high or low risk levels in each of the four lifestyle related risk factors. The average 1990 incurred claim estimate is then multiplied by factors which are related to the expected claim costs of the various risk categories. For example, individuals in the high risk exercise category tend to exhibit non-maternity claims that are 23% higher than those in the low risk category. Factors used to determine the average claim cost for a given risk category are from a detailed study performed on a group whose population is in excess of 40,000 lives and is comparable to that of the Commonwealth. Through the CommonHealth Program, overall claim cost savings can likely be achieved by reducing the number of people in the high risk categories.

Low, mid, and high range savings estimates have been projected through 1995. The low range estimates are made under the assumption that high risk individuals are removed from the high risk group at the rate of 1 percentage point per year. The mid and high range estimates remove individuals at the rates of 2 and 3 percentage points per year, respectively. A trend of 20.7% is applied in the projections.

CONCLUSION and RESULTS

It has been shown that there are inter-relationships involved in each of these risk categories. For example, individuals who undertake a disciplined course of exercise will likely loose weight, lower their blood pressure, and reduce their cholesterol. Given that the CommonHealth program is heavily oriented toward exercise and assuming that a properly administered exercise program will likely result in most participants loosing weight, lowering their blood pressure, and reducing their cholesterol, it is our opinion that the savings estimates shown in the exercise model may reasonably be viewed as a "benchmark" savings estimate. By a "benchmark" it is meant that these estimates may be viewed as estimates within a range of reasonable estimates which embody projected cost savings that may be expected through greater participation in the CommonHealth program.

Based on this reasoning, the table below contains low, mid, and high range estimates of non-maternity medical claim cost projected savings that may be expected to result from participation in the CommonHealth program. Details showing the specific derivation of these estimates are available on request.

YEAR	LOW RANGE SAVINGS	MID RANGE SAVINGS	HIGH RANGE SAVINGS
1990	-$0-	-$0-	-$0-
1991	$ 46,901	$ 93,802	$ 140,703
1992	$114,351	$ 228,703	$ 343,054
1993	$209,103	$ 418,207	$ 627,310
1994	$339,882	$ 679,765	$1,019,647
1995	$517,925	$1,035,851	$1,553,776

If we assume that a $10 incentive was given to perspective CommonHealth participants, it is more likely that the expected savings from CommonHealth would range toward the high range estimates. Assuming that 1/3 of the Commonwealth's active population participates and receives a $10 incentive, this would cost the Commonwealth approximately $276,000 (83,000 x 1/3 x 10). The effect of this incentive would be to dilute the estimated savings shown above, however, continued application of an incentive could be expected to yield savings which more closely approximate the high range savings shown above.

It is our understanding that early and post 65 retirees are eligible to participate in this program. However, there are several considerations which we believe would make it doubtful to expect large savings from the post 65 retirees as a result of their participation in CommonHealth. First, we have no way of knowing how geographically dispersed this group is. For example, if many of the Commonwealth's post 65 retirees have moved to Florida, screening for blood pressure and cholesterol would be administratively difficult. Secondly, since assuming Medicare will be primary for this group, claim cost savings would much smaller relative to the rest of the population. Thirdly, from a physical standpoint, these people may have other illnesses that would prevent their participation in CommonHealth. For these reasons, it appears that savings from encouraging post 65 retirees to participate in CommonHealth would be negligible.