VIRGINIA BIRTH-RELATED NEUROLOGICAL INJURY COMPENSATION PROGRAM

2004 ANNUAL REPORT INCLUDING PROJECTIONS FOR PROGRAM YEARS 2004 - 2006

Report to:
State Corporation Commission
Bureau of Insurance
Commonwealth of Virginia

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September 2004

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This is the 2004 report of Mercer Oliver Wyman Actuarial Consulting, Inc. (Mercer) to the Commonwealth of Virginia, State Corporation Commission, Bureau of Insurance regarding the adequacy of the funding of the Virginia Birth-Related Neurological Injury Compensation Program (the Program). This report provides our evaluation of the actuarial soundness of the Virginia Birth-Related Neurological Injury Compensation Fund (the Fund) as of December 31, 2003, and our forecasts of the actuarial soundness of the Fund as of each subsequent year-end through December 31, 2006. (Mercer Oliver Wyman Actuarial Consulting, Inc. (Mercer) was formerly known as Mercer Risk, Finance & Insurance Consulting.)

As of December 31, 2002, there were 75 admitted claimants of whom 50 had been in the Program for at least three years. As of December 31, 2003, there were 87 admitted claimants, of whom 61 had been in the Program for three or more years. Therefore, the amount of information on payments made by the Program on behalf of individual claimants continues to grow and increase in statistical credibility from one year to the next.

This current study is based on a detailed analysis of payments made on behalf of each of the 61 claimants who had been in the Program for three or more years as of December 31, 2003. As a result of this detailed analysis, we have estimated future payments for eligible claimants born on or before December 31, 2003 that are consistent with the future payments that we estimated in our prior study dated September 2003.

There are three changes in our methodology, as compared to our September 2003 study:

- We have revised the mortality table, increasing the estimated life expectancies of the claimants in the Program. This change is consistent with the approach that we discussed in our October 2001, September 2002, and September 2003 reports.

- Based upon discussions with Program management, we have revised, from 75% to 80%, the percent of administrative costs assumed to be claimant-related.

- We have revised the methodology used to estimate the number of claimants. In this report, we have incorporated the estimates made in our September 2003 report with the number of claimants who have emerged during 2003, taking into consideration the possible impact of the July 1, 2003 legislation. This revision is discussed on page 44.

All of our assumptions are discussed in detail in the section of this report titled Method and Assumptions.

We have included one additional section to the report that details the effect that the July 1, 2004 legislation will have on the assessment income of the Program. In addition, we have changed the section previously titled "Methodology – July 1, 2003 Legislation" to "Methodology – July 1, 2003 Legislation Revisited," in which we include a discussion of the changes and additions to our original assumptions, discussed in our last report, regarding the effects of the July 1, 2003 legislation. These changes and additions to our assumptions are based upon: actual claimant emergence during 2003 and the first half of 2004; and, a section of the July 1, 2004 legislation that revises a provision of the July 1, 2003 legislation.

As stated above, the claims experience of the Program is becoming increasingly credible. Nevertheless, our estimates are still subject to significant uncertainty:

- The Program started in 1988 and, as a result, no claimant is older than 16. Thus, there is no claim payment experience for claimants over the age of 16 upon which to base our forecasts of future payments for the period in which claimants are 16 and older. Also, only 61 claimants had been in the Program for three or more years as of December 31, 2003. Further, there is considerable variability in the actual payments that have been made to the 87 claimants admitted as of December 31, 2003.

- In addition, other factors could have a significant impact on future claim payments. For example, there may be changes in the way the Program is operated in the future, the degree to which claimants utilize the services of the Program, and the coverage provided by private health insurance and Medicaid, which are the claimants' primary funding sources. In addition, actual rates of inflation and interest may differ significantly from the long-term rates that we assumed for our forecast.

The impact of these factors on our estimates is discussed further in the Sensitivity Testing section of this report. We expect to continue to refine our estimates as the experience of the Program unfolds, and these future refinements could have a significant impact on future estimates of the financial soundness of the Fund.

Overall, our estimates of future costs are lower than were anticipated as of our September 2003 report. This is mainly due to the fact that the average values underlying the future costs estimated in this report have decreased by approximately 3.2% from those estimated in our September 2003 report. For example, the Forecasted Lifetime Costs per Group C Claimant, in Table 7, have decreased from $1,817,028 in our September 2003 report to $1,758,818 in this report, even though we would have expected these average costs to increase by about 4.5% (due to inflation) when moving from December 31, 2002 (Table 7, September 2003 report) to December 31, 2003 (Table 7, this report).

In our September 2003 report, we forecasted that the Fund would have a deficit, as of December 31, 2003, of $82.6 million before consideration of the 7/1/03 legislation. In this current report we estimate that the Fund had a deficit, as of December 31, 2003, of $58.0 million before consideration of the 7/1/03 legislation. The main reason for the decrease in the deficit is that the baseline estimate of future claim payments as of December 31, 2003 decreased by $15.7 million from what was forecasted in our September 2003 report due to a decrease in the average costs and fewer than expected numbers of claimants. In addition, the total assets as of December 31, 2003 were $9.0 million higher than we had forecast; this was largely due to investment performance that was better than expected. We projected total assets in our September 2003 report to be $100.0 million as of December 31, 2003. In fact, total assets as of December 31, 2003 reached $111.3 million, as discussed on page 10.

Consistent with our past reports, we interpret the Program's future payment obligations as of December 31, 2003 to consist of future claim payments associated with all claimants with birth dates on or before December 31, 2003, *regardless of whether they have been admitted as of December 31, 2003.* Therefore, we estimate the liabilities associated with the 87 admitted claimants (Table 1, column (2), line (a) plus line (f)) *as of December 31, 2003,* as well as those associated with what we estimate to be 47 not-yet-admitted claimants (Table 1, column (2), line (b) plus line (g)) *as of December 31, 2003.* Not-yet-admitted claimants as of December 31, 2003 are those claimants with birth dates on or before December 31, 2003 who had not yet been admitted to the Program as of December 31, 2003, but whom we estimate will eventually be admitted to the Program.

For convenience and to be consistent with our September 2003 report we have presented our findings both before and after consideration of the effects of the legislation that became effective on July 1, 2003. This separation is somewhat artificial, because there is no way to determine whether or not claimants admitted after July 1, 2003 came into the Program as a result of the new legislation.

Major Findings

Following are our major findings.

1. **Finding**: We estimate that, as of December 31, 2003, the Fund was not actuarially sound and had a "Grand Total" deficit of about $96.2 million. By this we mean that the present value of estimated future claim payments for children born on or prior to December 31, 2003, plus the present value of estimated future claim administration expenses associated with making those claim payments, exceeded the Fund's assets by about $96.2 million. (The present value represents the amount of assets that would need to be invested as of December 31, 2003, to pay the claimant expenses as they become due in the future.) We have used the same definition of actuarial soundness in each of our reports since 1992: if the estimated future payment obligations exceed the Fund's assets, the Fund is deemed to be actuarially unsound.

   As explained in the fourth Finding, which follows later in this section of the report, the Fund is not in any immediate danger of defaulting on the payment of benefits. In other words, although the Fund is not actuarially sound, it has sufficient assets to continue to pay for claimants' benefits for approximately 20 years. This time span has increased significantly from the 14 years cited in our September 2003 report due to: a decrease in the forecasted lifetime costs, better than anticipated investment earnings, legislated increases to assessment income from physicians and hospitals beginning with the 2005 program year, and higher than expected forecasted assessment income from insurance companies beginning with the 2005 program year.

   Our estimate of the Fund's financial position as of December 31, 2003, is shown in Table 1, which follows.

As in our September 2003 report, we have provided the forecasts in detail that separately identifies the effects of the legislation that became effective on July 1, 2003. The first three lines of Table 1 show the forecast without any consideration of the legislation effective July 1, 2003. The next four lines show the current estimated impact of the July 1, 2003 legislation. The estimated claimant payments, administrative expenses, and other costs associated with the legislation are based upon our re-evaluation of the effects included in our September 2003 report in view of current claimant data, the July 1, 2004 legislation, and discussion with management of the Program. However, because there is no way to determine which of the twelve claimants who entered the program during 2003 did so as a direct result of the July 1, 2003 legislation, the allocation of these claimants into: seven, excluding the effects of the July 1, 2003 legislation, and five, as a result of the July 1, 2003 legislation, is somewhat arbitrary. This allocation is based on the fact that, in our September 2003 report, we estimated that seven new claimants would enter the program in 2003 prior to consideration of the July 1, 2003 legislation.

The July 1, 2003 legislation results in increased costs to the Fund in the following categories: non-claim related administrative expenses, $100,000 awards to eligible claimants, and future claim payments and claim related administrative expenses for those additional claimants who enter the Program because of the new legislation. The number of claimants indicated in Column 2 rows (e) through (g) represent additional claimants, born prior to December 31, 2003, whom we estimate will enter the Program as a result of the July 1, 2003 legislation. The values included in rows (e) through (h) of Table 1 are discussed more fully in the section of this report titled "Methodology – July 1, 2003 Legislation Revisited" beginning on page 50.

TABLE 1

Estimated Financial Position as of 12/31/03
($ in millions, on a present value basis)

Claimant Status (1)	Estimated Ultimate Number of Claimants (2)	Baseline Estimate of Future Claim Payments (3)	Estimate of Future Claims Administration Expenses (4)	Value of Total Assets (5)	Forecasted Surplus/ (Deficit) [(5)-(3)-(4)] (6)
(a) Claimants Admitted to the Program as of 12/31/03	82	$107.5	$4.9		
(b) Claimants Not Yet Admitted to the Program as of 12/31/03	31	54.5	2.4		
(c) **Sub-Total: Without Consideration of 7/1/03 Legislation**	**113**	**$162.0**	**$7.3**	**$111.3**	**($58.0)**
(d) Additional Administrative Costs					
(e) Claimants Eligible for $100,000 Award					
(f) All Other Additional Admitted Claimants	5	$8.5	$0.4		
(g) Additional Not Yet Admitted Claimants	16	$28.1	$1.2		
(h) **Sub-Total: Effects of 7/1/03 Legislation**	**21**	**$36.6**	**$1.6**		
(i) **Grand Total**	**134**	**$198.6**	**$8.9**	**$111.3**	**($96.2)**

The following discussion of Table 1 results focuses on the "Grand Total" (line (i)).

Table 1 shows that, as of December 31, 2003, we estimate the Program had obligations for future claim payments ("Grand Total" of $198.6 on a present value basis) and for future claim administration expenses ("Grand Total" of $8.9 million on a present value basis) that exceeded the Program's assets ("Grand Total" of $111.3 million) by $96.2 million.

Column 2 of Table 1 shows that, as of December 31, 2003, we estimate the Program had a "Grand Total" of 134 claimants. These 134 claimants consist of 87 claimants who had been admitted to the Program as of December 31, 2003 and an estimated additional 47 claimants born

on or before December 31, 2003 who had not yet been admitted to the Program as of December 31, 2003 (no claimants eligible for the $100,000 award were reported during 2003). Most claimants do not apply to the Program, and are not admitted to the Program, until two or more years after their birth. The average age that the admitted claimants had attained when they were admitted to the Program was 4.3 years, the same as last year. (This figure, which is not used in our calculations, was incorrectly stated as 3.0 years in our last report.) Twenty-eight of the 87 admitted claimants were admitted to the Program after they had attained the age of 5. The estimated number of not-yet-admitted claimants, 47, is our estimate of the number of claimants with birth dates on or before December 31, 2003 who will be admitted to the Program subsequent to December 31, 2003.

Column 3 of Table 1 shows our baseline estimate of the present value of future claim payments for the estimated admitted and not-yet-admitted claimants born on or before December 31, 2003. This is our baseline estimate, meaning that it is our "intermediate" estimate, consistent with the way we have measured the actuarial soundness of the Fund in our past reports. The baseline estimate lies within a range of possible outcomes; in other words, the present value of future claim payments could turn out to be significantly higher or lower than our estimate. This is discussed in more detail in the Sensitivity Testing section of this report.

Our estimates of future claim payments are on a present value basis, as of December 31, 2003. Presenting our estimates of future claim payments on a present value basis is consistent with our prior reports. The present value represents the amount that would need to be invested as of December 31, 2003 to make the claim payments as they become due. Throughout this report, discussions of future claim payments are on a present value basis unless otherwise indicated.

Column 4 of Table 1 shows our estimate of future administration expenses that are associated with the payment of the claims for the 134 claimants (admitted and not-yet-admitted) as of December 31, 2003 (see page 40 for a description of these expenses).

Column 5 of Table 1 shows our estimate of the value of the Fund's total assets as of December 31, 2003. The estimated value on line (c) is based upon an audited financial statement provided by management of the Program.

Column 6 of Table 1 shows that our estimate of the Fund's "Grand Total" assets as of December 31, 2003 is $96.2 million less than the sum of our estimates of the Program's future claim payments and future claim administration expenses.

In summary, we estimate that, as of December 31, 2003, the Fund was not actuarially sound and had a "Grand Total" deficit of about $96.2 million. Our estimate of the present value of future claim payments for children born on or prior to December 31, 2003, plus our estimate of the present value of future claim administration expenses, exceeds the Fund's assets by about $96.2 million.

In our September 2003 report, we included a "Grand Total" forecast of the financial results as of December 31, 2003. A comparison of that "Grand Total" estimate to our current "Grand Total" estimate as of December 31, 2003 is given below:

- Number of Claimants: In our September 2003 report, we forecasted that there would be 141 claimants as of December 31, 2003, of whom 89 would be admitted and 52 would be not-yet-admitted (including those claimants eligible for an $100,000 award). Our current estimate is that there were 134 claimants as of December 31, 2003, of whom 87 are admitted and 47 are not yet admitted.

- Baseline Estimate of Future Claim Payments: In our September 2003 report, we forecasted that there would be $220.6 million of future claim payments associated with the 141 claimants as of December 31, 2003. Our current estimate is that there were $198.6 million of future claim payments associated with the 134 claimants as of December 31, 2003. This is due mainly to the decrease in average values underlying the future cost estimates as discussed on page 3.

- Estimate of Future Claim Administration Expenses: In our September 2003 report, we forecasted that there would be $9.0 million of future claim administration expense payments associated with the 141 claimants as of December 31, 2003. Our current estimate is that there will be $8.9 million of future claim administration payments associated with the 134

claimants as of December 31, 2003 (see page 40 for a discussion of estimated claim administration expenses).

- § Value of Total Assets: In our September 2003 report, we forecasted that the Fund would have assets of $100.0 million as of December 31, 2003. Our current estimate is that the Fund had assets of $111.3 million as of December 31, 2003. This difference of $11.3 million, between projected assets and actual assets as of December 31, 2003, is mainly due to better than projected earnings on invested assets (approximately 9.9%, annualized, rather than the projected 6.8%) during 2003.

- § Forecasted Surplus/(Deficit): In our September 2003 report, we forecasted that the Fund would have a "Grand Total" deficit of $129.6 million as of December 31, 2003. Our current estimate is that the Fund had a "Grand Total" deficit of $96.2 million as of December 31, 2003.

2. **Finding**: We forecast that the Fund will not be actuarially sound as of December 31, 2004, and will have a "Grand Total" deficit of about $102.5 million. This is shown in Table 2, which follows.

   The estimated "Grand Total" number of claimants that will have been admitted to the Program as of December 31, 2004, equal to 98 (Column 2, row (a) plus row (f)), represents the 87 claimants who were admitted prior to December 31, 2003, as indicated in Table 1, plus an additional 11 claimants whom we estimate will be admitted to the Program during 2004.

TABLE 2

Forecasted Financial Position as of 12/31/04
($ in millions, on a present value basis)

Claimant Status (1)	Estimated Ultimate Number of Claimants (2)	Baseline Estimate of Future Claim Payments (3)	Estimate of Future Claims Administration Expenses (4)	Value of Total Assets (5)	Forecasted Surplus/ (Deficit) [(5)-(3)-(4)] (6)
(a) Claimants Admitted to the Program as of 12/31/04	88	$116.0	$5.4		
(b) Claimants Not Yet Admitted to the Program as of 12/31/04	32	59.9	2.5		
(c) **Sub-Total: Without Consideration of 7/1/03 Legislation**	**120**	**$175.9**	**$7.9**	**$128.1**	**($55.7)**
(d) Additional Administrative Costs				($0.1)	
(e) Claimants Eligible for $100,000 Award	4			($0.4)	
(f) All Other Additional Admitted Claimants	10	$17.0	$0.7	($1.3)	
(g) Additional Not Yet Admitted Claimants	14	$26.2	$1.2		
(h) **Sub-Total: Effects of 7/1/03 Legislation**	**28**	**$43.1**	**$1.9**	**($1.8)**	**($46.8)**
(i) **Grand Total**	**148**	**$219.0**	**$9.8**	**$126.3**	**($102.5)**

3. **Finding**: Including the estimated additional assessment income resulting from the July 1, 2004 legislation (included in line (c) above and discussed in detail in the Methodology – July 1, 2004 section of this report), we forecast that the Fund will remain in a deficit position and that the "Grand Total" deficit will grow to $106.9 million at the end of 2005, and to $109.2 million at the end of 2006. This demonstrates that the legislated increases to assessments will not be sufficient to restore the Fund to an actuarially sound basis. This is shown in Tables 3 and 4, which follow. Column 5 row (d) above includes the estimated

additional non-claim related administrative costs resulting from the new legislation that we expect to be paid during 2004. Because Column 5 above represents the assets of the Fund, these costs are listed as negative, or reductions to, assets. Similarly, the amounts paid to claimants who are eligible for $100,000 awards and estimated claim payments and claim related administrative expenses paid in 2004, are listed as negative assets.

TABLE 3

Forecasted Financial Position as of 12/31/05
($ in millions, on a present value basis)

Claimant Status (1)	Estimated Ultimate Number of Claimants (2)	Baseline Estimate of Future Claim Payments (3)	Estimate of Future Claim Administration Expenses (4)	Value of Total Assets (5)	Forecasted Surplus/ (Deficit) [(5)-(3)-(4)] (6)
(a) Claimants Admitted to the Program as of 12/31/05	94	$125.7	$5.8		
(b) Claimants Not Yet Admitted to the Program as of 12/31/05	33	65.6	2.7		
(c) **Sub-Total: Without Consideration of 7/1/03 Legislation**	**127**	**$191.3**	**$8.5**	**$147.6**	**($52.2)**
(d) Additional Administrative Costs				($0.1)	
(e) Claimants Eligible for $100,000 Award	4			($0.4)	
(f) All Other Additional Admitted Claimants	15	$26.2	$1.1	($1.9)	
(g) Additional Not Yet Admitted Claimants	12	$23.9	$1.1		
(h) **Sub-Total: Effects of 7/1/03 Legislation**	**31**	**$50.1**	**$2.2**	**($2.4)**	**($54.7)**
(i) **Grand Total**	**158**	**$241.4**	**$10.7**	**$145.2**	**($106.9)**

Referring to Table 3, Column 2, row (i), we estimate that the total number of claimants as of December 31, 2005 will be 158. This is an increase of ten claimants from the total number of claimants that we estimate there will be as of December 31, 2004, and reflects our forecast that each year ten children will be born who will eventually be admitted to the Program. Although

the total number of claimants is the most important, we have also shown that our estimate of claimants consists of 109 claimants (rows (a) plus (f)) who we estimate will have been admitted into the Program as of December 31, 2005 and 49 claimants (rows (b) plus (e) plus (f)) born on or before December 31, 2005 who will not yet have been admitted into the Program as of December 31, 2005 (including those claimants eligible for the $100,000 award).

The number of claimants admitted to the Program as of December 31, 2005, shown as 109 in Column 2 (rows (a) plus (f)), consists of the 98 claimants we estimate will have been admitted to the Program as of December 31, 2004 (See Table 2), plus an additional eleven claimants who we forecast will be admitted to the Program during 2005. The number of claimants not yet admitted to the Program as of December 31, 2005, shown as 49 in Column 2 (rows (b) plus (e) plus (g)), is the difference between the estimated total number of claimants (158) and the estimated number of admitted claimants (109).

TABLE 4

Forecasted Financial Position as of 12/31/06
($ in millions, on a present value basis)

Claimant Status (1)	Estimated Ultimate Number of Claimants (2)	Baseline Estimate of Future Claim Payments (3)	Estimate of Future Claim Administration Expenses (4)	Value of Total Assets (5)	Forecasted Surplus/ (Deficit) [(5)-(3)-(4)] (6)
(a) Claimants Admitted to the Program as of 12/31/06	100	$135.8	$6.3		
(b) Claimants Not Yet Admitted to the Program as of 12/31/06	34	71.9	2.8		
(c) **Sub-Total: Without Consideration of 7/1/03 Legislation**	**134**	**$207.7**	**$9.1**	**$169.8**	**($47.0)**
(d) Additional Administrative Costs				($0.1)	
(e) Claimants Eligible for $100,000 Award	4			($0.4)	
(f) All Other Additional Admitted Claimants	18	$31.8	$1.3	($2.0)	
(g) Additional Not Yet Admitted Claimants	12	$25.4	$1.2		
(h) **Sub-Total: Effects of 7/1/03 Legislation**	**34**	**$57.2**	**$2.5**	**($2.5)**	**($62.2)**
(i) **Grand Total**	**168**	**$264.9**	**$11.6**	**$167.3**	**($109.2)**

Table 4 is similar to Table 3, except that it shows our forecast of the Fund's financial position as of December 31, 2006.

Referring to Table 4, Column 2, row (i), we estimate that the total number of claimants as of December 31, 2006 will be 168, an increase of ten over the prior year, representing the children that we forecast will be born in 2006 and eventually admitted into the Program.

The number of claimants admitted to the Program as of December 31, 2006, shown as 118 in Column 2, row (a) plus row (f) of Table 4, consists of the 109 claimants we estimate will have been admitted to the Program as of December 31, 2005 (See Table 3) plus an additional 9

claimants that we forecast will be admitted to the Program during 2006. The estimated number of claimants not yet admitted to the Program as of December 31, 2006, shown as 50 in Column 2 (row (b) plus row (e) plus row (g)), is the difference between the estimated total number of claimants (168) and the estimated number of admitted claimants (118).

4. **Finding**: The Fund is not in any immediate danger of defaulting on the payment of benefits. In other words, although the Fund is not actuarially sound, it has sufficient assets to continue to pay for claimants' benefits for approximately 20 years**.**

   The Fund's current assets are relatively large compared to current and expected future annual claim payments in the near term. The Program paid $5.4 million to claimants during 2003. The $5.4 million in actual payments made for the full year of 2003 was greater than the $4.6 million in actual payments made for the full year of 2002, but in line with the $5.7 million in actual payments made for the full year of 2001. The increase in the payments made in 2002 compared to those made in 2003 is due mainly to housing and nursing costs (approximately a $400,000 increase for each above the 2002 costs). During the first six months of 2004, the Program paid $2.35 million to claimants, of which $1.6 million was for nursing.

   We forecast that the current assets of the Fund are sufficient to cover the claim payments of admitted (as of December 31, 2003) claimants for many years, given the historical payments of approximately $5 million to $6 million per year actually paid by the Fund. Specifically, we forecast that, if the Fund collects the assessments currently required in accordance with the July 1, 2004 legislation and, if the level of participation of physicians and hospitals remains constant at the 2004 levels, the Fund will be able to continue to make claim payments for all claimants, including those admitted after December 31, 2003 (even if those claimants are born after December 31, 2003), for approximately the next 20 years (that is, through the year 2023).

Recommendations

Following are our major recommendations.

1. **Recommendation**: We recommend that the Program continue to assess participating and non-participating physicians and participating hospitals at the increased levels as specified in the July 1, 2004 legislation (discussed in the Methodology - July 1, 2004 legislation section of this report).

2. **Recommendation**: We recommend that the Program continue to assess liability insurers at the maximum amount of one-fourth of one percent of net direct liability premiums written in Virginia.

3. **Recommendation**: Recommendations 1 and 2 notwithstanding, we recommend that means be found to increase funding, either through assessments or through the identification of other sources, to reduce the estimated deficit of the Program as it is currently structured.

4. **Recommendation**: We recommend that reviews of the actuarial soundness of the Fund be conducted annually.

5. **Recommendation**: We recommend that the Program maintain and continually update claimant payment and personal information and assessment information in the format and level of detail as requested for each annual actuarial study.

6. **Recommendation:** We recommend that the Program continue to obtain copies of the claimants' insurance policies and provide copies of the policies at the time of each actuarial review.

7. **Recommendation**: We recommend that the Program obtain more detailed studies of the medical condition of each individual claimant who is admitted to the Program, and update this information when there are significant changes in a claimant's medical condition.

Method and Assumptions

Introduction

In very general terms, we estimate the future payment obligations of the Program as follows:

§ We estimate the total number of claimants. This consists of the actual number of admitted claimants, plus our estimate of the number of not-yet-admitted claimants.

§ We forecast, by category of claim payment and for each of the claimants we estimate will be admitted to the Program, the future payments that will be made by the Program. These estimates are based on:

- the actual payments made by the Program on behalf of the 61 claimants who had been in the Program for three or more years as of December 31, 2003 (unless the claimant had Medicaid coverage in the past, and no longer has Medicaid coverage, in which case the average payments made to non-Medicaid claimants, in the affected categories, are used instead);
- our understanding of each of the 61 claimants' insurance coverage and eligibility for Medicaid;
- assumptions regarding future cost inflation;
- assumptions regarding future increases in the utilization of the benefits and services of the Program.

§ We adjust our projected future payments to each claimant to reflect:

- an assumed life expectancy for each claimant (based on a life expectancy, or mortality, table); and,
- the time value of money (based on estimated investment income).

This section of the report is organized into the following subsections:

- Claim Payments: This provides an overview of the types and amounts of payments that are covered by the Program, an explanation of how we forecast the future payments to individual claimants, and the values that we estimate as the total lifetime costs per claimant for the various payment categories.

- Other Assumptions: This provides discussion of the other assumptions (other than claim payments), such as inflation rates, the interest rate used to reflect the time value of money, insurance coverages, the number of not-yet-admitted claimants, and so forth.

- Methodology: This provides more precise discussion of how we combine our forecasts of payments with the other assumptions. This section also provides information on the effects of the July 1, 2003 and July 1, 2004 legislation.

- Sensitivity Testing: This discusses the sensitivity of our findings to various assumptions underlying our analysis.

Claim Payments

The claim payment experience in the Program is growing rapidly due to the addition of new claimants and the aging of the existing claimants. Table 5, below, shows a brief history of the actual claim payments, by year, from 1988 through 2003.

TABLE 5

Total Claim Payments

As Of (1)	Incremental Amount Paid (2)	Cumulative Amount Paid (3)
12/31/88	-	-
12/31/89	-	-
12/31/90	-	-
12/31/91	-	-
12/31/92	$14,161	$14,161
12/31/93	$97,886	$112,047
12/31/94	$239,124	$351,171
12/31/95	$1,860,514	$2,211,685
12/31/96	$4,667,043	$6,878,728
12/31/97	$4,547,735	$11,426,463
12/31/98	$2,920,146	$14,346,609
12/31/99	$3,505,686	$17,852,295
12/31/00	$5,685,588	$23,537,883
12/31/01	$5,745,413	$29,283,296
12/31/02	$4,638,442	$33,921,738
12/31/03	$5,429,845	$39,351,583

The increase in claim payments during 2003 as compared to 2002 ($5.4 million in 2003 as compared to $4.6 million in 2002) is due mainly to the increase in payments for nursing and housing costs. During 2002, $2.6 million was paid by the Fund for nursing and $0.7 million for housing. During 2003, $3.0 million was paid by the Fund for nursing and $1.1 million for housing. The total payments made during 2003 were similar to the payments made during 2000 and 2001 (approximately $5.7 million in each year as indicated in Table 5).

In this study, as in prior studies, our basic approach is to base our forecast of future claim payments on a detailed review of past payments in each category, by claimant, for all claimants in Group A (claimants in the Program for at least three years as of December 31, 2003).

In addition to reviewing the actual claim payment histories of the individual claimants, we also discussed these histories with management of the Program. This provided valuable information regarding whether or not the claimant had insurance coverage or received Medicaid, and about some of the actual expenses that individual claimants were incurring. Currently, there are no uninsured claimants. All claimants have either Medicaid or private insurance coverage.

The Program currently keeps track of its claim payments in 12 categories (one of which, lost wages, has not yet been necessary because none of the claimants has yet attained the age of 18, when such payments begin). The Program provided the actual payments through December 31, 2003, sorted by category of payment by year and for each of the 87 claimants who were in the Program as of December 31, 2003. We use this information as the primary base for projecting the future costs of the Program. Table 6, which follows, provides a summary of this payment information, showing the total amount that the Program has paid, by category.

Table 6

Total Actual Claim Payments, Through 12/31/03

Expense Category	Payments through 12/31/03	Percentage of Total Payments
(1)	(2)	(3)
Nursing	$18,531,095	47.1%
Hospital/Physician	1,410,735	3.6%
Incidental	1,953,297	5.0%
Housing	11,858,574	30.0%
Vans	2,069,942	5.3%
Lost Wages	0	0.0%
Physical Therapy	1,129,440	2.9%
Medical Equipment	809,537	2.1%
Prescription Drugs	388,396	1.0%
Legal	883,270	2.2%
Insurance	198,272	0.5%
Medical Review/Intake	119,025	0.3%
Total	**$39,351,583**	**100.0%**

Claimants submit to the Program any costs not covered by private insurance or Medicaid, and the Program is responsible for paying these costs. The actual payments recorded by the Program represent "net" payments after recoveries from private insurance and Medicaid. There are several types of costs (for example, expenses for hospital stays or physician visits) for which the Fund has not made any payments for Medicaid patients. In the two cases where claimants have lost Medicaid benefits and now have private insurance, we use the minimum values applied to all claimants, for those costs that were previously covered in full by Medicaid, in order to forecast the costs that are expected to be paid by the Fund in the future. These minimum values are discussed in detail, by category of payment, in the Methodology section of this report.

We base this current study, primarily, on actual payments through December 31, 2003, which represents a twelve-month update of the payments that were primarily used in our September 2003 study.

For analytical purposes we split the claimant population into three groups:

- Group A consists of all claimants who were admitted to the Program on or before December 31, 2000. That is, Group A claimants are those who have been in the Program at least three full years. Group A contains 61 claimants, including 10 deceased claimants.

  We forecast the future costs of individual claimants in Group A based on the payments that have been made to this group of claimants. For each claimant in Group A, we have a minimum of three years of actual claim payments as of December 31, 2003. We would prefer, for forecasting purposes, to have many more years of actual claim payments in order to forecast, with a higher degree of confidence, lifetime costs of claimants. However, because the Program is relatively new, more extensive claim payment information does not exist.

- Group B consists of all claimants who were admitted to the Program in 2001, 2002, or 2003. Group B contains 26 claimants, 3 of whom were deceased as of December 31, 2003.

  In our opinion, the actual claim payment information for Group B claimants is not sufficiently credible to be used for forecasting their future claim payments. Each of the Group B claimants has less than three years of actual claim experience as of December 31, 2003. During a claimant's first year in the Program, claim payments may be distorted due to payments made for costs incurred prior to admission into the Program. More importantly, certain costs, especially nursing costs, fluctuate significantly during the first few years of a claimant's participation in the Program. Therefore, because of the limitations of the claim payment information for Group B claimants, we use the claim payment information for Group A claimants to forecast the future claim payments for Group B.

- Group C represents our estimate of the children born on or before December 31, 2003 who were not admitted to the Program as of December 31, 2003, but who will eventually apply to, and be admitted into, the Program. We estimate that Group C contains 47 future claimants (including those claimants eligible for the $100,000 award). We generally use information from claimants in Group A to forecast future claim payments for claimants in Group C. In addition, for the medical review/intake expense category, for which all costs are incurred

during the claimant's application process, we use information from Group B claimants to forecast future claim payments for claimants in Group C, in order to use the most recent information on this cost.

In the course of this project, we reviewed the cost history of each claimant and discussed the cost history with management of the Program, as we did in our last three studies. This discussion provided valuable information that has been helpful in preparing our forecasts.

Table 6 shows aggregate claim payments, by category, through December 31, 2003. By definition, because Groups A and B are the claimants who had been admitted to the Program by December 31, 2003, Table 6 shows the actual costs for all Group A and B claimants, combined.

Table 7, below, shows the projected average lifetime costs, by category, that we estimate for a Group C claimant. These estimates reflect our assumptions about the average life expectancy of these claimants, and all of the lifetime costs are shown at their present value, as of December 31, 2003. These estimates are based on our analysis of the payments made on behalf of the Group A (and to some extent Group B) claimants. Except for housing expenses, for which the Program's policies have changed in recent years (as explained later in this section), and payment timing differences, the estimates in Table 7 are typical of the estimated lifetime costs for claimants in Groups A and B, as well.

Table 7

Forecasted Lifetime Costs
(Present Value at 12/31/03)

Expense Category	Forecasted Lifetime Costs per Group C Claimant
(1)	(2)
Nursing	$1,148,062
Hospital/Physician	125,631
Incidental	70,276
Housing	109,002
Vans	66,262
Lost Wages	100,852
Physical Therapy	34,156
Medical Equipment	44,369
Prescription Drugs	34,507
Legal	10,126
Insurance	14,810
Medical Review/Intake	765
Total	**$1,758,818**

Table 7 shows that we estimate the average amount of future claim payments, for a Group C claimant, on a present value basis, to be about $1.8 million (on a present value basis, about $100,000 per year for the estimated lifetime of the claimant). The nursing category represents about $1.1 million, or 65 percent, of this total. This is approximately equal to the $1.2 million, or 67 percent, estimated in our last report as of December 31, 2002. Although many claimants have had little or no nursing costs, a few have had large nursing costs. This is clearly the largest payments category, and any changes affecting the future cost or utilization of nursing services could have a major impact on our findings.

Following is a discussion of each individual cost category.

Nursing

Nursing covers the cost of in-home nursing care, and represents the most significant payment category for the Program. As shown in Table 6, 47.1 percent of all payments made by the Program have been for nursing, and the percentage reaches about 67.4 percent if housing costs are not included. In 2003, the Program paid an average of about $34,000 per active claimant for nursing costs, but included in this average are newly admitted claimants who had relatively little nursing costs in 2003. Perhaps more telling is the $44,000 average nursing payment made by the Program in 2003 to each Group A claimant (those who have been in the Program for at least three years). Not only are nursing costs high relative to the other cost categories but, for many of the claimants, they tend to be low for the first two or three years in the Program and then escalate significantly. The Program's experience also reveals considerable variation in the amount of nursing costs paid to each claimant. Many claimants in the Program have little or no nursing costs, whereas a few are receiving round-the-clock nursing at an annual cost in excess of $200,000. For those claimants receiving nursing services, most of the claimants receive services from licensed practical nurses (LPNs) and a few claimants, because of their medical needs, receive services from registered nurses (RNs).

For each of the claimants in Group A, we generally base our future cost projections on the actual payments made to Group A claimants in 2003. Some Group A claimants have had very little costs in the nursing category, and for them we forecast future nursing costs to be $29,394 per year, at 2003 price levels (this is the equivalent of $25,000 per year at 2000 cost levels, consistent with the assumption used in our September 2003 report). We use this minimum because we expect that, among those Group A claimants who currently have little or no nursing costs, some percentage will eventually incur nursing costs. We use the actual and forecasted claims experience of Group A claimants to forecast the future claims experience of claimants in Groups B and C and, therefore, this assumed annual minimum also affects our estimates of the forecasted claims experience of claimants in Groups B and C.

In our 1998 and prior reports, we assumed that the nursing costs would decline beginning at age five. This assumption was based on the corollary assumption that claimants would be moved into institutional care at this age. Thus far, only four claimants have been institutionalized, one of whom

is no longer in an institution but is currently living with her grandmother. Based on this experience, and on discussions with the management of the Program, it appears that families are keeping the claimants at home, with associated nursing care, much longer than had previously been expected. Our current estimates reflect this actual experience and do not assume that claimants will be moved into institutional care.

We assume that the individual and group insurance coverage that claimants have does not provide coverage for nursing costs. This is based on our general knowledge that private health insurance typically excludes coverage for custodial nursing care. Further, this general knowledge is supported by the fact that none of the claimants' insurance coverage pays for nursing costs, according to management of the Program.

Further, we assume that Medicaid does not provide coverage for nursing costs. We understand that, theoretically, Medicaid may cover this cost in some cases. However, none of the claimants in the Program has ever qualified for such payments from Medicaid, and our forecast assumes that none will in the future. Any future discussion between Medicaid administrators and the Program management that leads to the provision of Medicaid benefits for nursing care for some claimants would result in a reduction to our forecast of lifetime nursing costs, all other things being equal.

Hospital/Physician

The hospital/physician payment category includes costs incurred for surgery, hospitalization, trips to an emergency room, physical examinations, and so forth.

For each of the claimants in Group A, we base our future cost projections for hospital/physician costs on an average of the actual payments made by the Program to the Group A claimants in the past three years. Some Group A claimants have had very little cost in this category, and for them we forecast $2,318 per year at 2003 cost levels (this is the equivalent of $2,000 per year at 2000 cost levels, consistent with the assumption used in our September 2003 report). We use this minimum because we expect that, among those Group A claimants who currently have little or no hospital/physician costs, some percentage will eventually incur such costs. We use the actual

and forecasted claims experience of Group A claimants to forecast the future claims experience of claimants in Groups B and C and, therefore, this assumed annual minimum also affects our estimates of the forecasted claims experience of claimants in Groups B and C.

We assume that insurance will cover 80 percent of allowable costs in this category, and that 80 percent of allowable costs will translate into 75 percent of actual costs. Therefore, we assume that the Program pays 25 percent of these costs, for claimants who have private insurance. For claimants who receive Medicaid, and for whom the Program has incurred some costs in this payment category, we assume that Medicaid is covering 80 percent of their costs in this category. As discussed in the Sensitivity Testing section of this report, the percentage of costs that we select as being covered by insurance or Medicaid actually has little impact on the final estimates.

Incidental

The incidental payment category includes: non-durable medical supplies, over-the-counter drugs, feeding tubes, diapers, computers, computer equipment, and any other expense not fitting into any of the other payment categories.

The Program's definition of "incidental cost" has not been consistent over time because, when the Program establishes new categories, the types of costs that were previously categorized as incidental are shifted to these new categories. Therefore, for each of the claimants in Group A, we base our projections of future costs on the actual incidental expenses paid to the claimants in Group A in 2002, the most recent full year. We use the actual and forecasted claims experience of Group A claimants to forecast the future claims experience of claimants in Groups B and C.

We assume that neither private insurance nor Medicaid provides coverage for incidental costs and, therefore, that the Program pays 100 percent of these costs.

Housing

Housing costs can be split into four sub-categories:

Trust homes – Until September 24, 1999, the Program purchased homes and provided them to claimants for the lifetime of the claimant (claimant families are permitted to remain in the home for six months after the death of the claimant). Although the Program identifies these purchases as costs, they are actually assets of the Program and we treat them as such. There have been a total of 23 trust homes, three of which have been sold following the death of the claimant. All of the trust homes have been used by claimants in Group A.

Housing Grant – Beginning September 25, 1999, the Program began to make grants to claimants for the construction of houses. The size of the grant varies according to the construction costs in the area where the claimant will live, but it generally averages about $350,000. When the grant has been made, it is paid out over time to cover construction costs of the house and incidental, related costs, such as rental costs, while the house is under construction. The claimants own the homes that they purchase with the aid of housing grants, so these are not assets of the Program. Thirteen grants have been awarded, all to Group A claimants.

Renovations – Beginning January 1, 2001, the Program discontinued the housing grant program and, in its place, pays the costs of renovating the claimant's existing house (if the claimant's family owns a home) to add a bedroom and a bathroom. Consistent with our September 2003 report we have used an average estimate of $116,449 at 2003 cost levels.

Rentals - The July 1, 2003 legislation specified, in section 38.2 – 5016 item 2, "that the board of directors of the Virginia Birth-Related Neurological Injury Compensation Program shall develop and implement a policy to address the needs of infants who are eligible for benefits under the Program for handicapped-accessible housing. The board's policy shall address appropriate housing benefits when the infant's parents or legal guardians are homeowners and are nonhomeowners."

To conform to this legislation, management of the Program has established a rental benefit of $175,000 for the lifetime of the claimant. This benefit represents the difference between the claimant's current rent and the rent due for an upgraded accommodation that includes those features necessary for handicapped accessibility. The claimant and the claimant's family must have moved to such an accommodation before receiving the benefit. According to management

of the Program, the $175,000 value was selected to be consistent with the current benefit for renovations as discussed above.

For all claimants (or the claimant's family, in the case where a claimant is deceased) who are in a *trust home*, we assume that the Program will pay $20,000 every three years into a trust fund, which is established for the payment of real estate taxes, maintenance, insurance, and so forth. We base this estimate on discussions with the Trustee responsible for these homes, who explained that the Program has been paying about $20,000 every three years into trust accounts for these homes.

For all claimants who have been provided a *housing grant*, whether Group A or Group B, the total amount of the grant is known and we only estimate when it will be paid. The timing of the payment depends on the timing of the construction of the new home. We generally assume that the Program will pay any outstanding balances on the grants over the two-year period from 2003 through 2004. As of December 31, 2003, there are outstanding housing grants for 13 claimants, for a total outstanding value of approximately $700,000.

For all Group A and Group B claimants who are living and who are not in a trust home and who have not been given a housing grant, as well as for all Group C claimants, we assume that future housing costs will be $116,449 (at 2003 cost levels) for *renovations and rentals* (except in those cases where the renovations have already been completed). For claimants in Groups A and B, we assume that this amount will be paid in 2003. For claimants in Group C, we assume that this amount will be paid, on average, in four years.

Neither private insurance nor Medicaid provides coverage for housing costs.

Vans

The Program purchases vans for every claimant who is restricted to a wheelchair, if the claimant requests a van. Virtually all claimants are restricted to wheelchairs. Of the 74 claimants living as of December 31, 2003, only three were ambulatory.

In the initial years of the Program's operation, the Program purchased a mini-van for the claimant's first van. Special equipment, such as lifts, were added and repaired by the Program as needed. The van would then be used until the claimant outgrew it, generally at about age seven, at which time the Program purchased a full-size van for the claimant. Between 1997 and 1998, the Program started purchasing full-size vans as the first vans, rather than mini-vans. Beginning in 2002, the claimant's family has the option of selecting a modified mini-van or a full-size van. According to management of the Program, both options are at similar costs to the Fund. Beginning in 2003, the claimant's family was given a cost allowance for a vehicle of their choosing. The allowance is approximately $5,000 larger for those families for which the claimant is older and taller. On an on-going basis, the Program covers any repairs to the special equipment on the van, but repair and maintenance of the van itself is the responsibility of the claimant. Vans purchased by the Program for claimants become the property of the claimants and are not assets of the Program.

Consistent with the amount included in our September 2003 report and based on discussion with management of the Program, we assume that the average price of a van, with necessary equipment and including a provision for future repair of the equipment, is $31,354 at 2003 cost levels (this is the equivalent of $30,000 per year at 2000 cost levels). Further, we assume that the Program will replace full size vans every eight years. This is the same assumption we used in our last study.

Neither private insurance nor Medicaid provides coverage for vans.

Lost Wages

For claimants age 18 or older, the Program will pay for lost wages.

No claimants have attained the age of 18, and so this benefit has not yet been paid. The amount to be paid to each claimant is fixed at 50 percent of the private average weekly non-agricultural wage in Virginia. Currently, the average weekly non-agricultural wage results in an annual amount of about $36,712, and we use 50 percent of this, $18,356 per year (at 2003 cost levels),

for our forecast. For each claimant, we adjust the $18,356 for inflation to forecast the annual amount that will be paid at age 18 and beyond.

Physical Therapy

Most claimants receive physical therapy for several years.

According to our discussion with management of the Program during 2003, and consistent with our observations for older claimants, physical therapy expenses tend to decline over time.

We forecast that for most of the claimants: the costs for each of the next five years will equal the costs of the most recent year; the costs of each of the subsequent five years will be one-half of the costs of the most recent year; the costs thereafter will be $0. Further, for four claimants who have had relatively high costs in recent years, we forecast that their future costs will remain at the level of the most recent year, and will not decrease over time. This is consistent with the methodology used in our September 2003 report.

We use the actual and forecasted claims experience of Group A claimants to forecast the future claims experience of claimants in Groups B and C and, therefore, our assumptions regarding the physical therapy expenses of Group A claimants also affects our estimates of the forecasted claims experience of claimants in Groups B and C.

We assume that private insurance and Medicaid provide coverage for physical therapy, in the same way that they provide coverage for hospital/physician expenses, as discussed above.

Medical Equipment

The medical equipment payment category includes costs associated with durable medical supplies. The most expensive component is wheelchairs. The Program provides children with their first wheelchair at about the age of three and provides replacement wheelchairs as the children grow.

For each of the claimants in Group A, we base our projections of future medical equipment costs on the actual payments made in the most recent three years. We use the actual and forecasted claims experience of Group A claimants to forecast the future claims experience of claimants in Groups B and C.

We assume that private insurance and Medicaid provide coverage for this payment category, in the same way that they provide coverage for hospital/physician costs, as discussed above.

Prescription Drugs

The Program did not begin to use a separate category for prescription drugs until 2000. Prior to 2000, these costs were assigned to other categories. For Group A claimants we project future costs based on the actual payments to Group A claimants in the most recent year. We use the actual and forecasted claims experience of Group A claimants to forecast the future claims experience of claimants in Groups B and C.

We assume that private insurance will provide coverage for this payment category in the same way as discussed above for hospital/physician costs. Based on claims histories for claimants who have Medicaid, however, we generally assume that Medicaid will cover 100 percent of costs in this category. We have been told by management of the Program that not all drugs are covered by Medicaid, and the Program's records indicate that the Fund has made insignificant payments for prescription drugs for two Group A claimants who have Medicaid. We forecast that these payments will continue.

Legal

Legal costs are incurred, by both the Program and the claimants, during the application process.

We assume that claimants in Groups A and B will not have any additional legal costs. For Group C, we forecast legal costs equal to the average legal costs for Group A.

Neither private insurance nor Medicaid provides coverage for legal costs.

Insurance

The Program pays for automobile insurance for the vans, up to $500 per year; this is equal to the amount paid in our September 2003 report. In addition, there are several claimants for whom the Program pays the premiums for private health insurance. We understand that the Program encourages families to purchase health insurance if they are otherwise uninsured, and the Program will pay the premium if necessary.

For each of the claimants in Group A, we project future automobile insurance costs at $500 per year for each claimant who has, or is projected to have, a van. For the Group A claimants for whom the Program is paying for private health insurance, we forecast the future annual cost to be equal to the actual cost paid by the Program in 2003.

Neither private insurance nor Medicaid provides coverage for these costs.

Medical Review/Intake

The medical review/intake category of payment includes costs that are paid by the Program during the claimant's application process.

The Program recently established this category of payment. However, as mentioned in our September 2003 report, we understand that the costs per claimant have generally increased in recent years as the admission process has become more involved. For example, three or four medical opinions are now generally required, rather than only one.

We forecast $0 of future costs in this category for Group A and Group B claimants. For Group C claimants, we estimate the future costs based on the actual average costs for Group B claimants.

Neither private insurance nor Medicaid provides coverage for these costs.

OTHER ASSUMPTIONS

Inflation

For each of the payment categories discussed above, we estimate the annual inflation rate that will apply to future annual costs. We base these inflation rates on consumer price indexes published by the Bureau of Labor Statistics, including the "Consumer Price Index; All Urban Consumers; All Items," which we refer to as the "general inflation index." Our assumptions are shown in Table 8.

Table 8

Expense Item	Annual Inflation Rate (Percent)	Incremental Difference from General Inflation	CPI Urban Index For:
(1)	(2)	(3)	(4)
General Inflation	3.29	0.00	All Items (1913-2003)
Incidental	3.29	0.00	All Items (1913-2003)
Hospital/Physician	5.09	1.79	Medical Care Services (1991-2003)
Nursing	4.51	1.22	Professional Services (1991-2003)
Physical Therapy	4.51	1.22	Professional Services (1991-2003)
Medical Equipment	4.75	1.45	Prescription Drugs and Medical Supplies (1991-2003)
Vans	1.26	-2.04	New and Used Motor Vehicles (1993-2003)
Housing	3.51	0.22	Housing (1991-2003)
Legal	5.25	1.96	Legal Services (1991-2003)
Medical Review/Intake	3.29	0.00	All Items (1913-2003)
Insurance	3.29	0.00	All Items (1913-2003)
Prescription Drugs	4.75	1.45	Prescription Drugs and Medical Supplies (1991-2003)
Lost Wages	3.29	0.00	All Items (1913-2003)

For each specific consumer price index and for the general inflation, Table 8 shows the annual rate of inflation that we forecast and the incremental difference between this assumed inflation rate and the inflation rate we forecast for the general inflation. For example, as shown in Column 2, we forecast that the annual inflation rate for nursing costs will be 4.51 percent, and

this amount exceeds our forecast of the General Inflation rate by 1.22 percentage points (4.51 – 3.29 = 1.22) as shown in Column 3.

In addition, the table identifies the specific cost index upon which we base our estimate.

As shown in Column 4 of Table 8, we have information on the general inflation from 1913, but we only have information on the other cost indexes for shorter periods, such as from 1991 or 1993. Therefore, we first compare each cost index to the general inflation index, for a comparable time period, in order to estimate the difference between the change in that cost index and the change in the general inflation index. We then estimate the long-term rate of general inflation based on data from 1913 through 2001, and estimate the long-term rate of change for the individual indexes based on the assumed difference between that index and the index for general inflation. For example, based on data from 1991 through 2003, we estimate that the increase in costs for nursing is equal to the increase in the general inflation rate, plus 1.22 percentage points. We estimate that the long-term rate of general inflation is 3.29 percent and, therefore, we estimate that the long-term increase in nursing costs will be 4.51 percent (1.22 + 3.29 = 4.51).

The rates of inflation that we select reflect only changes in the unit costs of goods and services and are not intended to include provision for changes in the utilization of the Program's benefits and services. Our assumptions regarding changes in utilization are discussed later in this report.

Interest Rate

After forecasting the future costs, using the payment assumptions and inflation rates discussed above, we discount the future costs to a present value. This requires that we assume a specific interest rate for discounting purposes. We forecast an annual rate of return of 6.43 percent, which we use for discounting purposes.

In our September 2003 study we assumed a 6.34 percent rate of return. In that study, we based this interest rate assumption primarily on the expected rate of return on invested assets, as stated by Merrill Lynch, the Fund's investment manager. Merrill Lynch expected that it will realize a

rate of return that is *at least* 3 percentage points higher than the change in the overall cost of living, and we understand that Merrill Lynch still has the same performance objective. We selected a differential of 3.50 percentage points between our forecast of general inflation and the rate of return that Merrill Lynch will earn on invested assets, resulting in a rate of return of 6.78 percent for the assets invested by Merrill Lynch. This year Merrill Lynch has not changed its investment policy, and a differential of 3.50 percentage points between our forecast of general inflation and the Merrill Lynch rate of return results in a rate of return of 6.79 percent for the assets invested by Merrill Lynch.

We understand that Merrill Lynch earned approximately 9.9 percent on the invested assets during 2003. This information tends to support the reasonableness of our forecast of a 6.79 percent long-term rate of return for these assets.

Consistent with our September 2003 report we do not inflate the value of the trust houses. The value of the trust houses, $6,226,617, or the cost of the houses, is the same value used in our September 2003 report. This is according to Generally Accepted Accounting Procedures (GAAP) that specifies that the value of the trust house is the *lesser* of the cost of the house or the market value of the house. We have not been provided with the market value of the trust houses and, to the extent that the market value of the trust houses is greater than the cost, our estimates of the value of this asset will be conservative. However, given the magnitude of this class of asset relative to the total assets of the Fund, it is our opinion that the difference will not be material.

Mortality

For this report, we revised the mortality (life expectancy) table that we used in our 2003 report. In the discussion that follows, we review four mortality tables:

§ The 1999 Table, which is the table that we introduced at the time of our 1999 study.

§ The “Blended Table,” which we calculated as one step in our approach to a new 2004 table.

§ The 2003 Table, which is the table that we used in our 2003 study.

§ The 2004 Table, which is the table that we are using in the 2004 study.

1999 Table

At the time of our 1999 report, we revised the table that had been in use for previous reports. That prior table was based on the assumption that the mortality rate of claimants in the Program would be double the mortality rate of children with cystic fibrosis, and would be slightly more than double during the first year of life. That prior table had originally been based on the expectation that claimants in the Program would have a very short life expectancy.

At the time of our 1999 report, we observed that the actual number of claimant deaths was less than what we would have expected based on the mortality table previously used, and we revised the table for that report so that it was identical to the underlying cystic fibrosis mortality table.

This table has an underlying average life expectancy of 17.5 years from birth, and an average life expectancy of 19.5 years for a child that attains the age of three. (Because claimants generally neither apply to, nor are admitted by, the Program until after the age of three or four, it is useful to show the life expectancy for children that have reached the age of three in addition to the life expectancy at birth.)

Blended Table

The Blended Table represents a combination of the 1999 Table and the 1998 U.S. Life Table, which is a mortality table for the population at-large. The blended table was created based on the following assumptions:

§ The 1999 table is appropriate for use through age 15.

§ Beyond age 15, the mortality of the claimants will gradually approach the standard mortality, merging with the standard mortality at age 85.

The logic underlying the Blended Table is that the claimants will have relatively high mortality during the first 15 years of life. The longer the claimants live, however, the more their future mortality will mirror the mortality of the standard population.

We developed the Blended Table in 2001, based on information contained in "Life Expectancy of Adults with Cerebral Palsy" by Strauss, et al, which appeared in *Developmental Medicine & Child Neurology, 1998.* In this study, the authors make use of a large database covering the developmentally disabled in California. This study suggests that the mortality of a population with cerebral palsy, which is a non-progressive disease, will gradually approach the standard mortality as the population ages. Virtually all of the claimants in the Program have cerebral palsy. Therefore, there is reason to believe that the Blended Table may be appropriate.

This table has an underlying average life expectancy of 22.1 years, from birth, and an average life expectancy of 24.7 years for a child who has attained the age of three.

2003 Table

In 2001 we began to move toward the Blended Table:

- The 2001 Table was an 80/20 weighting of the 1999 Table and the Blended Table
- The 2002 Table was a 70/30 weighting of the 1999 Table and the Blended Table
- The 2003 Table was a 60/40 weighting of the 1999 Table and the Blended Table

The 2003 Table had an underlying average life expectancy of 18.7 years, from birth, and an average life expectancy of 20.9 years for a child who had attained the age of three.

2004 Table

Through December 31, 2003, thirteen claimants had died, as compared to the expected sixteen deaths based on the 2003 Table. (The 1999 Table and the Blended Table would also predict sixteen deaths, because these tables are identical through the first 15 years.) Therefore, we have

continued to move toward the Blended Table, and the 2004 Table is a 50/50 weighting of the 1999 Table and the Blended Table. The 2004 Table has an underlying average life expectancy of 19.2 years, from birth, an average life expectancy of 21.5 years for a child who has attained the age of three, and an average life expectancy of 21.6 years for a child who has attained the age of four).

We have considered the fact that both the Census Bureau and Society of Actuaries frequently produce new mortality tables. In our opinion, for the purpose of estimating the liabilities of the Birth Injury Fund, it is not necessary for us to adopt these new tables as they become available. Instead, in our opinion, the appropriate approach is to (a) continue to ensure that the mortality table is reasonably consistent with the Program's actual experience at the younger ages (for which the Program has data), and (b) continue to use expected experience for the higher ages (grading to published standard mortality, as suggested by the study by Strauss, et al, cited on page 38).

HMOs versus non-HMOs

We are unable to obtain exact information on the coverage provided by the claimants' underlying insurance because the Program does not maintain that information. However, we have been informed that all claimants are currently insured. For each claimant we determined whether they (a) have private insurance, or (b) receive Medicaid.

For those claimants who have private insurance, we cannot determine if they have group insurance or individual insurance, or if their insurance coverage is through an HMO or one of the various types of non-HMO programs. We assume that 15.6 percent of the insurance policies are HMOs, based on the average for all health insurance policies in Virginia as reported by Kaiser Family Foundation (http://www.statehealthfacts.kff.org/).

We assume that each type of insurance coverage provides coverage for 80 percent of allowable costs, which reduces to 75 percent of actual costs for hospital/physicians, physical therapy, medical equipment, and prescription drugs. These assumptions (80 percent of allowable costs, and 75 percent of actual costs) are based on general knowledge of the insurance industry.

Further, we assume that each non-HMO insurance policy provides a lifetime maximum benefit of $1 million, and that there is no lifetime limit on an HMO insurance policy.

Number of Group C Claims

The number of claimants in Group C, which represents our estimate of the number of claimants born on or before December 31, 2003 who were not yet admitted to the Program as of December 31, 2003, has a significant effect on our estimates of the total future claim payments. We estimate that there are 47 Group C claimants as of December 31, 2003. Our estimate is based on a review of how long it takes for claimants to be admitted to the Program.

Group C Average Values

We estimate that Group C claimants have an average lifetime cost of $1.8 million (at 2003 cost levels).

For most of the payment items, we estimate the future lifetime cost of a Group C claimant based on the average expected lifetime costs for Group A claimants. The only exceptions are as follows:

- Housing – We estimate these costs to be $116,449 at 2003 cost levels.
- Lost Wages – We estimate these costs to be $18,356 per year at 2003 cost levels, beginning at age 18.
- Medical Review/Intake – We estimate these costs to be equal to the actual average costs of Group B claimants.

Future Claim Administration Expenses

As shown in Table 1, we estimate $8.9 million as the present value of future claim administration expenses, for costs associated with the estimated 138 claimants as of December 31, 2003.

- In general, claim administration expenses have increased this year over those estimated last year. Last year, management of the Program estimated that the Program's total annual administrative expenses would be approximately $750,000 of which approximately $562,500 would be for claims administration. This year, management of the Program estimates that the Program's total annual administrative expenses will be approximately $750,000 of which approximately $600,000 will be claim related. That is, management of the Program has estimated that, although total administrative expenses have not increased, that portion of expenses that is claimant related has increased from 75% (assumed in our September 2003 report) to 80%.

- Our estimate of the total liability for claim administrative expenses, $7.3 million, is based on the estimated annual costs of $600,000 extended over the expected lifetime of the existing claimants. This is an increase from the amount of $6.7 million that we estimated as of December 31, 2003 as shown in our September 2003 report.

Changes in Utilization

A significant factor that underlies the future payments that will be made by the Program is the degree to which the Program's benefits and services will be utilized. Nursing is the major expense, and to a large degree the extent of nursing care is the choice of the claimant's family. Significant increases in the utilization of nursing would significantly impact our estimates.

We provide in our estimate some degree of continued increases in the utilization of Program benefits and services. For example, we use an annual minimum, per claimant, of $29,394 for nursing costs and $2,318 for hospital/physician costs in 2003 dollars. In addition, we assume that future nursing costs paid by the Program will increase at a rate of one percent per year due to increases in utilization of services and benefits. This one percentage point rate of increase is in addition to the provision for cost inflation discussed earlier.

Assessment Income

In the "Methodology" section of this report, the subsection titled "Forecasts of Program's Financial Position Through 2006" beginning on page 48 explains the process that we follow to

forecast the financial position of the Program as of the end of 2004, 2005, and 2006. Our assumptions regarding the future assessment income are important elements of these forecasts. In the "Methodology – July 1, 2004 Legislation" section of this report we detail the assumptions regarding future assessment income.

The "Background" section of this report provides a narrative history of the assessments. Exhibit 3, in the Appendix, shows the history of the assessment income, by program year, from 1988 through 2004.

Participating Physicians and Hospitals

As shown on Exhibit 3, 2004 assessment income is about $2,297,000 from participating physicians (490 participating physicians, each paying $5,000, or the pro-rata share of $5,000) and about $2,731,000 from participating hospitals (there are 34 participating hospitals, each paying $50 per live birth subject to a maximum of $150,000 per hospital).

For program year 2004, we select the amounts of assessment income actually collected through July 30, 2004 as our estimate of the assessment income for all of program year 2004. We recognize that there may be additional assessment income for program year 2004 if new doctors and hospitals join the program during the last half of the year. However, we estimate that any such additional assessment income will not be significant.

For program years 2005, and 2006, our baseline forecast is that the level of participation by physicians and hospitals will remain at the 2004 level. However, based upon the July 1, 2004 legislation, which will become effective with the 2005 Program year, assessment income will increase. As discussed in the "Methodology – July 1, 2004 Legislation" section of this report, assessment income for participating physicians is expected to grow by $49,000 per year, through 2009 (that is, 490 participating physicians times an increase of $100 per year) and for hospitals, assessment income is expected to increase by $59,350 in 2005 and by $43,550 in 2006, due to the raising of the cap on assessments for each of these years.

Non-Participating Physicians

According to information supplied by the program, for program year 2004, the assessment income from non-participating physicians is about $3,394,000 (approximately 13,576 doctors, each paying $250).

The assessment income stated above represents the amount collected by the Program as of July 30, 2004; this may change somewhat, but we do not expect that the magnitude of any such change will be material.

For program years 2004 and 2005, based upon the July 1, 2004 legislation, the assessment income from non-participating physicians is expected to increase by $135,760 per year (that is, 13,576 non-participants times an increase of $10 per year).

Liability Insurers

For program year 2004, the assessment income from liability insurers is about $9,950,000 equal to one-quarter of one percent of net direct liability premiums written in Virginia, the maximum permissible assessment.

For program year 2005, the State Corporation Commission, Bureau of Insurance Commonwealth of Virginia has estimated that the assessment income from liability insurers will be about $11,160,000.

For program year 2006, we forecast that the Program will continue to assess liability insurers at the rate of one-quarter of one percent of net direct liability premiums written in Virginia. Based upon the 2005 assessment value of $11,160,000 and the insurance inflation rate of 3.29 percent per year, we forecast that this future assessment will be equal to about $11,527,000.

Methodology

The two prior subsections – Claim Payments and Other Assumptions – provide a fairly complete description of how we estimate the future payments. The purpose of this subsection is to provide some additional details.

Number of Claimants

In this report we estimate the number of claimants based upon: the estimates made in our September 2003 report, the claims emergence during 2003, and consideration of the July 1, 2003 legislation.

In our September 2003 report we estimated that there would be a total of 89 admitted claimants as of December 31, 2003. As of December 31, 2003 there were actually a total of 87 admitted claimants. Of the 12 claimants who actually entered the program in 2003 (87 minus the 75 admitted claimants who were in the program as of December 31, 2002), we have assumed that 7 entered without consideration of the July 1, 2003 legislation (as projected in our September 2003 report) and 5 entered as a direct result of the legislation (rather than the 7 projected in our September 2003 report). This allocation of claimants entering the program is somewhat arbitrary because we have no means of determining which claimants entered the program due to the July 1, 2003 legislation.

Estimated Future Costs of Group A Claimants

The Program's database of payment information is "net," after the claimants have collected for any private insurance or Medicaid coverage that they may have. We assume that the non-HMO insurance contracts have lifetime maximum payments of $1,000,000. Therefore, in order to project the future costs, we need to estimate when the underlying insurance policy will reach the maximum cap of $1,000,000.

We do this as follows:

- For each claimant, we adjust the "net" losses to a "gross" basis.
  - For claimants with insurance, for the three expense categories covered by insurance, the gross losses are assumed to equal four times the net losses (in other words, we assume that insurance covers 75 percent of the total cost). For the expense categories that are not covered by insurance, we assume that the gross amount is equal to the net amount.
  - For claimants who receive Medicaid, we make the same adjustment as for claimants with insurance; however, we assume that 80 percent of the costs will be covered rather than 75 percent.
  - For claimants who do not have insurance and do not receive Medicaid, we assume all of the gross costs are equal to the net costs.
- We project the gross annual costs for each expense category, applying the selected inflation rates.
- We calculate when the insured portion of the gross costs will reach $1,000,000, for the non-HMO population of claimants, and assume that there will be no insurance coverage beyond this point.
- We convert the projected gross costs back to a net basis, based on the assumed amount of insurance coverage.

We then apply assumptions regarding life expectancy and the investment earnings rate to these projected net costs.

The series of calculations that involve converting the expenses to a gross basis, and then converting them back to a net basis, only affects the timing of when the assumed $1,000,000 insurance cap will be reached, and does not have a material impact on our estimates.

Estimated Future Costs of Group B Claimants

We generally use the estimated average lifetime costs of Group A claimants (claimants who were admitted to the Program in 2000 or prior) to estimate the lifetime costs of Group B claimants (claimants who were admitted to the Program in 2001, 2002, or 2003). This implies, among other things, that the Group B claimants will have the same distribution of insurance coverages as Group A claimants. Based on the information that we have about insurance coverages, this assumption appears to be appropriate.

For claimants that were Group A claimants as of 12/31/02, the payments made during 2003 were $3.8 million. In our September 2003 analysis we forecasted that these payments would be $4.8 million. In addition, we have observed that, in 2003, the actual claim payments for Group B claimants (which would include Claimants Not Yet Admitted to the Program as of 12/31/02, but admitted during 2003), were $1.6 million as compared to the forecast of $4.5 million (of the $2.9 million difference, $1.7 million is caused by nursing). This discrepancy occurred last year, also, and was discussed in our September 2003 report. There are two possible explanations for this:

(1) It is possible that Group B claimants will actually have average lifetime costs that are significantly less than those of Group A claimants, rather than consistent with those of Group A claimants, as forecast.

We do not yet have sufficient claimant history to reach a definitive conclusion about whether the more recent claimants (Group B) will have lower lifetime costs than the claimants who have been in the Program for more than three years (Group A).

We note that if (1) occurred, our estimation process will tend to be "self-correcting" as the Group B claimants move into the Group A category.

(2) It is possible that Group B (and Group C) claimants will have average lifetime costs consistent with those forecast, but that we overestimated the percentage of lifetime costs that

would be paid in 2003. In other words, the issue could be related to the timing of the payments rather than to what the total amount of payments will ultimately be.

If (2) occurred, then the forecasted Deficit would nevertheless have been appropriate, because an overstatement of the forecasted payments would have been offset by the understatement of the liabilities. In other words, as stated above, this issue would be a timing difference.

We do not yet have sufficient claimant history to reach a definitive conclusion on the timing of the payment of claimant expenses. We intend to examine these issues over time, and make adjustments to our assumptions as may be appropriate.

General Administration Expenses (Other Than Claim Administration)

For the purpose of forecasting the value of the Program's assets through December 31, 2004, December 31, 2005, and December 31, 2006, we estimate the amount of the Program's general administration expenses (other than claim administration expenses). General administration expenses include that portion of salaries, rents, costs of office equipment, and all other expenses not directly related to claims.

General administration expenses are not shown on Tables 1, 2, 3, or 4, because they do not represent a future obligation, or liability, of the Fund. However, in order to forecast the Fund's assets through 2004, 2005, and 2006, we estimate the general administration expenses that will be paid each year and deduct these from the assets that the Fund would otherwise hold.

In total, we estimate that the annual cost of general administration will be $150,000 at current cost levels. We assume that the general administration expenses will increase over time due to inflation (see page 40 for a discussion of claim administration expenses).

Forecasts of Program's Financial Position Through 2006

The method we use to forecast the Program's financial position as of December 31, 2004, as of December 31, 2005, and as of December 31, 2006, is to estimate for each year:

- Assessment income
- Claim payments
- Claim administration payments
- Payments for other administration expenses
- Investment earnings

Then we calculate the assets to be equal to the assets as of the end of the prior year, plus estimated assessment income and estimated investment income, minus the estimated payments.

Then we calculate the obligations for future claim payments and future claim administration expenses, as equal to the obligations for such future payments as of the end of the prior year, plus the future claim payments and claim administration expenses associated with the new claimants that will be born during the year, minus payments for claims and claim administration expenses.

The surplus/(deficit) is calculated as estimated assets minus our estimate of the Program's future claim payments and future claim administration expenses.

Appendix Exhibit 5 provides an example of our calculations for December 31, 2005, showing how we calculated the values for future claim payments and assets.

In performing these calculations, we estimate the claim payments based on our long-term forecasts of claim payments by year. We recognize that, after having estimated the present value of lifetime claim payments, the procedure that we use to allocate these lifetime claim payments

to each payment year may tend to overstate the amount of claim payments in the early years. However, the impact of this on our estimate of the surplus/(deficit) is not material.

Methodology – July 1, 2003 Legislation – Revisited

In our September 2003 report we presented a complete review of the anticipated increases to the costs of the Program resulting from the July 1, 2003 legislation. Based upon the July 1, 2004 legislation, review of the Program's experience for 2003 and the first half of 2004, and discussions with the Program's director, we have revised some of the assumptions made in our September 2003 report regarding the potential impact of the July 1, 2003 legislation on the costs of the Fund.

We have reflected these revised estimates in Tables 1 through 4 of the Executive Summary of this report.

The revisions to the impacts of the legislative changes fall into four categories:

- administrative expenses;
- legal expenses;
- number of claimants;
- number of claimants eligible for the $100,000 award.

As was the case in our September 2003 report, our estimates of the impact of the legislative changes, as discussed below, are subject to significant uncertainty. These estimates will undoubtedly change again over the next several years, as we ascertain the actual administrative expenses of the Program under the new legislation, and review how many new claimants come into the program. However, there will be no way to determine which additional costs are actually attributable to the legislative changes.

Changes to Assumptions Regarding July 1, 2003 Legislative Changes

Administrative Expenses

In our September 2003 report we included an annual value of $80,000 for the cost of legal services to be provided to the Program by the Attorney General's Office. Based upon information supplied by the director of the Program, we have refined this value to $75,000 for the 2003 through 2005 years (based upon the cost of a contract between the Program and the Attorney General's Office), adjusted for subsequent years by the amount of assumed inflation.

Legal Expenses

In our September 2003 report, in accordance with a provision contained in the July 1, 2003 legislation concerning all petitions to enter the Program that are made subsequent to July 1, 2003, we included an annual value of $44,000 to cover the legal costs of attorneys representing those potential claimants who are not, ultimately, accepted into the Program. The July 1, 2004 legislation removed this provision of the July 1, 2003 legislation. That is, for all petitions to enter the Program that are made subsequent to July 1, 2004, the Fund will not be required to pay for the legal expenses of attorneys who represent unsuccessful claimants. As of July 1, 2004, no attorney fees for unsuccessful claimants have been paid by the Fund; however, it can take several years to determine which claimants prove to be unsuccessful in their bid to enter the Fund. Based on discussion with the director of the Program, we have replaced the annual value of $44,000 (included in our September 2003 report) with an estimate of $30,000 ($15,000 assumed to be paid in 2004 and $15,000 assumed to be paid in 2005) to cover the costs for these attorney fees for the July 1, 2003 through June 30, 2004 filing period.

Number of Claimants

In our September 2003 report, we assumed that the July 1, 2003 legislation would result in seven additional claimants in 2003, six additional claimants in 2004 and 2005, and three additional claimants in each year thereafter. During 2003, twelve claimants entered the Program, and it is not possible to determine how many came in as a result of the new legislation. We have assumed that five of those claimants entered as a result of the July 1, 2003 legislation (see Methodology, Number of Claimants on page 44). Given the lower than expected claimant emergence during 2003 (five rather than seven new claimants as a result of the July 1, 2003

legislation), we have revised our estimate of the number of claimants who will enter the Program as a result of the July 1, 2003 legislation to five in 2004, five in 2005, and three per year thereafter.

Number of Claimants Eligible for the $100,000 Award

In our September 2003 report, we assumed that the number of claimants eligible for this award would be 50 percent of the claimants otherwise admitted to the Program. This estimate was based on a review of claimant information for Florida's program. The director of the Virginia Program has indicated that, as of July 1, 2004, no such award has been granted. Therefore, we have lowered the assumed percentage from 50 percent of the claimants otherwise admitted to the Program to 40 percent. Since only one year has elapsed since the July 1, 2003 legislation became effective, we do not believe it is prudent to lower the value below 40 percent at this time. However, we will continue to monitor the future payments, both in number and amount, under this provision of the July 1, 2003 legislation.

Methodology – July 1, 2004 Legislation

The legislation that became effective on July 1, 2004, has two effects: (1) it removes a provision included in the July 1, 2003 legislation regarding attorney fees incurred in connection with the filing of a claim which is ultimately not accepted into the Program (this is discussed in the previous section of this report); (2) it results in an increase in assessment income beginning with the 2005 program year. This is discussed in this section.

The following sections of the legislation are discussed in so far as each one affects the estimated assessment income of the Program. The discussion is limited to those sections that are expected to materially impact the Program's income.

(In the following paragraphs, the material in italics is quoted directly from the new legislation; HB No.1407 and SB No. 687)

Section 38.2 - 5020. Assessments

> *A. A physician who otherwise qualifies as a participating physician pursuant to this chapter may become a participating physician in the Program for a particular calendar year by paying an annual participating physician assessment to the Program in the amount of $5,000 on or before December 1 of the previous year, in the manner required by the plan of operation. Effective January 1, 2005, the total annual assessment shall be $5,100 and shall increase by $100 each year thereafter, to a maximum of $5,500 per year.*

Based upon the number (490) of participating physicians as reported by the Program as of July 30, 2004, we estimate that this will result in additional assessment revenue to the Program of $49,000 (that is, 490 times $100) for each year from 2005 through 2009. The assessment revenue is estimated to remain constant from 2009 forward. Based upon the 2004 program year assessment income reported to us as collected by the Program for participating physicians ($2,297,383), we estimate that the assessment income from participating physicians will equal

$2,297,383 for 2004, increasing by $49,000 per year until it reaches $2,542,383 for program year 2009 and will remain at that level. We have included these values in line (c) of Tables 1 though 4 of the Major Findings section of this report.

> *C. A hospital that otherwise qualifies as a participating hospital pursuant to this chapter may become a participating hospital in the Program for a particular year by paying an annual participating hospital assessment to the Program, on or before December 1 of the previous year, amounting to $50 per live birth for the prior year, as reported to the Department of Health in the Annual Survey of Hospitals. The participating hospital assessment shall not exceed $150,000 for any participating hospital in any 12-month period until January 1, 2005. Effective January 1, 2005, the total annual assessment shall be $160,000, and shall increase by $10,000 each year thereafter, to a maximum of $200,000 in any 12-month period.*

We have assumed that the above provision means that the *maximum cap* on assessment income increases by $10,000 each year beginning in 2005 and results in a *maximum cap* of $200,000 in 2009 and thereafter.

Based upon the participating hospitals in the Program as of July 30, 2004 (as supplied by management of the Program) and the number of live births for each of these hospitals for the year 2002 (as supplied by the State Corporation Commission Bureau of Insurance Commonwealth of Virginia*), we estimate that this will result in the following assessments for participating hospitals:

2004 program year: $2,730,909 (as supplied by the Program)
2005 program year: $2,790,259 (increase of $59,350 due to raising the cap to $160,000)
2006 program year: $2,833,809 (increase of $43,550 due to raising the cap to $170,000)
2007 program year: $2,873,809 (increase of $40,000 due to raising the cap to $180,000)
2008 program year: $2,903,059 (increase of $29,250 due to raising the cap to $190,000)
2009 program year: $2,913,059 (increase of $10,000 due to raising the cap to $200,000)
2010 and subsequent years: $2,913,059.
* Information from Virginia Health Information (VHI) 2002 public information data set

We have included these values in line (c) of Tables 1 though 4 of the Major Findings section of this report.

> *D. All licensed physicians practicing in the Commonwealth on September 30 of a particular year, other than participating physicians, shall pay to the Program an annual assessment of $250 for the following year, in the manner required by the plan of operation until January 1, 2005. Effective January 1, 2005, the total annual assessment shall be $260, and shall increase by $10 each year thereafter to a maximum of $300 per year.*

Based upon the number (13,576) of non-participating physicians as reported by the Program as of July 30, 2004, we estimate that this will result in additional assessment revenue to the Program of $135,760 (that is, 13,576 times $10) for each year from 2005 through 2009. The assessment revenue is estimated to remain constant from 2009 forward. Based upon the 2004 program year assessment income reported to us as collected by the Program, for non-participating physicians ($3,394,000), we estimate that the assessment income from non-participating physicians will equal $3,394,000, for 2004, increasing by $135,760 per year until it reaches $4,072,800 for program year 2009 and will remain at that level. We have included these values in line (c) of Tables 1 though 4 of the Major Findings section of this report

Sensitivity Testing

Our forecasts of future claim payments are for the lifetime costs of the Program's claimants. Although the *average* life expectancy of claimants is relatively short, many of the individual claimants are likely to live well into their adult years. Our forecasts, in fact, include provision for the remote chance that an individual claimant lives to age 99. Given the long-term nature of the forecast, the forecasted future claim payments are highly sensitive to slight changes in certain assumptions, such as inflation, interest rates, and mortality. In this section of the report, we show how our estimate of the present value of future claim payments as of December 31, 2003, changes as we vary our assumptions.

In addition, many of the basic assumptions, such as forecasted nursing costs, are subject to a high degree of uncertainty. We provide for some increase beyond the current level of benefit and service utilization, but changes in the level of utilization could be higher or lower than what we assume. It is important, therefore, to consider the potential for the Program's actual payments to differ from our forecasts.

The remainder of this section presents results of sensitivity testing, as well as further discussion of the claim payment categories.

Inflation

Table 9 shows the sensitivity of our estimates, as of December 31, 2003, to various inflation rates:

Table 9

Annual Inflation Rates (Baseline +/-) (1)	Estimated Future Claim Payments ($ in millions, on a present value basis) (2)
-1.50%	$170.7
-1.00%	179.0
-0.50%	188.2
Baseline	198.6
+0.50%	210.5
+1.00%	223.9
+1.50%	239.2

The baseline inflation rates vary by expense category, as shown in Table 8.

Table 9, Column 2 shows that our baseline estimate of future claim payments is $198.6 million, corresponding to the amount shown in Table 1. Column 1 lists various departures from our baseline assumptions regarding annual inflation rates, and Column 2 shows how our estimate of the Program's total future payments changes given the indicated departure from the baseline assumptions. For example, the first row shows that if we select annual inflation rates that are 1.50 percentage points less than our baseline estimates, the estimated present value of future claim payments will be $170.7 million, rather than the $198.6 million that results from our baseline estimates. As another example, the last row shows that increasing the inflation assumptions by 1.50 percentage points will increase the estimated present value of future claim payments to $239.2 million.

The higher the annual rates of inflation, the greater the estimated present value of future claim payments. This results directly from the fact that we are forecasting claim payments into the future and, therefore, the forecasted claim payments are higher if we assume higher inflation rates.

This sensitivity test only changes the inflation rates. In our actual analysis, inflation rates and the interest rate are related.

Interest Rate

Table 10 shows the sensitivity of our estimates, as of December 31, 2003, to various interest rates used for discounting:

Table 10

Interest Rate (Baseline +/-) (1)	Estimated Future Claim Payments ($ in millions, on a present value basis) (2)
-1.50%	$234.0
-1.00%	220.4
-0.50%	208.9
Baseline	198.6
+0.5%	189.9
+1.00%	182.2
+1.50%	175.4

Table 10, Column 2 shows that our baseline estimate of future claim payments is $198.6 million, corresponding to the amount shown in Table 1. If we had used an annual interest rate that was, for example, 1.00 percentage point less than the baseline estimate of 6.43 percent, then the present value of future claim payments would be $220.4 million.

The interest rate is used for the purpose of discounting future payments to a present value basis. The higher the interest rate used for discounting, the lower the estimated present value, all other things being equal. Similarly, the lower the interest rate, the higher the estimated present value. This is because use of a higher interest rate implies that the Fund is able to earn more investment income and, therefore, would need fewer assets as of December 31, 2003, in order to make all future payments. Similarly, a lower interest rate implies that the Fund is able to earn less investment income and, therefore, would need more assets as of December 31, 2003 in order to make all future payments.

This sensitivity test only changes the interest rate. In our actual analysis, inflation rates and the interest rate are related.

Mortality

Table 11, below, shows the sensitivity of our estimates, as of December 31, 2003, to the mortality table that is used:

Table 11

Mortality Table	Estimated Future Claim Payments ($ in millions, on a present value basis)
(1)	(2)
1999 Table	$168.3
2001 Table	180.4
2002 Table	186.5
2003 Table	192.6
2004 Table	198.6
Blended Table	229.0

Table 11, Column 2 shows that our baseline estimate of future claim payments is $198.6 million, corresponding to the amount shown in Table 1. Table 11 also shows, for example, that if we had

not changed from the 2003 Table, which we used in our last study, the estimated present value of future claim payments would be $192.6 million, which is $6.0 million less than our baseline estimate of $198.6 million. This lower value would still not be low enough for the Fund to be considered actuarially sound. Similarly, use of the Blended Table would have increased our estimate to $229.0 million.

Percentage of Insured Claimants Who Have HMO Coverage

As discussed previously, we estimate the percentage of insured claimants who have HMO coverage as opposed to other forms of coverage. Because we assume that HMOs have no lifetime cap on benefits, our assumption regarding the percentage of insured claimants who have HMO coverage affects our estimates. However, the impact of this assumption is not material. For example, if we assume that 30 percent (rather than 15.6 percent) of insured claimants are insured by HMOs, our estimate of total future payments of the Program, as of December 31, 2003, would be reduced by approximately $1.6 million in total. This value is relatively small (only about one percent of the estimate of future claim payments, as of December 31, 2003, of $198.6 million as shown in Column 3 of Table 1) and consistent with the $2 million calculated in our September 2003 report.

Nursing

This is the major claim payment category, and our forecast of the Program's future claim payments is very sensitive to our forecast of this item.

As shown earlier in this report, in Table 7, we estimate about $1.1 million per claimant as the present value of future claim payments for this payment category for claimants in Group C. Group C claimants are those who have not yet been admitted to the Program, so this estimate of $1.1 million per claimant can be considered the estimated present value of a claimant's lifetime costs for nursing care under the Program.

While we have provided for future increases in the utilization of nursing care, there remains significant uncertainty regarding this cost item. Some claimants have little or no nursing costs, whereas others have large nursing costs. For example, during 2003, there were 58 claimants who

each had nursing costs that were less than $25,000, and 9 claimants who each had nursing costs in excess of $200,000. The largest amount paid on behalf of any one claimant for nursing costs in 2003 was $237,000. This probably represents round-the-clock nursing costs.

We include in our estimate an explicit provision of one percent per year for future increases in the utilization of the Program's nursing services and benefits. Should the future increase in utilization of nursing services and benefits exceed this level, our estimate of the present value of the Fund's future claims payments is understated. For example, if the utilization of nursing services and benefits were to increase at a rate of two percent per year, our baseline estimate of the present value of the Fund's future payments would increase by about 9% ($18.4 million) which is comparable to the increase indicated in our September 2003 report as of December 31, 2002.

Hospital/Physician, Medical Equipment, Incidental, and Prescription Drugs

These claim payment categories are much smaller than the nursing category but, in our opinion, there is also significant uncertainty regarding the future utilization of services. There are a number of questions regarding future utilization. For example:

- Will utilization increase, decrease, or remain level (as we assume) as the claimants age?
- Will claimants require new and more expensive medical services, equipment, and drugs when they become available?
- Will claimants require increasingly expensive computers (an "incidental" cost), as new designs become available that may be especially useful to the impaired population?
- Will administrative controls be in place that will serve to limit the requests for extraordinary costs?
- Will any restrictions be imposed on future Program claim payments?

Our estimates might prove to be significantly understated, or overstated, depending on the answers to the above questions.

Housing, Vans, Lost Wages, Legal, Insurance, Medical Review/Intake

The costs associated with these claim payment categories are fairly well defined and, in our opinion, there is not a significant uncertainty regarding the future claim payments for these payment categories under the current housing provisions.

Numbers of Eligible Claimants

Our forecasts of the Fund's deficit at various points in time are dependent on the assumptions regarding the number of eligible claimants who will eventually be admitted to the Program. Estimates and forecasts of the numbers of eligible claimants who will be admitted are uncertain, for several reasons:

- Claimants can wait for many years before applying to the program, so the number of claimants already born as of any given date, who have not yet been admitted to the Program, is a significant issue.

- The number of eligible claimants born each year is dependent on the numbers of physicians and hospitals participating in the program. Generally, the number of eligible claimants will increase as the numbers of participating physicians and hospitals increase, but the increase in the number of eligible claimants is less than proportional because of the fact that the claimant has to have either been treated by a participating physician or born in a participating hospital. As an example, a ten percent increase in the number of participating physicians would have no impact on the number of eligible claimants if the additional physicians were all working in hospitals that were participating.

- The impact of the legislation effective July 1, 2003 on the number of claimants who will ultimately enter the Program is still unclear. The actual impact of the legislation is uncertain and will only be measurable after several years.

Basically, any increase in the numbers of eligible claimants will have a direct impact on the numbers of claimants admitted to the program, and will therefore increase the costs of the program proportionately. Each additional claimant, beyond what we have estimated, will impact the liabilities of the Fund, and increase the deficit, by approximately $1.8 million.

Changes in Assumptions from Prior Report

As discussed in the preceding text, we have changed many of our assumptions since the time of our September 2003 study. This was not unexpected because we intended to review all of the assumptions and adjust them as appropriate. Many of the assumptions, such as the inflation rates, interest rate, and the amount of annual wage losses, are numbers that we expect to revise, based on updated economic data, each time we update the study. Other assumptions, such as mortality, number of claimants, and claim payment amounts are assumptions that we expect to review at the time of each report, and to revise as appropriate.

The most significant change that we made in this study is the adoption of the 2003 Table for mortality. As indicated in the sensitivity section of this report, in Table 11, this has the impact of increasing our estimate of future claim payments by $6.0 million, all other things being equal. This change, and other changes, are discussed below.

Mortality

We have revised our mortality assumption to anticipate that claimants in the Program will live longer than had been expected at the time of our 2003 study. This change is consistent with our plan, as stated in our 2003, 2002, and 2001 reports.

Other Assumptions

There are other assumptions that we revised, as discussed previously in the report:

- We have revised the inflation assumptions to reflect 2003 economic data.

- We have revised the interest rate assumption (discount rate) to reflect 2003 economic data.

- We have revised certain assumptions (as discussed in the section of this report titled "Methodology – July 1, 2003 Legislation – Revisited" beginning on page 50) concerning the July 1, 2003 legislation.

Background

General

Chapter 50 of Title 38.2 of the Code of Virginia, enacted by the 1987 General Assembly, established the Virginia Birth-Related Neurological Injury Compensation Program. The Program began collecting assessments in late 1987, and the compensation mechanism became effective for births as of January 1, 1988.

Among the stated purposes of the Program is to assure the payment of the financial costs for the lifetime care of infants born with birth-related neurological injuries. The Program is financed by the Virginia Birth-Related Neurological Injury Compensation Fund.

Participation in the Program is optional for both physicians and hospitals. Participating physicians and hospitals receive the benefit of the exclusive remedy provision of the law, and physicians and hospitals that participate are eligible for lower premiums for medical malpractice insurance.

History of Funding

Participating Physicians and Hospitals

Funding for the Program comes from both physicians and hospitals. In addition, the Virginia State Corporation Commission (the SCC) is empowered to assess liability insurers in Virginia up to one-quarter of one percent of net direct liability premiums written in Virginia if needed to maintain the Fund on an actuarially sound basis.

The original schedule of funding assessments for program year 1988 was as follows:

1. Participating physicians paid an annual assessment of $5,000. (The definition of participating physicians was amended in 1989 to include licensed nurse midwives who perform obstetrical services, either full-time or part-time, as authorized in the Plan of Operation. They have been assessed since 1989, but the number of licensed nurse midwives is not material.)

2. Participating hospitals paid an annual assessment equal to $50 per live birth in the previous year, subject to a maximum assessment of $150,000.

Beginning with the 1995 program year, the fixed fee schedules were changed to sliding scale fee schedules under which the fees decreased the longer the participant was in the Program. This fee schedule is shown on Appendix Exhibit 2.

Beginning with the 2001 program year, assessments of participating physicians and hospitals were restored to their original level. For the 2002 program year, assessments of participating physicians and hospitals remain at the original level.

Based upon the July 1, 2004 legislation, assessment income to the Program will increase, effective with the 2005 program year (see section on July 1, 2004 legislation).

Non-Participating Physicians and Liability Insurers

Assessment income of the Program can be modified in a given year in either of the following two ways:

1. Beginning with program year 1993, if the income of the Program is estimated to be in excess of that required for actuarial soundness, income can be reduced by eliminating assessments *of non-participating physicians* in a given program year. The assessment of non-participating physicians was, in fact, eliminated for program years 1993 through 2001. Assessments of non-participating physicians can be reinstated in any amount up to $250, whenever the SCC determines that such assessment is required to maintain the Fund's actuarial soundness and the $250 assessments were reinstated beginning with program year 2002 and continuing into program year 2003. Effective with program year 2005, assessments for non-participating physicians will increase (see July 1, 2004 legislation).

2. If the income of the Program is estimated to fall short of that required for actuarial soundness, income can be increased by assessments of *liability insurers* up to one-quarter of one percent of net direct liability premiums written in Virginia. Insurers were assessed an amount equal to one-tenth of one percent of net direct liability premiums written in Virginia for the 1990 program year, and were assessed one-quarter of one percent of net direct liability premiums written in Virginia beginning with the 2002 program year and continuing into the 2003 program year.

Appendix Exhibit 3 presents a history of the Program's assessment income. Appendix Exhibit 4 presents a history of the numbers of participating physicians and hospitals.

Eligibility

To be eligible to receive payment from the Program, a claimant must file a claim with the Virginia Workers' Compensation Commission. The Commission must then determine that the claim meets the criteria for reimbursement from the Program. The original law provided that, for a claim to be paid, all three of the following criteria had to be met:

1. The injuries claimed are birth-related neurological injuries as defined in the law,

2. Obstetrical services were performed by a participating physician,

3. The birth occurred in a participating hospital.

Pursuant to Senate Bill 72, the law was amended in 1990 so that criterion 1 and *either* criterion 2 *or* 3 must be met for a claim to qualify for payment.

History of Actuarial Studies

An actuarial study of the adequacy of funding of the Program is required to be performed at least once every two years. Mercer RFI provided its initial funding study covering the years 1988 through 1990 on October 13, 1989. We issued three supplemental reports which modified our original funding estimates, as follows:

- First Supplement dated December 22, 1989: Mercer RFI was requested to confer with Dr. Barbara Brown, then of the Williamson Institute for Health Studies, Department of Health Administration, Medical College of Virginia, Virginia Commonwealth University, to determine whether amendments to the Mercer RFI findings (specifically claim frequency) should be considered. As a result, Mercer RFI revised its estimates of the Program's expected frequency and future claim payments.

- Second supplement dated January 24, 1990: Reflected the opinion of the Virginia Attorney General's office that Medicaid would be primary as respects the Program.

- Third supplement dated May 22, 1990: Reflected the effects of Senate Bills 70 and 72. (Pursuant to Senate Bill 70, the original definition of "birth-related neurological injury" was clarified.)

The recommendation in our initial reports was for the assessment of participating and non-participating physicians and participating hospitals, and for an assessment against liability insurance carriers of 0.1 percent of liability premiums for program year 1990.

On March 20, 1991, we issued a report that built on our original work (as amended by our supplementary reports) and provided updated funding estimates for program years 1988 through 1990 and projected estimates for 1991. In that report, we recommended continuation of the assessments of participating hospitals and physicians and non-participating physicians, and no assessment against liability insurance carriers for program year 1991.

On July 17, 1992, we provided revised funding estimates for 1988 through 1991 and projected estimates for 1992 and 1993. In addition, we evaluated the criteria for actuarial soundness of the Program within the context of the law change effective in 1992, which provided that the assessments of non-participating physicians be suspended whenever the Fund was found to be actuarially sound. We recommended that non-participating physicians and liability insurers not be assessed for program year 1993. Accordingly, the SCC suspended the assessment of non-participating physicians.

On September 24, 1993, we provided revised funding estimates for 1988 through 1993 as well as projected estimates for 1994 and 1995. We also recommended that non-participating physicians and liability insurers not be assessed for program years 1994 and 1995.

An amendment to Section 38.2-5016(F) of the Virginia Code was enacted by the 1994 General Assembly Session. The amendment allows the Board of Directors of the Program to reduce the voluntary participating physician and hospital assessments for a stated period of time after the SCC has determined the Program to be actuarially sound. As a result of this amendment, Mercer RFI was requested by the Program to perform an actuarial study to determine: 1) if the Program was still actuarially sound, and 2) if the Program was still actuarially sound, to determine how much the Board of Directors could reduce the annual assessments for participating physicians and hospitals and continue the actuarial soundness of the Program.

Based on a law change in 1994, and following receipt of our report in 1995, the Board of Directors of the Program implemented a sliding scale assessment for participating doctors and hospitals for 1995 based on the number of years of participation in the Program. This reduced the assessment income from those sources by approximately 65 percent. The reduced schedule of assessments is displayed in Appendix Exhibit 2.

In September 1995, we provided estimates of funding for the program years 1988 through 1995, and projections for years 1996 and 1997. In that report, we recommended that the reduced schedule of assessments for participating physicians and participating hospitals continue in 1996 and 1997.

In October 1997, we provided estimates of funding for the program years 1988 through 1997, and projections for years 1998 and 1999. In that report, we had begun to consider housing expenses as non-liquid assets of the Program, rather than costs. This was based on the decision of the Program to establish trust funds for the benefit of the claimants. In our October 1997 report, we recommended that the reduced schedule of assessments for participating physicians and participating hospitals continue in 1998 and 1999.

In December 1999, we provided estimates of funding for the program years 1988 through 1999, and projections for years 2000 and 2001. In that report we observed that, on average, the claimants' mortality was much better than had been expected. As a result, we made a major change to the mortality assumption, which significantly increased the expected costs per claimant. We estimated that the Program was actuarially sound as of year-end 1999, and recommended that assessments for participating physicians and hospitals, and for non-participating physicians, be restored to their full level.

After release of our December 1999 report, we issued an addendum in which we recommended that:

> "If the Fund decides to immediately stop providing cash grants for housing (except for commitments that have already been made and for existing claimants who have not yet received housing benefits) assessments would still have to be restored to their full level for participating hospitals and physicians (but not for non-participating physicians), for program year 2001. Given our current assumptions, this would lead to a $2.1 million deficit for program year 2002 and a $7.1 million deficit by the end of program year 2003. In order to avoid these deficits, there would need to be assessments of the non-participating physicians for program year 2002 ***and*** both the non-participating physicians and the liability insurers, for program year 2003."

In October 2001, we provided estimates of funding for the program years 1988 through 2000, and projections for years 2001, 2002, and 2003. In that report we made significant changes to the estimated number of claimants who would eventually be admitted to the program, to the mortality

table underlying our forecasts, and to the estimated future average annual expenses for admitted claimants. These changes all tended to increase our estimate of the Program's liabilities, and as a result we estimated that the Fund was not actuarially sound as of December 31, 2000 and forecast that the Fund would not be actuarially sound as of December 31, 2001, 2002, or 2003. Among other things, we recommended that the Program continue to assess participating physicians and hospitals at the maximum level and begin to assess non-participating physicians and liability insurers at the maximum assessment rates.

In September 2002 we provided estimates of funding for the program years 1988 through 2001, and projections for years 2002, 2003, and 2004. We estimated that the Fund was not actuarially sound as of December 31, 2001 and forecast that the Fund would not be actuarially sound as of December 31, 2002, 2003, or 2004. We recommended that the Program continue to assess participating physicians, participating hospitals, non-participating physicians, and liability insurers at the maximum amounts.

In September 2003 we provided estimates of funding for the program years 1988 through 2002, and projections for years 2003, 2004, and 2005. We estimated that the Fund was not actuarially sound as of December 31, 2002 and forecast that the Fund would not be actuarially sound as of December 31, 2003, 2004, or 2005. We recommended that the Program continue to assess participating physicians, participating hospitals, non-participating physicians, and liability insurers at the maximum amounts.

The prior discussion covers the history of the actuarial studies up until this current report.

Limitations and Caveats

Entire Document

The study conclusions are developed in the accompanying text and exhibits, which together comprise the report.

Data Reliance

The data for this study was gathered from several sources, which are detailed in the report. In the study, we relied on the accuracy and completeness of the data without independent audit. If the data are incomplete or inaccurate, our findings and conclusions may need to be revised.

Underlying Assumptions

In addition to the assumptions stated in the report, numerous other assumptions underlie the calculations and results presented herein.

Study Foundations

The study conclusions are based on analysis of the available data and on the estimation of many contingent events. Estimates of future costs were developed from the historical record and from estimated covered exposures.

Statistical Credibility

The statistical credibility of the Program's experience is not sufficient to evaluate all of the various assumptions, such as the number of claimants, the future annual claim payments, and the life expectancy, with a high degree of confidence. If the number of claimants, future annual claim payments, and mortality experience differ significantly from our estimates, then our estimate of the deficit of the Fund may be significantly understated or overstated.

Uncertainty

For the reasons stated in this report, the conclusions contained in this report are projections of the financial consequences of future contingent events and are subject to a high degree of uncertainty. Due to the uncertainties inherent in the estimation of future costs, it cannot be guaranteed that the estimates set forth in the report will not prove to be inadequate or excessive. Actual costs may vary significantly from our estimates.

Unanticipated Changes

Unanticipated changes in factors such as judicial decisions, legislative actions, the operation of the Program, the utilization of Program benefits and services, and economic conditions may significantly alter the conclusions.

Best Estimates

These caveats and limitations notwithstanding, the conclusions represent our best estimate of the actuarial soundness of the Fund and the funding requirements of the Program at this time.

APPENDIX