March 2, 2009

# Actuarial Cost Estimate: Georgia Senate Bill 161

# An Act Relating to Insurance Coverage for Autism

OLIVER WYMAN

Prepared By:

Marc Lambright, FSA, MAAA

MARSH MERCER KROLL
GUY CARPENTER OLIVER WYMAN

# Contents

# 1

## Background

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman or We) has been engaged by Autism Speaks to develop a cost model in order to analyze and estimate the impact of mandated insurance benefits for Autism Spectrum Disorders (ASD) on insurance premiums. As part of this work, Oliver Wyman has developed a range of independent estimates of the impact on insurance premiums of the benefits mandated by Georgia Senate Bill 161 which provides coverage for the diagnosis and treatment of autism spectrum disorders.

Oliver Wyman is a part of the Marsh & McLennan (MMC) family of companies. With over 60 members of the American Academy of Actuaries, Oliver Wyman is one of the largest actuarial practices in North America. Oliver Wyman's health practice, which has twelve credentialed actuaries, advises insurers, regulators, governments, interest groups, and others.

This report, along with its supporting analysis, was developed by Marc Lambright, a Principal and consulting health actuary in Oliver Wyman's Philadelphia office. Marc is a Fellow of the Society of Actuaries and a member of the American Academy of Actuaries and is professionally qualified to analyze the cost impact of Senate Bill 161 and provide the estimates shown in this report. As part of Oliver Wyman's quality assurance process, the underlying analysis and this report were independently peer reviewed by another credentialed Oliver Wyman actuary.

2

## Scope and Limitations

The intent of this analysis is to provide a reasonable range of estimates for the insured costs of the mandated ASD benefits provided for in Senate Bill 161 and the associated premium impact on the markets affected by Senate Bill 161. This analysis makes no attempt to quantify potential offsetting cost savings associated with successful ASD treatment, nor does it include the any estimate of the potential reduction in other government expenditures associated with providing ASD services that might overlap with the benefits provided by this mandate. Therefore, the reader is cautioned that this report should only be considered a cost analysis, and not be misconstrued as a cost-benefit analysis when assessing the merit of Senate Bill 161.

We note that cost estimates for autism mandates have varied widely state to state based on differences in the state specific mandates and the methods and assumptions used in estimating costs, though typically independent estimates show premium increases due to mandated autism benefits of less than 1%. The reason for this variability is that the largest component of the increase in costs under the Senate Bill 161 mandated ASD benefits is for behavioral therapy, including Applied Behavior Analysis (ABA), which is almost universally excluded from health coverage, and therefore essentially no insured data exists for use in developing credible utilization and unit cost estimates for ABA.

The reader is cautioned that the ultimate cost of covering ABA benefits is uncertain; however, this analysis attempts to reflect the likely behavior of consumers, providers and insurers of ABA services in developing the assumptions underlying the cost estimates. Likewise, the additional costs for mandated medical services other than ABA are difficult to quantify. Insurance policies often cover some services for children diagnosed with an ASD, although the mandate could cause the insured costs for certain services to increase because ASD exclusions are common, and certain services that may have been denied or terminated following utilization review might be covered due to the mandate.

3

# Description of Key Senate Bill 161 Provisions and their Impact on Covered Benefits

Insurance Markets Covered by Mandate

The Bill states: *"Accident and sickness contract, policy, or benefit plan shall also include without limitation any health benefit plan established pursuant to Article 1 of Chapter 18 of Title 45."* Senate Bill 161 appears to apply to the individual, small group (2-50 employees) and large group (51+ employees) markets.

Covered Benefits

The mandate provides for the diagnosis and treatment of autism spectrum disorders, by stating specifically: *"…nor shall an insurer exclude or deny coverage due to the use of medically necessary therapeutic care, rehabilitative care, and pharmacy care or other general care services for an autism spectrum disorder."*

The inclusion of behavioral intervention and management services, including applied behavioral analysis (ABA), in the definition of "*rehabilitative care"* is especially important. The coverage of behavioral therapies, including ABA, has the most significant impact on cost of any mandated service. For the purpose of this report, reference to ABA encompasses all behavioral therapies. We note ABA is the most widely accepted behavioral therapy and that we would expect other approved behavioral programs to have similar costs.

ABA programs are marked by intensive therapy that may include 30-40 hours of therapy a week under the most intensive programs, though many programs would not utilize that level of resources. Key assumptions underlying our ABA cost estimates are outlined in Section 5.

Annual Maximum Benefit for Applied Behavior Analysis of $55,000

The annual coverage maximum is important as it has the effect of capping costs for the heaviest users of ABA services (e.g. those with intensive programs).

Maximum Age for Benefits

The Bill does not contain any language that limits the ages of insureds that may receive covered ASD services.

Medical Necessity and Treatment Review

The bill does allow for utilization review by specifically stating: *"An insurer shall have the right to request updated treatment plans once every six months to review medical necessity unless the insurer and the treatment provider agree that a more frequent review is necessary due to emerging clinical circumstances."* This is important as insurers will develop protocols to review treatments and manage care which will limit unnecessary treatments if reviews are done appropriately.

4

# Modeling Methodology

The following outlines the general modeling methodology used to develop the cost estimates. Estimates were developed both on a per member per year basis, and as a percentage of average annual premiums as shown in Section 6. Details of key assumptions are discussed in Section 5 and illustrated graphically in the exhibits shown in Appendix 1.

## Modeling Perspective

Our model was developed to produce costs under a range of assumptions, but generally assumes that a sufficient supply of providers would be available to meet the demand for autism services, especially with regard to ABA services. It also assumes that there would be sufficient awareness of autism and motivation (primarily by parents) to seek treatment so that the diagnosis and treatment of ASDs would be more in line with CDC prevalence estimates. We would expect that it would take at a minimum several years for both the supply of providers to meet the demand for mandated ASD services and for parents of autistic children to aggressively seek diagnosis and treatment of their children's disorders.

In spite of these real limitations that will likely limit short-term costs associated with mandated autism benefits, we feel that it is appropriate from a public policy perspective to look at the costs from a longer term perspective and assume that both awareness of ASDs will increase and that supply and demand for ASD services would eventually be in balance. We have developed our estimates with this in mind.

Acknowledging that short-term costs are also important to policymakers, in Section 6 we have included an illustrative exhibit of the possible progression of costs for mandated benefits by assuming that initial costs would be roughly one-half of the long term estimates. We also assumed that it would take five years for costs to reach their ultimate levels, though these assumptions varied by cost scenario.

In the near term, we would note that the supply of ABA service providers, specifically credentialed Board Certified Behavior Analysts (BCBAs) and Board Certified Associated Behavior Analysts (BCaBAs) would not be sufficient to meet the demand for ABA programs if ABA benefits are mandated. There are currently approximately 84[1] certified BCBAs and BCaBAs in Georgia, which translates to about one certified behavioral analyst per every 177 individuals 21 years old or younger treated for ASD. While it is true that not all autistic children will have an ABA program, it is also true that behavioral analysts provide services to individuals other than autistic children. It is reasonable to conclude that demand for ABA services, at least initially, would far exceed supply should health care coverage similar to that mandated by Senate Bill 161 become typical.

It is also instructive to look at some of the limited evidence available related to actual costs of ABA mandated benefits in other states. Aetna noted in December 2008 that it had tracked the cost of the autism mandate in Texas for its first year of existence and found that it increased costs for policyholders who filed autism-related claims by $379 a month. A total of 235 policy holders had filed autism claims in the state as of the time the data was released. At that time, the company had not decided whether to pass those costs on to the policyholders because the cost of the mandate might change after the first year.[2] While this is only first year experience for a single insurer, it illustrates that initial mandate costs are likely low. Aetna's Texas block of business is quite large (approximately $1.5 - 2.0 billion in premium[3]), so the statistics provided indicate a mandate cost of less than 0.1% of premium.

## General Modeling Process

The modeling process employed to develop our cost estimates was as follows:

1. Assumed treated prevalence for the United States is 1 in 150 based on the CDC's estimate of ASD prevalence in the United States. For Georgia, we decreased this prevalence rate by 5% based on the fact that the percentage of children reported with autism in the Individuals with Disabilities Education Act (IDEA) Part B child count[4] data is approximately 10% (depending upon ages considered) lower in Georgia than in the United States, overall. These child counts should be a reasonable indicator of the relative likelihood of children receiving medical treatment for ASD in different states.
2. Prevalence rates by diagnostic subtype (autistic disorder, PDD-NOS, Asperger's Syndrome) were estimated separately since diagnosis patterns and service utilization could reasonably be expected to vary by diagnostic subtype.

[1] BACB Certificant Registry: http://www.bacb.com/cues/frame_about.html. Accessed January 2009.

[2] Lawmaker: Oklahoma autism bill has momentum. Associated Press. December 4, 2008. http://newsok.com/article/3327594 accessed January 2009.

[3] NAIC Annual Statements for 2007.

[4] IDEA Part B database. http://www.ideadata.org/PartBChildCount.asp. Accessed January 2009.

3. The percentage of children diagnosed by age for each diagnostic subtype was estimated so that the average ages of diagnosis implicit in the modeling are consistent with publicly available age at diagnosis statistics[5].
4. The percentage of diagnosed children who could be expected to have an ABA program was estimated for each age based on assumptions regarding how many children would start a program and typical program continuance.
5. A distribution of the number of annual hours for ABA by age was developed based on ABA provider input and an assumption that utilization review by insurers would impact utilization to some degree.
6. Based on the assumed treatment prevalence, likelihood of having an ABA program, assumed distribution of ABA program hours, and estimated ABA program cost per hour of therapy, ABA cost estimates by age were developed and adjusted to reflect the impact of the annual $55,000 cap.
7. Non-ABA costs were estimated based upon studies of medical costs for ASD children and judgment regarding the increase in costs that could be expected due to the mandated benefits.
8. Based on Census demographic data and the cost estimates for mandated ASD services by age as outlined in 1-7 above, an annual cost per covered individual was developed.
9. The cost of services was increased to reflect administrative and other insurer costs or profit charges.
10. The estimated size of the covered market was developed based on Census, Medical Expenditure Panel Survey (MEPS) enrollment and premium information for Georgia, and Kaiser Family Foundation coverage data. These assumptions are further documented in Section 5.
11. The cost of the mandated services per covered person and as a percentage of premiums were calculated based on the model cost estimates and market data under a range of assumptions to develop “Low”, “Middle”, and “High” cost scenario estimates.

[5] IAN database. http://dashboard.ianexchange.org/StateStatsAdvanced.aspx?A1=VA&ADU=T. Accessed January 2009.

5

## Summary of Key Assumptions

Key assumptions underlying the cost estimates for the proposed mandated benefits are summarized in this section. In order to better illustrate the sensitivity of costs to various assumptions, we developed assumptions for "Low", "Middle, and "High" cost scenarios. Appendix 1 further illustrates these assumptions for the "Middle" scenario.

### Treated Prevalence and Age at Diagnosis

Overall treated prevalence is based on the 2007 CDC[6] study estimating United States ASD prevalence of 1 in 150, adjusted downward by 5% due to reported autism rates per IDEA Part B child count data being lower in Georgia than for the country as a whole. Prevalence by diagnostic subtype was estimated based on an academic study published in the American Journal of Psychiatry[7].

As noted in the previous section, the percentage of children diagnosed by age for each diagnostic subtype was estimated so that the average age of diagnosis implicit in the modeling is consistent with publicly available age at diagnosis statistics.

The treated prevalence and age at diagnosis assumptions for Georgia are shown below:

| | Georgia Prevalence | |
|---|---|---|
| Diagnostic Subtype | Ultimate Prevalence | Average Age of Diagnosis |
| Autistic Disorder | 1 in 474 | 3 |
| PDD-NOS | 1 in 316 | 3 |
| Asperger's | 1 in 947 | 6 |
| **All ASD** | **1 in 158** | |

[6] Centers for Disease Control. Morbidity and Mortality Weekly Report. February 9, 2007.

[7] Fombonne, E. and S. Chakrabarti. American Journal of Psychiatry. June 2005.

## ABA Program Utilization and Cost

ABA Program Utilization by Age

ABA programs require a significant commitment from affected children, as well as their families. It is likely that a significant number of ASD children will not have an ABA program regardless of the availability of a provider, and many others diagnosed with ASD, especially those in more rural areas, may have difficulty accessing a provider. For this reason, we have assumed that 40% to 66.7% (40% for "Low" scenario, 50% for "Middle", and 66.7% for "High") of diagnosed children under age 6 will begin an ABA program. Based on discussions with ABA providers and researchers, actual utilization of ABA programs has been lower in many cases due to the lack of providers, the lack of coverage, and to some extent the limited understanding of ABA programs and their efficacy.

In Minnesota, a state that is widely regarded as having some of the most extensive ABA coverage and services in the nation, provider data indicates ABA utilization of approximately 20% of diagnosed three to six year olds[8], which is considerably lower than assumed in each of the scenarios in our modeling. While our range of assumptions for ABA utilization may appear conservative, and likely is conservative in the near-term, we feel that the range is reasonable since insurers will likely have some conservatism in their cost estimates and premium rates. Private insurance utilization will likely be higher than under the public/private programs in Minnesota and utilization will likely increase over time due to increased awareness of ASD, and potentially an increased supply of ABA providers.

In addition to the likelihood of starting a program, program continuance assumptions have a very significant impact on overall ABA utilization and cost estimates. ABA programs are generally geared towards addressing deficits in younger children and are not intended to be continued indefinitely. For this reason, we have assumed that no programs would terminate prior to school age, that a large percentage of ABA programs would terminate at ages six and seven when an autistic child could be expected to enter elementary school, and annually thereafter a large percentage of remaining programs would terminate until only a very small percentage of children have ABA programs in their teenage years. Programs would be expected to terminate if a child has experienced sufficient progress where by a program is no longer necessary or if the insurer or family sees no progress, as well as for other reasons.

[8] Discussion with Dr. Eric Larsson Executive Director, Clinical Services, The Lovaas Institute for Early Intervention Midwest Headquarters regarding ABA utilization research in Minnesota. February 2009.

The assumed percentage of children diagnosed with ASD that have an ABA program by age for our "Middle" scenario is shown in the table below:

| | % of Diagnosed Children w/ ABA |
|---|---|
| Under 6 | 50.0% |
| 6 | 37.5% |
| 7 | 25.0% |
| 8 | 16.7% |
| 9 | 11.1% |
| 10 | 7.4% |
| 11 | 4.9% |
| 12 | 3.3% |
| Ages 13 to 21 | 2.5% |

ABA Program Annual Number of Hours

In developing the assumed annual ABA program hours, we discussed typical ABA programming with ABA providers, and reviewed some benefit materials from one of the few large self-insured employers who offer ABA benefits.[9] For three age bands we developed a distribution of expected hours that resulted in the annual averages shown in the table below:

| | Average ABA Program Hours |
|---|---|
| Ages Under 8 | 1,500 |
| Ages 8 to 12 | 671 |
| Ages 13 to 21 | 401 |

The general assumption is that pre-school aged children will have programs for 20 to 40 hours a week, averaging about 30 hours a week. This time will be reduced by over half by age eight when children would be expected to be in school and the school system would be required to provide services during the school day, and would then again be reduced significantly at age 13 as the child ages and ABA programs would be expected to be less time consuming and address a smaller number of behavioral deficits.

Cost per Hour of ABA Service

In developing the costs per hour, we reviewed ABA program staffing information and ABA provider wage and overhead cost assumptions. We developed an average cost for the entire United States and then adjusted this for Georgia, based on Bureau of Labor Statistics[10] health care wage data. The resulting average cost per hour of ABA therapy in Georgia is $43.74 for a program based on the assumption that staffing will be in line with what best practices might recommend. This is the cost underlying our "High" assumption, though we note that costs would vary based on the mix of professionals and technicians providing the services, and likely would be lower if less experienced ABA practitioners need to be employed to meet the increasing demands for services.

[9] Autism Therapy Reference- Microsoft Corporation (administered by Premera Blue Cross).

[10] BLS wage data. http://www.bls.gov/guide/geography/wages.htm accessed January 2009.

Range of Annual ABA Program Costs for Scenario Estimates

Given the actual cost of an ABA program could vary significantly for many reasons, we have assumed annual average program costs by scenario as follows:

"Low" cost scenario - assumes average ABA program cost is $30,000 per year.
"Middle" cost scenario - assumes average ABA program cost is $40,000 per year.
"High" cost scenario - based on the assumptions outlined in this section for the continuance of ABA programming, the number of annual hours for ABA programming, and an hourly rate of $43.74, the calculated average annual cost for an ABA program is $47,220.

## Other (than ABA) Medical Costs

Based on several studies[11], we estimated that children with ASDs had costs covered by insurers of approximately three times the average for non-inpatient medical services under current benefit programs. It is also clear that the mandate would mean that some services that an insurer could currently deny or exclude would now be covered. In our range of estimates, we assumed that the mandate would result in additional insured medical costs equal to 50% to 100% of the current level of estimated covered non-inpatient costs for services to children under 23 diagnosed with an ASD. We also noted that average medical costs for medical services associated with ASD typically decrease as individuals age, so we reduced costs for covered dependents ages 23 and over which would also take into account that many children with an ASD can become independent adults and would cease to be covered by their parents' insurance policies.

The estimated annual cost for additional non-ABA services (note many non-ABA medical services are already provided to individuals with ASD) that would be covered as a result of the mandate are shown for each scenario in the table below:

| Scenario | Non-ABA Medical Costs under 23 | Non-ABA Medical Costs 23 & over |
|---|---|---|
| **Low** | $1,700 | $850 |
| **Middle** | $2,550 | $1,275 |
| **High** | $3,400 | $1,700 |

(Amounts in 2009 dollars)

## Administrative Costs

Typically, medical claim costs could be expected to be 80 to 90% of premiums, meaning 10 to 20% of premiums are available for administration, profit, or other costs, often collectively referred to as "retention." We have estimated the incremental retention charge to be 15% of premium under our base assumptions.

[11] Mandell, Cao, Ittenbach, & Pinto-Martin, 2006. Croen, Najjar, Ray, Lotspeich, & Bernal, 2006. Liptak, Stuart, & Auinger, 2006.

## Georgia Market Data

The MEPS survey provides average premiums, enrollees, offer rates, take-up rates, and self-insured percentages by employer size for healthcare coverage sponsored by privately insured employers. From this data we can estimate the size of the privately insured small group, insured large group, and self-insured markets. State specific premium data for Georgia was available for 2006[12], so we trended this based on average recent employer premium increases provided from the Kaiser Family Foundation HRET[13] survey to estimate the 2009 average annual premium per member necessary to compute the cost of mandated benefits as a percentage of annual premiums.

To estimate average premiums for the individual market, we reviewed survey results developed by America's Health Insurance Plans[14] that showed average premiums and members per policy by state.

In developing our premium and membership estimates, we completed reasonableness tests by reviewing insurer annual statement filings to ensure that the individual and group premium estimates were not unreasonable.

[12] MEPS state survey data. http://www.meps.ahrq.gov/mepsweb/data_stats/state_tables.jsp?regionid=-1&year=-1. Accessed January 2009.

[13] Kaiser Family Foundation and Health Research Educational Trust. Employer Health Benefits- 2008 Annual Survey.

[14] AHIP Individual Health Insurance 2006 - 2007: A Comprehensive Survey of Premiums, Availability, and Benefits. http://www.ahipresearch.org/pdfs/Individual_Market_Survey_December_2007.pdf. Accessed January 2009.

# 6

# Cost Estimates

## Long-Term Cost Estimates - "Middle" Cost Scenario

The table below summarizes our "Middle" scenario annual cost estimates and premium increases on a per covered person basis, and as a percentage of the annual premiums for each market. Our "Middle" estimate is that in the long-term, the premium increase associated with the mandated benefits provided by Senate Bill 161 would be about 0.63% of insured premiums assuming that the individual, small group, and large group private insurance markets are covered by the bill. However, we note that costs could be lower in the years immediately following the passage of the mandate due to the limited supply of ABA therapists.

The estimated cost increases for the individual, small group, and large group markets are shown in the table below. The annual claim cost per covered person estimate of $18.00, and premium increase of $21.20 are in 2009 dollars.

| | Market | | | |
|---|---|---|---|---|
| | Individual | Small Group | Large Group | All |
| Covered Persons | 337,000 | 618,000 | 838,000 | 1,793,000 |
| Average Premium per Person | $2,300 | $3,600 | $3,600 | $3,356 |
| Annual Mandate Claim Cost per Covered Person | $18.00 | $18.00 | $18.00 | $18.00 |
| Claim Cost as a Percentage of Premium | 0.78% | 0.50% | 0.50% | 0.54% |
| Estimated Premium Increase with Admin @ 15% | $21.20 | $21.20 | $21.20 | $21.20 |
| Premium Increase as a Percentage of Premium | 0.92% | 0.59% | 0.59% | 0.63% |

## Scenario Estimates

As discussed in Section 1, very little insurance data exists that can be used to directly estimate the costs of ABA benefits mandated by Senate Bill 161. This causes uncertainty in developing actuarial assumptions and cost estimates. Due to this uncertainty, it is useful to develop cost estimates for scenarios using optimistic and pessimistic assumptions.

Cost estimates are very sensitive to various assumptions, especially those related to ABA utilization and costs. Therefore, we varied our assumptions to develop estimated costs for ASD services under "Low", "Middle", and "High" cost scenarios, as shown in the table below:

| Scenario | % Diagnosed Under Age 6 Starting ABA | Avg. Annual ABA Program Cost | Avg. Annual Under 23 non-ABA Cost | Annual Premium Increase per Person | Premium Increase (% of Premium) |
|---|---|---|---|---|---|
| **Low** | 40.0% | $30,000 | $1,700 | $13.30 | 0.40% |
| **Middle** | 50.0% | $40,000 | $2,550 | $21.20 | 0.63% |
| **High** | 66.7% | $47,220 | $3,400 | $31.30 | 0.93% |

## Short-Term Cost Estimates by Scenario

In addition to the uncertainty associated with long-term cost estimates, how quickly costs could reach their ultimate level due to the limited supply of ABA therapists is also uncertain. We have provided the table below to illustrate the potential short-term increases in premiums, and how they could grade into the long-term estimates over time.

| Estimated Increase in Premiums due to SB 161 by Year | | | | | | |
|---|---|---|---|---|---|---|
| **Scenario** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Years 6 and Beyond** |
| **Low** | 0.13% | 0.18% | 0.24% | 0.29% | 0.34% | 0.40% |
| **Middle** | 0.32% | 0.38% | 0.44% | 0.50% | 0.57% | 0.63% |
| **High** | 0.62% | 0.68% | 0.75% | 0.81% | 0.87% | 0.93% |

## Individual Market Comments

In developing the individual market cost estimates, we reviewed Georgia rating rules and did not note any specific regulations where the mandated benefits could be expected to lead to a significant change in the risks insured in the individual market. Due to the limited rating restrictions, coverage would likely be expensive for families that have a member with ASD.

Carrier pricing strategies and the manner in which the insurance department would regulate rates for ASD coverage is difficult to ascertain at this time, however, it is reasonable to assume that insurers would price individual insurance coverage for applicants with ASD conservatively to mitigate the financial risk associated with covering individuals with high expected medical costs.

Appendix 1

# Cost Assumptions – Illustrative Exhibits

# EXHIBIT I - SUMMARY OF SB 161 "MIDDLE" SCENARIO ASSUMPTIONS AND COSTS

**State** Georgia

**Mandate Market**

| | |
|---|---|
| Individual | Yes |
| Small Group | Yes |
| Large Group | Yes |
| Self-Insured (ERISA) | No |
| State and Local Govt | No |

**Additional Annual Medical Costs for Non ABA Services**

| | |
|---|---|
| All Ages | $ 2,550 |
| Ages 23 and over | $ 1,275 |

**Annual Limits by Covered Service**

| | Hours Limit | Max Hours | Dollar Limit | Max $s |
|---|---|---|---|---|
| ABA | No | - | Yes | $55,000 |

**Key Assumptions:**

**United States Prevalence**

| Diagnostic Subtype | Ultimate Prevalence | Average Age of Diagnosis |
|---|---|---|
| Autistic Disorder | 1 in 450 | 3 |
| PDD-NOS | 1 in 300 | 3 |
| Asperger's | 1 in 900 | 6 |
| **All ASD** | **1 in 150** | |

Georgia Prevalence Adjustment: 0.95

**Georgia Prevalence**

| Diagnostic Subtype | Ultimate Prevalence | Average Age of Diagnosis |
|---|---|---|
| Autistic Disorder | 1 in 474 | 3 |
| PDD-NOS | 1 in 316 | 3 |
| Asperger's | 1 in 947 | 6 |
| **All ASD** | **1 in 158** | |

**% of Diagnosed Children w/ ABA**

| | |
|---|---|
| Under 6 | 50.0% |
| 6 | 37.5% |
| 7 | 25.0% |
| 8 | 16.7% |
| 9 | 11.1% |
| 10 | 7.4% |
| 11 | 4.9% |
| 12 | 3.3% |
| Ages 13 to 21 | 2.5% |

**Average ABA Program Hours**

| | |
|---|---|
| Ages Under 8 | 1,500 |
| Ages 8 to 12 | 671 |
| Ages 13 to 21 | 401 |

**Average cost of ABA Program:** $40,000

| Market | Coverage Estimates: Number of Persons Covered | Premium (Per Person) | Total Premium | Costs Excluding Administrative Expense: Costs | Costs (% of Premium) | Cost (Per Covered Person) | Premium Increase including Admin @ 15%: Incremental Premium | Premium Increase % | Annual Increase per Covered Person |
|---|---|---|---|---|---|---|---|---|---|
| **Individual** | 337,000 | $ 2,300 | $ 775,100,000 | $ 6,066,000 | 0.78% | $ 18.00 | $ 7,136,000 | 0.92% | $ 21.20 |
| **Small Group** | 618,000 | 3,600 | 2,224,800,000 | 11,124,000 | 0.50% | 18.00 | 13,087,000 | 0.59% | 21.20 |
| **Large Group** | 838,000 | 3,600 | 3,016,800,000 | 15,084,000 | 0.50% | 18.00 | 17,746,000 | 0.59% | 21.20 |
| **Self-Insured (ERISA)** | | | | | | | | | |
| **State, Local and Federal** | | | | | | | | | |
| **Total** | 1,793,000 | $ 3,356 | $ 6,016,700,000 | $ 32,274,000 | 0.54% | $ 18.00 | $ 37,969,000 | 0.63% | $ 21.20 |

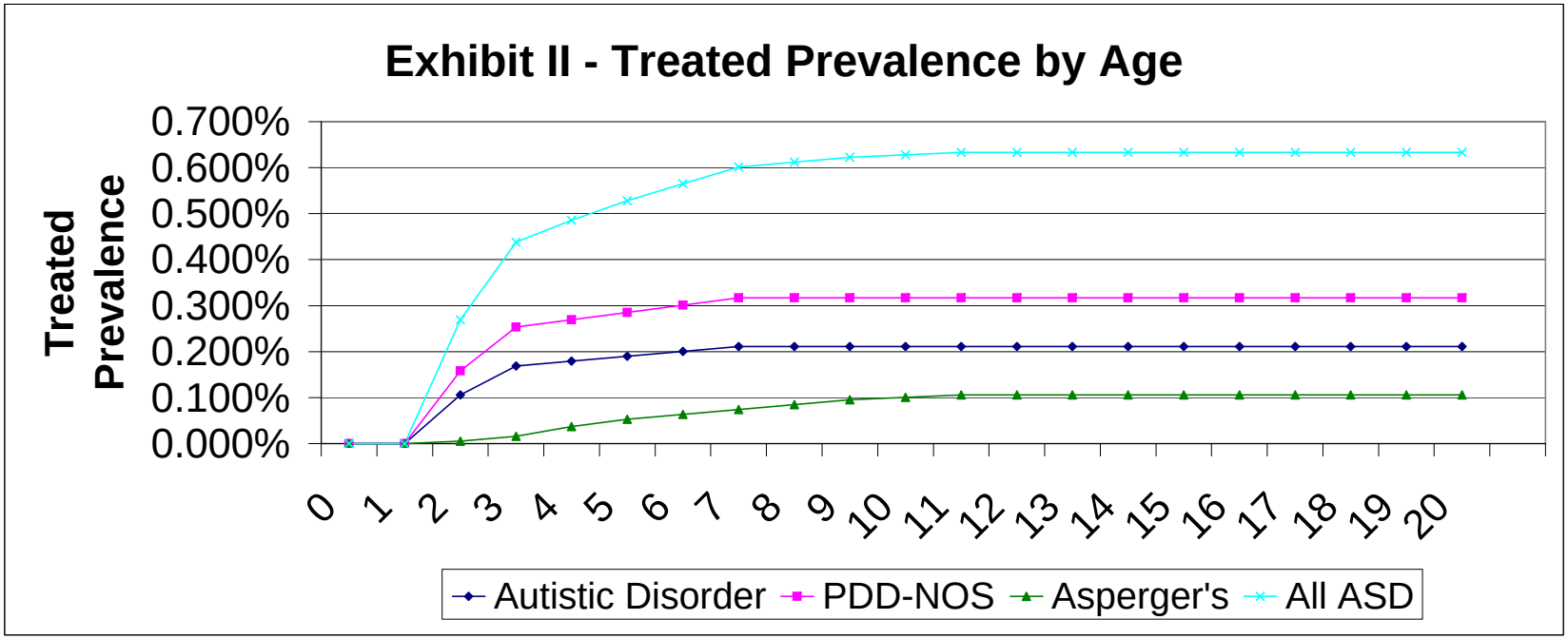


Exhibit II - Treated Prevalence by Age
Treated Prevalence
0.700%
0.600%
0.500%
0.400%
0.300%
0.200%
0.100%
0.000%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Autistic Disorder
PDD-NOS
Asperger's
All ASD

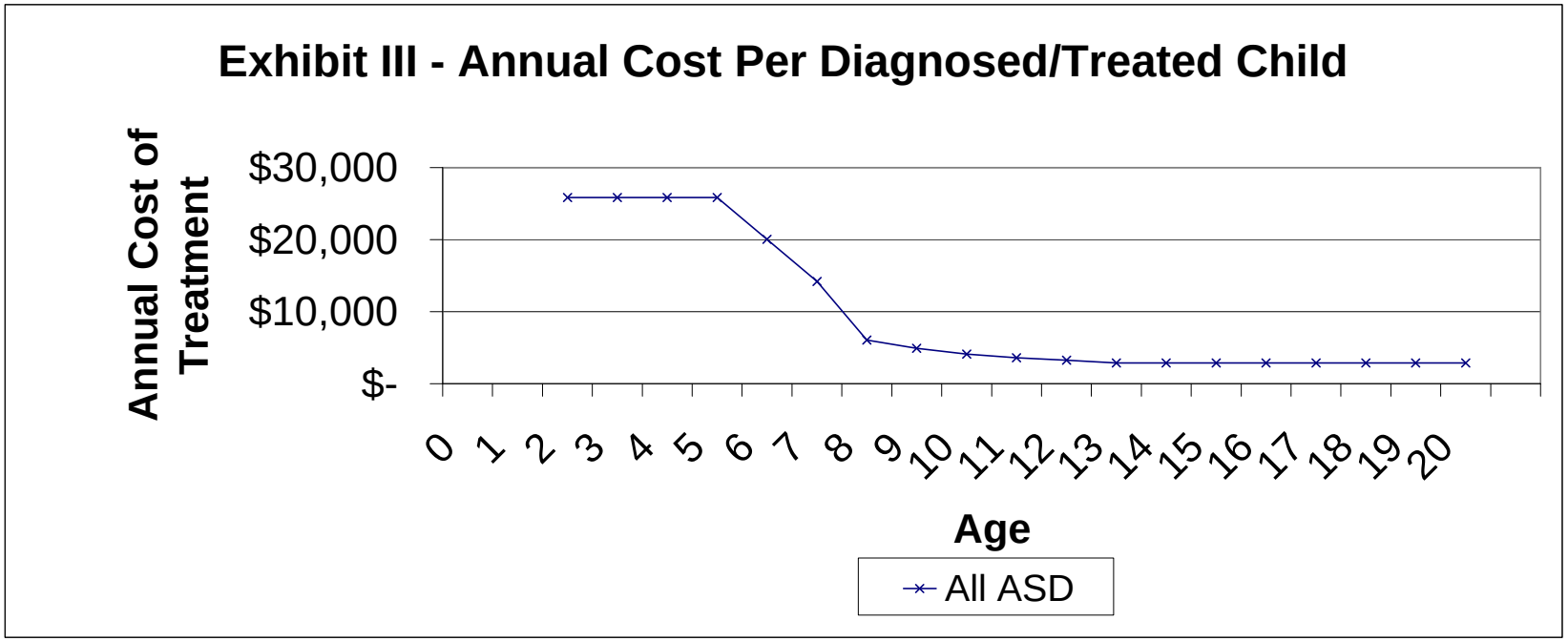


Exhibit III - Annual Cost Per Diagnosed/Treated Child
Annual Cost of Treatment
$30,000
$20,000
$10,000
$-
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
All ASD

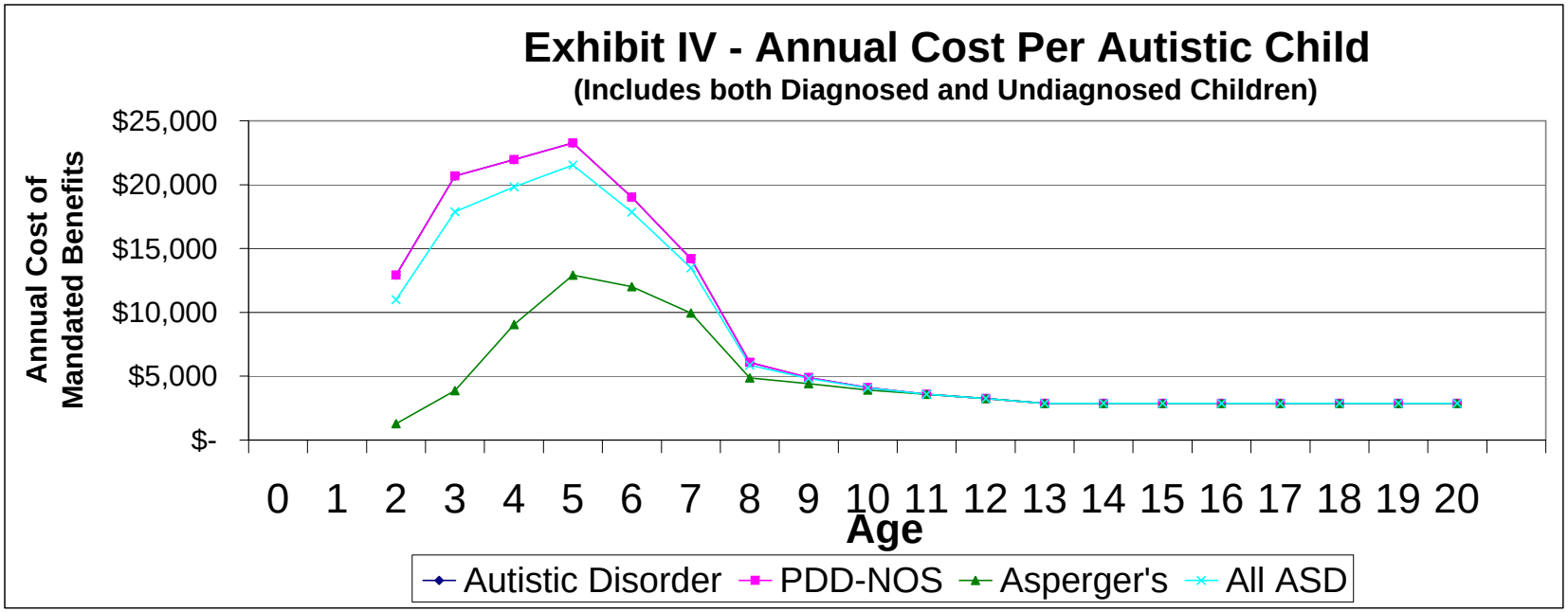
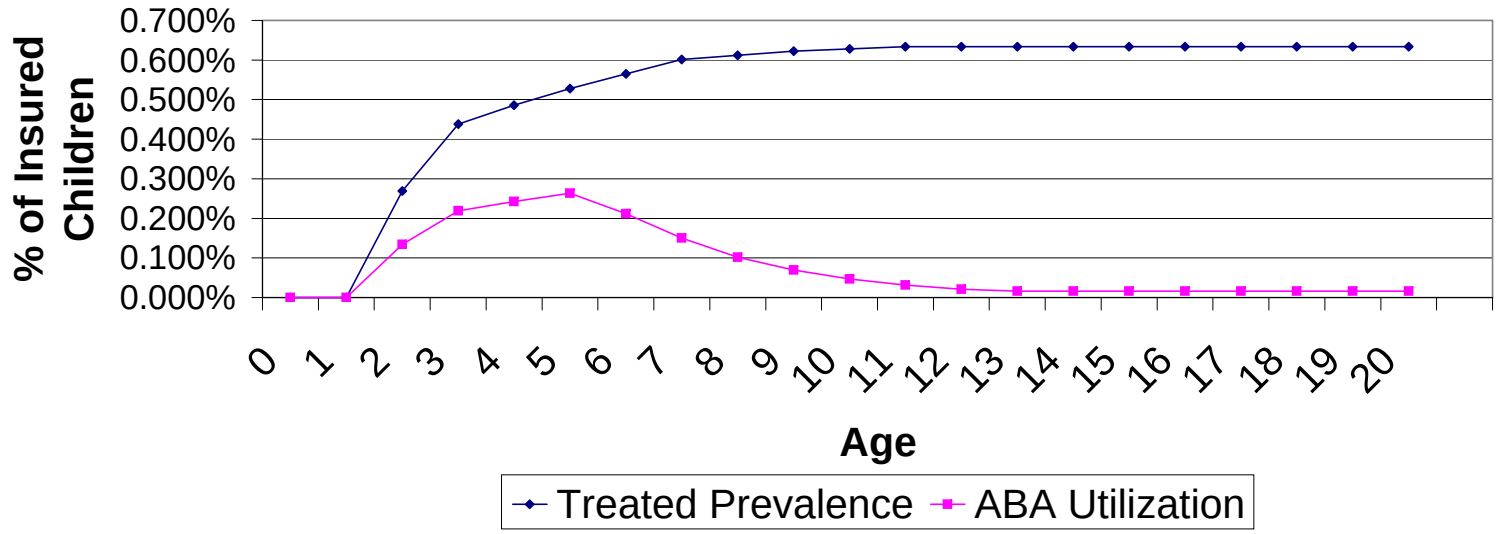


Exhibit IV - Annual Cost Per Autistic Child
(Includes both Diagnosed and Undiagnosed Children)
Annual Cost of Mandated Benefits
$25,000
$20,000
$15,000
$10,000
$5,000
$-
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
Autistic Disorder
PDD-NOS
Asperger's
All ASD

## Exhibit V - ABA Utilization vs. Treated Prevalence



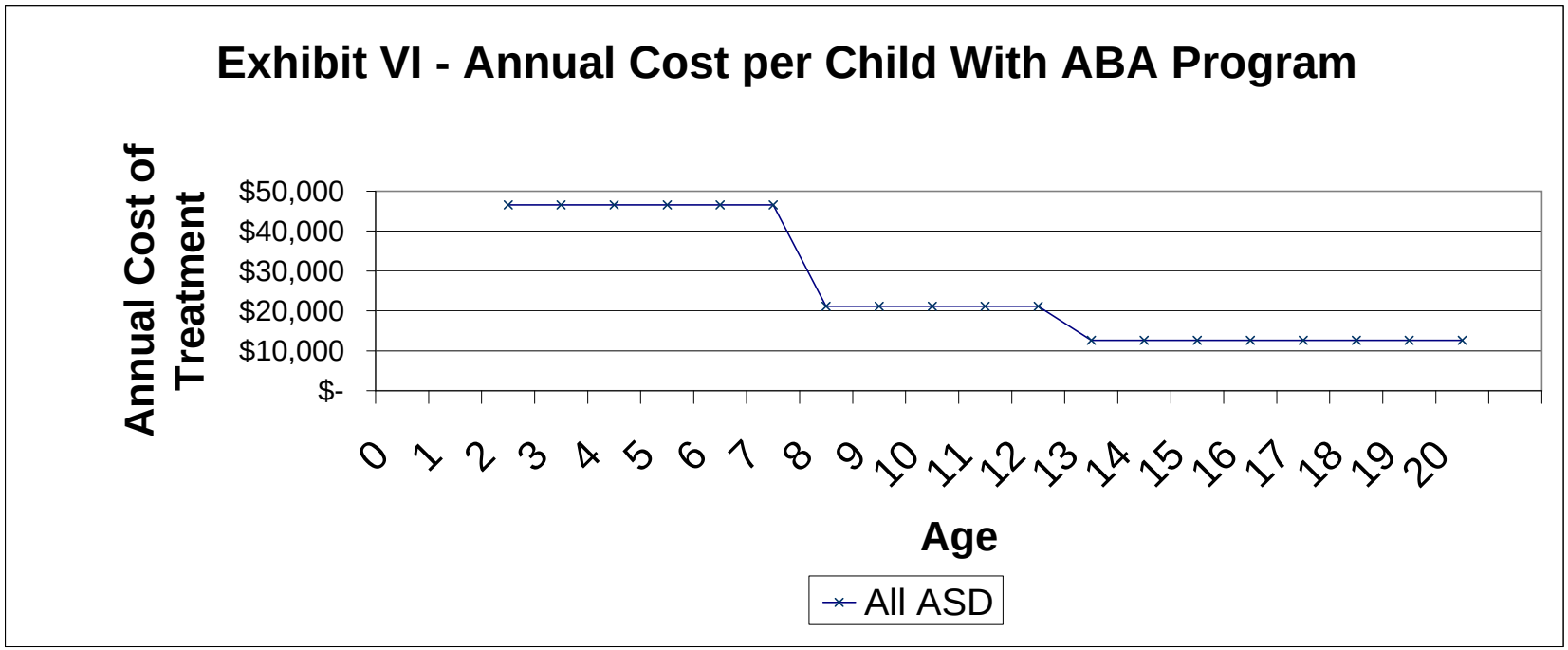


Exhibit VI - Annual Cost per Child With ABA Program
Annual Cost of Treatment
$50,000
$40,000
$30,000
$20,000
$10,000
$-
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
All ASD

OLIVER WYMAN

Two Logan Square, 22nd Floor
Philadelphia, PA 19103-2797
1 215 246 1000

Oliver Wyman Actuarial Consulting, Inc.