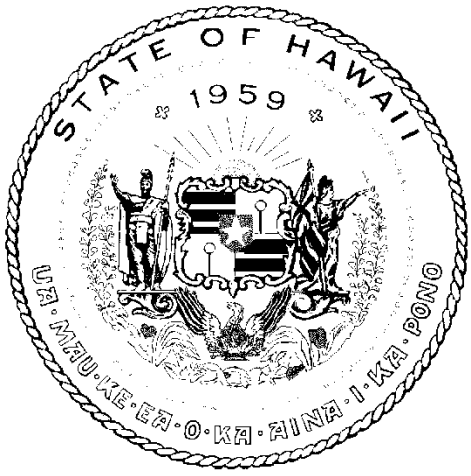

Report of the Actuarial Analysis of the Projected Costs of Providing Insurance Coverage for the Screening, Diagnosis, and Treatment of Autism Spectrum Disorders

In Accordance with Act 185 (SLH 2014)

Submitted by the

INSURANCE DIVISION
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
STATE OF HAWAII

December 2014

Foreword

Act 185 (SLH 2014) requires the Insurance Commissioner to submit to the Legislature a report that provides the results of an actuarial analysis of the projected costs of providing insurance coverage for screening, diagnosis, and treatment of autism spectrum disorders.

GORDON I. ITO
Insurance Commissioner

Report of the Actuarial Analysis of the Projected Costs of Providing Insurance Coverage for the Screening, Diagnosis, and Treatment of Autism Spectrum Disorders (2014)

Act 185 (SLH 2014) (or S.B. No. 2054, S.D. 3, H.D. 3, C.D. 1) requires the Insurance Commissioner to contract for an actuarial analysis of the projected costs of providing insurance coverage for the screening, diagnosis, and treatment of autism spectrum disorders and to provide a report of these findings to the Legislature.

The Division obtained the services of Wakely Consulting Group as the consulting actuary to perform the analysis and write the report, which is attached as Appendix A.

The Insurance Division's conclusions to the questions posed by Act 185 (SLH 2014) were reached by evaluating and commenting on similar studies of autism spectrum disorders done by the actuarial consulting firm of Oliver Wyman and by examining data provided by the Department of Human Services Medicaid program and other sources. The Division also conducted a data call of the Hawai`i health insurance industry. The responding health insurers made good-faith attempts to comply; however, due to the short timeframe required for submission of this report, the data provided was not consistent or credible enough to be included in this report.

For a number of years, the issue of a mandated benefit for autism spectrum disorders has been the subject of legislative debate. The Patient Protection and Affordable Care Act of 2010 ("PPACA") added further complexity to this issue.

Section 1311(d)(3) of the PPACA directs states to defray costs if they require qualified health plans to offer benefits in addition to the ten essential health benefits that the PPACA requires for small groups and individuals. Payments must be made on behalf of persons eligible for cost sharing reductions or premium tax credit subsidies. Any mandated state benefit enacted after December 31, 2011, that exceeds the PPACA essential health benefits must be paid for by the state, unless the mandate was enacted early enough in 2012 for inclusion in the benchmark plan for essential health benefits selected by the state.

It is not possible to accurately pinpoint the exact costs associated with covering autism spectrum disorders. Only estimates of costs can be made, and the actual results may vary from those predicted. Due to the lack of sufficient Hawai`i data, the Division lacks exact knowledge of the margin of error and cannot state exactly what the confidence intervals would be. Many variables will affect what happens in actual practice. In addition, costs may vary over time as both the incidence of diagnosis and the possibilities for treatment change.

The costs will also be related to the parameters set forth in any mandated benefit. The existence of standards for diagnosis and treatment and limits on the scope of the mandate will also affect the costs.

Additionally, the Legislature should consider to what extent, if any, the degree of control over the management of care for autism should be delegated to the insurers. In constructing a mandated benefit for autism, the Legislature must be mindful that some care providers are outside the field of credentialed medical providers and that supervision by licensed practitioners may be advisable.

Also, the line between those portions of autism which are covered by the government and those that are, or may be, covered by private insurance must be considered. It would be advantageous to have a system where there is effective coordination of care between government and the private sector.

APPENDIX A
Report of Wakely Consulting Group

APPENDIX A

Analysis of Costs of Insuring Certain Behavioral Health Treatments for Autism Spectrum Disorders (SB 2054)

State of Hawaii
Insurance Division
Department of Commerce and Consumer Affairs

December 5, 2014

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I. Executive Summary

Background and Scope of Work

Wakely Consulting Group, Inc. (Wakely) was retained by the State of Hawaii Insurance Division Department of Commerce and Consumer Affairs (State) to perform an analysis to determine the cost of insuring certain behavioral health treatments for children diagnosed as having an autism spectrum disorder (ASD) as identified in Senate Bill 2054, SD3, HD3, CD1 (SB2054). A detailed description of the scope of work included in this engagement is included in Appendix A of this report. A copy of SB2054 is included in Appendix B of this report.

SB2054 is intended to ensure the provision of quality health care and support early intervention of autism spectrum disorders by conducting an actuarial analysis to determine the cost impact to commercial health insurers and the Hawaii Medicaid program to cover the treatment of children diagnosed as having an ASD. SB2054 requires that the following factors be considered in the analysis:

1. Prevalence of ASDs compared to prevalence of treated ASDs (in other words, how may children diagnosed as having an ASD actually receive treatment for the ASD);

2. Intensity and frequency of treatment based on the ASD severity (in other words, the number of treatments and length of each treatment based on the severity of the ASD); and,

3. A tiered delivery model for ABA when used as a treatment for ASDs (in other words, a team of providers at a variety of professional levels are usually involved in ABA treatment).

Since this specific version of SB2054 does not include details on the types of treatments that will be included, eligibility requirements or benefit levels, we relied on previous versions of the bill and discussions with various parties (as documented throughout this report) to determine the types of treatment, eligibility requirements and benefits to consider in the analysis. While some previous versions of SB2054 state that the mandated coverage will include all services including well-baby and well-child screening, diagnosis, and evidence-based treatment of ASDs, we noted that many screening, diagnostic and behavioral health services are already covered by Hawaii insurers.

Therefore, based on our understanding of both the current coverage and SB2054, the primary change that is anticipated, should treatment of ASD services be mandated, is the coverage of certain behavioral health treatments. Specifically, the behavioral health treatments considered in Wakely's analysis were limited to applied behavioral analysis (ABA) services for children diagnosed as having an ASD. ABA services are defined as "…a scientifically validated approach to understanding and analyzing behavior and how it is affected by the environment. Behavior analysis has developed many techniques for increasing useful behaviors and reducing those that may cause harm or

interfere with learning. Applied behavior analysis (ABA) is the use of these techniques and principles to bring about meaningful and positive change in behavior." [C-1]

This report documents Wakely's assumptions, approach and results of the analysis.

Summary of Wakely's Analysis

Wakely's analysis included the following items:

- An independent projection of the costs of providing insurance coverage for ABA services used in the treatment of children diagnosed with an ASD, including the cost impact of providing similar coverage in Hawaii's Medicaid program.

- An evaluation of the February 26, 2014 Oliver Wyman report titled "ACTUARIAL COST ESTIMATE: HAWAII SENATE BILL 2054 SD1", hereinafter referred to as the "2014 OW Report" and the February 11, 2014 Department of Human Services (DHS) cost testimony regarding the coverage of behavioral health treatments for ASD in Hawaii's Medicaid program, hereinafter referred to as the "2014 DHS Report", to determine if the cost estimates in these studies are credible and reasonable.

We made the following general assumptions in performing our analysis:

- The only significant cost implications of SB2054 are related to the coverage of ABA services.

- Only children clinically diagnosed with an ASD will be eligible to have coverage for ABA services. We discuss the impact of expanding coverage eligibility in Section V of this report.

- In order to allow for greatest flexibility in benefit design considerations, no benefit limitations were assumed. However, we discuss the impact of annual benefit limitations in Section V of this report so the cost impact of such limitations can be considered in the final benefit design.

- Not all children who are diagnosed with an ASD receive treatment for the ASD, nor do all children diagnosed with an ASD seek ABA treatment.

- The use of ABA services varies based on the severity of a child's ASD.

- The amount of ABA services used by those who receive treatments varies based on the severity of a child's ASD.

- The cost of ABA services represents the average cost of a tiered delivery approach.

Wakely primarily relied on industry data in choosing the assumptions used in the development of the cost estimates in this report. Appendix C includes a detailed list of sources used. References

denoted as "C-#" throughout this report are references to the sources as listed in Appendix C. Following are the key assumptions used in determining the cost estimates:

- Annual ABA Program Hours by ASD Severity

Exhibit I.A Wakely Assumption: Annual ABA Hours by ASD Severity	
ASD Severity	Average Annual ABA Program Hours
Severe	731
Moderate	518
Mild	499
Total	600

- Prevalence of ASDs by ASD Severity

Exhibit I.B Wakely Assumption: Prevalence of ASD	
Severity	Children Diagnosed with an ASD
Severe	1 in 629
Moderate	1 in 292
Mild	1 in 211
Total	1 in 103

- ABA Utilization Rate by ASD Severity and Scenario

Exhibit I.C Wakely Assumption: Overall ABA Utilization Rate by Scenario				
Scenario	Overall ABA Utilization Rate Severe	Overall ABA Utilization Rate Moderate	Overall ABA Utilization Rate Mild	Overall ABA Utilization Rate – All Severities
High	41%	19%	9%	18%
Middle	37%	17%	8%	16%
Low	32%	15%	7%	14%

- ABA Unit Cost by Scenario

Exhibit I.D Wakely Assumption: ABA Unit Cost by Scenario	
Scenario	Average ABA Cost per Hour
High	$108
Middle	$90
Low	$72

Wakely developed high, middle and low cost estimates by varying two key assumptions in the analysis – ABA cost per hour and ABA utilization rate - to develop an estimated cost range.

Wakely also developed a five year cost estimate range based on an annual trend rate of 5% and adjustments for provider availability[1] and pent-up demand[2].

A detailed discussion of Wakely's approach, data sources, and assumptions used in the analysis is included in Section II of this report. Appendix D includes a full copy of the 2014 OW Report, which also includes a copy of the 2014 DHS Report.

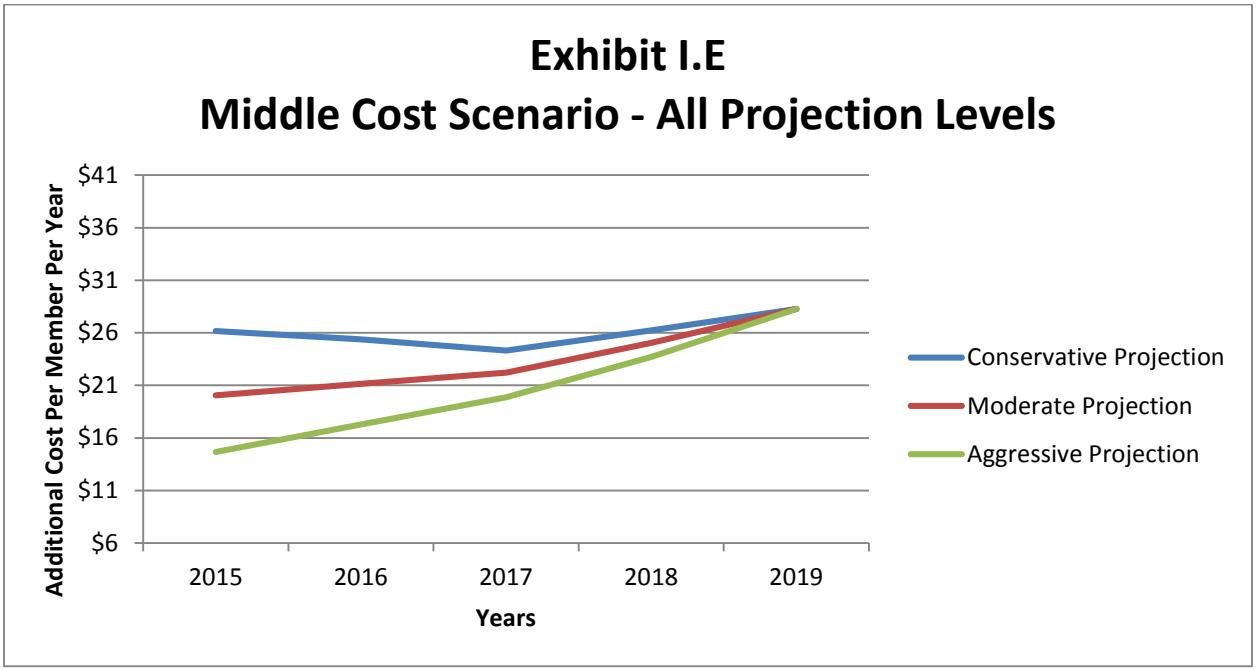
Results

Wakely developed an independent cost estimate using publicly available industry data. Our analysis included scenario testing to develop cost estimates under a range of assumptions. Our Middle Scenario estimate is that, in 2015, commercial claims costs would increase by about $20 per member per year (PMPY), or $1.67 per member per month (PMPM), for all insured members after adjustments for provider availability and pent-up demand. Assuming 15% administrative costs as a percent of premium, premiums would increase by about $24 PMPY in 2015. Our estimated range of 2015 premium increases is $17 to $31 PMPY based on our Low Scenario and High Scenario estimates. This equates to a range of $1.44 to $2.56 PMPM.

We also prepared a five year projection of claim costs, assuming 5% annual medical trend and incorporating adjustments for provider availability and pent-up demand. Since we recognize that the provider availability and pent-up demand factors could vary widely, our model assumes three different levels of these factors. These projection levels are referred to within this report as the "Conservative Projection," the "Moderate Projection," and the "Aggressive Projection." The chart

[1] Provider availability adjustments are made to reflect the potential initial limited supply of ABA providers in Hawaii.
[2] Pent-up demand adjustments are adjustments to reflect the anticipated increased utilization of newly covered services from members who previously had no access to treatment due to a lack of insurance coverage.

below shows the range of projections we believe are reasonable for years 2015 through 2019, given the "Middle" cost scenario as the ultimate cost expectation.



The projection results vary depending on the levels of provider availability and pent-up demand assumed (trend does not vary between each of the three projection levels), but we believe that the ultimate expected claim costs will converge at about $28 PMPY, or $2.36 PMPM.

We compared the results of our analysis to the results from the 2014 OW Report. After completing the comparison and review of the 2014 OW Report, Wakely concluded that the pricing approach underlying the results of the report is actuarially sound and that the results are reasonable.

A detailed discussion of the results of our analysis is included in Section III of this report.

We also considered the impact of providing coverage for ABA services on the Hawaii Medicaid program by making adjustments to the commercial cost estimate. In order to determine the impact, the commercial cost must first be converted to a "per child per year" amount to adjust for the difference in the proportion of children in the commercial insurance population vs. the Medicaid population. Our estimate indicates that on a "per child per year" basis, the additional cost for a Medicaid child is approximately 80% of the additional cost of a commercially insured child. A detailed discussion of the Medicaid considerations is provided in Section IV of this report.

Disclosures and Limitations

Wakely relied on others for the information used in performing this review and preparing this report. Please see *Reliance* in Section II of this report for a list of the information considered and reviewed.

The data provided were reviewed for reasonableness, but Wakely did not perform an independent audit or otherwise verify the accuracy of the information. See Appendix C for a detailed list of all data sources.

The result of our analysis is an estimate based on reasonable data and assumptions available at the time this report was written, as documented within this report. Actual costs may vary significantly from these estimates and will be based on a large number of factors including, but not limited to, the mandated benefits included in the final law (if passed), limitations on the benefits (number of visits or dollar limits), the population served (i.e. ASD or any developmental delay), provider availability and cost (including the impact of any potential provider licensing requirements), and member utilization of these services. Reliance on this report is at State's discretion. If this report is distributed, it should be provided in its entirety.

Comments Relative to Applicable ASOPs

Wakely's review and this report comply with all applicable Actuarial Standards of Practice (ASOPs). Details regarding the applicable ASOPs are presented in Appendix E.

II. Summary of Wakely's Analysis

A detailed discussion of Wakely's approach, data sources and assumptions follows.

Data & Reliances

Wakely relied on the following information when completing this analysis:

- Detailed discussion via telephone with the following key resources:
  - Jennifer Diesman from Hawaii Medical Service Association (HMSA) regarding the plan's current ASD benefits and eligibility parameters. 10/6/14
  - Justin Birrell from Milliman regarding the impact on the Medicaid program and available data sources. 10/9/14
  - Senator Rosalyn Baker regarding the history and scope of the bills related to the coverage of ASD treatments. 10/13/14

- Submitted data request templates from the following carriers:
  - Alohacare
  - Hawaii Medical Assurance Association (HMAA)
  - Hawaii Medical Service Association (HMSA)
  - Kaiser Foundation Health Plan, Inc. (Kaiser)
  - University Health Alliance (UHA)
  - UnitedHealthcare (UHC)

- Publicly available industry data regarding ASDs

Appendix C includes a detailed list of data sources used in this analysis.

Wakely's Approach

Wakely took a two-fold approach to creating an independent projection of costs. First, we collected data from the majority of health insurers in the state of Hawaii regarding the benefit structure and experience for any services related to the treatment of ASD. We developed a detailed data request intended to capture a multitude of information including, but not limited to the following:

1. Current coverage for ASD treatment options by type of service (including annual or lifetime limits, provider licensing requirements, pre-authorization requirements, and specific age and/or diagnosis requirements);

2. Prevalence of autism by diagnosis and by age; and

3. Claims, premium, and membership experience by diagnosis and by age.

We also requested experience for individuals without any ASD related diagnoses in order to help us gauge the relative differences among populations.

In general, the carrier data we received were not credible and consistent enough to be relied upon. Some carriers completed only the benefit coverage section of the template, and left the experience portion blank. Of those who did complete the experience portion, several carriers completed it only for members with an ASD diagnosis, but not for all other members, making it difficult to compare costs and understand prevalence rates. Some carriers reported rolled up data (not split by age or diagnosis) and others had missing lines of business or years. One carrier had seemingly reliable data, but in order to protect anonymity, we have chosen not to rely on this data for cost estimate purposes.

Additionally, as expected, very few carriers currently cover ABA services. Since we believe the majority of the added cost resulting from the mandated coverage of ASD services will be attributable to ABA services, we were required to rely on industry data, rather than Hawaii specific carrier data, for the majority of our source data and model inputs.

The more impactful component of our two-fold approach for developing an independent projection was industry research. We relied on several credible industry sources to aid us in evaluating the reasonability of the 2014 OW Report assumptions and developing our own best estimate assumptions. See Appendix C for a detailed list of all data sources.

Wakely's Assumptions

Since there was very little Hawaii specific data available, we determined it would be best to develop an estimated range of costs based on what we believe are reasonable data and assumptions. Actual costs will depend on a large number of factors including, but not limited to, the type and level of benefits, the population served, provider availability and cost, and member utilization of these services. In order to develop our cost estimate range, we made several assumptions about these factors. A detailed discussion of each assumption follows.

Benefit and Eligibility Assumptions

We assumed the only significant additional costs associated with the passing of SB2054 would be the added cost of covering ABA services. Therefore, our models are based on the cost and utilization of ABA services only.

We assumed the children eligible for coverage of ABA services would be children who were clinically diagnosed with an ASD where ABA services were determined to be medically necessary and provided by a licensed ABA provider. Therefore, our models are based on published ASD prevalence and ABA costs and statistics. Should additional children be eligible for coverage of ABA services, the results will vary significantly.

It should be noted that the criteria for the diagnosis of ASDs changed with the introduction of Diagnostic and Statistical Manual of Mental Disorders (DSM) version V, effective May 2013. There are studies that indicate this change may reduce the prevalence of diagnosed ASDs by up to 20%. However, the studies also indicate that there may be additional diagnoses of ASDs that would not have been captured in the previous DSM version that will compensate for some, if not all, of the decrease in diagnoses.[C-3] The results presented in this report assume no change in the prevalence of diagnosis of ASDs due to the implementation of DSM-V.

In order to allow the most flexibility in benefit design considerations, we assumed no annual benefit limitations would be associated with the ABA services. Limits on the benefits, such as annual dollar limits or number of visit limits, will cause the results to vary significantly. We have included discussions of the estimated impact of various benefit limitations and coverage for developmentally delayed children in Section V of this report.

Finally, children diagnosed with an ASD are typically divided into three severity categories based on the level of function loss apparent in their daily lives; severe, moderate, and mild. The severity of the ASD impacts the amount of services used by each child. We have incorporated these severity levels into our analysis.

Scenario Definition

We used three unique scenarios to develop a range of estimated costs. Each scenario varied only in the assumptions regarding *ABA unit cost*[3] and the overall *ABA utilization rate*[4]; all other assumptions were held constant among the three cost scenarios. Our scenarios are defined as follows:

Exhibit II.A
Wakely Assumption:
High, Middle and Low Scenarios

Scenario	Average ABA Cost per Hour	Overall ABA Utilization Rate
High	$108	18%
Middle	$90	16%
Low	$72	14%

Throughout the remainder of this report, we will refer to each of the scenarios defined above as the "High Scenario," "Middle Scenario," or "Low Scenario."

[3] *ABA unit cost* is defined as the average cost a provider will charge per hour of ABA service provided to a patient. This cost is varied within the context of this report for purposes of developing a cost estimate range.
[4] *ABA utilization rate* is defined as the percentage of patients diagnosed with an ASD who will seek ABA services. This varies based on age and ASD severity. The overall percentage is varied within the context of this report for purposes of developing a cost estimate range.

Annual ABA Program Hours

We based our assumption for annual *ABA program hours*[5] for children with an ASD on a report from the California Health Benefits Review Program (CHBRP) to the 2013-2014 State Legislature[C-2]. This report estimated the weighted average of annual total hours of intensive behavioral intervention therapies for children with an ASD to be nearly 40% lower than the weighted average of hours assumed in the 2014 OW Report. The table below displays our assumed annual ABA program hours for children diagnosed with an ASD.

Exhibit II.B
Wakely Assumption:
Annual ABA Hours by Age

Age Range	Annual ABA Program Hours Severe ASD	Annual ABA Program Hours Moderate ASD	Annual ABA Program Hours Mild ASD	Annual ABA Program Hours All Severities
Ages 0-7	930	698	698	801
Ages 8-12	416	312	312	349
Ages 13-20	249	187	187	209
Total – All Ages	731	518	499	600

We assumed a reduced number of annual ABA hours for the moderate and mild ASD severity levels as compared to the severe level. We have chosen to assume that when moderately or mildly autistic children receive ABA services their annual hours utilized are 75% of the amount of hours utilized by severely autistic children. We have assumed 600 hours per year on average, after being rolled up by age and severity.

ABA Utilization Rate

We based our assumption for the ABA utilization rate for children with an ASD on a news article from September of this year regarding the recent move to provide Medicaid coverage for ABA for autistic children in California[C-4]. This report notes that according to advocacy group Autism Speaks, about 1 in 6 eligible children will ultimately utilize behavioral health treatment based on medical necessity and other factors. The table on the following page shows our assumed ABA utilization rate by age for children diagnosed with an ASD for the Middle Scenario.

[5] *ABA program hours* is defined as the annual number of hours of ABA services each ASD patient will receive given they actually utilize ABA services. This varies based on age and ASD severity.

Exhibit II.C Wakely Assumption: ABA Utilization Rate by Age (Middle Scenario)				
Age	ABA Utilization Severe ASD	ABA Utilization Moderate ASD	ABA Utilization Mild ASD	ABA Utilization Total – All Severities
Ages 0-6	80%	40%	20%	42%
Age 7	60%	30%	15%	28%
Age 8	60%	30%	15%	28%
Age 9	40%	20%	10%	18%
Age 10	40%	20%	10%	18%
Age 11	27%	14%	7%	12%
Age 12	18%	9%	5%	8%
Age 13	18%	9%	5%	8%
Age 14	8%	4%	2%	4%
Age 15	8%	4%	2%	4%
Ages 16-20	5%	3%	1%	2%
Total – All Ages	37%	17%	8%	16%

The 2014 OW Report explained that in comparison to the severe level, the assumed utilization rate was half as much for the moderate level and one fourth as much for the mild level. We believe this assumption is reasonable and assumed the same relationship of utilization rates by severity level for our independent projection. We have assumed a 16% overall ABA utilization rate on average for our Middle Scenario, after being rolled up by age and severity.

ABA Unit Cost

We assumed ABA unit cost to be $90, which is approximately 50% greater than the $61 assumed for the "Middle" cost scenario in the 2014 OW Report. This assumption is supported by the report to the 2013-2014 California Legislature referenced above and also through Wakely interviews with multiple professionals in the industry[C-5]. As explained above, we used different amounts by scenario in order to develop an estimated cost range. To develop the low and high estimates, we applied the same cost relationships used in the 2014 OW Report.

Percentage of Children within Covered Population

Though not explicitly stated, it appears that the 2014 OW Report assumed approximately 29% of the current covered population is made up of children when determining the total cost per covered person. The carrier data we collected indicated a slightly higher proportion of children, therefore our independent projection is based on the assumption of 32% for the commercial population. The data considered was prior to the implementation of health reform in 2014 and were not adjusted to

reflect the impact of potential changes in the distribution of adults and children covered in the commercial market due to the implementation of health reform.

Prevalence of Autism

The 2014 Community Report on Autism, published by the Autism and Developmental Disabilities Monitoring Network[C-6], states that the *prevalence of autism*[6] for Pacific Islander children is 1 in 81, as compared to a national prevalence of 1 in 68. The 2014 OW Report used an overall prevalence of 1 in 88 with a dampening factor of 79% to account for the portion of children with a previously documented ASD classification. It is our understanding that this dampening factor is to adjust the prevalence to account for only those children who have been clinically diagnosed with an ASD. In other words, this assumes that 21% of children who exhibit ASD signs or symptoms are not yet clinically diagnosed with an ASD.

In building our independent cost projection we used the 1 in 81 mentioned above instead of the 1 in 88, but assumed the same 79% dampening factor. This resulted in a modeled prevalence of 1 in 103 versus the 1 in 111 used in the 2014 OW Report. The table below shows Wakely's assumption for ASD prevalence rates by severity.

Exhibit II.D
Wakely Assumption:
Prevalence of ASD

Severity	Children Diagnosed with an ASD
Mild	1 in 211
Moderate	1 in 292
Severe	1 in 629
Total	1 in 103

Projection Factors

After developing the 2015 cost estimates, we projected costs for five years assuming a 5% annual cost trend. We also incorporated provider availability factors to reflect the potential initial limited supply of ABA providers in Hawaii. Additionally, we incorporated pent-up demand factors to reflect the anticipated increased utilization of these services that may follow the passage of this law, from members who previously had no access to treatment due to a lack of insurance coverage.

While there is little research available on the exact magnitude of the provider availability and pent-up demand factors associated with beginning coverage of ABA services, Wakely strongly believes in the theories represented by such factors. Since we recognize that these factors could vary widely, our projections assume three different levels of provider availability and pent-up demand factors.

[6] *Prevalence of autism* is defined as the proportion of children who exhibit symptoms of an ASD. Prevalence varies by ASD severity. Not all children who exhibit symptoms of an ASD are clinically diagnosed as having an ASD.

These projection levels are referred to within this report as the "Conservative Projection," the "Moderate Projection," and the "Aggressive Projection." The table below demonstrates the impact of the "Moderate Projection" factors on Wakely's five year projection of costs.

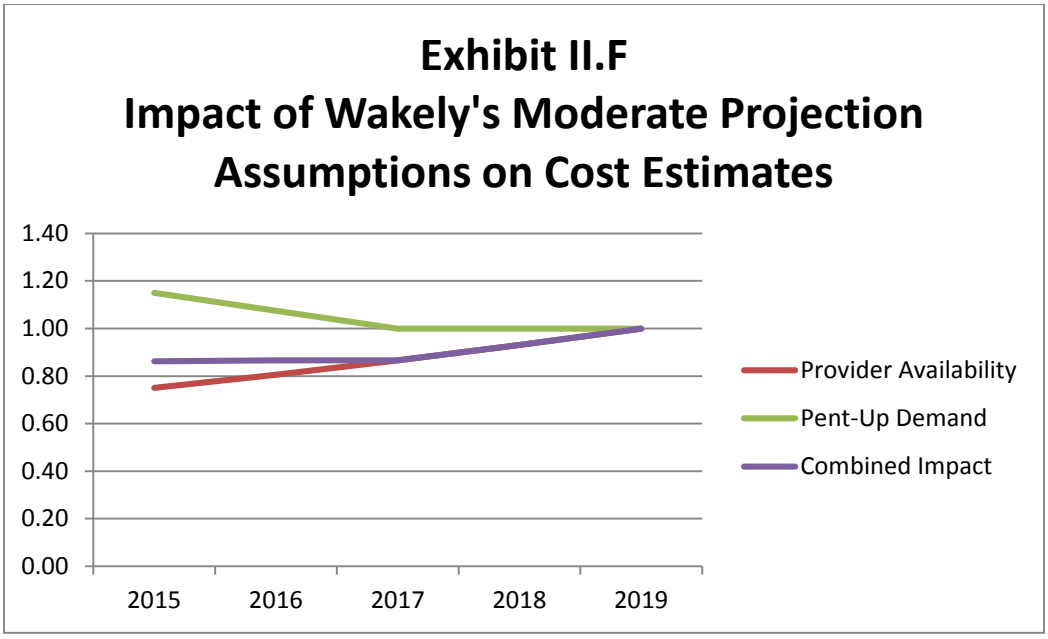
Exhibit II.E
Wakely Assumption:
Moderate Projection Factors

Year	Provider Availability	Pent-Up Demand	Combined Impact
2015	0.75	1.15	0.86
2016	0.81	1.08	0.87
2017	0.87	1.00	0.87
2018	0.93	1.00	0.93
2019	1.00	1.00	1.00

The provider availability factors start below one in 2015, indicating an expected shortage of ABA providers as compared to the demand for services, and end at 1.0 in 2019, year five of the projection, meaning that provider availability is no longer a factor in the utilization of services at that point.

The pent-up demand factors start above one in 2015, meaning that more services are expected relative to subsequent years, and end at 1.0 in 2017, year three of the projection, meaning that pent-up demand is no longer a factor in the utilization of services after the second year.

The chart below presents how the factors change and converge over time:



By the year 2019, the provider availability and pent-up demand factors are assumed to converge to 1.0. That is, our study assumes that everyone who is eligible for and desires use of these services receives them in a timely manner by the year 2019, resulting in an ultimate cost which will increase only by medical trend in subsequent years.

Differences in Assumptions between Wakely and 2014 OW Report

As a first step in evaluating the 2014 OW Report, Wakely built a cost model intended to reproduce the report results. We read the details included in the report regarding their general modeling process and incorporated all of the assumptions documented in Section 6 of the 2014 OW Report into our model. We filled in any apparent gaps with our best estimate of the assumptions used.

We were unable to exactly reproduce the results documented in the 2014 OW Report, but the results from our model were relatively similar to the reported results on a PMPM basis.

This re-pricing exercise served several purposes:

1. It helped us to verify the OW pricing approach.
2. It helped us to verify each of the assumptions employed.
3. It enabled us to evaluate the credibility and reasonability of OW's pricing approach and assumptions.
4. It provided a foundation for us to begin our independent projection of costs.

For purposes of Wakely's review, we recognize that two qualified actuaries could follow applicable ASOPs, each using reasonable methods and assumptions, and reach different, but reasonable, results. Therefore, we have allowed for differences in actuarial judgment in defining what we believe are reasonable assumptions, methods and results in our review.

There were some areas where our best estimate assumptions deviated significantly from those used in the 2014 OW Report. The significant differences are listed below:

1. Wakely assumed a higher ABA utilization rate.
2. Wakely assumed no benefit limits; OW assumed a $50,000 annual benefit limitation.
3. Wakely assumed lower annual ABA program hours.
4. Wakely assumed a higher ABA unit cost.
5. Wakely assumed a higher percentage of children within the covered population.
6. Wakely assumed a higher prevalence of autism.

The impact of the differences in these assumptions is discussed in Section III of this report.

III. Detailed Discussion of Findings

A detailed discussion of the findings of Wakely's analysis follows.

Wakely Cost Estimates - Commercial

Wakely developed an independent cost estimate using publicly available industry data. Our analysis included scenario testing to develop cost estimates under a range of assumptions. Our Middle Scenario estimate is that, in 2015, commercial claims costs would increase by about $23 PMPY, or $1.94 PMPM before making projection assumptions (discussed below). The following table presents the 2015 unadjusted claim cost estimate for the High, Middle and Low Scenarios on a PMPY and PMPM basis.

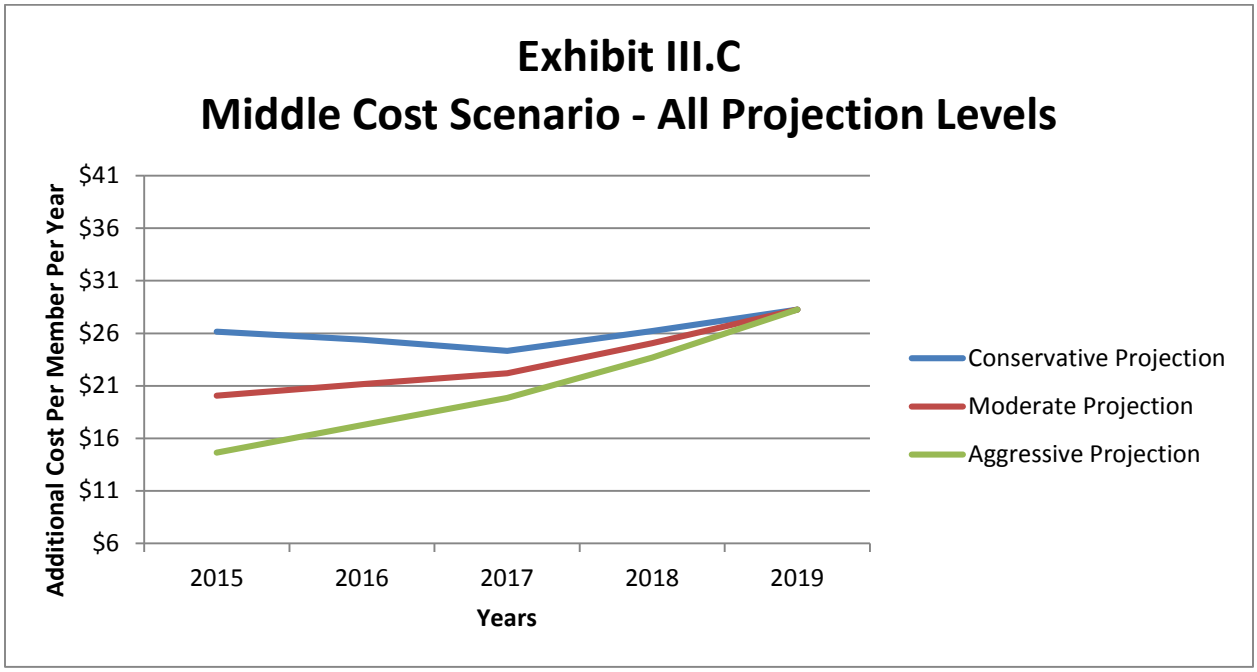
Exhibit III.A
2015 Unadjusted Additional Claim Cost Per Covered Person

Scenario	PMPY	PMPM
High	$31.31	$2.61
Middle	$23.26	$1.94
Low	$16.35	$1.36

Using these costs as a starting point, we projected costs for five years assuming a 5% annual cost trend and incorporating varying adjustments for provider availability and pent-up demand, as described in Section II. The table and graph below show the range of claim cost projections we believe are reasonable for years 2015 through 2019 using the Middle Scenario as the ultimate cost expectation.

Exhibit III.B
Additional Claim Cost Per Covered Person (PMPY)

Year	Conservative Projection	Moderate Projection	Aggressive Projection
2015	$26.16	$20.06	$14.65
2016	$25.38	$21.16	$17.27
2017	$24.32	$22.20	$19.86
2018	$26.22	$25.05	$23.69
2019	$28.27	$28.27	$28.27

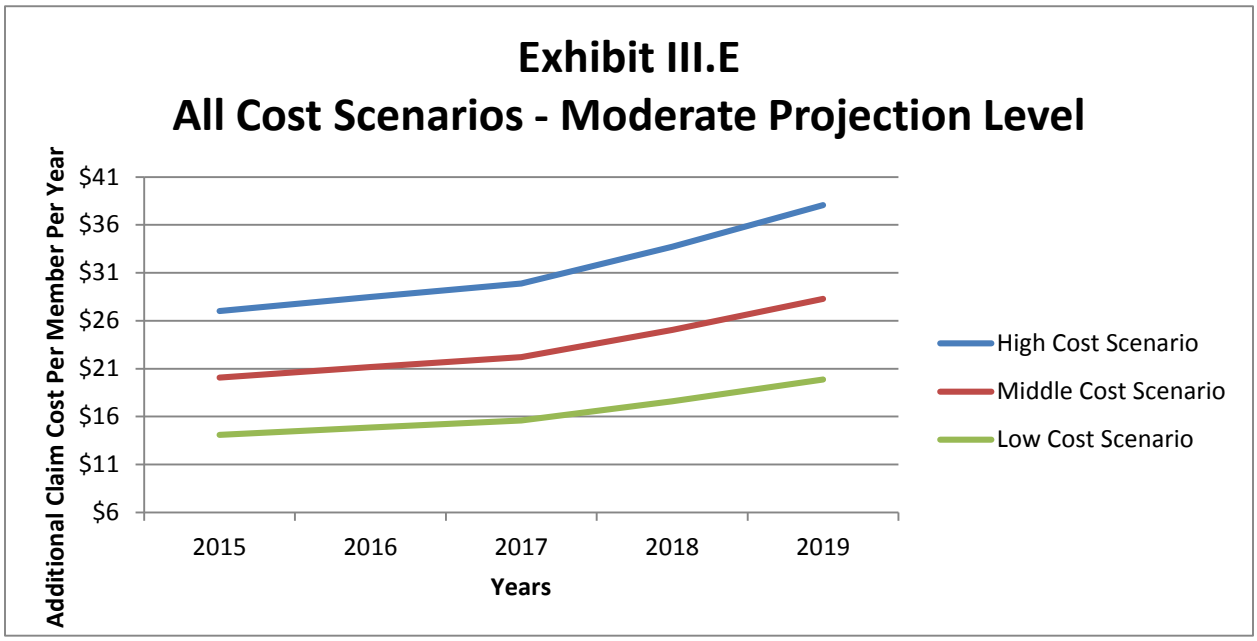


The projection results vary depending on the levels of provider availability and pent-up demand assumed (trend does not vary between each of the three projection levels), but we believe that the ultimate expected claim costs will converge at about $28 PMPY, or $2.36 PMPM, when both provider availability and pent-up demand are no longer a factor in the utilization of services.

Another way to look at the results is to start with all three cost scenarios, and then assume the Moderate Projection factors as a constant, as shown in the following table and graph.

Exhibit III.D
Wakely Projection Estimates
Using Moderate Projection Assumptions

Year	High Cost Scenario	Middle Cost Scenario	Low Cost Scenario
2015	$27.00	$20.06	$14.10
2016	$28.48	$21.16	$14.87
2017	$29.89	$22.20	$15.61
2018	$33.73	$25.05	$17.61
2019	$38.06	$28.27	$19.87



Note that the red line is the same in both graphs presented above.

Review of 2014 OW Report

After completing a thorough review of the 2014 OW report and the re-pricing exercise described above, Wakely concluded that the pricing approach underlying the results of the 2014 OW Report is actuarially sound and that the results are reasonable. While our Middle Scenario cost estimate of $1.94 PMPM is approximately double that of the 2014 OW Report result, this difference is small on a claims PMPM basis; approximately $1 more.

Impact of Differences in Assumptions between Wakely and 2014 OW Report

There were some areas where Wakely's best estimate assumptions deviated significantly from those used in the 2014 OW Report. The most notable differences are listed here along with the resulting impacts to the estimated cost levels. As shown in the last row of the following table, the overall difference between the Wakely cost estimate and the 2014 OW Report cost estimate is about $12 PMPY or $1 PMPM.

Exhibit III.F
Impact of Assumption Differences

	Additional Claims Cost Per Covered Person	
Difference in Assumption	**PMPY**	**PMPM**
Increased ABA Utilization Rate	$7.28	$0.61
No Annual Limit on Services	$5.57	$0.46
Decreased Annual ABA Program Hours	-$3.15	-$0.26
Increased ABA Unit Cost	$2.68	$0.22
Increased Percentage of Children in Covered Population	$2.30	$0.19
Increased Prevalence of Autism	$0.86	$0.07
Other (Unexplained Variance)	-$3.25	-$0.27
Total	$12.29	$1.02

The unexplained variance line in the table above could represent a combination of several factors including, but not limited to, the following:

1. Different distributions of children by age.

2. Different relationships between total annual ABA hours assumed for the moderate and mild ASD levels as compared to severe.

3. Different distributions of diagnosis by age (the average age of diagnosis is the same for Wakely and OW for all three severity levels and in total).

4. The assumed cost of non-ABA services.

The detailed assumptions regarding the distribution of children by age, the assumed ABA hours for moderate and mild ASD levels, the age of diagnosis distributions, and the type and amount of non-ABA services included were not explicitly listed in the 2014 OW Report, so Wakely made reasonable estimates based on the data available. In addition, as stated above, Wakely assumed the significant cost impact would be due to ABA services and our cost estimates do not include non-ABA services.

IV. Medicaid Considerations

Wakely Cost Estimates - Medicaid

Wakely reviewed OW's approach to calculating the cost of providing ABA benefits to the Medicaid enrollees in Hawaii and determined that the methodology was sound and the results were reasonable, but moderately aggressive. The following table summarizes our approach to calculating the impact on Medicaid costs. The general approach was to begin with the unadjusted commercial claim cost estimates and then make a series of adjustments to convert these costs to Medicaid estimates.

Exhibit IV.A
Wakely Additional Claim Cost Estimates – Medicaid

Step	Cost Scenario	Low	Middle	High
1	Additional Cost Per Covered Person	$16.35	$23.26	$31.31
1	Additional Cost Per Covered Child	$50.86	$72.37	$97.43
2	Prevalence Adjustment	1.000	1.000	1.000
3	Age at Diagnosis Adjustment	0.900	0.906	0.930
4	Provider Cost Adjustment	0.950	0.975	1.000
5	Adherence Adjustment	0.850	0.900	0.950
6	Additional Cost Per Medicaid Child	$36.97	$57.51	$86.08
6	Estimated Hawaii Share (Assuming 50% Federal)	$18.49	$28.76	$43.04

Each step in determining the Medicaid additional claims cost estimate is described in detail below.

1. First, for all three cost scenarios, the calculated cost per covered person in the commercial analysis was converted to a cost per covered child using the assumed portion of children aged 0-18.

2. In the 2014 OW Report an explicit adjustment was made to reduce the prevalence of ASD in the Medicaid population. Wakely used a prevalence adjustment of 1.0 (i.e. no adjustment) because we did not find industry data supporting such a reduction.

3. As mentioned in the 2014 OW Report, research indicates that ASD is diagnosed later in life for individuals in low income families near the poverty level. OW modeled the cost impact of assuming that individuals would be diagnosed six months later than the distribution assumed in their commercial estimate and arrived at an adjustment of 0.91. Wakely modeled this same change in our independent pricing model and got the same result; 0.906 to be exact. This value was used for the "Middle" cost scenario and the adjustment was modified slightly for the "Low" and "High" cost scenarios. Our research didn't give us any reason to deviate from these assumptions.

4. According to the 2014 OW Report, Medicaid programs typically reimburse providers at lower rates than commercial payers. We have assumed the same concept in our pricing model, but dampened the magnitude from a 5% discount to a 2.5% discount, after a conversation we had with Justin Birrell regarding Medicaid implications. It is his understanding that more Medicaid providers are seeking to be reimbursed at commercial contract levels.

5. We have relied upon the OW assumptions for the anticipated lower ABA program adherence for Medicaid versus Commercial enrollees. We have not found any support for changing these factors.

6. We calculate the additional claims cost estimate for the provision of ABA benefits to the Hawaii Medicaid enrollees by multiplying all of the items described above, resulting in a cost estimate range of $37 to $86 per year ($3 to $7 per month) per eligible Medicaid child. If we assume this will be shared approximately 50/50 with the Federal Government, the estimated Hawaii share would range from $18 to $43 per eligible Medicaid child per year or $1.50 to $3.50 per eligible Medicaid child per month. Based on the July 7, 2014 memo from the Center for Medicare and Medicaid Services (CMS), states have numerous options for being reimbursed for the coverage of services to treat ASDs under various authorities.[C-7]

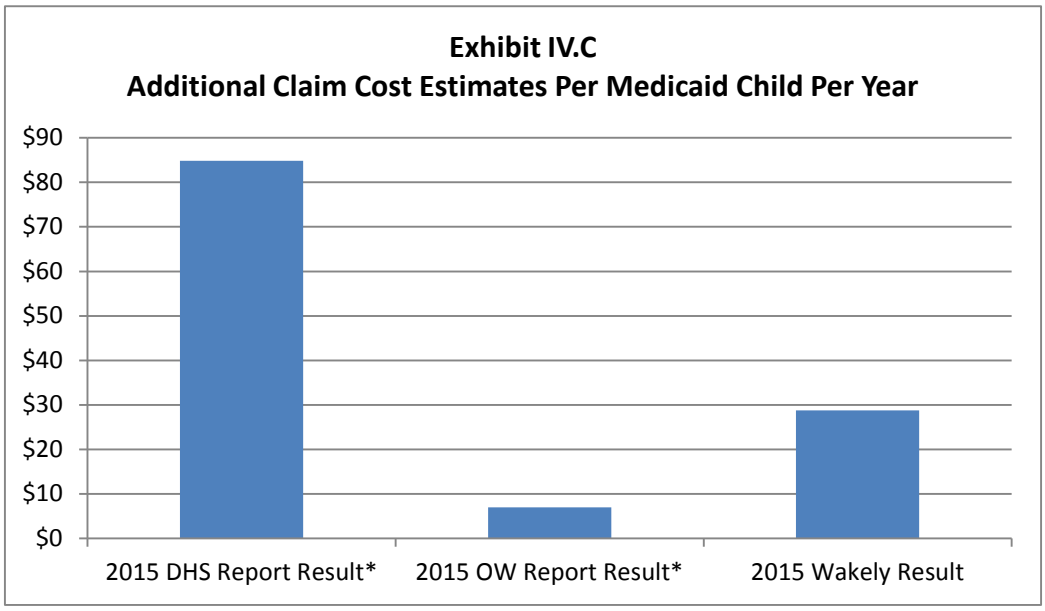
The amounts shown above are 2015 estimates under each of Wakely's cost scenarios, without any adjustments for provider availability or pent-up demand. The "Conservative Projection," the "Moderate Projection," and the "Aggressive Projection" assumptions described above for the commercial population can also be applied to the Medicaid cost estimates in order to prepare a five year projection of costs. It should be noted, however, that our research indicates that pent-up demand may be less significant for the Medicaid population as compared to the commercially insured population.

Wakely Review of 2014 DHS Report

Wakely also briefly reviewed the "2014 DHS Report" regarding the coverage of behavioral health treatments for ASD in Hawaii's Medicaid program. This report indicated a far greater estimated cost for providing ABA services to the Medicaid population of Hawaii than the amounts calculated by either OW or Wakely as illustrated in the table and graph below.

Exhibit IV.B
Additional Cost Per Medicaid Child Per Year
Estimated Hawaii Share (Assuming 50% Federal)

Cost Scenario	2015 DHS Report Result*	2015 OW Report Result*	2015 Wakely Result
Middle	$84.89	$6.92	$28.76



*Trended 2014 result to 2015 using 5% annual trend.

Several reasons for this large discrepancy are listed in the 2014 OW Report. One of the most significant of these reasons is that the DHS cost estimates include cost for children with developmental delays. That is, their analysis does not restrict coverage of ABA services only to children who have been diagnosed with an ASD.

V. Impact of Other Potential Provisions

Impact of Including Developmental Delays

Wakely completed a separate analysis to assess the impact of including all children with developmental delays in the cost estimate of providing coverage for ABA services. According to a survey conducted by the CDC[C-8], the population of children with a developmental delay other than autism is about 1.5 times as large as the ASD population. Additionally, these children utilize ABA services about half as often as autistic children do. We modeled the pricing impact of adding these children and determined that this would increase the estimated costs by almost 75%.

Impact of Benefit Limitations

OW assumed a $50,000 annual benefit maximum in calculating their estimates. As noted above, Wakely priced the costs of providing insurance coverage for ABA services used in the treatment of children diagnosed with an ASD assuming no benefit limit. We did, however, model the impact of including certain limits. The table below presents the estimated impact of these limits.

Exhibit V.A
Annual Benefit Limit Estimated Impact on Claim Cost

Annual Limit	Claim Cost PMPY	Change in Claim Cost PMPY	Claim Cost PMPM	Change in Claim Cost PMPM	As % of Unlimited Cost
No Limit	$23.26	$0.00	$1.94	$0.00	100%
$75,000	$22.29	-$0.97	$1.86	-$0.08	96%
$50,000	$17.69	-$5.57	$1.48	-$0.46	76%
$25,000	$10.51	-$12.75	$0.88	-$1.06	45%

VI. Conclusion

The results of our analysis are based on reasonable data and assumptions available at the time this report was written, as documented within this report. The techniques and methods used abide by generally accepted actuarial principles and ASOPs. The true results will be based on actual cost and utilization of covered services, may vary significantly from the estimates presented in this report, and may take up to two or three years to be fully realized.

The impact between various commercial insurance markets was beyond the scope of this engagement and has not been considered in this analysis. Should coverage for the treatment of ASDs be mandated only for a particular subset of the commercial insurance market there may be a significant anti-selection issue generated among the various markets. For example, if coverage is only mandated for "off-exchange" plans and not mandated for "exchange" plans, the off-exchange plans may get a disproportionate share of children with ASDs enrolled in those plans.

Finally, while understanding the medical cost impact of covering the treatment of ASDs is important, there are other social and economic benefits which may offset the increase in medical costs that are not considered in the results presented in this report.

Appendix A: Scope of Work

The scope of work for this engagement included:

a) Evaluate the 2014 study on Hawaii autism costs by Oliver Wyman, including the source information;

b) Evaluate the data and studies on autism from Hawaii's Medicaid program;

c) Determine if the cost estimates in these studies are credible and reasonable;

d) Project the costs of providing insurance coverage for the screening, diagnosis, and treatment of autism spectrum disorders based on the data in (a) and (b) and other publicly available data;

e) Project the cost impact of providing autism coverage on Hawaii's Medicaid program;

f) Submit a written report on these topics in accordance with SB 2054, CD 1 in sufficient time for the insurance commissioner to submit a report to the legislature no later than twenty days prior to the convening of the 2015 session of the Hawaii Legislature; and,

g) Testify publicly about the findings of the report, including testimony at the Hawaii Legislature.

Appendix B: SB 2054

THE SENATE
TWENTY-SEVENTH LEGISLATURE, 2014
STATE OF HAWAII

S.B. NO. 2054 S.D. 3 H.D. 3 C.D. 1

A BILL FOR AN ACT

RELATING TO HEALTH.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The purpose of this Act is to ensure the provision of quality health care for Hawaii residents and support early intervention of autism spectrum disorders by requiring the contracting of an actuarial analysis of the projected costs of providing insurance coverage for the screening, diagnosis, and treatment of autism spectrum disorders.

SECTION 2. (a) The insurance commissioner shall contract for the performance of an actuarial analysis by a licensed actuary who is a member in good standing with the American Academy of Actuaries of the projected costs of providing insurance coverage for screening, diagnosis, and treatment of autism spectrum disorders.

(b) The actuarial analysis shall:

(1) Include a statement by the actuary certifying that the techniques and methods used are generally accepted within the actuarial profession and that the assumptions and cost estimates used are reasonable;

(2) Provide a financial analysis of the cost of providing insurance coverage for screening, diagnosis, and treatment of autism spectrum disorders, including an estimate of the cost benefits and the cost impact to the Hawaii medicaid market; and

(3) Specifically consider the following factors and their impact on the cost of providing insurance coverage or medicaid coverage:

(A) The prevalence of autism spectrum disorders compared to the prevalence of treated autism spectrum disorders;

(B) The intensity and frequency of treatment provided depending on the severity of the diagnosis of autism spectrum disorders; and

(C) The tiered service delivery model of applied behavior analysis as a treatment for autism spectrum disorders.

(c) The actuarial analysis shall be completed and submitted to the insurance commissioner in sufficient time for the insurance commissioner to submit a report to the legislature, including findings, recommendations, and proposed legislation, if any, based on the results of the actuarial

analysis no later than twenty days prior to the convening of the regular session of 2015.

(d) For the purpose of contracting for the actuarial analysis, the insurance commissioner shall be exempt from compliance with chapter 103D, Hawaii Revised Statutes.

SECTION 3. There is appropriated out of the general revenues of the State of Hawaii the sum of $50,000 or so much thereof as may be necessary for fiscal year 2014-2015 to contract for the performance of the actuarial analysis required under this Act.

The sum appropriated shall be expended by the department of commerce and consumer affairs for the purposes of this Act.

SECTION 4. This Act shall take effect upon its approval; provided that section 3 shall take effect on July 1, 2014.

Appendix C: Data Sources

1. Autism Speaks: http://www.autismspeaks.org/what-autism/treatment/applied-behavior-analysis-aba (as of November 24, 2014)

2. California Health Benefits Review Program - Analysis of Senate Bill 126: Health Care Coverage: Pervasive Developmental Disorder or Autism (File: SB126_13_FullReport.pdf): http://chbrp.ucop.edu/index.php?action=read&bill_id=135&doc_type=3 (as of November 24, 2014)

3. CDC, Potential impact of DSM-5 criteria on autism spectrum disorder (ASD) prevalence estimates: http://www.cdc.gov/ncbddd/autism/features/impact-dsm5.html (as of December 5, 2014)

4. California To Start Medicaid Coverage Monday for ABA For Autism: Advocacy News, Autism Speaks: http://www.autismspeaks.org/advocacy/advocacy-news/california-start-medicaid-coverage-monday-aba-autism (as of November 24, 2014)

5. Jenny Armanious, Board Certified Behavior Analyst
   Stacey Peters, School Based Behavior Specialist

6. Autism Spectrum Disorder (ASD) Data & Statistics (File: CDC _ Data and Statistics _ Autism Spectrum Disorder (ASD) _ NCBDDD.pdf): http://www.cdc.gov/NCBDDD/autism/data.html (as of November 24, 2014)

7. CMS, Clarification of Medicaid Coverage of Services to Children with Autism, July 7, 2014

8. CDC, Survey of Pathways to Diagnosis and Services, 2011

Appendix D: Oliver Wyman Report

OLIVER WYMAN

ACTUARIAL COST ESTIMATE: HAWAII SENATE BILL 2054 SD1

THE PURPOSE OF THIS ACT IS TO ENSURE THE PROVISION OF QUALITY HEALTH CARE FOR ALL HAWAII RESIDENTS BY REQUIRING COVERAGE OF TREATMENT FOR AUTISM SPECTRUM DISORDERS: "LUKE'S LAW"

February 26, 2014

Marc Lambright, FSA, MAAA

MARSH & McLENNAN COMPANIES

CONTENTS

1

Executive Summary

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) has been engaged by Autism Speaks to develop a cost model in order to analyze and estimate the impact of commercial insurance and Medicaid benefits for autism spectrum disorders (ASDs) under Hawaii Senate Bill 2054 SD1 that will be referred to as SB 2054 throughout this report.

The most significant class of treatments covered under SB 2054 is behavioral health treatments, which is referred to as applied behavior analysis, or "ABA," throughout this document, since ABA is one of the most common behavioral health treatments and the general approach and costs for ABA are assumed to be similar to those of other intensive behavioral health treatments. The key provisions of SB 2054 are explained further in Section 4 of this report.

Our analysis involved developing a robust model that reflects the likely behavior of consumers, providers and insurers of ABA services, and includes Hawaii demographic and insurance market information. Key assumptions, including the treated prevalence of ASD, the age of diagnosis, ABA program utilization by age, ABA annual costs by age, and additional other (i.e., non-ABA) medical costs, as well as the modeling methodology are explained in detail in Sections 5 and 6 of this report and summarized through graphs in the Appendices.

Our analysis included scenario testing to develop cost estimates under a range of assumptions. Our "Middle" estimate is that, in the long-term, commercial claims costs would increase by about 0.23% of premiums and premiums would increase by about 0.28% should SB 2054 be enacted. Our estimated range of long-term premium increases is 0.15% to 0.46% based on our "Low" and "High" estimates.

We expect that commercial premium increases would be lower in the years immediately following the passage of a law consistent with the provisions of SB 2054, with first year premium increases in the range of 0.05% to 0.31%. Our expectation of lower first year costs is based on experiences in other states that have seen low initial costs when ASD benefits were first covered. These lower costs can be expected due to the lags typically seen in accessing new benefits and the limited supply of ABA providers.

The estimated long-term cost increases for our "Middle" scenario, along with some statistics for the individual, small, and large group markets, are shown in the table below.

Long-Term Cost Estimates - "Middle" Scenario Commercial Group Markets

	Market		
	Small Group	Large Group	Total Group
Covered Persons	131,000	231,000	362,000
Average Premium per Person	$4,700	$4,700	$4,700
Annual Claim Cost per Covered Person	$11.00	$11.00	$11.00
Claim Cost as a Percentage of Premium	0.23%	0.23%	0.23%
Estimated Premium Increase with Admin @ 15%	$12.90	$12.90	$12.90
Premium Increase as a Percentage of Premium	0.28%	0.28%	0.28%

For our scenario testing we varied the assumptions that drive cost estimates. The assumptions under the "Low," "Middle," and "High" scenarios and premium increase estimates are summarized in the table below.

Scenario Testing: Commercial Long-Term Cost Estimates

Scenario	% Severe ASD Diagnosed Under Age 8 Starting ABA	ABA Cost Per Hour	Avg. Annual non-ABA Cost	Annual Premium Increase per Covered Person	Premium Increase (% of Premium)
Low	50.0%	$49	$600	$7.10	0.15%
Middle	65.0%	$61	$1,200	$12.90	0.28%
High	80.0%	$73	$1,800	$21.50	0.46%

In addition to commercial insurance benefits, SB 2054 or similar legislation could potentially result in ABA benefits being provided to Medicaid enrollees. We estimated the additional costs of extending ABA benefits to Medicaid enrollees using the same methodology as we used to develop the commercial market estimates. However, we made some modest adjustments to reflect characteristics of Medicaid program enrollees, provider costs, and utilization patterns. The tables following summarize the long-term cost estimates should benefits similar to those required by SB 2054 be required of the Medicaid program, as well as the possible progression of those costs. Details of this Medicaid analysis can be found in Section 8 of this report.

Long-Term Cost Estimates – Medicaid

SB 2054 Medicaid Cost Estimate			
Medicaid Eligible Children (0-18 Years Old)	154,000		
	Low	**Middle**	**High**
Commercial Per Child (0-18 Years Old) Per Year	$20.74	$37.62	$62.45
(1) Medicaid Estimate Assuming Commercial Costs	$3,194,000	$5,794,000	$9,618,000
(2) Prevalence Adjustment	0.80	0.90	0.95
(3) Age at Diagnosis Adjustment	0.90	0.91	0.93
(4) Provider Cost Adjustment	0.90	0.95	1.00
(5) Adherence Adjustment	0.85	0.90	0.95
Medicaid Estimate= (1)x(2)x(3)x(4)x(5)	$1,759,000	$4,059,000	$8,076,000
Estimated Hawaii Share (assuming 50% Federal)	**$879,500**	**$2,029,500**	**$4,038,000**

Progression of Costs Estimates – Medicaid

Scenario	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 and Beyond
Low	$293,000	$410,000	$528,000	$645,000	$762,000	$879,500
Middle	$1,015,000	$1,218,000	$1,421,000	$1,624,000	$1,827,000	$2,029,500
High	$2,692,000	$2,961,000	$3,230,000	$3,500,000	$3,769,000	$4,038,000

(Estimates in 2014 Dollars)

While this analysis focused primarily on estimating the insured costs of covered medical benefits associated with SB 2054, in Section 9 we summarize information related to the lifetime costs of ASD, which include the costs associated with medical services, education, custodial care, and the lost productivity and wages of individuals affected by ASD, as well as their family caregivers.

Section 9 also references several studies that would suggest that the costs of ABA treatments covered under SB 2054 could be recovered through reductions in educational and medical expenditures. Benefits associated with successful treatments would be expected to reduce future costs of caring for individuals with ASD, and improve both the productivity and the quality of life for individuals with ASD, as well as their family caregivers.

2

Background

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) has been engaged by Autism Speaks to develop a cost model in order to analyze and estimate the impact of legislation providing for additional insurance benefits for autism spectrum disorders (ASDs) on insurance premiums. As part of this work, Oliver Wyman has developed a range of independent estimates of the impact of SB 2054 on insurance premiums, which provides coverage for the diagnosis and treatment of ASDs.

Oliver Wyman is a part of the Marsh & McLennan family of companies. With 80 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 seventeen 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 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 SB 2054 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.

3

Scope and Limitations

The intent of this analysis is to provide a reasonable range of estimates for the incremental insured costs of the ASD benefits provided for by SB 2054 and the associated premium impact on the Hawaii commercial insurance market, as well as the Hawaii Medicaid program should similar benefits be covered by Medicaid. This analysis also identifies and partially quantifies identified offsetting cost savings associated with successful ASD treatment.

We note that cost estimates associated with autism coverage legislation have varied widely state to state based on state specific differences in legislation and the methods and assumptions used in estimating costs, though typically independent estimates show premium increases due to legislation covering additional autism benefits of less than 1%. A growing amount of actual cost data shows that the initial costs associated with autism insurance laws similar to SB 2054 have been low. This emerging experience is discussed in Section 5.

While the ultimate cost of covering ABA benefits is uncertain, this analysis reflects the likely behavior of consumers, providers, and insurers of ABA services in developing the assumptions underlying the cost estimates. Likewise, the additional costs for medical services other than ABA are uncertain. Insurance policies often cover certain services for children diagnosed with an ASD, although the legislation could cause the insured costs for these services to increase because ASD exclusions or limitations are common. Certain services that may have been initially denied or terminated following utilization review or benefit limitations might be covered with the passage of legislation consistent with SB 2054.

4

Description of Key SB 2054 Provisions and Their Impact on Covered Benefits

Insurance Markets Covered by SB 2054

The Bill States:

- *Each individual or group accident and health or sickness insurance policy, contract, plan, or agreement issued or renewed in this State after July 1, 2014, shall provide to the policyholder and individuals under twenty-one years of age covered under the policy, contract, plan, or agreement, coverage for the screening, including well-baby and well-child screening, diagnosis, and evidence-based treatment of autism spectrum disorders*
- The bill also includes identical language *for individual or group hospital or medical service plan, policy, contract, or agreement,* and *health maintenance organizations.*

The bill therefore applies to individual and group comprehensive medical policies issued in Hawaii.

Covered Benefits

SB 2054 provides for "*treatment for an autism spectrum disorders"* which is defined as follows:

"Treatment for autism spectrum disorders" includes the following care prescribed or ordered for an individual with an autism spectrum disorder by a licensed physician, psychiatrist, psychologist, licensed clinical social worker, or nurse practitioner if the care is determined to be medically necessary:

(1) Behavioral health treatment;
(2) Pharmacy care;
(3) Psychiatric care;
(4) Psychological care; and
(5) Therapeutic care."

The inclusion of "*behavioral health treatment*" which is defined as *evidence-based counseling and treatment programs, including applied behavior analysis, that are:*

(1) Necessary to develop, maintain, or restore, to the maximum extent practicable, the functioning of an individual; and

(2) *Provided or supervised by a board-certified behavior analyst of by a licensed psychologist so long as the services performed are commensurate with the psychologist's formal university training and supervised experience* is especially important. The coverage of these types of programs has the most significant impact on the cost of benefits covered under SB 2054.

ABA may include 30 - 40 hours of therapy a week, though many programs would not utilize that level of resources. Also, SB 2054 limits benefits for ABA by including the following:

"*(c) Individual coverage for behavioral health treatment provided under this section shall be subject to a maximum benefit of $50,000 per year and a maximum lifetime benefit of $300,000, but shall not be subject to any limits on the number of visits to an autism service provider."*

Our analysis and the cost estimates cited in this report consider that insurers will limit ABA benefits to $50,000 per year. Should these caps be eliminated, we would expect claims costs to increase by about 30% to 70%, varying by scenario. Key assumptions underlying our ABA cost estimates are outlined in Section 6.

5

Modeling Methodology

The following discussion outlines the general modeling methodology used to develop our cost estimates. Estimates were developed both on a per covered person per year basis and as a percentage of average annual premiums, as shown in Section 7. Details of key assumptions are discussed in Section 6 and illustrated graphically in the exhibits shown in the Appendix.

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 funded through insurance coverage would be in line with CDC diagnosed prevalence estimates. We would expect that it would take a minimum of several years for both the supply of providers to meet the demand for ASD services and for parents of autistic children to aggressively seek treatment of their children's disorders.

In spite of these real limitations that will likely limit short-term costs associated with autism benefits covered under SB 2054, we feel that it is appropriate from a public policy perspective to look at the costs over a longer term 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 long-term estimates with this in mind.

Acknowledging that short-term costs are also important to policymakers, in the following discussion outlining our cost estimates, we have included illustrative exhibits showing the possible progression of costs by assuming that initial costs would be considerably lower than long-term estimates consistent with the experiences of other states. We also assumed that it would take five years for costs to reach their ultimate levels, and varied the initial cost and growth assumptions by scenario.

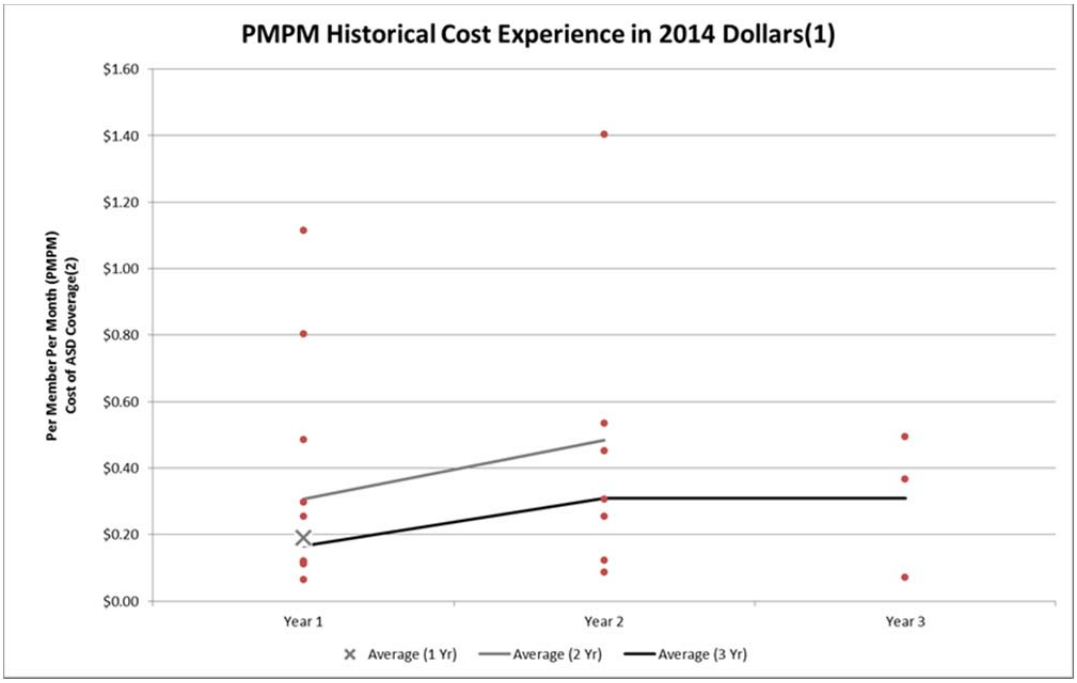
Emerging Cost Experience for Autism Coverage

While actual cost experience is limited, several states or state agencies have released cost information related to autism coverage. This cost information varies from state to state and the following need to be considered when utilizing this data to develop cost estimates:

1. **Time Period for Cost Data**- note that we would anticipate costs for the services subject to SB 2054 to increase over time, due to expectations of increased provider capacity and awareness of treatment options following the passage of autism insurance legislation. Also, since costs of services generally increase over time due to medical cost inflation, older cost data should be trended forward to the projection period to be on a consistent basis.

2. **Underlying Services in Cost Data**- The cost data reflects different types of costs for autism services (e.g., ABA only, incremental, and total ASD costs) and collection procedures, both of which need to be considered when comparing historical costs in other states to the projected cost impact of SB 2054. For instance the data for Massachusetts and New Jersey (highest data points) includes all costs for services associated with ASD codes of 299.xx which would overstate the cost impact of the law since certain services would have been provided to individuals with ASD prior to the passage of the autism legislation.

Relevant historical cost data is shown in the table that follows:



(1) Assumes a 5% annual trend estimate.
(2) Benefits underlying cost data vary by state, data may reflect costs for benefits in excess of or less than those required under SB 2054.

States with one year of data: AZ,[1] KY,[2] LA,[3] MA,[4] and VA[5]
States with two years of data: FL,[6] IL,[7] KS,[8] and NJ[9]
States with three years of data: MO,[10] SC[11] and TX[12]

Average (1 Yr) represents the Year 1 average of all states.
Average (2 Yr) represents the average by year for all states with at least two years of data.
Average (3 Yr) represents the average by year for all states with at least three years of data.

[1] Arizona Department of Administration.

[2] Kentucky Department of Employee Insurance.

[3] Louisiana Department of State Civil Service.

[4] Massachusetts Group Insurance Commission State Employee Health Plan.

[5] Commonwealth of Virginia. State Corporation Commission Report. "The Financial Impact of Mandated Health Insurance Benefits and Providers Pursuant to Section 38.2-3419.1 of the Code of Virginia: 2012 Reporting Period to the Governor and the General Assembly of Virginia.

[6] Florida Department of Management Services.

[7] Illinois Department of Healthcare and Family Services.

[8] Kansas State Employees Health Care Commission. Report on Insurance Coverage for Autism Spectrum Disorder Pilot. Required by 2010 Senate Substitute for House Bill No. 2160 and Kansas Department of Health and Environment.

[9] New Jersey State Employee Health Plan.

[10] State of Missouri, Department of Insurance, Financial Institutions &Professional Registration. Annual Report to the Missouri Legislature. "Insurance Coverage for Autism Treatment & Applied Behavior Analysis, Statistical Section, January 31, 2012." "Insurance Coverage for Autism Treatment & Applied Behavior Analysis, Statistical Section, February 1, 2013."

[11] APS Healthcare Inc., TPA for the South Carolina Employee State Health Plan, memo on ASD Spectrum costs.

[12] Employee Retirement System of Texas.

General Modeling Process

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

1. A treated prevalence estimate for Hawaii was developed based on the Center for Disease Control and Prevention's (CDC) Mortality and Morbidity Weekly Report (MMWR) on national autism prevalence dated March 30, 2012.
2. Prevalence rates by acuity of the disorder (i.e., Severe, Moderate, and Mild) were estimated separately based on a National Health Statistics Report dated March 20, 2013. The modeling considers the acuity of the disorder since the diagnosis patterns and service utilization could reasonably be expected to vary based on the severity of ASD. In addition, beginning in 2014, coding for ASD is moving from using diagnostic subtypes (largely ASD, PDD-NOS and Asperger's Syndrome), to an ASD diagnosis with additional descriptors based on the degree to impairment relative to certain criteria based on a revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM), to the now current DSM-V.
3. The percentage of diagnosed children who could be expected to have an ABA program was estimated for each age based on assumptions regarding the percentage of children that would start a program and typical program continuance.
4. A distribution of the number of annual hours for ABA by age was developed based on ABA provider input regarding optimal intensive programming, and an assumption that utilization review by insurers would impact utilization to some degree.
5. 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.
6. Non-ABA costs were estimated by analyzing actual ASD medical costs and estimating the increase in costs observed in states that passed autism insurance laws requiring benefits similar to SB 2054 benefits.
7. Based on Census demographic data and the cost estimates associated with SB 2054's coverage of ASD services by age as outlined in 1-6 above, an annual cost per covered person was developed.
8. The cost of services was increased to reflect administrative and other insurer costs or profit charges.
9. The estimated size of the Hawaii covered group insurance market was developed based on Census, Medical Expenditure Panel Survey (MEPS) enrollment and premium information for Hawaii, and Kaiser Family Foundation coverage data. These assumptions are further explained and documented in Section 6.
10. The incremental costs of the ASD 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.

6

Summary of Key Assumptions

Key assumptions underlying the cost estimates for the proposed SB 2054 covered 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

The March 30, 2012 MMWR[13] report included the following information related to the prevalence of ASD:

1. *For 2008, the overall estimated prevalence of ASDs among the 14 ADDM sites was 11.3 per 1,000 (one in 88) children aged 8 years.*

2. *Among all children meeting the ASD surveillance case definition, approximately 79% had a previously documented ASD classification.*

Based on our analysis of the CDC report, including the key items from the report noted above, a reasonable assumption for the treated prevalence of ASDs is 9.0 per 1,000 (11.3 per thousand multiplied by 79%) under the assumption that an indication of ASD in addition to documentation of an ASD would both be necessary to have claims reimbursed by an insurer. In developing our range of cost estimates we assumed treated prevalence would range from 7.2 per 1,000 (Low estimate) to 11.3 per 1,000 (High estimate).

Prevalence by acuity (Severe, Moderate, Mild) of ASD was estimated based on a March 20, 2013 NHCS Report.[14] The acuity of ASD impacts the timing of a child's diagnosis, and the likelihood of undertaking intensive ABA therapies.

[13] Centers for Disease Control and Prevention. Morbidity and Mortality Weekly Report. March 30, 2012. Surveillance Summaries / Vol. 61 / No. 3. "Prevalence of Autism Spectrum Disorders — Autism and Developmental Disabilities Monitoring Network, 14 Sites, United States, 2008."

[14] National Health Statistics Reports. Number 65. March 20, 2013. "Changes in Prevalence of Parent-reported Autism Spectrum Disorder in School-aged U.S. Children: 2007 to 2011–2012." Stephen J. Blumberg, Ph.D., Matthew D. Bramlett, Ph.D., National Center for Health Statistics; Michael D. Kogan, Ph.D., Maternal and Child Health Bureau; Laura A. Schieve, Ph.D., National Center on Birth Defects and Developmental Disabilities; Jessica R. Jones, M.P.H., and Michael C. Lu, M.D., M.P.H., Maternal and Child Health Bureau.

The assumed treated prevalence for the Middle scenario and age at diagnosis assumptions for Hawaii are shown in the table below:

Hawaii Treated Prevalence

ASD Severity	Ultimate Prevalence	Average Age of Diagnosis
Severe	1 in 683	3.1
Moderate	1 in 317	4.3
Mild	1 in 229	4.9
All ASD	**1 in 111**	4.4

The median age of diagnosis stated in the 2009 CDC MMWR report is 53 months,[15] which is consistent with the modeling assumptions, and appears consistent with the 2012 CDC MMWR study.

ABA Program Utilization and Cost

ABA 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 an ASD may have difficulty accessing a provider. We also note that the most severely affected children will be more likely to have behavioral programs than those less severely affected.

For this reason, we have assumed that 50% to 80% of children who are severely affected (50% for "Low" scenario, 65% for "Middle" and 80% for "High") and diagnosed under age six will begin an ABA program. Actual utilization of ABA programs has been lower in many cases due to the lack of providers, the lack of coverage, a limited understanding of ABA programs, and possibly other reasons.

In addition to the likelihood of starting a program, program continuance assumptions have a very significant impact on overall ABA utilization and cost estimates. Comprehensive 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 thereafter a large percentage of remaining programs would terminate until only a very small percentage of children have ABA programs by the time they reach their teenage years. Programs would be expected to terminate if a child has experienced sufficient progress such that a program is no longer necessary, if the insurer or family sees limited progress, or for other reasons.

[15] Centers for Disease Control and Prevention. Morbidity and Mortality Weekly Report. December 18, 2009. Page 9.

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

	% of Diagnosed Children with Severe ASD with ABA
Under 6	65.0%
6	48.8%
7	32.5%
8	21.7%
9	14.4%
10	9.6%
11	6.4%
12	4.3%
13 and Over	3.3%

ABA Program Annual Number of Hours

In developing the assumed annual ABA program hours, we discussed typical ABA programming with ABA providers, and reviewed benefit materials from one of the large self-insured employers who offers ABA benefits.[16] We developed a distribution of expected hours for a child with ASD that resulted in the annual averages shown in the following table:

	Average Annual ABA Program Hours for a Child with Severe ASD
Ages Under 8	1,500
Ages 8 to 12	671
Ages 13 to 20	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 at age eight, when children would be expected to be in school. It 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 Hawaii, based on Bureau of Labor Statistics[17] health care wages in Hawaii relative to the US estimate. The resulting average cost per hour of ABA therapy in Hawaii is about $61 for a program based on the assumption that staffing will be in line with typical staffing levels. This is the cost underlying our "Middle" estimates. The cost per hour is assumed to be 20% higher for the "High" scenario and 20% lower for the "Low" scenario.

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

[17] BLS wage data. http://www.bls.gov/guide/geography/wages.htm. Accessed February 2014.

Costs will vary, as well, depending upon the network and the degree of care management employed by a given payer.

ABA Program Costs Based on ASD Severity

We anticipate lower utilization for children moderately and mildly affected by ASD; specifically we assume that moderately affected children will utilize ABA services a rate of one-half of those severely affected, and those mildly affected utilize ABA services at a rate of one-half of those moderately affected. The basis for these adjustments is that children that are less severely affected can be expected to utilize ABA programs at a significantly lower rate and have less intensive programs (i.e., programs with fewer weekly and annual therapy hours). The factors for moderate and mild ASD reflect the combination of lower utilization and fewer therapy hours.

Other (non-ABA) Medical Costs

Based on a review of cost data from programs and markets in several states that have passed autism insurance reform,[18] we estimate that other than ABA ASD related costs for individuals age 20 and under were on average about $200 per member per month ("PMPM") for those diagnosed with ASD, and approximately 50% of those costs could have been attributable to requirements associated with insurance reform laws similar to SB 2054. Under SB 2054 some services that an insurer could currently deny or exclude may now be covered. In our range of estimates, we assumed that the additional coverage requirements would result in increased insured medical costs of $50 to $150 a month for individuals 21 and under.

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 SB 2054 is shown for each scenario in the table below:

Scenario	Annual Non-ABA Costs
Low	$600
Middle	$1,200
High	$1,800

(Amounts in 2014 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.

[18] Annual Report to the Missouri Legislature. "Insurance Coverage for Autism Treatment & Applied Behavior Analysis." Statistics Section. February 1, 2014. Department of Insurance, Financial Institutions & Professional Registration.

Hawaii 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 group market. State-specific premium data for Hawaii was available for 2012[19], so we trended this data based on average recent employer premium increases provided in the Kaiser Family Foundation HRET[20] survey to estimate the 2014 average annual premium per member necessary to compute the cost of SB 2054 benefits as a percentage of annual premiums.

As part of our development of premiums and membership estimates, we completed reasonableness tests by reviewing Hawaii insurer regulatory filings to ensure that the premium estimates were not unreasonable.

[19] MEPS state survey data. http://www.meps.ahrq.gov/mepsweb/data_stats/state_tables.jsp?regionid=-1&year=2012. Accessed February 2014.

[20] Kaiser Family Foundation and Health Research Educational Trust. Employer Health Benefits. 2013 Annual Survey.

7

Cost Estimates

Group Markets Long-Term Cost Estimates - "Middle" Cost Scenario

The table below summarizes our "Middle" scenario average annual cost estimates and premium increases on a per covered person basis, and as a percentage of the annual premiums for the Small and Large Group markets. Our "Middle" estimate is that, in the long-term, the premium increase associated with the additional benefits provided by SB 2054 would be about 0.27% of insured premiums for the large and small group market. However, we expect that costs would be lower in the years immediately following the passage of SB 2054 based on experiences in other states that have passed legislation providing for the coverage of additional ASD benefits, lags typically seen in accessing new benefits, and the limited supply of ABA providers.

The estimated cost increases by market are shown in the table below. The annual claim cost per covered person estimate of $11.00 and premium increase estimate of $12.90 are in 2014 dollars.

	Market		
	Small Group	Large Group	Total Group
Covered Persons	131,000	231,000	362,000
Average Premium per Person	$4,700	$4,700	$4,700
Annual Claim Cost per Covered Person	$11.00	$11.00	$11.00
Claim Cost as a Percentage of Premium	0.23%	0.23%	0.23%
Estimated Premium Increase with Admin @ 15%	$12.90	$12.90	$12.90
Premium Increase as a Percentage of Premium	0.28%	0.28%	0.28%

Scenario Estimates

As discussed in Section 3, limited insurance data exists that can be used to directly estimate the costs of ABA benefits under SB 2054. This causes uncertainty in developing actuarial assumptions and cost estimates. Due to this uncertainty, it is useful to develop cost estimates for scenarios using more 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:

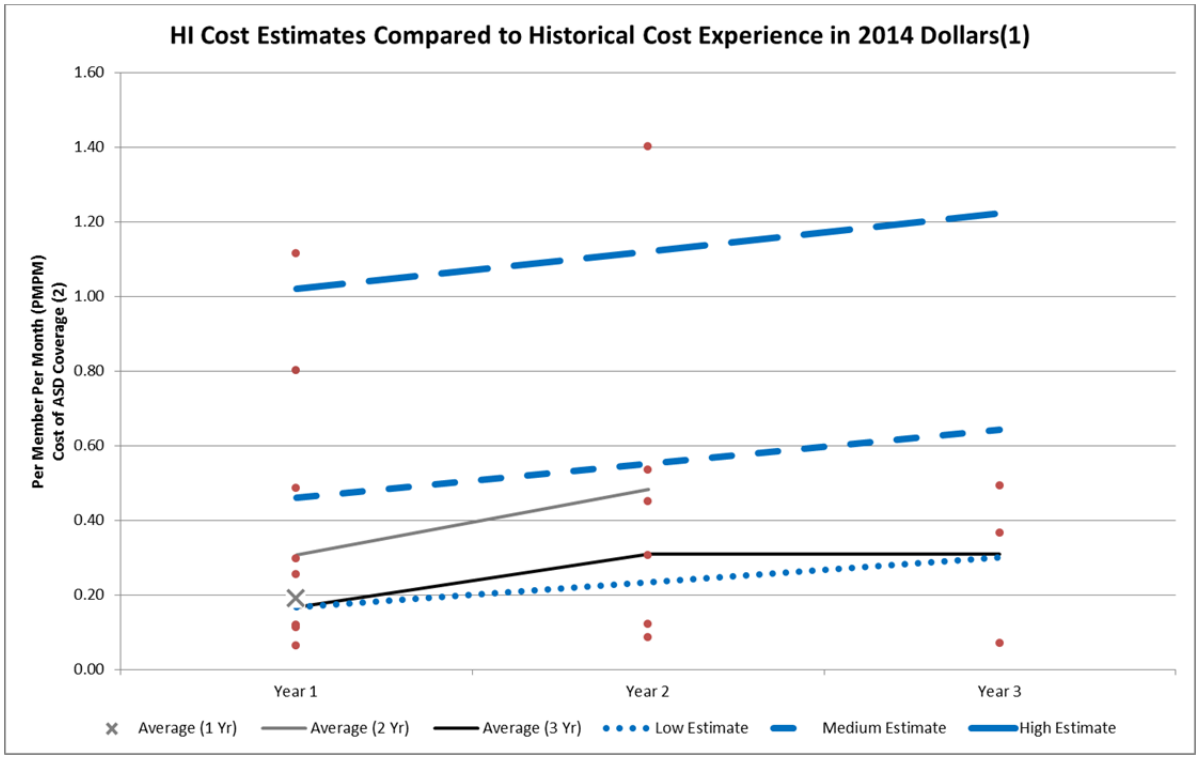
Scenario	% Severe ASD Diagnosed Under Age 8 Starting ABA	ABA Cost Per Hour	Avg. Annual non-ABA Cost	Annual Premium Increase per Covered Person	Premium Increase (% of Premium)
Low	50.0%	$49	$600	$7.10	0.15%
Middle	65.0%	$61	$1,200	$12.90	0.28%
High	80.0%	$73	$1,800	$21.50	0.46%

Group Markets 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 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 Hawaii SB 2054						
Scenario	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Years 6 and Beyond**
Low	0.05%	0.07%	0.09%	0.11%	0.13%	0.15%
Middle	0.14%	0.17%	0.19%	0.22%	0.25%	0.28%
High	0.31%	0.34%	0.37%	0.40%	0.43%	0.46%

The chart below displays the low, medium, and high cost estimates compared with historical costs.



(1) Assumes a 5% annual trend estimate.
(2) Benefits underlying cost data vary by state, data may reflect costs for benefits in excess of or less than those required under SB 2054.

States with one year of data: AZ, KY, LA, MA, and VA
States with two years of data: FL, IL, KS, and NJ
States with three years of data: MO, SC, and TX

Average (1 Yr) represents the Year 1 average of all states.
Average (2 Yr) represents the average by year for all states with at least two years of data.
Average (3 Yr) represents the average by year for all states with at least three years of data.

As seen in the above chart, the Hawaii cost estimates are in line with the actual costs in states that have implemented laws similar to SB 2054. The highest experienced costs are from the states of Massachusetts and New Jersey. Massachusetts and New Jersey data includes all costs for ASD diagnoses, not just incremental costs associated with their autism insurance laws.

Individual Market and State Plan Cost Estimates

Currently, average premiums for policies inforce in the Hawaii individual market are lower than those in the group markets. This is likely due to a combination of the impact of underwriting better risks and less rich benefits. Due to the elimination of health status as a rating factor, and benefit requirements under the Affordable Care Act, premiums and claims costs for the individual market may become similar to those in the group market. Some also predict that the individual markets will become unsustainable due to anti-selection by poorer risks, and a lack of younger entrants to subsidize older participants.

The individual market will be dynamic over the next several years. While the expectation is that it will be comprised of less healthy risks than those currently insured, which could include autistic children whose costs would increase due to SB 2054, it will also include many older individuals where autism coverage under SB 2054 would have little or no impact upon their costs. Due to the many changes that will occur, it is difficult to determine the overall individual market impact of SB 2054. For now, a reasonable assumption is that SB 2054 would have a similar impact on the individual market premiums as it is expected to have on the group markets.

8

Cost Estimates- Medicaid

Medicaid Long-Term Cost Estimates

SB 2054 is intended to extend ABA benefits to commercial policyholders, but the Hawaii State legislature is considering providing ABA benefits to Medicaid enrollees, as well. Testimony from the Director of the Department of Human Services (DHS) documented in a February 11, 2014 analysis (Appendix 3) showed that extending ABA benefits to the Medicaid program would impact access to ASD treatments for the approximately 154,000 children aged (0-18), and provided an estimate of the cost impact of providing those benefits. The DHS cost estimate is considerably higher than our estimate documented in this section.

In developing estimates for the extension of benefits similar to those covered by SB 2054 to Medicaid enrollees, we began with the commercial estimates and made adjustments. Our adjustments and estimates are in the table below.

SB 2054 Medicaid Cost Estimate			
Medicaid Eligible Children (0-18 Years Old)	154,000		
	Low	**Middle**	**High**
Commercial Per Child (0-18 Years Old) Per Year	$20.74	$37.62	$62.45
(1) Medicaid Estimate Assuming Commercial Costs	$3,194,000	$5,794,000	$9,618,000
(2) Prevalence Adjustment	0.80	0.90	0.95
(3) Age at Diagnosis Adjustment	0.90	0.91	0.93
(4) Provider Cost Adjustment	0.90	0.95	1.00
(5) Adherence Adjustment	0.85	0.90	0.95
Medicaid Estimate= (1)x(2)x(3)x(4)x(5)	$1,759,000	$4,059,000	$8,076,000
Estimated Hawaii Share (assuming 50% Federal)	**$879,500**	**$2,029,500**	**$4,038,000**

In the table above, we first developed our commercial claims costs per year for the "Low," "Middle," and "High" scenarios for the age 0-18 cohort, and multiplied those estimates by the estimated number of children enrolled in the Medicaid program (154,000 per the DHS analysis). Recognizing that the Medicaid population has different demographics and utilization of medical benefits than the commercial insured program, we then adjusted our estimates by factors reflecting potential differences in treated autism prevalence, age at diagnosis, reimbursement, and treatment adherence. In general, there was limited information directly comparing commercial versus Medicaid ASD populations for these factors, so the adjustments are modest and likely conservative.

- **Prevalence**- ASD has different prevalence rates by race based on ADDM's community report.[21] We recognize that the distribution by race of individuals[22] enrolled in Hawaii Medicaid differs from the distribution by race of the US population, thus the prevalence of ASD in the Hawaii Medicaid program could be expected to be different than the rest of the United States.
- **Age at Diagnosis**- Studies have shown ASD is diagnosed later in life for individuals in low income families near the poverty level.[23] We modeled the cost impact of assuming that individuals would be diagnosed six months later than the distribution assumed in our commercial estimate which is shown in our Middle estimate.
- **Reimbursement**- Medicaid programs typically reimburse providers at lower rates than commercial payers. We made some minor adjustments to the hourly costs for the Low and Middle scenarios noting that it may be difficult to lower reimbursement considering the hourly rates paid by the Tricare program and the large military population in Hawaii.
- **Treatment Adherence**- Medicaid enrollees adhere to prescription drug programs for chronic conditions at a lower rate than those with employer coverage.[24] While we do not have any data showing the difference between ABA program adherence for Medicaid versus commercial coverage, it is logical to assume that Medicaid enrollees would also adhere to ABA programs at a lower rate.

Medicaid Short-Term Cost Estimates

Using the same annual cost progression assumptions as our commercial estimates, we also projected the possible progression of the Medicaid program costs should services similar to those required under SB 2054 also be required for Medicaid.

Progression of SB 2054 Medicaid Hawaii Share Cost Estimates

Scenario	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 and Beyond
Low	$293,000	$410,000	$528,000	$645,000	$762,000	$879,500
Middle	$1,015,000	$1,218,000	$1,421,000	$1,624,000	$1,827,000	$2,029,500
High	$2,692,000	$2,961,000	$3,230,000	$3,500,000	$3,769,000	$4,038,000

(Estimates in 2014 Dollars)

[21] Community Report From the Autism and Developmental Disabilities Monitoring (ADDM) Network. "Prevalence of Autism Spectrum Disorders (ASDs) Among Multiple Areas of the United States in 2008." Funded by the Centers for Disease Control and Prevention (CDC),U.S. Department of Health and Human Services. www.cdc.gov/mmwr

[22] State of Hawaii, Department of Human Services Databook. Management Services Office - Research Staff. January 2013.

[23] "Factors Associated With Age of Diagnosis Among Children With Autism Spectrum Disorders." David S. Mandell, ScD, Maytali M. Novak, MA, and Cynthia D. Zubritsky, PhD. Center for Mental Health Policy and Services Research, Department of Psychiatry, University of Pennsylvania School of Medicine, Philadelphia, PA. Pediatrics. 2005 December; 116(6): 1480–1486. doi:10.1542/peds.2005-0185.

[24] *Journal of Managed Care Pharmacy* November/December 2009 Vol. 15, No. 9. "Comparing Adherence and Persistence." Jason Yeaw, MPH; Joshua S. Benner, PharmD, ScD; John G. Walt, MBA; Sergey Sian, PhD; and Daniel B. Smith, MA. Pages 728-740. www.amcp.org

Differences with February 11, 2014 DHS Cost Estimate

DHS testimony (Appendix 3) to the House Committee on Consumer Protection and Commerce indicated a cost for providing ABA to the Medicaid population of $135 million of which $24.9 million would be DHS' responsibility. This $24.9 million would be shared approximately 50/50 with the Federal Government, so the DHS projected cost to the State of Hawaii based on this testimony appears to be about $12.5 million. We compared the assumptions and methods underlying this $12.5 million estimate to those underlying our estimates of an increase in state-funded costs to the Medicaid program of $0.3 to $2.7 million in year one and $0.9 to $4.0 million long-term (all in 2014 dollars) to try to understand the differences. After completing this comparative analysis, we note the following:

1. Sources of Funding- our analysis estimates the medical insurance costs for the Medicaid population which we assume would be funded by the State of Hawaii through DHS. The DHS analysis estimates total costs funded through DHS, the Department of Health, and the Department of Education (DOE), and splits the funding between the departments. Any cost burden to the DOE due to increased educational services is beyond the scope of this review.

2. Populations Served and Treated Prevalence- We have only developed cost estimates for children expected to be diagnosed with ASD, which is a significant difference with the DHS approach that includes estimating ABA costs for children with developmental delays where these children with developmental delays make up about 82% of the 3-6 year old Medicaid children that DHS estimates will receive ABA services. The DHS estimates are not actually based on ASD prevalence assumptions, but rather are based on reported children in the educational system who are identified as having an ASD or developmental delay. Any analysis of the appropriateness or potential cost of using ABA for children diagnosed with developmental delays is beyond the scope of this analysis.

$24.3 million of the $24.9 million DHS estimated costs are for 3-6 year olds. The $24.3 million estimate is prior to Federal funding which would reduce Hawaii's share to about one-half, or $12.2 million per the DHS analysis. Since costs for these ages when utilization is expected to be highest drive our cost estimates as well, it makes sense to focus on the different assumptions for this 3-6 age-band. We note that both the DHS and our estimates show significantly lower costs at older ages, so the difference in the cost estimates for older ages is not a driver of the overall cost differences between the two analyses.

For ages 3-6 the DHS cost estimate assumes that 1,145 children in this age group would receive services by assuming 47% of the 2,193 children with either ASD (397 identified children) or developmental delays (1,796 identified children), plus (due to possibly double counting) an estimated 58 children age 7 and 57 children age 8 (1,145 = 2,193 x 0.47 + 58 + 57). Our analysis develops estimated counts for children by age based on assumed US population ASD prevalence estimates, an assumption regarding the likelihood of diagnosis based on CDC data,

and an age at diagnosis distribution based on CDC data, adjusted to reflect that Medicaid enrollees are generally diagnosed later than others as noted previously.

Implied in the DHS analysis is an estimate that 187 children aged 3-6 identified with ASD will receive ABA treatments (187 = 397 x 0.47). The estimate of 187 children identified with ASD is within the range of our estimated counts of treated prevalence developed in our modeling for diagnosed 3-6 year olds.

3. $50,000 annual ABA cap and cost for hour of service- Our estimates in this report reflect a $50,000 annual cap. As noted in section 4, removing this cap may increase costs approximately 30% to 70%. The DHS analysis assumes an annual cost for ABA of $105,939 for 3-6 year olds ($121.3 million divided by 1,145 treated Medicaid children). Our assumed costs per hour of service range from $44 (Low scenario) to $73 (High scenario)The DHS estimate is $77.95 ($121.3 million divided by 1,556,055) per hour which is slightly higher than our range. However, this difference in estimated hourly costs is not a major driver of the overall difference between the estimates.

4. Utilization Differences Based on Severity of Diagnosis- Because ASD encompasses a wide spectrum of developmental disorders, children with ASD are affected in different ways; some are mildly impacted while other are severely impacted. Our analysis reflects the assumed use of intense ABA programs for most severely impacted children and lower utilization and costs for moderately and mildly impacted children. The DHS analysis assumes that all young children will receive intensive therapies. As noted, the ABA costs for 3-6 year olds, as well as those children under three exceed $100,000 per child. We would expect that many children would utilize ABA therapies that would cost considerably less than this $100,000 annually. Our assumption that utilization will be lower for less severely impacted children has a significant impact on costs, and the observed cost differences.

9

Cost – Benefit Analysis for ASD Treatments

Cost – Benefit Analysis for ASD Treatments

There have been several studies related to the efficacy of ABA treatment programs, and the costs associated with ASD treatments, care, and support. In this section, we summarize some of these studies.

Societal Costs of Autism- Ganz Report

One of the most often cited reports explaining the financial costs of ASD is *The Lifetime Distribution of the Incremental Societal Costs of Autism* by Michael Ganz, MS, PhD which was published in 2007. This report summarized the modeled costs of a hypothetical cohort of children born in 2000 and diagnosed with autism in 2003. A study result is that the incremental societal cost of autism is $3.2 million per capita in 2003 dollars.[25] The report is very helpful in identifying specific costs of ASD, and in providing a framework for quantifying these costs, as well as providing actual cost estimates.

Direct Medical
Physician and Dental
Drugs
Complementary and Alternative Therapies
Behavioral Therapies
Emergency and Hospital
Home Health Care
Travel

Direct Nonmedical
Child Care
Adult Care
Respite Care
Home Improvements
Special Education
Supported Work
Other

[25] *The Lifetime Distribution of the Incremental Societal Costs of Autism.* Archives of Pediatrics & Adolescent Medicine. Michael L. Ganz. April 2007. Volume 161.

Indirect
Own Indirect- lost productivity and lower wages
Not Own Indirect - lost productivity and lower wages of others (typically family)

Cost Savings to State and Local Governments

The Ganz study is probably the most comprehensive in terms of assessing the breadth of the financial costs associated with caring for individuals with ASD. Several other studies have attempted more limited quantifications of costs and savings to governments associated with providing early intensive behavioral interventions (EIBI) or ABA programs for young children. In summary, the studies quantify the costs of EIBI, assume success rates associated with EIBI based on efficacy studies, and then assume cost savings to educational and other government financed programs, like Medicaid, associated with these treatments.

Virginia's independent Joint Legislative Audit and Review Commission (JLARC) issued a report in August 2009: *Report of the Joint Legislative Audit and Review Commission To the Governor and The General Assembly of Virginia - Assessment of Services For Virginians With Autism Spectrum Disorders.* As part of this report, JLARC reviewed several studies related to the efficacy of EIBI, and potential cost savings to State and Local governments associated with effective EIBI treatments. The JLARC report outlines their assessment of the cost savings associated with EIBI as follows[26]:

"A study published in a national journal found that Pennsylvania could save an average of $187,000 to $203,000 on each child who received three years of EIBI relative to one who received special education services until age 22. The Pennsylvania study also suggested that cost savings would likely continue to accrue after children exit the school system. The study found that the state could save from $656,000 to $1.1 million per child if expenditures up to age 55 are included. Another study published in a national journal found that Texas could save an average of $208,500 in education costs for each student who received three years of EIBI relative to a student who received 18 years of special education from ages four to 22. Applied to the estimated 10,000 children with ASDs in Texas, it was estimated that the state could save almost $2.1 billion by implementing intensive treatment programs.

By applying the methodology used in the Pennsylvania and Texas studies to Virginia-related data, JLARC staff estimate that the Commonwealth could save approximately $137,400 in special education costs per student with an ASD if EIBI was consistently provided. In fact, the analysis indicates that Virginia could realize savings as long as at least 42 percent of students with ASDs who received EIBI make moderate improvements (require less intensive services and fewer supports), which is a substantially more conservative outcome than the outcomes reported in the research literature."

[26] Report of the Joint Legislative Audit and Review Commission To the Governor and The General Assembly of Virginia - Assessment of Services For Virginians With Autism Spectrum Disorders. Page 15. http://jlarc.virginia.gov/reports/Rpt388.pdf. Accessed December 2009.

The actual success rates of EIBI treatments will drive the benefits derived from these treatments. Also, as noted in the JLARC report, moderate improvements in functioning could also lead to significant financial savings. The JLARC report also discusses various studies of the efficacy of EIBI, and Table 3 on page 15 of the report summarizes the findings on the efficacy of EIBI from three research studies. This table is reproduced below:

Table 3: Multiple Studies Demonstrate Children Who Receive Intensive Treatment Fare Better Than Those Who Receive Less Intensive Services

	Outcomes	
Group	**Average Change in IQ Points**	**Educational Placement**
EIBI compared to less intensive public school special education (2006 study)		
Treatment	+25	▪ 29% in general class without supports ▪ 52% in general class with supports
Comparison	+14	▪ 5% in general class
EIBI compared to less intensive parent-training model (2000 study)		
Treatment	+16	▪ 27% in general class without supports
Comparison	-1	▪ No children in general class without supports
EIBI compared to less intensive treatment (1987 study)		
Treatment	▪ 47% achieved IQ in normal range (94-120)	▪ 47% in general class without supports ▪ 42% in less intensive special education class for language delayed ▪ 11% in intensive special education class for children with autism or intellectual disability (ID)
Comparison	▪ 2% achieved IQ in normal range	▪ 2% in general class without supports ▪ 45% in less intensive special education class for language delayed ▪ 53% in intensive special education class for children with autism or ID

Note: A more detailed table on the results of these studies can be found in Appendix C.

While a complete cost-benefit analysis is beyond the scope of this review, under the assumption that the costs of ASD services and efficacy of EIBI are in line with those indicated in the studies noted, the costs of ABA treatments covered under SB 2054 could potentially be recovered through reductions in educational and medical expenditures.

There would also be expected benefits associated with successful treatments in the areas noted in the beginning of this section through reducing other costs of care and improving the productivity of individuals with ASD and their caregivers, in addition to non-economic or quality of life benefits.

Appendix 1

Cost Assumptions – Illustrative Exhibits

EXHIBIT I - SUMMARY OF SB 2054 "MIDDLE" SCENARIO ASSUMPTIONS AND COSTS

State **Hawaii**

Key Assumptions:

United States Treated Prevalence

ASD Severity	Ultimate Prevalence	Average Age of Diagnosis
Severe	1 in 683	3.1
Moderate	1 in 317	4.3
Mild	1 in 229	4.9
All ASD	**1 in 111**	4.4

% of Diagnosed Children with Severe ASD with ABA

Under 6	65.0%
6	48.8%
7	32.5%
8	21.7%
9	14.4%
10	9.6%
11	6.4%
12	4.3%
13 and Over	3.3%

Hawaii Treated Prevalence

ASD Severity	Ultimate Prevalence	Average Age of Diagnosis
Severe	1 in 683	3.1
Moderate	1 in 317	4.3
Mild	1 in 229	4.9
All ASD	**1 in 111**	4.4

Additional Annual Medical Costs for Non ABA Services

Under 21 $ 1,200 per person diagnosed w/ ASD

Annual Limits by Covered Service

	Hours Limit	Max Hours	Dollar Limit	Max $s
ABA	No	-	Yes	$50,000

Average Annual ABA Program Hours for a Child with Severe ASD

Ages Under 8	1,500
Ages 8 to 12	671
Ages 13 to 20	401

Average hourly provider cost of ABA Program: $61

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
Small Group	131,000	$4,700	$615,700,000	$1,441,000	0.23%	$11.00	$1,695,000	0.28%	$12.90
Large Group	231,000	$4,700	$1,085,700,000	$2,541,000	0.23%	$11.00	$2,989,000	0.28%	$12.90
Total	362,000	$4,700	$1,701,400,000	$3,982,000	0.23%	$11.00	$4,685,000	0.28%	$12.90

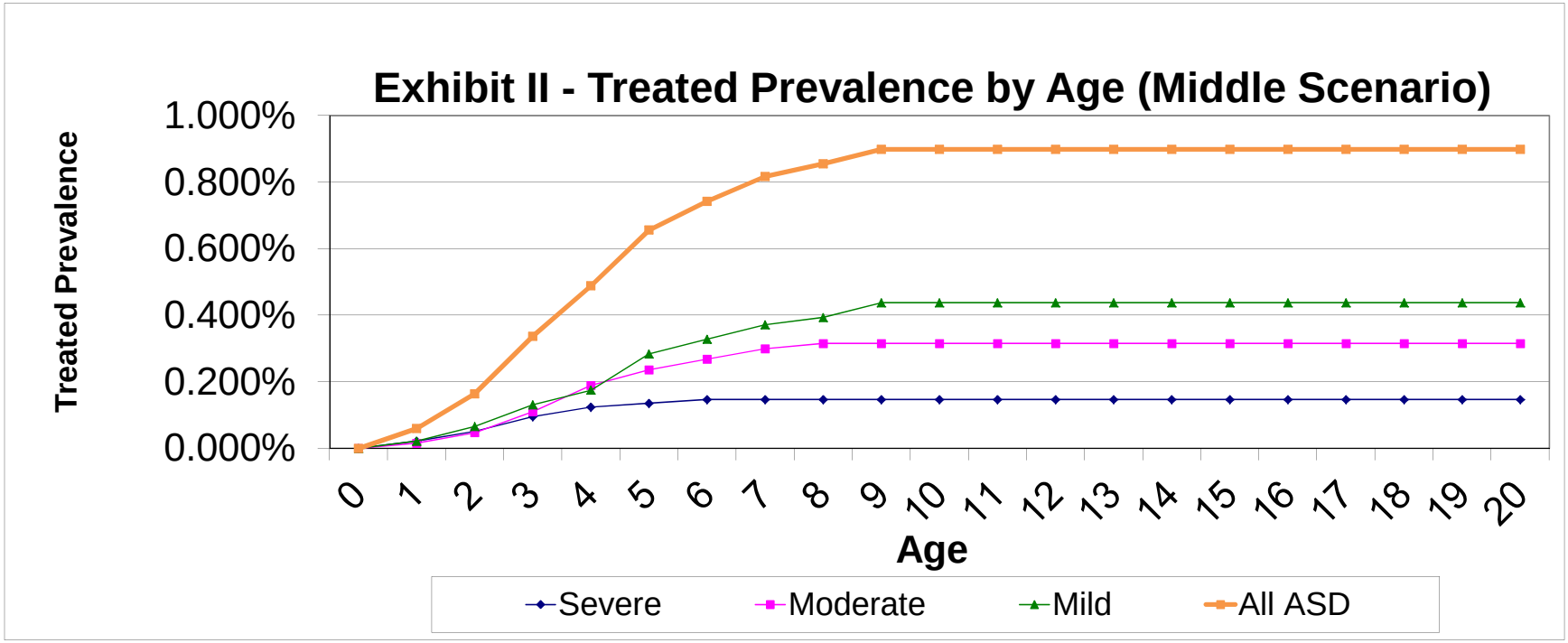


Exhibit II - Treated Prevalence by Age (Middle Scenario)
Treated Prevalence
1.000%
0.800%
0.600%
0.400%
0.200%
0.000%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
Severe
Moderate
Mild
All ASD

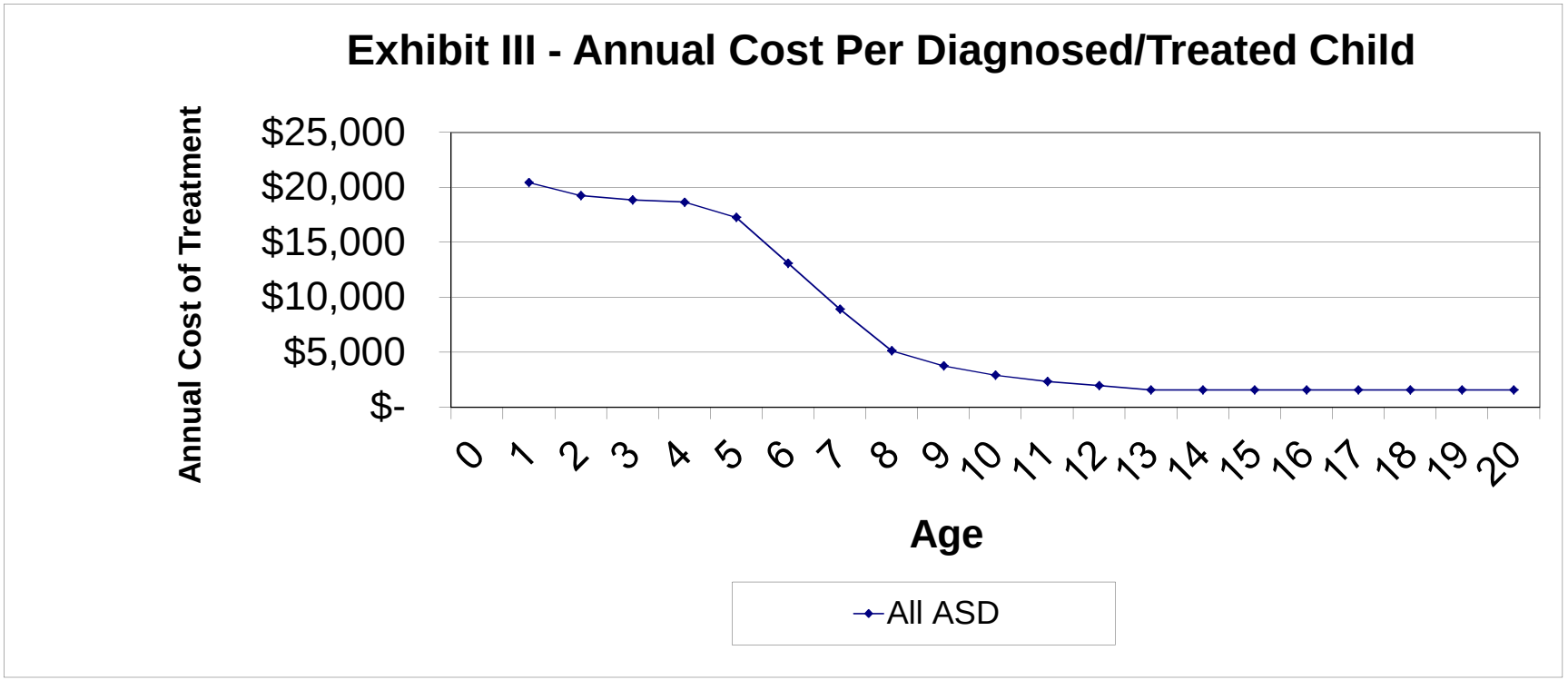


Exhibit III - Annual Cost Per Diagnosed/Treated Child
Annual Cost of Treatment
$25,000
$20,000
$15,000
$10,000
$5,000
$-
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
All ASD

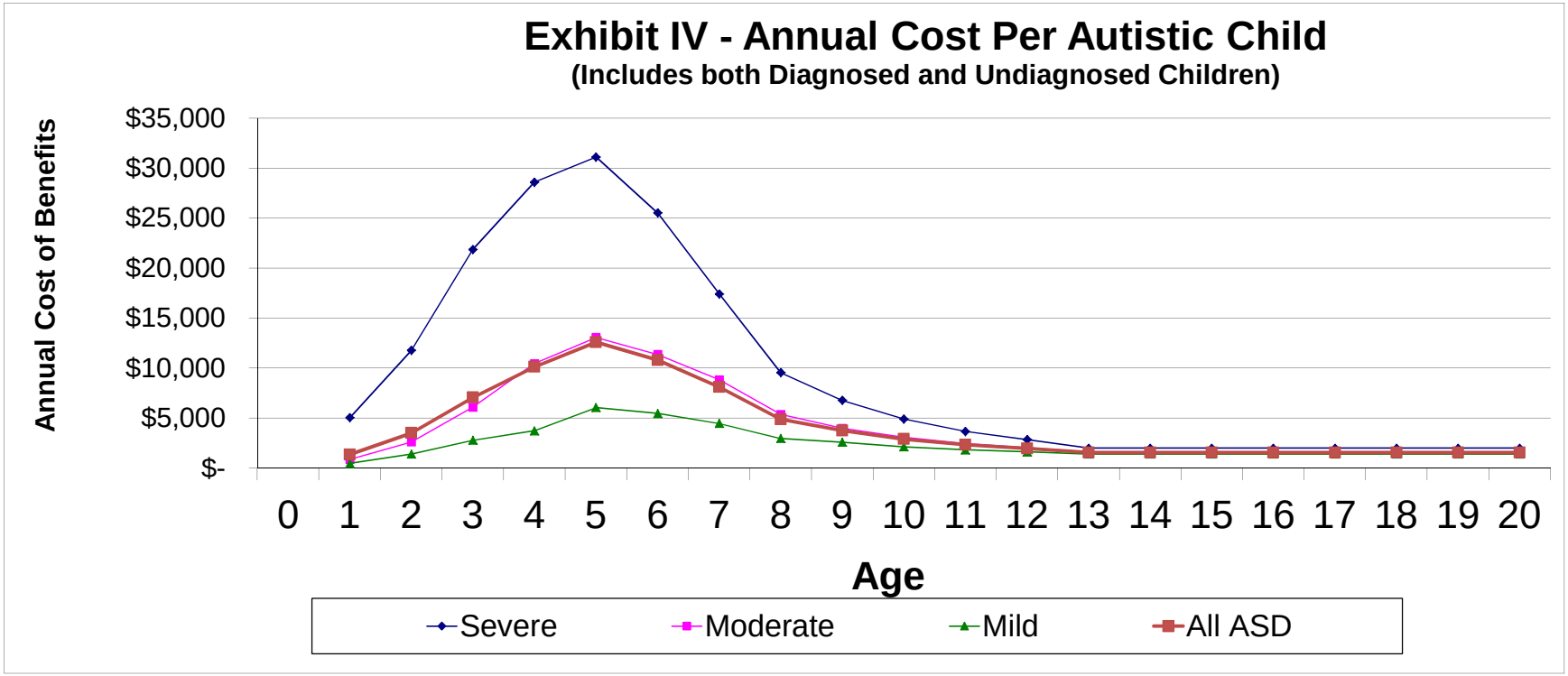


Exhibit IV - Annual Cost Per Autistic Child
(Includes both Diagnosed and Undiagnosed Children)
Annual Cost of Benefits
$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$-
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
Severe
Moderate
Mild
All ASD

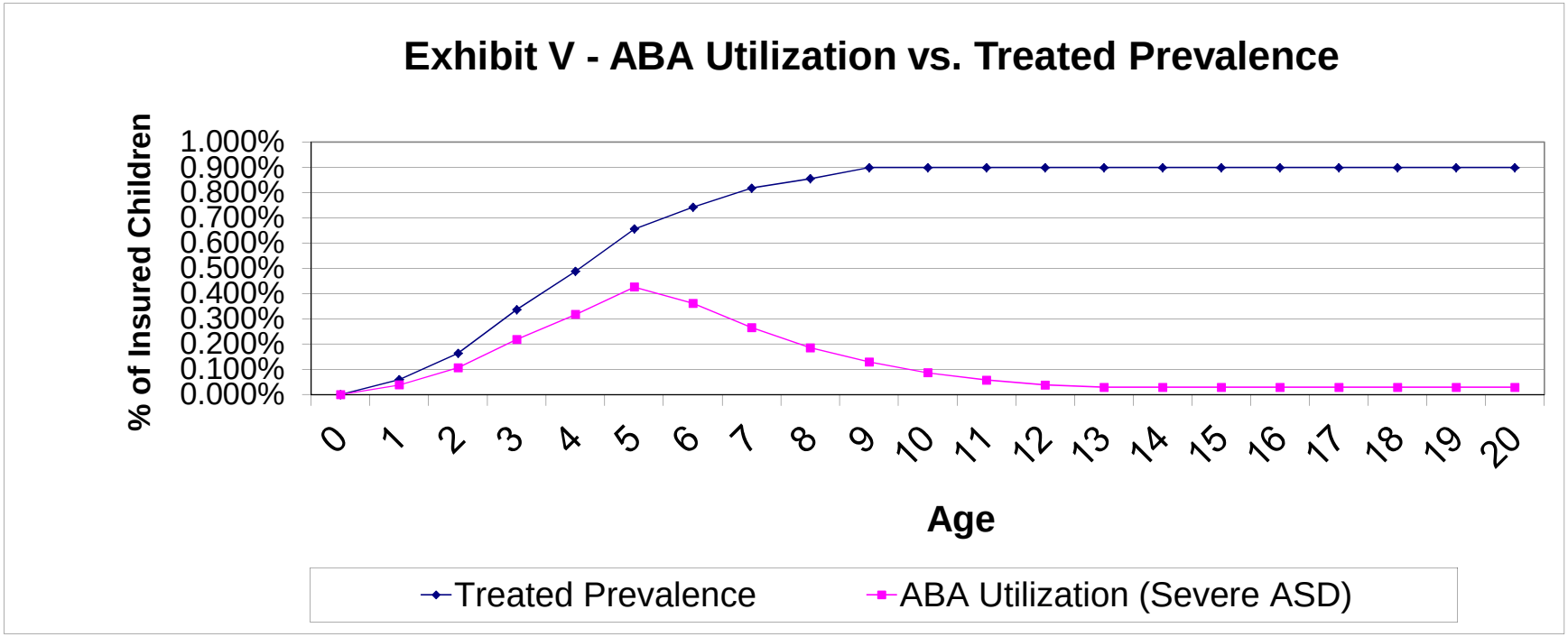


Exhibit V - ABA Utilization vs. Treated Prevalence
% of Insured Children
1.000%
0.900%
0.800%
0.700%
0.600%
0.500%
0.400%
0.300%
0.200%
0.100%
0.000%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
Treated Prevalence
ABA Utilization (Severe ASD)

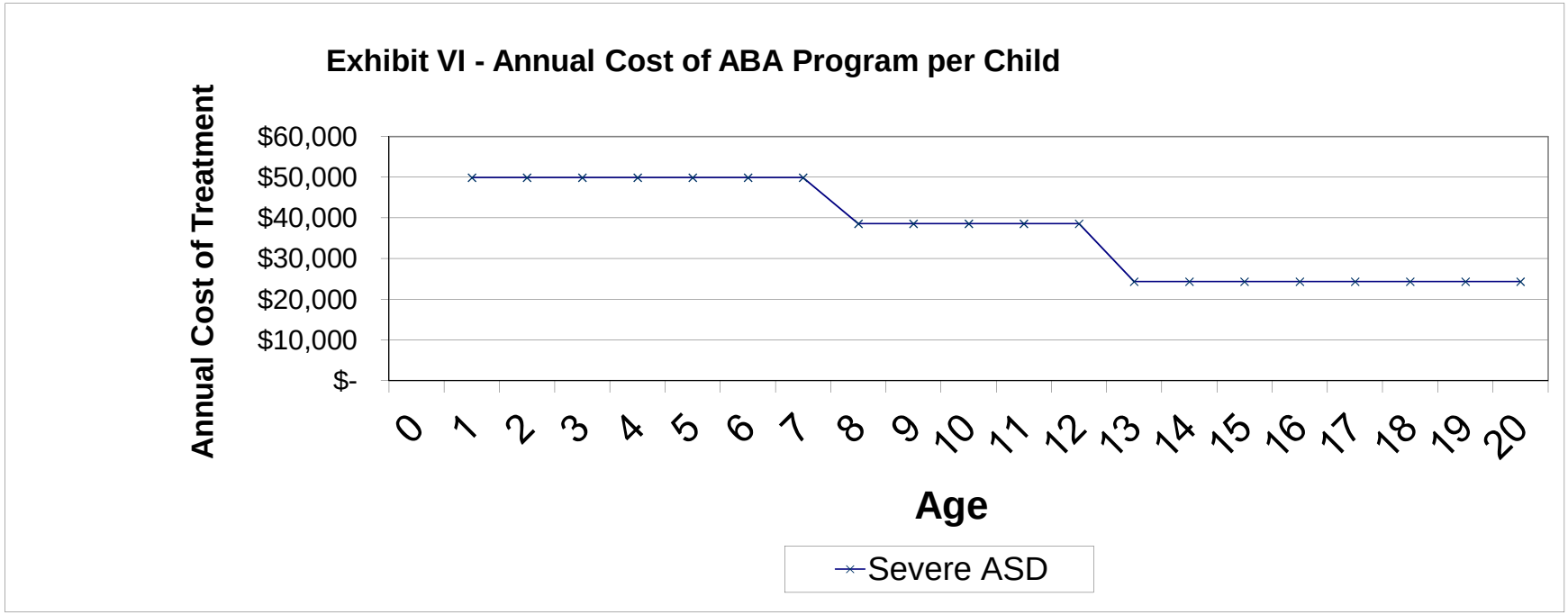


Exhibit VI - Annual Cost of ABA Program per Child
Annual Cost of Treatment
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$-
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Age
Severe ASD

Appendix 2

Senate Bill 2054 SD1 Text

THE SENATE
TWENTY-SEVENTH LEGISLATURE, 2014
STATE OF HAWAII

S.B. NO. 2054 S.D. 1

A BILL FOR AN ACT

RELATING TO HEALTH.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The purpose of this Act is to ensure the provision of quality health care for all Hawaii residents by requiring coverage of treatment for autism spectrum disorders.

SECTION 2. This Act shall be known and may be cited as "Luke's Law".

SECTION 3. Chapter 431, Hawaii Revised Statutes, is amended by adding a new section to article 10A to be appropriately designated and to read as follows:

"**§431:10A- Autism spectrum disorders benefits and coverage; notice; definitions.** (a) Each individual or group accident and health or sickness insurance policy, contract, plan, or agreement issued or renewed in this State after July 1, 2014, shall provide to the policyholder and individuals under twenty-one years of age covered under the policy, contract, plan, or agreement, coverage for the screening, including well-baby and well-child screening, diagnosis, and evidence-based treatment of autism spectrum disorders.

Nothing in this section shall be construed to require such coverage in a medicaid plan.

(b) Every insurer shall provide notice to its policyholders regarding the coverage required by this section. The notice shall be prominently positioned in any literature or correspondence sent to policyholders and shall be transmitted to policyholders within calendar year 2014 when annual information is made available to members or in any other mailing to members, but in no case later than December 31, 2014.

(c) Individual coverage for behavioral health treatment provided under this section shall be subject to a maximum benefit of $50,000 per year and a maximum lifetime benefit of $300,000, but shall not be subject to any limits on the number of visits to an autism service provider. After December 31, 2015, the insurance commissioner, on an annual basis, shall adjust the maximum benefit for inflation using the medical care component of the United States Bureau of Labor Consumer Price Index for all urban consumers; provided that the commissioner may post notice of and hold a public meeting pursuant to section 91-3(a) before adjusting the maximum benefit. The commissioner shall publish the adjusted maximum benefit annually no later than April 1 of each calendar year, which shall apply during the

following calendar year to health insurance policies subject to this section. Payments made by an insurer on behalf of a covered individual for any care, treatment, intervention, or service other than behavioral health treatment shall not be applied toward any maximum benefit established under this subsection.

(d) Coverage under this section may be subject to copayment, deductible, and coinsurance provisions of an accident and health or sickness insurance policy, contract, plan, or agreement that are no less favorable than the co-payment, deductible, and coinsurance provisions for substantially all other medical services covered by the policy, contract, plan, or agreement.

(e) This section shall not be construed as limiting benefits that are otherwise available to an individual under an accident and health or sickness insurance policy, contract, plan, or agreement.

(f) Coverage for treatment under this section shall not be denied on the basis that the treatment is habilitative or non-restorative in nature.

(g) Except for inpatient services, if an individual is receiving treatment for autism spectrum disorders, an insurer

may request a review of that treatment. The cost of obtaining any review shall be borne by the insurer.

(h) This section shall not be construed as reducing any obligation to provide services to an individual under an individualized family service plan, an individualized education program, or an individualized service plan.

(i) Nothing in this section shall apply to accident-only, specified disease, hospital indemnity, qualified health plans as defined in Section 1301 of the Patient Protection and Affordable Care Act, medicare supplement, disability income, long-term care, or other limited benefit hospital insurance policies.

(j) Insurers shall include in their network of approved autism service providers only those providers who have cleared criminal background checks as determined by the insurer.

(k) Insurers shall include at least as many board-certified behavior analysts in their provider network as there are qualified licensed psychologists in their network of approved providers of applied behavior analysis.

(l) If an individual has been diagnosed as having an autism spectrum disorder, then that individual shall not be required to undergo repeat evaluation upon publication of a subsequent edition of the Diagnostic and Statistical Manual of

Mental Disorders to remain eligible for coverage under this section.

(m) Coverage for applied behavior analysis shall include the services of the personnel who work under the supervision of the board certified behavior analyst or the licensed psychologist overseeing the program.

(n) As used in this section, unless the context clearly requires otherwise:

"Applied behavior analysis" means the design, implementation, and evaluation of environmental modifications, using behavioral stimuli and consequences, to produce socially significant improvement in human behavior, including the use of direct observation, measurement, and functional analysis of the relationship between environment and behavior. The practice of applied behavior analysis expressly excludes psychological testing, diagnosis of a mental or physical disorder, neuropsychology, psychotherapy, cognitive therapy, sex therapy, psychoanalysis, hypnotherapy, and long-term counseling as treatment modalities.

"Autism service provider" means any person, entity, or group that provides treatment for autism spectrum disorders.

"Autism spectrum disorders" means any of the pervasive developmental disorders or autism spectrum disorders as defined by the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders.

"Behavioral health treatment" means evidence based counseling and treatment programs, including applied behavior analysis, that are:

(1) Necessary to develop, maintain, or restore, to the maximum extent practicable, the functioning of an individual; and

(2) Provided or supervised by a board-certified behavior analyst or by a licensed psychologist so long as the services performed are commensurate with the psychologist's formal university training and supervised experience.

"Board certified behavioral analyst" means a behavior analyst credentialed by the Behavior Analyst Certification Board as a board certified analyst.

"Diagnosis of autism spectrum disorders" means medically necessary assessments, evaluations, or tests conducted to diagnose whether an individual has an autism spectrum disorder.

"Pharmacy care" means medications prescribed by a licensed physician or nurse practitioner and any health-related services that are deemed medically necessary to determine the need or effectiveness of the medications.

"Psychiatric care" means direct or consultative services provided by a licensed psychiatrist.

"Psychological care" means direct or consultative services provided by a licensed psychologist.

"Therapeutic care" means services provided by licensed speech pathologists, registered occupational therapists, licensed social workers, licensed clinical social workers, or licensed physical therapists.

"Treatment for autism spectrum disorders" includes the following care prescribed or ordered for an individual with an autism spectrum disorder by a licensed physician, psychiatrist, psychologist, licensed clinical social worker, or nurse practitioner if the care is determined to be medically necessary:

(1) Behavioral health treatment;

(2) Pharmacy care;

(3) Psychiatric care;

(4) Psychological care; and

(5) Therapeutic care."

SECTION 4. Chapter 432, Hawaii Revised Statutes, is amended by adding a new section to article 1 to be appropriately designated and to read as follows:

"**§432:1- Autism spectrum disorders benefits and coverage; notice; definitions.** (a) Each individual or group hospital or medical service plan, policy, contract, or agreement issued or renewed in this State after July 1, 2014, shall provide to the member and individuals under twenty-one years of age covered under the service plan, policy, contract, or agreement, coverage for the screening, including well-baby and well-child screening, diagnosis, and evidence-based treatment of autism spectrum disorders.

Nothing in this section shall be construed to require such coverage in a medicaid plan.

(b) Every mutual benefit society shall provide written notice to its members regarding the coverage required by this section. The notice shall be prominently positioned in any literature or correspondence sent to members and shall be transmitted to members within calendar year 2014 when annual information is made available to members or in any other mailing to members, but in no case later than December 31, 2014.

(c) Individual coverage for behavioral health treatment provided under this section shall be subject to a maximum benefit of $50,000 per year and a maximum lifetime benefit of $300,000, but shall not be subject to any limits on the number of visits to an autism service provider. After December 31, 2015, the insurance commissioner, on an annual basis, shall adjust the maximum benefit for inflation, using the medical care component of the United States Bureau of Labor Consumer Price Index for all urban consumers. The commissioner shall publish the adjusted maximum benefit annually no later than April 1 of each calendar year, which shall apply during the following calendar year to health insurance policies subject to this section; provided that the commissioner may post notice of and hold a public meeting pursuant to section 91-3(a) before adjusting the maximum benefit. Payments made by a mutual benefit society on behalf of a covered individual for any care, treatment, intervention, or service other than behavioral health treatment, shall not be applied toward any maximum benefit established under this subsection.

(d) Coverage under this section may be subject to copayment, deductible, and coinsurance provisions of an individual or group hospital or medical service plan, policy,

contract, or agreement that are no less favorable than the co-payment, deductible, and coinsurance provisions for substantially all other medical services covered by the plan, policy, contract, or agreement.

(e) This section shall not be construed as limiting benefits that are otherwise available to an individual under an individual or group hospital or medical service plan, policy, contract, or agreement.

(f) Coverage for treatment under this section shall not be denied on the basis that the treatment is habilitative or non-restorative in nature.

(g) Except for inpatient services, if an individual is receiving treatment for autism spectrum disorders, an insurer may request a review of that treatment. The cost of obtaining any review shall be borne by the insurer.

(h) This section shall not be construed to reduce any obligation to provide services to an individual under an individualized family service plan, an individualized education program, or an individualized service plan.

(i) Nothing in this section shall apply to accident-only, specified disease, hospital indemnity, qualified health plans as defined in Section 1301 of the Patient Protection and Affordable

Care Act, medicare supplement, disability income, long-term care, or other limited benefit hospital insurance policies.

(j) Insurers shall include in their network of approved autism service providers only those providers who have cleared criminal background checks as determined by the insurer.

(k) Insurers shall include at least as many board-certified behavior analysts in their provider network as there are qualified licensed psychologists in their network of approved providers of applied behavior analysis.

(l) If an individual has been diagnosed as having an autism spectrum disorder, then that individual shall not be required to undergo repeat evaluation upon publication of a subsequent edition of the Diagnostic and Statistical Manual of Mental Disorders to remain eligible for coverage under this section.

(m) Coverage for applied behavior analysis shall include the services of the personnel who work under the supervision of the board certified behavior analyst or the licensed psychologist overseeing the program.

(n) As used in this section, unless the context clearly requires otherwise:

"Applied behavior analysis" means the design, implementation, and evaluation of environmental modifications, using behavioral stimuli and consequences, to produce socially significant improvement in human behavior, including the use of direct observation, measurement, and functional analysis of the relationship between environment and behavior. The practice of applied behavior analysis expressly excludes psychological testing, diagnosis of a mental or physical disorder, neuropsychology, psychotherapy, cognitive therapy, sex therapy, psychoanalysis, hypnotherapy, and long-term counseling as treatment modalities.

"Autism service provider" means any person, entity, or group that provides treatment for autism spectrum disorders.

"Autism spectrum disorders" means any of the pervasive developmental disorders or autism spectrum disorders as defined by the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders.

"Behavioral health treatment" means evidence-based counseling and treatment programs, including applied behavior analysis, that are:

(1) Necessary to develop, maintain, or restore, to the maximum extent practicable, the functioning of an individual; and

(2) Provided or supervised by a board-certified behavior analyst or by a licensed psychologist so long as the services performed are commensurate with the psychologist's formal university training and supervised experience.

"Board certified behavioral analyst" means a behavior analyst credentialed by the Behavior Analyst Certification Board as a board certified analyst.

"Diagnosis of autism spectrum disorders" means medically necessary assessments, evaluations, or tests conducted to diagnose whether an individual has an autism spectrum disorder.

"Pharmacy care" means medications prescribed by a licensed physician or nurse practitioner and any health-related services that are deemed medically necessary to determine the need or effectiveness of the medications.

"Psychiatric care" means direct or consultative services provided by a licensed psychiatrist.

"Psychological care" means direct or consultative services provided by a licensed psychologist.

"Therapeutic care" means services provided by licensed speech pathologists, registered occupational therapists, licensed social workers, licensed clinical social workers, or licensed physical therapists.

"Treatment for autism spectrum disorders" includes the following care prescribed or ordered for an individual with an autism spectrum disorder by a licensed physician, psychiatrist, psychologist, licensed clinical social worker, or nurse practitioner if the care is determined to be medically necessary:

(1) Behavioral health treatment;

(2) Pharmacy care;

(3) Psychiatric care;

(4) Psychological care; and

(5) Therapeutic care."

SECTION 5. Section 432D-23, Hawaii Revised Statutes, is amended to read as follows:

"§432D-23 Required provisions and benefits. Notwithstanding any provision of law to the contrary, each policy, contract, plan, or agreement issued in the State after January 1, 1995, by health maintenance organizations pursuant to this chapter, shall include benefits provided in sections

431:10-212, 431:10A-115, 431:10A-115.5, 431:10A-116, 431:10A-116.2, 431:10A-116.5, 431:10A-116.6, 431:10A-119, 431:10A-120, 431:10A-121, 431:10A-122, 431:10A-125, 431:10A-126, [~~431:10A-122, and 431:10A-116.2~~] and 431:10A- , and chapter 431M."

SECTION 6. Notwithstanding section 432D-23, Hawaii Revised Statutes, the coverage and benefit for autism spectrum disorders to be provided by a health maintenance organization under section 5 of this Act shall apply to all policies, contracts, plans, or agreements issued or renewed in this State by a health maintenance organization on or after July 1, 2014.

SECTION 7. If any provision of this Act, or the application thereof to any person or circumstance, is held invalid, the invalidity does not affect other provisions or applications of the Act that can be given effect without the invalid provision or application, and to this end the provisions of this Act are severable.

SECTION 8. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 9. This Act shall take effect on July 1, 2014.

S.B. NO. 2054 S.D. 1

Report Title:
Health; Insurance; Mandatory Health Coverage; Autism Spectrum Disorders

Description:
Requires health insurers, mutual benefit societies, and health maintenance organizations to provide coverage for autism spectrum disorder treatments. (SD1)

The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.

Appendix 3

DHS Cost Testimony

NEIL ABERCROMBIE
GOVERNOR

PATRICIA MCMANAMAN
DIRECTOR

BARBARA A. YAMASHITA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
P. O. Box 339
Honolulu, Hawaii 96809-0339

February 11, 2014, 2014

TO: The Honorable Angus L. K. McKelvey, Chair
House Committee on Consumer protection and Commerce

FROM: Patricia McManaman, Director

SUBJECT: **H.B. 2174, H.D. 1 - RELATING TO HEALTH**

Hearing: Monday, February 10, 2014; 5:00 p.m.
Conference Room 325, State Capitol

PURPOSE: The purpose of this bill is to require health insurers, mutual benefit societies, and health maintenance organizations to provide coverage for treatment of autism spectrum disorders subject to a maximum benefit of $50,000 per year and a maximum lifetime benefit of $300,000. This bill would also exempt the Medicaid plans from the coverage requirements.

DEPARTMENT'S POSITION: The Department of Human Services (DHS) provides the following comments for consideration regarding the provision of autism spectrum disorders.

Even though this measure purports to exempt Medicaid plans from providing services for autism spectrum disorders required by this bill, once these services are established as the standard of care, these standards will trigger the application of these services to Medicaid eligible children under the Early & Periodic Screening, Diagnosis & Treatment (EPSDT)

requirements for the more than 100,000 children in our Medicaid program. Additionally, it creates health care disparities by virtue of economic class.

Should ABA be covered in Medicaid, the DHS estimates a projected total cost of $135 million to serve children up to age 19 years, of which $24.9 million would be DHS's cost, including federal funds.

The Department of Human Services conducted a study, between legislative sessions, on the cost of Medicaid coverage of applied behavioral analysis (ABA) to treat autism. While the population effect size of ABA is unclear, research has focused on children younger than 6 years of age and as children grow older, ABA treatment hours generally diminish. Should ABA be covered in Medicaid, the DHS estimates its annual total cost would be $24.3 million to serve children up to 6 years of age, of which approximately half would be federally funded. This measure would create a new standard of care and in effect defines applied behavioral analysis (ABA) as being medically necessary. These factors would result in Medicaid being required to cover ABA under Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) requirements. The Hilopa'a Project completed a comprehensive analysis that was utilized by the DHS and is included as an attachment to our testimony.

In Hawaii, the Department of Health (DOH) Early Intervention Program provides services to Medicaid beneficiaries ages 0-3 years who met eligibility criteria, and the Department of Education (DOE) Special Education program provides services during the school day for children beginning at age 3 years. The DHS would be responsible for services provided outside of the school day and for services not covered by DOE. While the DOH and the DOE would be responsible for funding the state share of the services, DHS would be responsible for accessing federal matching funds for the DOH and the DOE services for Medicaid qualified children.

Summary of the potential annual costs of covering ABA in Medicaid

	# Medicaid Children	Total Service Hours*	Total Cost** $ Millions	DOH***		DOE***		DHS	
				%	$ M	%	$ M	%	$ M
0-3	105	138,969	$10.7	100%	$10.7	0%	$0	0%	$0
3-6	1,145	1,556,055	$121.3	0%	$0	80%	$97.6	20%	$24.3
6-19	428	40,011	$3.2	0%	$0	80%	$2.0	20%	$0.6
Total	1,573	1,630,575	$135.2		$10.7		$99.6		$24.9

* Assumes an average of 1.5 cycles per year for 6-19 year olds

** Assumes $75/hr reimbursement for direct services and $100/hr for supervision, assessment and parent training; approximately half of cost would be federally funded

*** Additional funding may not be necessary if these programs already cover the service

Certain individuals may benefit from ABA, but whether the population of individuals with autism has a clinically significant benefit is unclear. Most studies have evaluated the effectiveness of ABA in children younger than 6 years old with autism, and the treatment intervention was typically no less than 20 hours per week of ABA. A 2012 Cochrane systematic review concluded:

> Early intensive behavioral intervention (EIBI) is one of the most widely used treatments for children with autism spectrum disorder (ASD). The purpose of our review was to examine the research on EIBI. We found a total of five studies that compared EIBI to generic special education services for children with ASD in schools. Only one study randomly assigned children to a treatment or comparison group, which is considered the 'gold standard' for research. The other four studies used parent preference to assign children to groups. We examined and compared the results of all five studies. A total of 203 children (all were younger than six years old when they started treatment) were included in the five studies. We found that children receiving the EIBI treatment performed better than children in the comparison groups after about two years of treatment on tests of adaptive behavior (behaviors that increase independence and the ability to adapt to one's environment), intelligence, social skills, communication and language, autism symptoms, and quality of life. The evidence supports the use of EIBI for some children with ASD. **However, the quality of this evidence is low as only a small number of children were involved in the studies and only one study randomly assigned children to groups** [emphasis added].[1]

[1] http://summaries.cochrane.org/CD009260/early-intensive-behavioral-intervention-eibi-for-increasing-functional-behaviors-and-skills-in-young-children-with-autism-spectrum-disorders-asd

This bill states that ABA is evidence-based, but evidence-based experts would disagree because there is not good quality evidence of effectiveness.

The U.S. Preventive Services Task Force (USPSTF) is considered the gold standard for clinical preventive services, and under the Affordable Care Act, insurers must cover services that receive an A or B recommendation by the USPSTF without requiring a co-payment. A recommendation of C would mean that there is evidence of benefit, but the benefit is small and the service is not routinely recommended to be provided; a recommendation of I would mean that there is insufficient evidence, i.e. that the service is not evidence-based. The USPSTF is currently developing an evidence report and recommendation on screening for autism spectrum disorders. The report will evaluate the effectiveness of screening for children ages 12-36 months and of treatment for children ages 0 to 12 years.[2]

Thank you for the opportunity to testify on this measure.

[2]http://www.uspreventiveservicestaskforce.org/uspstf13/speechdelay/spchfinalresplan.htm

ABA Utilization Projection for Hawaii Medicaid

The following assumptions serve as the basis for projecting utilization of Applied Behavior Analysis services for the children enrolled in the Hawaii Medicaid program.

1. Prevalence

1.1. National statistics indicate 1:88 children have Autism Spectrum Disorder (ASD), ranging in intensity from classic autism to Asperger's Syndrome

1.2. Population of children 18 and under in Hawaii for 2012 - 303,818

1.3. Total estimated children in Hawaii with an ASD – 3,452

1.4. Total children served by Department of Heath Early Intervention Section (DOH/EI) receiving ABA services, and Department of Education Special Eduation (DOE) who an eligibility of Autism or Developmental Delay – 3,486

1.4.1. Since the two numbers are so close, this projection will utilize the number reflecting identifiable children, the DOH, DOE combined number

1.5. Studies show there is no higher prevalence of ASD in children who are Medicaid eligible than those who are not

1.6. Using 3-month continuous eligibility for 90 days, 154,000 children are in the state Medicaid program, which equates to 47% of the 0-18 population

1.7. Applying the 47% to the total children served – 1,624

2. Treatment

2.1. Evidence shows that the most effective use of ABA are in the child's early years

2.2. Studies indicate for a child under the age of 3, between 25-30 hours a week of services ramping up to potential 40 hours a week at age 3 show significant improvement – these hours of services are across settings

2.3. For children over the age of 3, the general practice is to front load the intensive hours of treatment during the younger years and taper off the hours

2.4. As children grow older, the need for ABA services may be required to address targeted maladaptive behaviors triggered by puberty, emerging co-morbidities, as well as significant transitions

2.5. Typical utilization patterns (which have anecdotally been shared) indicate that families do not utilize all the hours that are authorized, as the rigor of an intensive program is quite difficult on families

2.6. ABA services would include 1) Assessment, 2) Plan Development, 3) Direct 1:1 service, 4) Service Supervision, and 5) Family Training

2.7. Ratio of supervision hours to direct service is 1:10

2.8. Current service provision of Assessments in the DD/MR Waiver are 30 hours to complete assessment, develop report, plan and provide initial family training

3. Projection Assumptions

3.1. Not all children will require the same level of high intensity

3.2. Comprehensive Intensive ABA services would be made available age 0-8

3.2.1. Literature indicates intensive services on general population is 0-6

3.2.2. Extended to age 8 due to health literacy for parent involvement and ability to provide stimulation rich environment to support services

3.3. Focused ABA services would be made available 8-19
  3.3.1. Literature indicates service provision should be individualized and made available
  3.3.2. For this exercise, the following tiered structure is proposed to be able to make some assumptions
    3.3.2.1. Preventive Planning and Intervention
      3.3.2.1.1. Preventive Planning and Intervention would be provided to identify early emerging problems as well as anticipated intervention needs to "pre-plan" for upcoming events which would require skilled intervention (e.g., preparing for puberty, etc.)
      3.3.2.1.2. Prevention Planning and Intervention would be made available at the following regularly scheduled intervals
        3.3.2.1.2.1. Age 7 (i.e., for children not already receiving comprehensive intensive ABA)
        3.3.2.1.2.2. Age 10
        3.3.2.1.2.3. Pre-puberty (i.e., could identify a stage in puberty, Stage 2)
        3.3.2.1.2.4. Age 14
        3.3.2.1.2.5. Age 16
        3.3.2.1.2.6. Age 19-20
    3.3.2.2. Targeted Assessment and Treatment
      3.3.2.2.1. Targeted Assessment and Treatment would utilized on an as need basis to address behaviors that affect health and safety of the individuals or others (e.g., aggression, self-injurious behaviors, etc.) as well as behaviors that restrict the setting of the individual (e.g., eloping, masturbating in public, property destruction, etc.)
      3.3.2.2.2. It is difficult to project the frequency of the service
        3.3.2.2.2.1. Frequency and intensity should diminish if the proposed preventive planning and intervention service could be develop and implemented
        3.3.2.2.2.2. Targeted Asssessment and Treatment may overlap the Preventive Planning and Intervention or defer the need for the service, so assumption would be to not include a quantity for this measure

4. Service Provision

4.1. Services are provided by DOH/Early Intervention Program (EI)
  4.1.1. EI services are currently authorized to meet the childs total need across settings
  4.1.2. EI serve numbers are included in the estimate
  4.1.3. EI ABA services should be included to the matrix to draw down federal dollars
  4.1.4. There should not be a need to provide more hours beyond what is provided by EI
4.2. Services are provided by DOE Special Education
  4.2.1. DOE services are currently authorized to meet the child's education needs in the school setting
  4.2.2. There will be a need to provide services beyond what is provided by DOE
    4.2.2.1. DOE federal mandate does not include addressing in home interventions
    4.2.2.2. Unable to direct all children through DOE unlike EI
  4.2.3. 80-100% of the child's need could be provided by the DOE, and what remains as a state plan only benefit should be nominal
  4.2.4. DOE should have a higher success rate in properly claiming for these services as it is new and the ABA providers are much more meticulous in charting than other DOE therapists
4.3. The service is typically supervised by a Board Certified Behavior Analyst (BCBA)
  4.3.1. Tricare reimburses this at $125.00/hour
  4.3.2. BCBAs typically do not provide the 1:1 direct, hands on service

4.4. The direct service is typically provided by a paraprofessional behavior technician

4.4.1. Tricare reimburses this at $50.00/hour and $75.00/hour based upon provider credential

4.5. There does not appear to be uniformity in rates between DOE/DOH-EI/DOH-DD/MR

5. Projection

Step 1: Establish a child count

Total Number of Children																	
AGE	**<3**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
DOE ASD		81	86	108	122	123	121	112	91	91	89	82	86	78	67	60	44	25
DOE Dev. Delay		527	648	621														
EIABA Services	224																	
Counts	224	608	734	729	122	123	121	112	91	91	89	82	86	78	67	60	44	25

Total Number of Children Targeted for Services											
AGE	**<3**	**3**	**4**	**5**	**6**	**7**	**8**	**10**	**14**	**16**	**19**
Combined DOE and DOH	224	608	734	729	122	123	121	91	86	67	25
% Medicaid	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%
Projection	105	286	345	343	57	58	57	43	40	31	12
Total	1,377										

Step 2: Establish a base for 100% participation and utilization

Comprehensive Intensive ABA Services								
Age	**# of Projected Medicaid Children**	**Service**	**Hours per child per week**	**Weeks per year**	**Total Hours for all**	**% DOH/ EI**	**% SPE D**	**Total Hours Not Carved Out: DHS**
0-3	105	Direct Service	30	40	126,336	100%		0
		Supervision	3	40	12,633			0
3-6	1,145	Direct Service	30	40	1,374,000		80%	274,800
		Supervision	3	40	137,400			27,480
		Assessment	3	10	34,350			6,870
		Parent Training	1	9/mo	10,305			2,061
6-8	244	Direct Service	3	40	29,280		80%	5,856
		Supervision	3	10	7,320			1,464

Comprehensive Intensive ABA Services								
Age	# of Projected Medicaid Children	Service	Hours per child per week	Weeks per year	Total Hours for all	% DOH/ EI	% SPE D	Total Hours Not Carved Out: DHS
		Assessment & Parent Training	1	9/mo	2,196			439

Focused ABA Services					
Age	# of Projected Medicaid Children	Service	Hours per child per cycle	% SPED	Total Hours Not Carved Out: DHS
7	58	Direct Service	120	80%	1,392
		Supervision	12	80%	139
		Assessment & Parent Training	30	20%	1,392
10	43	Direct Service	120	80%	1,032
		Supervision	12	80%	103
		Assessment & Parent Training	30	20%	1,032
14	40	Direct Service	120	80%	960
		Supervision	12	80%	96
		Assessment & Parent Training	30	20%	960
16	31	Direct Service	120	80%	744
		Supervision	12	80%	74
		Assessment & Parent Training	30	20%	744
19	12	Direct Service	120	80%	288
		Supervision	12	80%	29
		Assessment & Parent Training	30	20%	288

Step 3: Apply other factors against the base

Other factors could include:

- Participation rate, 100% of the services will not be utilized, in general
- Start up rate, service utilization would "ramp" up over a longer period of time
- Credentialing, as the Autism Bill currently is written, provision is not made for the technician level of direct service – which is a majority of the hours. The bill only supports qualified licensed providers and BCBAs

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Appendix E: Detailed Discussion of Applicable ASOPs

Wakely's review and this report comply with the following applicable ASOPs:

- ASOP No. 5, *Incurred Health and Disability Claims*
- ASOP No. 23, *Data Quality*
- ASOP No. 41, *Actuarial Communications*

Detailed comments regarding each ASOP follow.

ASOP 5: Incurred Health and Disability Claims

This report is consistent with the guidance in ASOP 5 regarding Incurred Health and Disability Claims.

Considerations for Estimating Incurred Claims

Wakely considered the impacts of health benefit plan provisions and business practices, economic influences, unique risk characteristics by block of business, legislative requirements, and carve-outs in developing our independent cost projection.

ASOP 23: Data Quality

Previous sections of this report document the data sources and reliances. A review of data, limitations and conflicts are discussed below

Process the Actuary Followed to Evaluate the Data

Wakely evaluated the information provided by reviewing it for reasonableness. Wakely did not perform an independent audit or otherwise verify the accuracy of the information.

Limitations, Unresolved Concerns or Significant Bias due to Uncertainty about the Data Quality or Defects in the data

There are no known limitations, unresolved concerns or significant bias of the actuarial work product due to issues with the quality of the information provided.

Conflicts

There were no known conflicts that arose during the course of this review.

ASOP 41: Actuarial Communications

This report is consistent with the guidance in ASOP 41 regarding Actuarial Communications.