

California Health Benefits Review Program

Analysis of California Senate Bill (SB) 1034 Health Care Coverage: Autism

A Report to the 2015–2016 California State Legislature

April 15, 2016



Key Findings:

Analysis of California Senate Bill (SB) 1034

Health Care Coverage: Autism

Summary to the 2015–2016 California State Legislature, April 2016



AT A GLANCE

Altering a current law that addresses coverage of behavioral health treatment for autism spectrum disorder (ASD), SB 1034 would: (1) require coverage for behavioral health treatment for maintenance of function; (2) prohibit denials based on parent/caregiver nonparticipation; (3) require coverage in all settings; and (4) prohibit plan/insurer review of treatment plans at less than 6-month intervals.

- **Enrollees covered.** In 2017, 18.3 million of 25.2 million Californians would have state-regulated health insurance that would be subject to SB 1034.
- **Medical effectiveness.** There is insufficient evidence to evaluate the effect of behavioral health treatment for maintaining improvements in outcomes; studies have not considered its effect on maintenance separately from its effect on improving function. A preponderance of evidence suggests parent/caregiver participation is beneficial but that behavioral health treatments improve outcomes regardless of parent/caregiver involvement. A preponderance of evidence suggests that behavioral health treatment is effective in many settings. There is insufficient evidence to evaluate the effect of varying plan/insurer review of treatment plans.

In the first postmandate year, requiring coverage for maintenance behavioral health treatment would have the following effects:

- **Benefit coverage.** 94% of enrollees with health insurance subject to SB 1034 would gain benefit coverage.
- **Utilization.** Utilization would increase to 47 annual hours per 1,000 enrollees (up by 3 hours).
- **Expenditures.** Total premiums and cost sharing would increase by \$8.3 million (0.006%).
- **Public Health.** Although the evidence is unclear, it seems reasonable to assume that there would be some improvement of some health outcomes for some enrollees with increased utilization.

Although unquantifiable, the other aspects of SB 1034 might also increase utilization of behavioral health treatment, particularly in the long term.

BACKGROUND

Autism spectrum disorder (ASD) is a developmental disability characterized by deficits in social interactions and communication, sensory processing, stereotypic (repetitive) behaviors or interests, and sometimes cognitive function. The symptoms of ASD fall along a continuum, ranging from mild impairment to profound disability. The estimated overall prevalence of ASD in California is 70.9 per 10,000 people. However, only a subset of the group is responsive to the behavioral health treatments. In addition, many of these persons are Medi-Cal beneficiaries, whose health insurance would not be subject to SB 1034.

BILL SUMMARY

Current law¹ requires coverage of behavioral health treatments for ASD, including interventions such as applied behavioral analysis (ABA). Current law also requires plans and insurers to maintain adequate provider networks that may include what the law defines as “qualified autism service” (QAS) providers supervising/employing QAS professionals and/or QAS paraprofessionals. Current law exempts from compliance the health insurance of enrollees associated with the California Public Employees’ Retirement System (CalPERS) and Medi-Cal beneficiaries enrolled in health plans regulated by the California Department of Managed Health Care (DMHC).

SB 1034 would amend the current law in a number of ways. SB 1034 would prohibit plans and insurers from denying coverage for behavioral health treatment for ASD when (1) the purpose is to “maintain” function; (2) due to a lack of parent/caregiver involvement; and (3) due to setting. The current law requires benefit coverage to “develop and restore” function, but does not address maintaining function, parent/caregiver involvement, or setting. SB 1034 would also generally prohibit plans/insurer review of treatment plans more frequently

¹ Health & Safety Code 1374.73 and Insurance Code 10144.51

than every 6 months unless a shorter period is recommended by the QAS provider. Plans and insurers often require treatment plans, and continuing coverage may be based on review of the treatment plan.

SB 1034 would alter the definition of QAS professional such that: (1) regional center² vendor status not be required; and (2) to include clinical management and case supervision. In addition, SB 1034 would alter the definitions of QAS professional and QAS paraprofessional to indicate that supervision, but not employment by a QAS provider is required.

SB 1034 would eliminate the current law's exemption for the health insurance of enrollees associated with CalPERS (but would leave the exemption associated with Medi-Cal beneficiaries).

SB 1034 would eliminate the current law's January 1, 2017, sunset date. However, in addition to the law that SB 1034 would alter, the current California mental health parity law³ also requires coverage for behavioral health treatment for persons with ASD.⁴ Therefore, coverage for behavioral health treatment for ASD would be required even if the law that SB 1034 would amend were to sunset.

SB 1034 would apply (see Figure 1) to the health insurance of all enrollees in DMHC-regulated plans and CDI-regulated polices, except those associated with Medi-Cal.

ANALYSIS

CHBRP has assumed that the current supply of QAS providers, professionals, and paraprofessionals could expand to meet any increase prompted by the changes SB 1034 would make to benefit coverage and subsequent utilization.

Medical Effectiveness

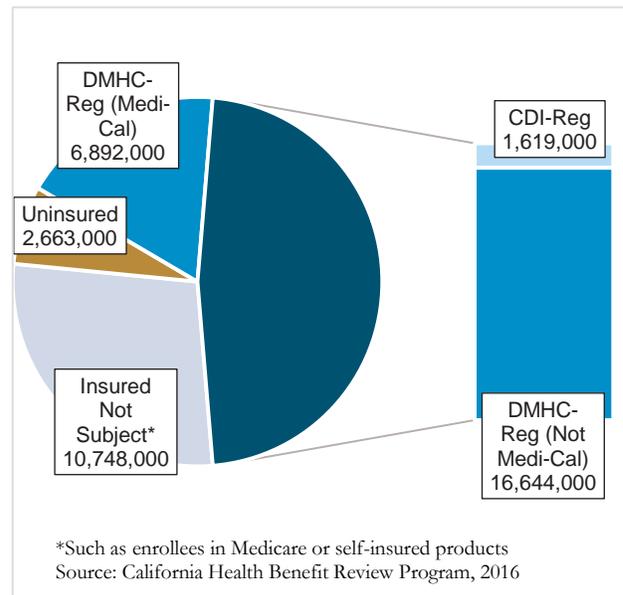
CHBRP found insufficient evidence to determine whether behavioral health treatment aimed at maintaining function derived from intensive behavioral health treatments is effective.

² One of the regional centers associated with California's Lanterman Developmental Disabilities Service Act of 1969.

³ H&SC Section 1374.72 and IC Section 10144.5.

⁴ Personal communication, J. Phillips, DMHC, 2016, and J. Figueroa, CDI, February 2013.

Figure 1. CA Health Insurance and SB 1034



Studies have not separately examined its effects on improvement of functioning from its effects on maintenance of improvements in functioning. In light of the large body of evidence from studies with moderately strong research designs that behavioral health treatment improves functioning across multiple domains, it stands to reason that it could also be useful for maintaining functioning.

A preponderance of evidence from studies with moderately strong research designs suggests that parent/caregiver involvement in behavioral health treatment improves outcomes. However, evidence also suggests that behavioral health treatments are more effective than usual care regardless of the degree of parent/caregiver involvement.

There is a preponderance of evidence from studies with moderately strong research designs that behavioral health treatment can be delivered effectively in multiple settings.

There is insufficient evidence to assess the impact of prohibiting health plans from reviewing treatment plans more frequently than every six months.

There is a preponderance of evidence from studies with moderately strong research designs that behavioral health treatment provided by persons who are trained or supervised by experienced behavioral health treatment providers improves outcomes.

Benefit Coverage

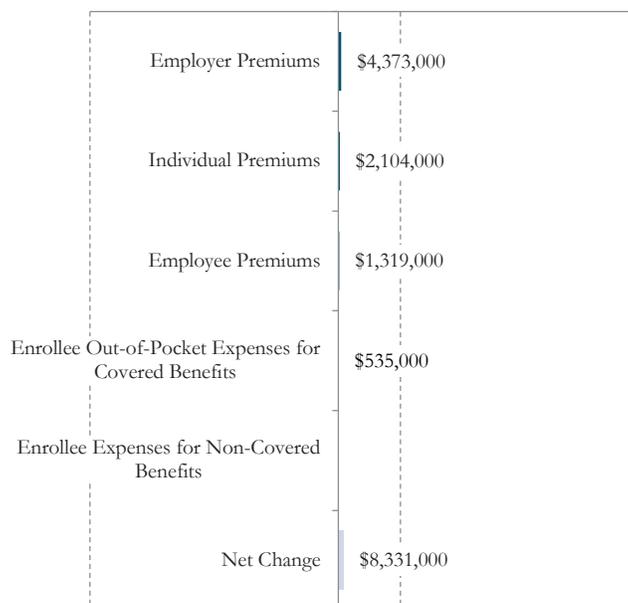
Of the varied requirements SB 1034 would place on DMHC-regulated plans and CDI-regulated insurers, CHBRP can only quantify the impacts of coverage for behavioral health treatment for ASD for maintenance. Currently 6% of enrollees with health insurance that would be subject to SB 1034 have such coverage; postmandate 100% would.

SB 1034’s other coverage requirements might have an impact on enrollees’ health insurance, but CHBRP is unable to quantify such effects.

Utilization and Expenditures

Post mandate, as a result of the coverage change for behavioral health treatment for ASD for maintenance, assuming that maintenance behavioral health treatment would occur for persons with ASD who use a moderate amount of behavioral health treatment (defined as \$10,000–\$30,000 per year), CHBRP would expect an initial year increase in utilization from approximately 44 to 47 annual hours per 1,000 enrollees with health insurance subject to SB 1034. Figure 2 displays the resulting change in expenditures.

Figure 2. Expenditure Impacts



Public Health

CHBRP found wide variance in individual outcomes from behavioral health treatment for ASD and insufficient literature from longitudinal studies to indicate that ongoing maintenance therapy is effective or necessary to preserve gains conferred by early intensive behavioral health treatment. Therefore, CHBRP concludes that the overall public health impact of SB 1034 is unknown. However, to the extent that maintenance therapy is comprised of less intensive applications of medically-effective behavioral health treatments, such as applied behavioral analysis (ABA), it would be reasonable to assume that, for some children and adolescents with a history of behavioral health treatment for ASD, maintenance therapy would reinforce and possibly enhance gains in intelligence quotient, adaptive social behaviors, and language skills.

Long-Term Impacts

Although CHBRP can make only directional statements, a number of aspects of SB 1034 could lead to greater increases in utilization of behavioral health treatment in the first year and in years following.

SB 1034’s prohibition against denials based on parent/caregiver involvement may increase some enrollees’ use of behavioral health treatment as a covered benefit. In addition, the elimination of restrictions on settings may increase use, particularly as public schools could now be covered settings. It is also possible that utilization of maintenance behavioral health treatment among the older population with ASD may increase. Although older people may not currently use behavioral health treatment for skill acquisition purposes, providers may develop an applicable treatment plan for maintenance of gains made through prior courses of behavioral health treatment among their older patients.

Although not quantifiable at this time, expenditure increases would correspond to utilization increases.

Although not quantifiable at this time, increases in utilization of could also be expected to result in some increase in some desirable health outcomes among some persons with ASD.

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ABOUT CHBRP

The California Health Benefits Review Program (CHBRP) was established in 2002 to provide the California Legislature with independent analysis of the medical, financial, and public health impacts of proposed health insurance benefit mandates and repeals, per its authorizing statute. The state funds CHBRP through an annual assessment on health plans and insurers in California.

An analytic staff in the University of California's Office of the President supports a task force of faculty and research staff from several campuses of the University of California to complete each CHBRP analysis. A strict conflict-of-interest policy ensures that the analyses are undertaken without bias. A certified, independent actuary helps to estimate the financial impact, and content experts with comprehensive subject-matter expertise are consulted to provide essential background and input on the analytic approach for each report.

More detailed information on CHBRP's analysis methodology, as well as all CHBRP reports and publications are available at www.chbrp.org.

TABLE OF CONTENTS

Key Findings	i
About CHBRP	v
List of Tables and Figures	vii
Policy Context	1
Bill-Specific Analysis of (SB) 1034, Autism	1
Background on Autism Spectrum Disorder	5
Prevalence of Autism Spectrum Disorders	7
Social Determinants of Health and Disparities in Autism Spectrum Disorder	8
Medical Effectiveness	10
Research Approach and Methods	10
Overall Study Findings	12
Benefit Coverage, Utilization, and Cost Impacts	16
Benefit Coverage	16
Utilization	17
Per-Unit Cost	18
Premiums and Expenditures	18
Related Considerations for Policymakers	19
Public Health Impacts	25
Estimated Public Health Outcomes	25
Estimated Impact on Financial Burden	27
Long-Term Impact of SB 1034	28
Long-Term Utilization and Cost Impacts	28
Long-Term Public Health Impacts	29
Impacts on Premature Death and Economic Loss	29
Appendix A Text of Bill Analyzed	A-1
Appendix B Literature Review Methods	B-1
Appendix C Cost Impact Analysis: Data Sources, Caveats, and Assumptions	C-1
References	
California Health Benefits Review Program Committees and Staff	
Acknowledgements	

LIST OF TABLES AND FIGURES

Table 1. SB 1034 Impacts on Benefit Coverage, Utilization, and Cost, 2017	viii
Table 2. Severity Levels for Autism Spectrum Disorder	6
Table 3. Baseline (Premandate) Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2017	21
Table 4. Postmandate Impacts of the Mandate on Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2017	23
Table C-1. Data for 2017 Projections	C-1
Table C-2. Prevalence of Persons With an Autism Spectrum Diagnosis by Age Group, California, 2014	C-7
Table C-3. Distribution of Persons With an Autism Spectrum Diagnosis by Dollar Amount Spent Annually on Behavioral Health Treatment, California, 2014.....	C-8
Figure 1. CA Health Insurance and SB 1034	ii
Figure 2. Expenditure Impacts	iii
Figure 3. Efficacy of Treatment	12
Figure 4. Impact of Frequency of Review	13
Figure 5. Impact of Parent/Caregiver Involvement	13
Figure 6. Impact of Setting	14
Figure 7. Impact of Supervision	15

Table 1. (SB) 1034 Impacts on Benefit Coverage, Utilization, and Cost, 2017

	Premandate	Postmandate	Increase/ Decrease	Change Postmandate
Benefit coverage				
Total enrollees with health insurance subject to state benefit mandates (a)	25,155,000	25,155,000	0	0%
Total enrollees with health insurance subject to (SB) 1034	18,263,000	18,263,000	0	0%
Number of enrollees with coverage for services related to maintenance for behavioral health treatment for ASD	1,058,000	18,263,000	17,205,000	1,627%
Percentage of enrollees with coverage for services related to maintenance for behavioral health treatment for ASD	6%	100%	94%	1,627%
Utilization and cost				
Number of enrollees diagnosed with ASD	36,000	36,000	0.00	0%
Number of enrollees utilizing behavioral health treatment for ASD	6,000	6,000	0.00	0%
Behavioral health treatment for ASD utilization (hours per 1,000 enrollees)	44.22	47.25	3.03	7%
Average per-hour cost of behavioral health treatment for ASD	\$142	\$142	-\$0.40	0%
Expenditures				
<u>Premium expenditures by payer</u>				
Private employers for group insurance	\$64,837,024,000	\$64,841,106,000	\$4,082,000	0.006%
CalPERS HMO employer expenditures (b)	\$4,756,143,000	\$4,756,434,000	\$291,000	0.006%
Medi-Cal Managed Care Plan expenditures	\$16,670,700,000	\$16,670,700,000	\$0	0.000%
Enrollees for individually purchased insurance	\$22,073,116,000	\$22,075,220,000	\$2,104,000	0.010%
Enrollees with group insurance, CalPERS HMOs, Covered California, and Medi-Cal Managed Care (c)	\$20,496,488,000	\$20,497,807,000	\$1,319,000	0.006%
<u>Enrollee expenses</u>				
Enrollee out-of-pocket expenses for covered benefits (deductibles, copayments, etc.)	\$16,248,327,000	\$16,248,862,000	\$535,000	0.003%
Total expenditures	\$145,081,798,000	\$145,090,129,000	\$8,331,000	0.006%

Source: California Health Benefits Review Program, 2016.

Notes: (a) This population includes persons with privately funded (including Covered California) and publicly funded (e.g., CalPERS HMOs, Medi-Cal Managed Care Plans) health insurance products regulated by DMHC or CDI. Population includes enrollees aged 0 to 64 years and enrollees 65 years or older covered by employer-sponsored health insurance.

(b) Enrollee premium expenditures include contributions to employer-sponsored health insurance, health insurance purchased through Covered California, and contributions to Medi-Cal Managed Care.

(c) Of the increase in CalPERS employer expenditures, about 56.7% or \$165,000 would be state expenditures for CalPERS members who are state employees, state retirees, or their dependents. This percentage reflects the share of enrollees in CalPERS HMOs as of September 30, 2015. CHBRP assumes the same ratio in 2016.

(d) Includes only those expenses that are paid directly by enrollees or other sources to providers for services related to the mandated benefit that are not currently covered by insurance. This only includes those expenses that will be newly covered postmandate. Other components of expenditures in this table include all health care services covered by insurance.

Key: ASD = autistic spectrum disorder; CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; DMHC = Department of Managed Health Care.

POLICY CONTEXT

The California Senate Committee on Health has requested that the California Health Benefits Review Program (CHBRP)⁵ conduct an evidence-based assessment of the medical, financial, and public health impacts of (SB) 1034.

If enacted, (SB) 1034 would affect the health insurance of approximately 18.3 million enrollees (47% of all Californians), which represents 73% of the 25.2 million Californians who will have health insurance regulated by the state that may be subject to any state health benefit mandate law — health insurance regulated by the California Department of Managed Health Care (DMHC) or the California Department of Insurance (CDI). If enacted, the law would affect the health insurance of enrollees in DMHC-regulated plans and CDI-regulated policies, exempting the health insurance of Med-Cal beneficiaries enrolled in DMHC-regulated plans.

Bill-Specific Analysis of (SB) 1034, Autism

A current law⁶ requires coverage of behavioral health treatment for autistic spectrum disorder (ASD). The law:

- Requires coverage for behavioral health treatment for ASD and specifies that behavioral health treatment is inclusive of evidence-based, behavioral intervention treatments such as applied behavioral analysis (ABA);
- Requires plans and insurers to maintain adequate provider networks that may include qualified autism service (QAS) providers supervising/employing QAS professionals or QAS paraprofessionals; and
- Exempts from compliance the health insurance of:
 - Enrollees associated with the California Public Employees' Retirement System (CalPERS); and
 - Medi-Cal beneficiaries enrolled in DMHC-regulated plans.

SB 1034 would amend the current law.

Bill Language

SB 1034 would alter the current benefit mandate law (behavioral health treatment for ASD) law in a number of ways. SB 1034 would:

- Prohibit plans and insurers from denying coverage for behavioral health treatment for ASD when:
 - The purpose of the behavioral health treatment is to “maintain” functioning (the current law prohibits denials related to behavioral health treatment intended to “develop and restore” functioning, but does not address “maintaining”).

⁵ CHBRP's authorizing statute is available at www.chbrp.org/docs/authorizing_statute.pdf.

⁶ Health & Safety Code 1374.73 and Insurance Code 10144.51.

- There is a lack of parent/caregiver involvement (the current law does not address parent/caregiver involvement).
- Based on setting in which behavioral health treatment is delivered (the current law does not address setting).
- Prohibit plans/insurer review of treatment plans more frequently than every 6 months unless a shorter period is recommended by the QAS provider (for coverage, plans and insurers often require treatment plans; coverage decisions may be based on the plan, and continuing coverage may be based on progress documented in updates of the plan).
- Alter the definition of QAS professional such that:
 - Regional center⁷ vendor status not be required; and
 - Include clinical management and case supervision.
- Alter the definitions of QAS professional and QAS paraprofessional to indicate that supervision (but not employment) by a QAS provider is required.
- Eliminate the mandate exemption for enrollees associated with CalPERS (but leave the exemption for Medi-Cal beneficiaries).
- Eliminate the mandate's sunset date (currently set for January 1, 2017).

In addition to the law that SB 1034 would alter, the current California mental health parity law⁸ also requires coverage for behavioral health treatment for persons with ASD.⁹ Therefore, coverage for behavioral health treatment for ASD would be required even if the law SB 1034 would amend were to sunset.

The full text of (SB) 1034 can be found in Appendix A, Text of Bill Analyzed.

General Caveat for All CHBRP Analyses

It is important to note that CHBRP's analysis of proposal benefit mandate bills addresses incremental effects — how the proposed legislation would impact benefit coverage, utilization, costs, and public health. CHBRP's estimates of these incremental effects are presented in this report.

Interaction With Existing Requirements

Health benefit mandates may interact and align with the following state and federal mandates or provisions.

⁷ One of the regional centers associated with California's Lanterman Developmental Disabilities Service Act of 1969.

⁸ H&SC Section 1374.72 and IC Section 10144.5.

⁹ Personal communication, J. Phillips, DMHC, 2016, and J. Figueroa, CDI, February 2013.

State Requirements

California law and regulations

As noted, SB 1034 would amend the current benefit mandate law¹⁰ that addresses behavioral health treatment for ASD.

In addition to the current law that SB 1034 would alter, another state-level health insurance benefit mandate, the current California mental health parity law¹¹ requires coverage for the diagnosis and medically necessary treatment of severe mental illnesses, including for ASD, for persons of any age. The law applies to the health insurance of most enrollees in DMHC-regulated plans and CDI-regulated policies, though it exempts from compliance the health insurance of Medi-Cal beneficiaries enrolled in DMHC-regulated plans. Coverage for behavioral health treatment for persons with ASD is required under the current California mental health parity law.¹²

Similar requirements in other states

At least 39 states and the District of Columbia (BCBSA, 2015) have passed health insurance benefit mandates related to treatment for ASD. Some states identify treatments for which coverage is specifically required. Over half of the states with health insurance benefit mandates related to autism specifically require coverage for applied behavioral analysis (ABA).

CHBRP is unaware, however, of any state with a mandate that defines QAS providers, QAS professionals, and QAS paraprofessionals.

CHBRP is also unaware of any state with a mandate that references “maintaining” function, that speaks to parent/caregiver enrollment, or that specifies the timing of plan/insurer review of treatment plans.

CHBRP is aware of a court decision in Pennsylvania¹³ that requires plan/insurer coverage of behavioral health treatment for ASD in schools.

Federal Requirements

Affordable Care Act and essential health benefits

A number of provisions of the Affordable Care Act (ACA) have the potential to or do interact with state benefit mandates. Below is an analysis of how SB 1034 may interact with requirements of the ACA, including the requirement for certain health insurance to cover “essential health benefits” (EHBs).¹⁴

State health insurance marketplaces, such as Covered California, are responsible for certifying and selling qualified health plans (QHPs) in the small-group and individual markets. Health insurance offered

¹⁰ Health & Safety Code 1374.73 and Insurance Code 10144.51.

¹¹ H&SC Section 1374.72 and IC Section 10144.5.

¹² Personal communication, J. Phillips, DMHC, 2016, and J. Figueroa, CDI, February 2013.

¹³ *Burke et al. v. Independence Blue Cross*, case number 2299 EDA 2011, in the Superior Court of the State of Pennsylvania.

¹⁴ The ACA requires nongrandfathered small-group and individual market health insurance — including, but not limited to, QHPs sold in Covered California — to cover 10 specified categories of EHBs. Resources on EHBs and other ACA impacts are available on the CHBRP website: www.chbrp.org/other_publications/index.php.

in Covered California is required to at least meet the minimum standard of benefits as defined by the ACA as essential health benefits (EHBs).

For two reasons, SB 1034 would not trigger financial costs to the state for exceeding EHBs. First, SB 1034 alters the terms and conditions of an existing benefit mandate, but does not require an additional benefit to be covered. Second, the current law that SB 1034 would alter expressly indicates that it ceases to function if it exceeds EHBs and SB 1034 does not eliminate this clause of the current law (so neither the current law nor the version SB 1034 would create function if they are deemed to exceed EHBs).

Federal Mental Health Parity and Addiction Equity Act

Although neither the current law nor SB 1034 would interact directly with it, it is worth noting that the federal Mental Health Parity and Addiction Equity Act (MHPAEA) address parity for mental health benefits.¹⁵ The MHPAEA does not require coverage for behavioral health treatment for ASD or address relevant provider types, but it does require that if mental health or substance use disorder services are covered, cost-sharing terms and treatment limits be no more restrictive than the predominant terms or limits applied to medical/surgical benefits. The MHPAEA applies to the large-group, as well as small-group and individual market plans and policies purchased through a state health insurance marketplace. This federal requirement is similar to the California mental health parity law, although the state law applies to some plans and policies not subject to the MHPAEA.

¹⁵ Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA), as amended by the ACA.

BACKGROUND ON AUTISM SPECTRUM DISORDER

ASD = autism spectrum disorder

DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*

QAS = qualified autism service — designation applied in California law to some providers, professionals, and paraprofessionals

Autism spectrum disorder (ASD) is a developmental disability characterized by deficits in social interactions and communication, sensory processing, stereotypic (repetitive) behaviors or interests, and sometimes cognitive function (APA, 2013; CDC, 2014). As reflected by the phrase “autism spectrum disorder,” the symptoms of ASD fall along a continuum, ranging from mild impairment to profound disability (Table 2). To receive an ASD diagnosis, individuals must demonstrate symptoms from early childhood, with children typically becoming symptomatic between the ages of 2 and 3. Additionally, individuals whose symptoms do not manifest until later in life may receive a retroactive diagnosis but may not receive critical early interventions (APA, 2013).

In May of 2013, the American Psychiatric Association published the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) that revised the previously established methodology for ASD diagnosis. As currently defined, autism spectrum disorder (ASD) now encompasses five conditions that were previously distinct in the DSM-4, yet shared many common symptoms: autistic disorder, Asperger syndrome, Rhettt’s syndrome, childhood disintegrative disorder, and pervasive developmental disorders not otherwise specified (APA, 2013; Wheeler et al., 2015).

Previous CHBRP analyses broadly referenced these conditions as Pervasive Developmental Disorders (PDDs), but will now refer to “ASD” so as to align with the current clinical diagnostic designation in the DSM-5 and ICD-10 classification systems.

Table 2. Severity Levels for Autism Spectrum Disorder

Severity Level	Social Communication	Restricted, Repetitive Behaviors
Level 1: requiring support	<ul style="list-style-type: none"> Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person whose attempts to make friends are odd and typically unsuccessful. 	<ul style="list-style-type: none"> Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.
Level 2: requiring substantial support	<ul style="list-style-type: none"> Marked deficits in verbal and nonverbal social communication skills Social impairments apparent even with supports in place Limited initiation of social interactions Reduced or abnormal responses to social overtures from others. 	<ul style="list-style-type: none"> Restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress or frustration is apparent when restricted/repetitive behaviors are interrupted. Difficult to redirect from fixated interest.
Level 3: requiring very substantial support	<ul style="list-style-type: none"> Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning Very limited initiation of social interactions, and minimal response to social overtures from others 	<ul style="list-style-type: none"> Restricted/repetitive behaviors markedly interfere with functioning in all spheres. Marked distress when rituals or routines are interrupted. Very difficult to redirect from fixated interest or returns to it quickly.

Source: Diagnostic and Statistical Manual of Mental Disorders (DSM-5), 2013.

The cause (or causes) of ASD is unknown, and research into genetic etiology as well as environmental factors continues to be explored. There is no cure for ASD; however, there is some evidence that treatment, including behavioral health treatment, may improve some symptoms (See the *Medical Effectiveness* section,).

ASD is associated with other comorbidities, such as epilepsy and intellectual disability. The Centers for Disease Control and Prevention’s (CDC’s) Autism and Developmental Disabilities Monitoring (ADDM) Network reports that 38% of their network’s ASD population (children aged 8 years) are classified as intellectually disabled (intelligence quotient [IQ] ≤70), and 24% are classified as borderline status (IQ 71–85), with the remaining 38% scoring in the average to above-average IQ range (CDC, 2014). The CDC

collects this data through the 11 ADDM Network sites around the country (but not in California). For each surveillance year, the CDC conducts medical chart reviews for 8-year-olds, because most children with ASD would be diagnosed by that age. In 2014, the California Department of Developmental Services (DDS) reported that 23% of its clients with ASD had some form of intellectual disability (mild, moderate, severe, or profound), of which 4.3% were severely or profoundly impaired.¹⁶

Prevalence of Autism Spectrum Disorders

Estimates of prevalence of ASD in the United States and worldwide have been increasing over the last 20 years (Fombonne, 2009). Nationally, the CDC estimates that 147 per 10,000 children have an ASD diagnosis, which marks a 123% increase in prevalence from 2002 estimates of 66 per 10,000 children (CDC, 2016). Likewise, the number of Californians with autism served by DDS increased 33-fold between 1987 and 2012.¹⁷ Researchers frequently note that increasing prevalence rates and variation in published rates over time may be attributable to multiple reasons (Charman et al., 2009; Croen et al., 2006; Dave and Fernandez, 2015; Leonard et al., 2010; Williams et al., 2006) such as:

- Increased absolute risk for ASD;
- Health care provider variation in diagnosis over time;
- Variety of study methodologies (e.g., sample size, administrative vs. survey data, and population demographic characteristics);
- Reliability and sensitivity of screening tests;
- Displacement of other mental disorders;
- Changing ASD definitions; and
- Increasing awareness of ASD (as a condition) or increasing availability of services used to treat ASD.

Although the diagnostic criteria for ASD have broadened over time (Elsabbagh et al., 2012), the newer criteria outlined in the DSM-5 may dampen the rate of increase attributable to changing definitions in the United States. Specifically, several studies observed reductions in ASD diagnoses ranging from 9%–33% when DSM-5 criteria were applied to children meeting the requirements for PDD/A under DSM IV, with reductions in diagnoses among those previously identified as PDD-NOS (70%) accounting for the greatest differences (Huerta et al., 2012; Kulage et al., 2014).

ASD prevalence in California

The estimated overall prevalence of ASD in California is 70.9 per 10,000 people.¹⁸ However, there is wide variance in clinical responsiveness to the behavioral health treatments addressed in SB 1034 among the population with an ASD diagnosis, and different therapies may be better suited to some children than others.. For a detailed discussion of behavioral health treatment use among the insured population in California please, see the *Benefit Coverage, Utilization, and Cost Impacts* section.

¹⁶ Personal communication, P. Choate, DDS. March 2015.

¹⁷ Personal communication, P. Choate, DDS. March 2015.

¹⁸ CHBRP, 2015, Analysis of California Assembly Bill AB 796 Autism and Pervasive Developmental Disorders.

Social Determinants of Health¹⁹ and Disparities²⁰ in Autism Spectrum Disorder

Per statute, CHBRP now includes a discussion of disparities under the broader umbrella of social determinants of health (SDoH). SDoH include factors outside of the traditional medical care system that influence health status and health outcomes. CHBRP will consider the full range of SDoH and related disparities (e.g., income, education and social construct around age, race/ethnicity, gender, and gender identity/sexual orientation) that are relevant to this bill and where evidence is available. In the case of SB 1034 evidence shows that ASD occurs disproportionately among males and whites. Additionally, children living in rural and low-income areas experience greater barriers in access to behavioral health treatment for autism.

Disparities in Prevalence

Gender disparities

In 2016, the CDC reported a higher ASD prevalence rate among 8-year old males in the 11 ADDM network sites, in whom rates are four and a half times higher than in females (CDC, 2016). Comparatively, the California Department of Developmental Services (DDS) reported a ratio of males to females with autism as 4.6:1, which corresponds with national findings cited above. DDS also reported that the male-dominated prevalence crossed all races and geographic regions in California (DDS, 2009).

There is some conflicting evidence of gender differences in ASD symptoms, but no evidence of gender differences in treatment patterns or health outcomes related to ASD. Several studies found that females diagnosed with autism were more likely to have cognitive impairment as compared with males (CDC, 2016; Werling and Geschwind, 2013; Yeargin-Allsopp et al., 2003). However, DDS reported that males with ASD had a higher prevalence at every severity level of intellectual disability diagnosis, although the rates varied (5.2:1 for no impairment to 2.4:1 for profound intellectual impairment) (DDS, 2009).

Race/ethnicity disparities

The CDC's recent study of 11 sites across the United States reported significantly greater pooled prevalence among white children (155/10,000) than among black children (132/10,000) and Hispanic children (101/10,000) (CDC, 2016), although prevalence by race varied by individual sites. Among those provided ASD services by California's DDS, the four largest race/ethnic groups were distributed as follows: whites accounted for 36% of the clients, Hispanics 31%, Asians 9%, and blacks 8%. The remaining 17% were "other," Filipino, Native American, and Polynesian (DDS, 2012). By contrast, Hispanics account for 50% of children aged 0 to 21 years in California, followed by whites (27%), Asians (12%), blacks (5%), and "other" (6%) (CHIS, 2016).

¹⁹ CHBRP defines social determinants of health as conditions in which people are born, grow, live, work, learn, and age. These social determinants of health (economic factors, social factors, education, physical environment) are shaped by the distribution of money, power, and resources and impacted by policy (adapted from Healthy People 2020, 2015). See SDoH white paper for further information.

²⁰ Several competing definitions of "health disparities" exist. CHBRP relies on the following definition: "Health disparities are potentially avoidable differences in health (or health risks that policy can influence) between groups of people who are more or less advantaged socially; these differences systematically place socially disadvantaged groups" at risk for worse health outcomes (Braveman, 2006).

Disparities in access to behavioral health treatment for ASD

Studies of children with ASD consistently show that children from low-income and less educated families are less likely to receive behavioral health treatment than their higher income, better educated counterparts. Data from the 2005 National Survey of Children with Special Health Care Needs (NSCSHCN) included 2,900 families with children with ASD. Analysis of this survey found that families below 200% of the Federal Poverty Line were about 30% less likely to receive appropriate referrals and 30% more likely to delay or defer care for their child with ASD (Thomas et al., 2012). A smaller study revealed that parents with a lower educational level accessed less intensive therapies compared to parents with higher educational levels who accessed higher intensity services, even when provided in a school setting (Siller et al., 2014). Similarly, data from the 2009/2010 NSCSHCN indicates that parents of Latino and Black children with ASD were 45% less likely than whites to report that providers spent adequate time with their children, and were about 40% less likely to feel that their child's special needs provider was sensitive to their values and customs (Magana et al., 2015).

QAS provider shortages are less well documented, but reports by stakeholder groups and parents suggest that provider shortages create unique barriers to behavioral health treatment for low-income and rural families. Interviews with stakeholders in five states with autism insurance mandates, including California, reported that families were better able to access treatment services, but that shortages of licensed providers were identified by both consumer advocates and insurance companies (Baller et al., 2015). To further complicate matters, stakeholders reported that low insurance reimbursement rates discourage QAS providers from accepting private insurance (Baller et al., 2015). A recent research review found three of six studies on geographic variation in age of autism diagnosis, which is the start of autism treatment services, identified barriers for rural compared to urban families (Daniels and Mandell, 2014).

MEDICAL EFFECTIVENESS

The American Academy of Child and Adolescent Psychiatry (AACAP) and the American Academy of Pediatrics (AAP) recommend that children and adolescents with ASD receive treatment that CHBRP terms as behavioral health treatment (Myers and Johnson, 2007; Volkmar et al., 2014).²¹ The primary goals of treatment are to maximize independence, learning, and quality of life by minimizing the core autism symptoms. Both guidelines recommend intensive behavioral health treatment is recommended for persons with Level 2 or Level 3 ASD. (See the *Background on Autism Spectrum Disorder* section of this report for a description of ASD severity levels.) Less intensive behavioral health treatment is recommended for children with Level 1 ASD because their symptoms are less severe. Previous CHBRP reports have concluded that the preponderance of evidence, which comes primarily from studies with moderately strong research designs, suggests that behavioral health treatment increase IQ and improve adaptive behaviors, such as communication, daily living, motor skills, and social skills (CHBRP, 2015).

Many behavioral health treatments utilize applied behavior analysis (ABA), a theoretical framework for behavioral change that emphasizes using reinforcement to teach children with ASD basic social skill skills. Some behavioral health treatments are comprehensive interventions that seek to improve multiple ASD symptoms, whereas others focus on specific skills or symptoms and are usually provided for shorter periods of time and fewer hours per week than comprehensive interventions (Wong et al., 2015). Early applied behavioral analysis (ABA)-based behavioral health treatments, such as Early Intensive Behavioral Intervention, emphasized highly structured interventions. More recent applied behavioral analysis (ABA)-based behavioral health treatments combine highly structured interventions with naturalistic interventions based on developmental psychology that focus on imitation, joint attention, and symbolic play. (Bradshaw et al., 2015; Schreibman et al., 2015). Other intensive behavioral health treatments models are based solely on developmental theory of behavior change, such as the Developmental, Individual Difference, Relationship-Based Floortime model.

Research Approach and Methods

Analytic Approach and Key Assumptions

CHBRP's literature review for SB 1034 addresses the following research questions.

- Is behavioral health treatment effective for maintaining improvements in functioning among persons with ASD?
- Is there an optimal frequency with which health plans should review treatment plans for behavioral health treatment for persons with ASD?
- Does the provision of behavioral health treatment by parents and caregivers as well as professionals and paraprofessionals improve functioning among persons with ASD?
- Does behavioral health treatment improve functioning among persons with ASD regardless of the setting in which it is provided?
- Can behavioral health treatment be provided effectively by persons who are supervised by professionals who have experience providing behavioral health treatment?

²¹ In addition to behavioral health treatments, children with ASD often receive other treatments such as psychological care, pharmacotherapy, physical therapy, speech therapy, and occupational therapy. These treatments are sometimes combined into "packages of services" that also include BHT.

CHBRP did not update its previous reviews of literature on the effectiveness of behavioral health treatment for improving functioning because carriers would be required to cover behavioral health treatment for these purposes regardless of whether SB 1034 is enacted because they are required to do so under California's mental health parity law. Instead, the review focused on literature relevant to the research questions described above.

Studies of behavioral health treatment for ASD were identified through searches of MEDLINE (PubMed), the Cochrane Database of Systematic Reviews, the Cochrane Register of Controlled Clinical Trials, PsycInfo, Web of Science, and EconLit. Because CHBRP's medical effectiveness review had previously conducted thorough literature searches on this topic in 2011, 2013, 2014, and 2015 for reports on bills relevant to ASDs, the search was limited to studies published from 2015 to present. Of the 321 articles found in the literature review, 40 were reviewed for potential inclusion in this report on SB 1034, and seven studies were included in the medical effectiveness review for this report. The medical effectiveness review also presents findings from the studies that were included in CHBRP's earlier reports on bills relevant to ASD.

The review focused on studies of behavioral health treatments that address the core symptoms of ASD, such as maladaptive behavior, stereotypic (repetitive behaviors or interests, and deficits in communication and social interaction). Studies that assessed the use of behavioral health treatments for co-occurring disorders, such as anxiety and depression, were not included.

Methodological Considerations

The literature pertinent to SB 1034 limited. CHBRP identified no studies that directly assessed the impact of behavioral health treatment aimed at maintaining improvements in functioning for persons with ASD. CHBRP also did not identify any studies regarding the frequency with which health plans review treatment plans for behavioral health treatments. In addition, some studies compared treatments delivered in two different settings, such as homes and schools, but the treatments differed as well as the settings. Because both settings and treatments differed, CHBRP could not disentangle the effects of differences in setting from the effects of differences in treatment. Similarly, most studies of parent involvement in behavioral health treatment do not compare the same behavioral health treatment with and without parent involvement, making it impossible to isolate the effect of parent involvement on outcomes for persons with ASD.

Overall Study Findings

Maintenance of Treatment Effects

Neither the AAP nor the AACAP guidelines contain recommendations for provision of behavioral health treatment to maintain functioning. CHBRP did not identify any controlled studies that assessed the effectiveness of behavioral health treatments that are expressly designed to maintain functioning of persons with ASDs. Thus, there is insufficient evidence to conclude that behavioral health treatment is effective for maintaining functioning. Insufficient evidence is not evidence of no effect. It means that there is not enough evidence to know whether a treatment is effective.

There is a large body of literature that finds that receipt of behavioral health treatment improves behavioral, cognitive, and language outcomes for persons with ASDs. Thus, it stands to reason that such treatment could also be useful for maintaining functioning.²² Some studies have assessed behavioral health treatments that included components aimed at maintaining improvements in functioning but the effects of these components have not been studied separately from components of these treatments that are aimed at improving functioning.

Figure 3. Efficacy of Treatment

Maintenance	Conclusion
<p>Treatment to Maintain Benefits of Intensive Behavioral Health Treatment</p>	<p>CHBRP found insufficient evidence to determine whether behavioral health treatment aimed at maintaining benefits derived from intensive behavioral health treatment is effective. In light of the evidence of the effectiveness of intensive behavioral health treatment, it stands to reason that behavioral health treatment could also be useful for maintaining functioning.</p>

Frequency of Review

Neither the AAP nor AACAP guidelines recommend a timeframe within which health plans should review treatment plans for behavioral health treatment to determine whether to continue providing coverage or to change the intensity or type of behavioral health treatment that is covered. **CHBRP found no studies of the impact of requiring health plan to review of treatment plans no more than every 6 months versus permitting health plans to review treatment plans more frequently.**

²² Natacha Akshoomoff, PhD, personal communication, March 29, 2016 and David Mandell, ScD, personal communication, March 30, 2016.

Figure 4. Impact of Frequency of Review

Frequency of Treatment Plan Review	Conclusion
Frequency of Review of Treatment Plans for Coverage Determinations	CHBRP found insufficient evidence to assess the impact of prohibiting health plans from reviewing treatment plans for behavioral health treatment more frequently than every 6 months.

Impact of Parent/Caregiver Involvement

Recommendations for best practices in behavioral health treatment for children with ASD call for parents/caregivers to be actively engaged in providing treatment, especially for young children (National Research Council, 2001; Volkmar et al., 2014; Zwaigenbaum et al., 2015). Parents/caregivers play a major role in guiding a child’s development and may be able to augment treatment provided by paid therapists. In particular, parents/caregivers can help children generalize skills across multiple settings.

A synthesis of meta-analyses of studies of early intensive behavioral health treatments that were published between 2009 and 2011 concluded that interventions that involved parents in providing treatment were more effective than interventions that were provided solely by professionals and/or paraprofessionals (Strauss et al., 2013). However, most of the studies included in the synthesis were not RCTs, which limits the strength of their findings about the effects of treatment. In addition, few studies have directly assessed the impact of adding parent/caregiver treatment to a behavioral health treatment provided by professionals and/or paraprofessionals. Perhaps the most relevant study is a RCT that compared a behavioral health treatment directed by professionals and paraprofessionals to a treatment directed by parents in which professionals and paraprofessionals did not provide as many hours of treatment. The authors found that cognitive function, language use, and adaptive behavior improved for children with ASD in both groups (Sallows and Graupner, 2005). This finding suggests that behavioral health treatment improves outcomes regardless of the extent of parent involvement.

Figure 5. Impact of Parent/Caregiver Involvement

Parent/Caregiver Involvement	Conclusion
Impact of Parent/Caregiver Involvement on the Effectiveness of Behavioral Health Treatment	Evidence from a large number of nonrandomized studies with moderately strong research designs suggests that parent involvement in behavioral health treatment improves outcomes relative to treatment provided only by professionals and/or paraprofessionals but that behavioral health treatment improves outcomes relative to usual care regardless of the degree of parent involvement in treatment.

The diagram illustrates a spectrum of evidence effectiveness. On the left, labeled 'Not Effective', there is a red-to-yellow gradient bar with 'Clear and Convincing' and 'High' evidence markers. On the right, labeled 'Effective', there is a yellow-to-green gradient bar with 'Clear and Convincing' and 'High' evidence markers. A blue arrow points down from the 'Effective' side. Below the spectrum are two boxes labeled 'Preponderance of Evidence'.

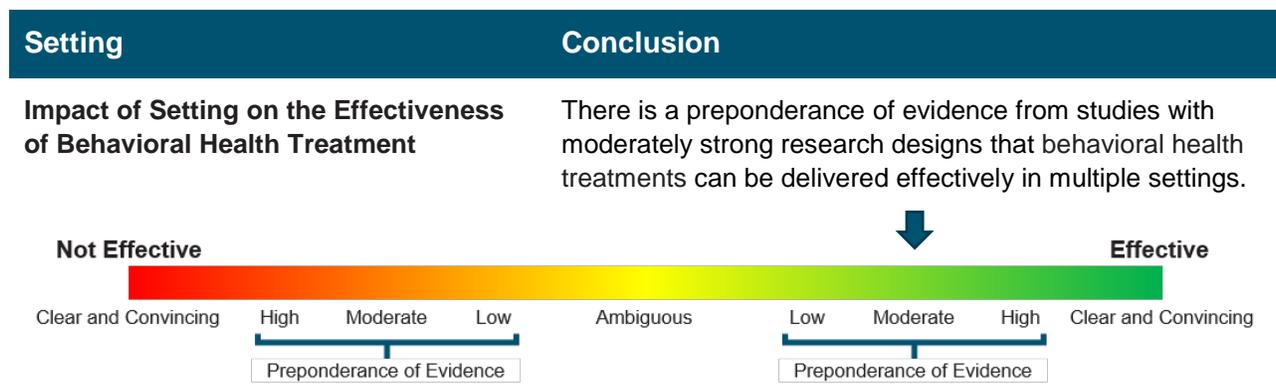
Effectiveness of Behavioral Health Treatment Delivered in Different Settings

Studies of behavioral health treatments have evaluated treatments provided in homes, autism treatment centers, and schools (preschools, elementary schools, and secondary schools). Some studies examined behavioral health treatments that were provided in more than one setting. For example, one of the first studies of an intensive behavioral health treatment based on applied behavioral analysis (ABA) assessed a treatment that was provided in homes, preschools, and the community (Lovaas, et al., 1987). Two recent randomized controlled trials (RCTs) of less intensive behavioral health treatments examined treatments conducted in homes and autism treatment centers (Bears et al., 2015; Tonge et al., 2014).

As discussed in the *Long-Term Impact of SB 1034* section, one potential effect of SB 1034 may be to increase the provision of behavioral health treatment in schools. A recent RCT of a low-intensity intervention that was provided at schools during recess increased peer engagement but that the effect was not sustained after the intervention ended (Kretzmann, et al., 2015). A RCT of an intervention that combined direct instruction and socializing at school with typically developing peers (i.e., peers without ASD or other developmental disabilities) reported that the intervention was associated with more frequent social initiation, better social skills, and more growth in language and adaptive communication (Kamps et al., 2015). Recent studies have also examined comprehensive behavioral health treatments provided in schools. A cluster RCT compared a comprehensive, school-based behavioral health treatment for preschoolers with autism spectrum disorders compared this treatment to usual school-based treatments for autism spectrum disorders. The authors found that the comprehensive behavioral health treatment was associated with small improvements in receptive language and social skills relative to usual care (Young et al., 2016).

In all settings in which intensive behavioral health treatments have been studied, studies have found that treatment is associated with improvement in IQ, adaptive behavior, and language, which suggests that behavioral health treatments are effective regardless of the setting in which they are delivered (CHBRP 2015). However, CHBRP found no studies that compared the delivery of the same behavioral health treatment intervention in different settings. Some studies compare intensive behavioral health treatments delivered in children’s homes to “eclectic” interventions delivered in schools (Cohen et al., 2006; Magiati et al., 2007), but these studies do not provide evidence of the relative effectiveness of providing an intensive behavioral health treatments in different settings because the effects of differences in setting cannot be separated from the effects of differences in interventions.

Figure 6. Impact of Setting



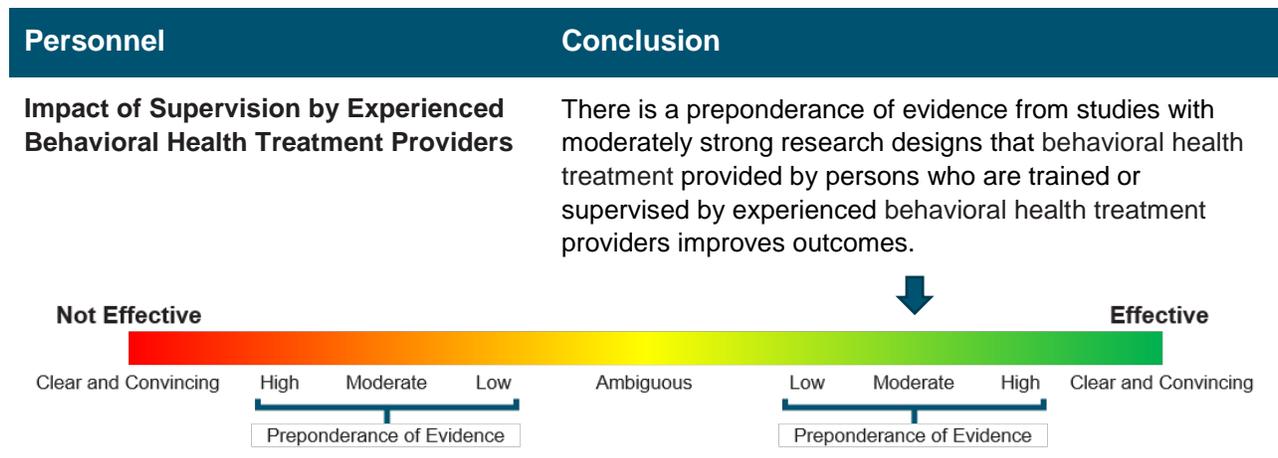
Effects of Delivery of Behavioral Health Treatment by Different Personnel on Behavioral Health Outcomes

Studies of behavioral health treatments for ASDs have evaluated treatments provided by a wide range of personnel, including: certified applied behavioral therapists, child care workers, counselors, early childhood educators, nurses, occupational therapists, psychologists, speech and language therapists, students, teachers, teachers' aides/paraprofessionals, and parents (CHBRP, 2015). Persons who did not have graduate degrees in behavior analysis or a related field were typically supervised by personnel with graduate degrees. Descriptions of the credentials of personnel providing behavioral health treatments were inconsistent across studies, which limits the ability to determine which treatments utilized personnel similar to QAS professionals or QAS paraprofessionals

The preponderance of evidence suggests that behavioral health treatments that are delivered by persons who are trained or supervised by experienced behavioral health treatment providers are effective in improving outcomes. A recent systematic review concluded that behavioral health treatments based on applied behavioral analysis (ABA) that were delivered by "nonspecialized" personnel (e.g., nurse practitioner, teacher, teacher's aide, parent) who were trained and supervised by persons with expertise in applied behavioral analysis (ABA) improved IQ, language, daily living skills, and motor skills among lower-functioning children with autism relative to usual care (Reichow et al., 2013). Another systematic review found that receiving behavioral health treatment from personnel who are trained by experienced behavioral health treatment professionals to deliver behavioral health treatment is associated with improvements in cognition, language, and autism symptoms, particularly among higher-functioning children (Shire and Kasari, 2014). Most studies included in these systematic reviews have moderately strong research designs.

CHBRP did not identify any studies of the impact of allowing QAS professionals and QAS paraprofessionals to be supervised by but not necessarily employed by QAS providers. CHBRP also did not identify any studies regarding the qualifications of QAS professionals to provide clinical management and case supervision services.

Figure 7. Impact of Supervision



BENEFIT COVERAGE, UTILIZATION, AND COST IMPACTS

(SB) 1034 would require DMHC-regulated health plans and CDI-regulated policies to expand the already existing benefit mandate around behavioral health treatment for autism, including behavioral health treatment for the purposes of maintenance of functioning, as well as prohibiting refusal of coverage due to either the lack of parental involvement in the treatment plan or the setting of the therapy. SB1034 would also limit the review of the treatment plan to no more than once per 6 months, except in cases of medical necessity. To assess the benefit, cost, and utilization impacts of SB 1034, CHBRP assumes that behavioral health treatment for the purposes of maintenance of functioning is billed under the same billing codes as all other behavioral health treatment for autism, with a reduction in the number of hours required in the treatment plan. CHBRP also examined the impact of SB 1034 for the full population of people with an autism spectrum disorder (ASD) diagnosis, because the bill does not indicate an age limit.

After consultation with content experts²³ and examination of the available literature (see the *Medical Effectiveness* section), CHBRP determined that only the inclusion of coverage of behavioral health treatment for maintenance has a quantifiable impact on utilization of behavioral health treatment in the first year if SB 1034 were enacted. The other provisions of SB 1034, including not prohibiting coverage due to lack of parental involvement, expansion of potential settings, elimination of the existing mandate's sunset provision, changing the definitions of employment, and limiting the number of treatment plan changes, have an unknown, unquantifiable impact.

Therefore, CHBRP included only the projected increases in utilization due to increased benefit coverage of behavioral health treatment for maintenance in the estimates provided for the first-year impact, and these estimates should be considered to be a lower-bound estimate. Other provisions of SB 1034 are likely to have unquantifiable impacts beyond the first year post-enactment, and therefore are discussed in the *Long-Term Impact of SB 1034* section.

This section reports the potential incremental impact of (SB) 1034 on estimated baseline benefit coverage, utilization, and overall cost. For further details on the underlying data sources and methods, please see Appendix C.

Benefit Coverage

Premandate (Baseline) Benefit Coverage

Currently, 6% of enrollees subject to (SB) 1034 (18,263,000 enrollees) have coverage through a DMHC-regulated plan or a CDI-regulated policy that includes maintenance in the definition of covered types of behavioral health treatment for people with an ASD diagnosis (Table 1). The number of enrollees subject to SB 1034 does not include Medi-Cal beneficiaries enrolled in DMHC-regulated plans, because their health insurance would be exempt from the mandate.

Current coverage of behavioral health treatment for autism to include maintenance was determined by a survey of the six largest providers of health insurance in California. Responses to this survey represent:

- 74% of enrollees in the entire privately funded market subject to state mandates, including
 - 79% of enrollees in the DMHC-regulated market subject to state mandates, and

²³ Conversations with Dr. Natacha Akshoomoff, UC San Diego, February 26, 2016 and Dr. David Mandell, University of Pennsylvania, March 10, 2016.

- 42% of enrollees in the CDI-regulated market subject to state mandates.

Postmandate Benefit Coverage

Postmandate, 100% of all enrollees in DMHC-regulated plans or CDI-regulated policies subject to SB 1034 would have coverage for behavioral health treatment for ASD for maintenance (Table 1).

Utilization

Premandate (Baseline) Utilization

Currently, the rate of total utilization of behavioral health treatment is 44.22 annual hours per 1,000 enrollees subject to SB 1034 (see Table 1). This represents a total annual usage, not an individual calculation per enrollee. Using California-specific MarketScan data for 2014, CHBRP estimates that of 36,000 enrollees with ASD with health insurance that would be subject to SB 1034, 6,000 utilize behavioral health treatment without the enactment of SB 1034 (see Table 1). Prevalence of enrollees with ASD was calculated for private market coverage enrollees subject to SB 1034, and does not include the higher prevalence among enrollees in Medi-Cal managed care plans, as this coverage is exempt from the mandate. For a detailed explanation of the methodology, please refer to Appendix C.

Postmandate Utilization

CHBRP estimates that postmandate, the total utilization of behavioral health treatment will increase to 47.25 annual hours per 1,000 enrollees with health insurance subject to SB 1034 (see Table 1), because the addition of coverage for maintenance will cause an increase in behavioral health treatment by an average of 3.03 hours. This increase is based on an assumption of a 20% increase in behavioral health treatment for maintenance among people with an ASD diagnosis who used a moderate amount (\$10,000–\$30,000 per year) of behavioral health treatment services.

The projected change in utilization is based on the ability to identify behavioral health treatment intended for the purposes of maintenance of functioning, because this category is not distinct within the ICD-9 codes providers use to identify use of behavioral health treatment services. CHBRP assumed that using between \$10,000–\$30,000 annually of behavioral health treatment services indicated moderate use of behavioral health treatment, which includes maintenance (in contrast to intensive behavioral health treatment, which entails using over \$30,000 of services annually). The 20% increase in moderate behavioral health treatment use was agreed upon as a reasonable assumption of increase by CHBRP in consultation with our content expert.²⁴ The increase is for all moderate use of behavioral health treatment over the entire population, and therefore includes potential new users. See Appendix C for a fuller explanation.²⁵

²⁴ Conversations with Dr. Natacha Akshoomoff, UC San Diego, March 31, 2016, and Dr. David Mandell, University of Pennsylvania, March 10, 2016.

²⁵ CHBRP cannot quantify how many enrollees have been denied coverage due to lack of parental involvement, and who therefore have not been able to utilize BHT, although that number is likely to be higher than zero. Additionally, CHBRP cannot quantify how much BHT has been taking place at a setting not covered in the current mandate. These two factors combined make the projections of postmandate utilization change the lower-bound estimate, as there may be some additional increase in utilization in the first year postmandate due to pent-up demand from previous lack of coverage.

Impact on access and health treatment/service availability

According to the limited published research on nationwide state mandates, the increase in utilization will likely be matched by an increase in qualified provider supply, including the hiring and training of additional providers of behavioral health treatment. According to Chatterji et al. (2015), the initial mandate that enacted coverage of behavioral health treatment for autism services was not associated with a decrease in access to care (measured by delays in care). They found no evidence of supply not meeting the increased demand, in all states that enacted mandates. Baller et al. (2015) found that key stakeholders in California reported increased hiring directly related to the original mandate to cover behavioral health treatment for autism. California's expansion of the existing mandate will likely continue this trend, and CHBRP anticipates no shortage of providers for behavioral health treatment for autism services or impact on access to services.

Per-Unit Cost

Premandate (Baseline) and Postmandate Per-Unit Cost

Premandate, CHBRP calculates the baseline per hour unit cost of behavioral health treatment is \$142 using MarketScan data, and this is projected to drop by an average of \$0.40 if SB 1034 were to be enacted. The projected drop in average per hour cost is due to the increase in moderate use of services postmandate.

Premiums and Expenditures

Premandate (Baseline) Premiums and Expenditures

Table 3 presents per member per month (PMPM) premandate estimates for premiums and expenditures by market segment for DMHC-regulated plans and CDI-regulated policies.

PMPM by market segment is as follows for DMHC-regulated plans and CDI-regulated policies, respectively:

- Large group: \$553.67 and \$662.37;
- Small group: \$470.64 and \$585.28; and
- Individual market: \$423.95 and \$365.22.

Total current annual expenditure for all DMHC-regulated plans and CDI-regulated policies is \$145,081,798,000.

Postmandate Expenditures

Changes in total expenditures

(SB) 1034 would increase total net annual expenditures by \$8,331,000, or 0.006%, for enrollees with DMHC-regulated plans and CDI-regulated policies. This is due to a \$7,796,000 increase in total health insurance premiums paid by employers and enrollees for newly covered benefits, in addition to an increase in enrollee expenditures for previously noncovered benefits (\$535,000), for an overall net change of \$8,331,000.

CHBRP recognizes that there are likely some out-of-pocket costs greater than zero for noncovered benefits that exist both pre- and postmandate, but was unable to identify research literature that quantifies the amount spent specifically for behavioral health treatment services. These costs also do not appear in MarketScan claims data, because they are borne entirely by enrollees. Therefore, CHBRP's projected cost increases do not take into account a reduction in enrollee out-of-pocket costs for noncovered benefits that may be alleviated by SB 1034.

Postmandate premium expenditures and PMPM amounts per category of payer

Increases in insurance premiums as a result of (SB) 1034 would vary by market segment. Note that the total population in Table 4 reflects the full 18,263,000 million enrollees in DMHC-regulated plans and CDI-regulated policies subject to (SB) 1034.

In DMHC-regulated plans, CHBRP estimates that premium changes would range from increases of \$0.03 (large group) to \$0.04 (individual and small group) PMPM for 2017 (see Table 4). In CDI-regulated policies, estimated premium changes range from increases of \$0.01 (large group) to of \$0.04 (individual) PMPM in 2017.

Among publicly funded DMHC-regulated health plans, CHBRP estimates that CalPERS HMO premiums will increase by \$0.04 PMPM (Table 4). CHBRP estimates that the Medi-Cal managed care plans will not have any cost increases, as they are not included under the mandate.

Average enrollee expenses for covered benefits would increase for all insured populations other than Medi-Cal, ranging from an increase of \$0.01 PMPM for large group enrollees in CDI-regulated policies to an increase of \$0.04 PMPM for persons enrolled in DMHC-regulated plans or CDI-regulated individual policies.

Potential cost offsets or savings in the first 12 months after enactment

CHBRP estimates no additional cost savings or offsets in the first 12 months after enactment. For long-term potential cost offsets, see the *Long-Term Impact of SB 1034* section.

Postmandate administrative expenses and other expenses

CHBRP estimates that the increase in administrative costs of DMHC-regulated plans and/or CDI-regulated policies will remain proportional to the increase in premiums. CHBRP assumes that if health care costs increase as a result of increased utilization or changes in unit costs, there is a corresponding proportional increase in administrative costs. CHBRP assumes that the administrative cost portion of premiums is unchanged. All health plans and insurers include a component for administration and profit in their premiums.

Related Considerations for Policymakers

Cost of Exceeding Essential Health Benefits

Expanding coverage for behavioral health treatment for ASD under SB 1034 is a change in the requirements on the terms and conditions for existing benefits only, and so would not trigger the requirement to cover mandates that exceed EHBs, and the state would not need to defray the costs.

Postmandate Changes in Uninsured and Public Program Enrollment

Changes in the number of uninsured persons²⁶

CHBRP estimates premium increases of less than 1% for each market segment; this premium increase would not have a measurable impact on the number of persons who are uninsured. CHBRP does not anticipate loss of health insurance, changes in availability of the benefit beyond those subject to the mandate, changes in offer rates of health insurance, changes in employer contribution rates, changes in take-up of health insurance by employees, or purchase of individual market policies, due to the small size of the increase in premiums after the mandate.

Changes in public program enrollment

CHBRP estimates that the mandate would produce no measurable impact on enrollment in publicly funded insurance programs.

How Lack of Benefit Coverage Results in Cost Shifts to Other Payers

An estimated 2% of children who are both enrolled in public schools and have an ASD diagnosis are currently receiving behavioral health treatment services paid for by the public education system (Bilaver et al., 2016). This estimate, however, may be low, as our content expert believes a higher rate of children with an ASD diagnosis who are also enrolled in public schools are receiving behavioral health treatment.²⁷ The lack of benefit coverage for behavioral health treatment that: (1) includes maintenance; (2) may not include parental involvement; and (3) may take place at any setting, might have transferred some of the cost of similar therapy to the public schools, who may be currently providing similar services.

²⁶ See also CHBRP's *Criteria and Methods for Estimating the Impact of Mandates on the Number of Uninsured*, available at www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

²⁷ Communication with content expert, Dr. David Mandell, University of Pennsylvania; March 10, 2016, and April 4, 2016.

Table 3. Baseline (Premandate) Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2017

	DMHC-Regulated						CDI-Regulated			Total
	Privately Funded Plans (by Market) (a)			Publicly Funded Plans			Privately Funded Plans (by Market) (a)			
	Large Group	Small Group	Individual	CalPERS HMOs (b)	MCMC (Under 65) (c)	MCMC (65+) (c)	Large Group	Small Group	Individual	
Enrollee counts										
Total enrollees in plans/policies subject to state mandates (d)	9,138,000	2,805,000	3,840,000	861,000	6,331,000	561,000	309,000	731,000	579,000	25,155,000
Total enrollees in plans/policies subject to (SB) 1034	9,138,000	2,805,000	3,840,000	861,000	0	0	309,000	731,000	579,000	18,263,000
Premium costs										
Average portion of premium paid by employer	\$444.39	\$309.74	\$0.00	\$460.33	\$180.00	\$445.00	\$523.71	\$426.22	\$0.00	\$86,263,866,000
Average portion of premium paid by employee	\$109.27	\$160.90	\$423.95	\$115.08	\$0.00	\$0.00	\$138.66	\$159.06	\$365.22	\$42,569,604,000
Total premium	\$553.67	\$470.64	\$423.95	\$575.41	\$180.00	\$445.00	\$662.37	\$585.28	\$365.22	\$128,833,470,000
Enrollee expenses										
Enrollee expenses for covered benefits (deductibles, copays, etc.)	\$44.43	\$93.55	\$112.36	\$31.43	\$0.00	\$0.00	\$111.69	\$177.13	\$108.98	\$16,248,327,000
Total expenditures	\$598.10	\$564.19	\$536.30	\$606.84	\$180.00	\$445.00	\$774.06	\$762.41	\$474.20	\$145,081,797,000

Source: California Health Benefits Review Program, 2016.

Notes: (a) Includes enrollees with grandfathered and nongrandfathered health insurance, both on Covered California and outside the health insurance marketplace.

(b) As of September 30, 2015, 57%, or 462,580, CalPERS members were state retirees, state employees, or their dependents. CHBRP assumes the same ratio for 2017.

(c) Medi-Cal Managed Care Plan expenditures for members over 65 include those who are also Medicare beneficiaries. This population does not include enrollees in COHS.

(d) This population includes both persons who obtain health insurance using private funds (group and individual) and through public funds (e.g., CalPERS HMOs, Medi-Cal Managed Care Plans). Only those enrolled in health plans or policies regulated by the DMHC or CDI are included. Population includes all enrollees in state-regulated plans or policies aged 0 to 64 years, and enrollees 65 years or older covered by employer-sponsored health insurance.

Key: CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; COHS = County Operated Health Systems; DMHC = Department of Managed Health Care; MCMC = Medi-Cal Managed Care.

Table 4. Postmandate Impacts of the Mandate on Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2017

	DMHC-Regulated						CDI-Regulated			Total
	Privately Funded Plans (by Market) (a)			Publicly Funded Plans			Privately Funded Plans (by Market) (a)			
	Large Group	Small Group	Individual	CalPERS HMOs (b)	MCMC (Under 65) (c)	MCMC (65+) (c)	Large Group	Small Group	Individual	
Enrollee counts										
Total enrollees in plans/policies subject to state mandates (d)	9,138,000	2,805,000	3,840,000	861,000	6,331,000	561,000	309,000	731,000	579,000	25,155,000
Total enrollees in plans/policies subject to (SB) 1034	9,138,000	2,805,000	3,840,000	861,000	0	0	309,000	731,000	579,000	18,263,000
Premium costs										
Average portion of premium paid by employer	\$0.03	\$0.02	\$0.00	\$0.03	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$4,374,000
Average portion of premium paid by employee	\$0.01	\$0.01	\$0.04	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$3,424,000
Total premium	\$0.03	\$0.04	\$0.04	\$0.04	\$0.00	\$0.00	\$0.01	\$0.03	\$0.04	\$7,798,000
Enrollee expenses										
Enrollee expenses for covered benefits (deductibles, copays, etc.)	\$0.002	\$0.002	\$0.003	\$0.002	\$0.000	\$0.000	\$0.001	\$0.002	\$0.003	\$535,000
Total expenditures	\$0.04	\$0.04	\$0.04	\$0.04	\$0.00	\$0.00	\$0.01	\$0.03	\$0.04	\$8,331,000
Postmandate percent change										
Insured premiums	0.0063%	0.0076%	0.0094%	0.0061%	0.0000%	0.0000%	0.0016%	0.0055%	0.0109%	0.0061%
Total expenditures	0.0062%	0.0067%	0.0079%	0.0062%	0.0000%	0.0000%	0.0014%	0.0045%	0.0089%	0.0057%

Source: California Health Benefits Review Program, 2016.

Notes: (a) Includes enrollees with grandfathered and nongrandfathered health insurance, inside and outside the exchange.

(b) As of September 30, 2013, 57.5%, or 462,580 CalPERS members were state retirees, state employees, or their dependents. CHBRP assumes the same ratio for 2017.

(c) Medi-Cal Managed Care Plan expenditures for members over 65 include those who are also Medicare beneficiaries. This population does not include enrollees in COHS.

(d) This population includes both persons who obtain health insurance using private funds (group and individual) and through public funds (e.g., CalPERS HMOs, Medi-Cal Managed Care Plans). Only those enrolled in health plans or policies regulated by the DMHC or CDI are included. Population includes all enrollees in state-regulated plans or policies aged 0 to 64 years, and enrollees 65 years or older covered by employer-sponsored health insurance.

Key: CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; COHS = County Operated Health Systems; DMHC = Department of Managed Health Care; MCMC = Medi-Cal Managed Care.

PUBLIC HEALTH IMPACTS

As discussed in the *Policy Context* section, SB 1034 would expand the existing benefit mandate regarding behavioral health treatment for autism spectrum disorders (ASD) to newly include behavioral health treatment that “maintains” functioning and adaptive behaviors, in addition to therapies that “develop and restore” functioning. In the context of behavioral health treatment delivery, SB 1034 would also prohibit denials of coverage on the basis of setting or extent of parental involvement in the delivery of behavioral health treatment for ASD, and limit the frequency of treatment plan review by plans and insurers to once every 6 months, except in the case of medical necessity. Additionally, SB 1034 would reduce restrictions on practice supervision and scope of qualified autism service (QAS) professionals and paraprofessionals in order to meet the growing demand for trained behavioral health treatment providers. Finally, SB 1034 would eliminate the existing mandate’s sunset date to extend behavioral health treatment coverage for ASD indefinitely.

Estimated Public Health Outcomes

Autism spectrum disorder (ASD) is a chronic condition for which there is no known cure. Behavioral health treatments for ASD focus on ameliorating a variety of symptoms common throughout the spectrum of functioning for persons with an ASD diagnosis. The measurable public health impacts most relevant to SB 1034 include changes in intelligence quotient (IQ), language skills, and adaptive behaviors; academic placement in mainstream classrooms; economic loss, including lost productivity of persons diagnosed with ASD and their family members; and financial burden.

As presented in the *Medical Effectiveness* section, there is a preponderance of evidence that behavioral health treatments for ASD are effective in improving behavioral outcomes, such as intelligence quotient and adaptive behaviors among children and adolescents with ASD, when delivered by personnel trained and supervised by experienced behavioral health treatment providers. Evidence regarding the effectiveness of parental involvement in delivering behavioral health treatment indicates that parental involvement is associated with greater improvements in functioning as compared with treatment provided solely by a professional; however, treatment provided solely by trained professionals is effective in producing favorable outcomes when compared with no treatment. Additionally, literature evaluating the delivery of behavioral health treatment across settings indicated that behavioral health treatment is beneficial in any setting. In addition, a review of current literature suggests that behavioral health treatment for ASD confers a greater positive impact on behavioral outcomes when delivered at an earlier age with greater intensity (CHBRP, 2015), and newer trials (Freitag et al., 2015; Soorya et al., 2015) indicate that ongoing lower-intensity behavioral health treatment may be associated with greater improvements in social functioning throughout late-childhood and adolescence as compared with usual care; however, *CHBRP found wide variance in individual outcomes from behavioral health treatment and insufficient literature from longitudinal studies to indicate that ongoing “maintenance” therapy is effective or necessary to preserve gains conferred by early intensive behavioral health treatment.*

As presented in the *Benefit Coverage, Utilization, and Cost Impacts* section, SB 1034 mandates coverage in all settings and refines the definition of QAS Providers (see *Policy Context* section); however, *CHBRP found that only the inclusion of behavioral health treatment for maintenance would produce a quantifiable impact on utilization in the 12 months following implementation of the mandate.* To that end, CHBRP estimates that 6,000 of the 36,000 enrollees with ASD who are subject to SB 1034 would utilize behavioral health treatment in 2017. Among those users, CHBRP anticipates an average annual postmandate increase in behavioral health treatment of 3 hours per 1,000 enrollees attributable to lower-intensity maintenance therapies.

Although studies demonstrate effectiveness of early intensive behavioral health treatment for improving intelligence quotient (IQ), language skills, and adaptive behaviors among children with ASD (CHBRP, 2015), there is insufficient evidence that less-intensive maintenance behavioral health treatment is effective or necessary to “maintain” the effects of early behavioral health treatment. Therefore, CHBRP concludes that the overall public health impact of SB 1034 on the 6,000 enrollees with a history of behavioral health treatment for ASD is unknown. However, to the extent that maintenance therapy is composed of less-intensive applications of medically effective behavioral health treatments (i.e., applied behavioral analysis), it would be reasonable to assume that, for some children and adolescents with a history of behavioral health treatment for ASD, maintenance therapy would reinforce and possibly enhance gains in intelligence quotient, adaptive social behaviors, and language skills.²⁸

CHBRP finds insufficient evidence of medical effectiveness to suggest that use of less-intensive maintenance behavioral health treatment for ASD described in SB 1034 would preserve or encourage further gains in social functioning and adaptive behaviors. Therefore, the public health impact in the first year, postmandate, is unknown. *Please note that the absence of evidence is not “evidence of no effect.” It is possible that an impact — positive or negative — could result, but current evidence is insufficient to inform an estimate.*

See the *Long-Term Impact of SB 1034* section for discussion of premature death, economic loss and the impact of behavioral health treatment delivery in alternate settings beyond the first 12 months of the bill implementation.

Social Determinants of Health and Disparities

CHBRP defines social determinants of health (SDoH) as conditions in which people are born, grow, live, work, learn, and age. These social determinants of health (e.g., economic factors, social factors, education, physical environment) are shaped by the distribution of money, power, and resources and impacted by policy (adapted from Healthy People 2020, 2015; CDC, 2014). These factors generally occur prior to or outside of the health care system and are highly correlated with downstream events such as avoidable illnesses and premature death. However, the relationship between SDoH and health status/outcomes is complex and, periodically, health insurance can influence SDoH.²⁹ CHBRP will consider the full range of SDoH (e.g., income, education, or social constructs? around age, race/ethnicity, gender, and gender identity/sexual orientation) that are relevant to this bill and where evidence is available.

²⁸ Personal communication, content expert N. Akshoomoff, March 29, 2016.

²⁹ For more information about SDoH, see CHBRP’s publication: *Incorporating Relevant Social Determinants of Health into CHBRP Benefit Mandate Analyses*.

Evidence presented in the *Background* section indicates that there appear to be differences in the prevalence of autism spectrum disorder (ASD) by gender and race/ethnicity as well as differences in utilization and outcomes behavioral health therapies by income, educational attainment, insurance status, and geographic proximity to urban areas with higher concentrations of qualified autism service providers. However, the impact of SB 1034 on reducing disparities and the effects of social determinants of health with respect to ASD outcomes and access to behavioral health treatment is unknown due to insufficient evidence that low-intensive therapies to “maintain” the effects of early intensive behavioral health treatment produce changes in health outcomes as compared with usual care.

It should be noted that the Medi-Cal population, which includes half of all children in California, is excluded from the benefits proposed in SB 1034; however, given that Medi-Cal beneficiaries have coverage for behavioral health treatment under the Early and Periodic Screening, Diagnostic and Treatment benefit and the lack of evidence that maintenance therapy is effective, the exclusion of this population would likely have little impact on disparities in access or outcomes between the publicly and privately-insured populations.

Estimated Impact on Financial Burden

When possible, CHBRP estimates the marginal impact of mandates on financial burden, defined as *uncovered medical expenses* paid by the enrollee as well as *out-of-pocket expenses* (e.g., deductibles, copayments, and co-insurance). There was an absence of evidence of unmet demand for maintenance therapy due to lack of industry standardization for this term and broad coverage for behavioral health therapies in general; accordingly, premandate only 6% of plans and policies explicitly included coverage for maintenance therapy. CHBRP, therefore, assumes that enrollees with ASD would not have engaged in ongoing low-intensity maintenance therapies due to high out-of-pocket *uncovered costs* (\$142 per hour of behavioral health treatment on average) that would have resulted from maintenance therapies. It is possible that some families with greater financial resources may have paid for additional hours of uncovered maintenance therapies, to supplement the already covered intensive treatments, but those uncovered activities do not appear in the claims data, and CHBRP found no literature estimating the number of uncovered low-intensity hours a child with ASD may receive. *Thus, there are no uncovered expenses for maintenance behavioral health treatment for ASD pre- or postmandate (Table 1).*

CHBRP estimates that, postmandate, SB 1034 would increase out-of-pocket costs associated with cost sharing (i.e., deductibles and copays) for enrollees with ASD using newly covered maintenance behavioral health treatment by \$535,000 (Table 1). The burden of cost attributable to these services will vary by intensity of user need because CHBRP assumes that enrollees utilizing a moderate amount of behavioral health treatment will increase their use by 20% for maintenance, whereas lower-intensity users of behavioral health treatment will increase use by less than 20%, and higher-intensity users may require proportionally require more hours to “maintain” gains acquired during standard behavioral health treatment.

In the first year, postmandate, out-of-pocket costs for enrollees using behavioral health treatment for maintenance would increase by \$535,000. CHBRP estimates that 6,000 of the 36,000 enrollees with ASD who would be newly covered for maintenance therapy would utilize these services in addition to already covered intensive behavioral health treatments.

LONG-TERM IMPACT OF SB 1034

In this section, CHBRP estimates the long-term impact³⁰ of (SB) 1034, defined as impacts occurring beyond the first 12 months of implementation. These estimates are qualitative and based on the existing evidence available in the literature. CHBRP does not provide quantitative estimates of long-term impacts because of unknown improvements in clinical care, changes in prices, implementation of other complementary or conflicting policies, and other unexpected factors.

In the long term, the number of Californians enrolled in DMHC-regulated plans or CDI-regulated policies subject to SB 1034 will likely increase slightly, as the prevalence of enrollees with an autistic spectrum disorder (ASD) diagnosis has increased in recent years (see the *Background on Autistic Spectrum Disorder* section). Much of the increase is due to the broadening clinical definition of an ASD diagnosis, but this trend does increase the number of enrollees that would utilize the services available for coverage under SB 1034, over time.

Long-Term Utilization and Cost Impacts

Benefit Coverage Impacts

Although CHBRP can make only directional statements, SB 1034's prohibition against denials based on parent/caregiver involvement will change the terms of some enrollees' benefit coverage, which may increase utilization over time. Similarly, the elimination of restrictions on health care settings for behavioral health treatment will increase coverage, because public schools could now be included as a covered setting for receiving behavioral health treatment from a qualified provider. Finally, the inclusion of qualified health care providers that are supervised, but not necessarily directly employed, by approved companies increases coverage for the types of providers who might give behavioral health treatment services.

Utilization Impacts

In the 12 months following enactment, CHBRP estimates the utilization of behavioral health treatment will increase to an average of 47.25 hours per 1,000 enrollees. In later years, there may be a further increase in utilization, as the 2% of public school students with an ASD diagnosis who receive behavioral health treatment in a school setting might increase (Bilaver et al, 2015). There is also some contention about the number of children with an ASD diagnosis who receive behavioral health treatment, as this estimate seems low to our content expert.³¹ It is unknown whether enrollees have been refusing behavioral health treatment due to refusal of coverage for care in a school setting, and there is potential for this care to increase. Incentivizing the reimbursement of behavioral health treatment in a school setting may have the effect of increasing the utilization considerably.³²

It is also possible that utilization of behavioral health treatment will be increased further among the older population with an ASD diagnosis. While older people may not currently use behavioral health treatment for skill acquisition purposes, in contrast to their younger counterparts, it is possible that providers may

³⁰ See also CHBRP's *Criteria and Guidelines for the Analysis of Long-Term Impacts on Healthcare Costs and Public Health*, available at www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

³¹ Communication with content expert, Dr. David Mandell, University of Pennsylvania, April 4, 2016.

³² Communication with content expert, Dr. David Mandell, University of Pennsylvania: March 10, 2016, and April 4, 2016.

develop an applicable treatment plan for maintenance of gains made through prior courses of behavioral health treatment among their older patients.³³ This increase among older persons with an ASD diagnosis has the potential to increase the number of hours of behavioral health treatment per 1,000 enrollees, even though that potential is unquantifiable with current data.

Cost Impacts

While the cost impacts of the increases in long-term utilization of behavioral health treatment under SB 1034 cannot be quantified, it is likely that the cost increases will correspond to the utilization increases. Although the per unit cost over time will decrease slightly in the short-term, in the long-term, there will be some floor to the downward trend and the costs overall will increase corresponding to the utilization increases.

Long-Term Public Health Impacts

Some interventions in proposed mandates provide immediate measurable impacts (e.g., maternity service coverage or acute care treatments) while other interventions may take years to make a measurable impact (e.g., coverage for tobacco cessation or vaccinations). When possible, CHBRP estimates the long-term effects of a proposed mandate (beyond CHBRP's 12-month analytic timeframe) to capture possible impacts to the public's health that would be attributable to the mandate, including impacts on premature death and economic loss.

CHBRP estimates an adequate supply of licensed and unlicensed providers overall; however, the distribution of providers is unknown in California and may not be equal among geographic areas. This could result in a temporary delay in diagnosis and treatment of ASD.

Additionally, although SB 1034 would likely diversify the settings in which behavioral health treatments for ASD are delivered (see *Long-Term Cost Impact of SB 1034*), as discussed in the *Medical Effectiveness* section, CHBRP found that a preponderance of evidence that the benefits conferred by behavioral health treatment for ASD are observed in any setting where behavioral therapy is delivered. Thus there would be no long-term impact on public health due to the delivery of behavioral health treatment in alternative settings, such as schools or in the home.

CHBRP found no longitudinal studies regarding the outcomes of behavioral health treatment for maintenance therapy. Additionally, the literature suggests that the effectiveness of behavioral health treatment is not dependent upon the setting in which it is delivered. Due to the lack of evidence of long-term impacts of maintenance therapy and the setting of behavioral health treatment delivery as defined in SB 1034, CHBRP concludes that the long-term impacts of SB 1034 on the public health of California are unknown.

Impacts on Premature Death and Economic Loss

Premature death is often defined as death before the age of 75 years (Cox, 2006). The overall impact of premature death due to a particular disease can be measured in years of potential life lost prior to age 75 and summed for the population (generally referred to as "YPLL") (Cox, 2006; Gardner and Sanborn, 1990). In California, it is estimated that there are nearly 102,000 premature deaths each year, accounting for more than two million YPLL (CDPH, 2013; Cox, 2006).

³³ Communication with content expert, Dr. David Mandell, University of Pennsylvania, March 10, 2016.

Economic loss associated with disease is generally presented in the literature as an estimation of the value of the YPLL in dollar amounts (i.e., valuation of a population's lost years of work over a lifetime).

Premature Death

Persons with ASD experience a premature mortality rate about two and a half times greater than the general population due to greater burden of chronic comorbidities among this population (Hirvikoski et al., 2016), but CHBRP found no studies that directly attributed ASD to an increased risk of premature death. However, comorbidities that often accompany ASD (such as epilepsy) and accidents are often cited as cause of death for this population. Moreover, CHBRP found no literature studying the effects of behavioral health treatments on premature death.

Although an increased risk of premature death is associated with ASD, there is no evidence that behavioral health treatments would reduce premature death for the ASD population; therefore, the impact of SB 1034 on premature death is unknown.

Economic Loss

The lifetime per capita cost of supporting a person with ASD in the United States was estimated by Buescher et al at \$2.4 million for persons with ASD and an intellectual disability, and \$1.4 million for individuals with ASD and no intellectual disability. Nonmedical services, including special education and behavioral therapies comprised approximately 25% of the cost, or approximately \$350,000 to \$600,000 depending on level of intellectual impairment (Buescher et al., 2014). Other studies estimated the average lifetime public expenditure for a person with ASD as exceeding \$3.2 to 4.7 million (Ganz et al., 2007; Newschaffer et al., 2007).

A handful of studies about direct medical costs associated with ASD indicate that families experience expenses greater than those without ASD or with other conditions. Shimabukuro et al. reported privately insured children with ASD had average medical expenditures \$4,000 to \$6,000 greater, or 8.4 to 9.5 times greater, than those without ASD; however, the study did not indicate the extent that intensive behavioral intervention therapies were covered (Shimabukuro et al., 2008). Similarly, several other studies reached similar conclusions that medical expenditures were about two times higher for persons diagnosed with ASD than non-ASD persons (Croen et al., 2006; Flanders et al., 2007; Leslie and Martin, 2007; Liptak et al., 2006). With the exception of Liptak et al. (2006), these studies do not specifically identify use or associated cost of intensive behavioral intervention therapies. A systematic review of medical costs associated with ASD reports that families of children with ASD experience medical costs two to nine times more than families of children with no ASD (Young et al., 2016).

APPENDIX A TEXT OF BILL ANALYZED

On February 16, 2016, the California Assembly Committee on Health requested that CHBRP analyze (SB) 1034.

SENATE BILL

No. 1034

Introduced by Senator Mitchell

February 12, 2016

An act to amend Section 1374.73 of the Health and Safety Code, and to amend Sections 10144.51 and 10144.52 of the Insurance Code, relating to health care coverage.

LEGISLATIVE COUNSEL'S DIGEST

SB 1034, as introduced, Mitchell. Health care coverage: autism.

Existing law provides for the licensure and regulation of health care service plans by the Department of Managed Health Care. A violation of those provisions is a crime. Existing law provides for the licensure and regulation of health insurers by the Department of Insurance.

Existing law requires every health care service plan contract and health insurance policy to provide coverage for behavioral health treatment for pervasive developmental disorder or autism until January 1, 2017, and defines "behavioral health treatment" to mean specified services provided by, among others, a qualified autism service professional supervised and employed by a qualified autism service provider. Existing law defines a "qualified autism service professional" to mean a person who, among other requirements, is a behavior service provider approved as a vendor by a California regional center to provide services as an associate behavior analyst, behavior analyst, behavior management assistant, behavior management consultant, or behavior management program pursuant to specified regulations adopted under the Lanterman Developmental Disabilities Services Act. Existing law requires a treatment plan to be reviewed no less than once every 6 months.

This bill would, among other things, modify requirements to be a qualified autism service professional to include providing behavioral health treatment, such as clinical management and case supervision. The bill would require that a treatment plan be reviewed no more than once every 6 months, unless a shorter period is recommended by the qualified autism service provider. The bill would extend the operation of these provisions indefinitely. The bill would make conforming changes.

By extending the operation of these provisions, the violation of which by a health care service plan would be a crime, the bill would impose a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: yes.

The people of the State of California do enact as follows:

SECTION 1. Section 1374.73 of the Health and Safety Code is amended to read:

1374.73. (a) (1) Every health care service plan contract that provides hospital, medical, or surgical coverage shall also provide coverage for behavioral health treatment for pervasive developmental disorder or autism no later than July 1, 2012. The coverage shall be provided in the same manner and shall be subject to the same requirements as provided in Section 1374.72.

(2) Notwithstanding paragraph (1), as of the date that proposed final rulemaking for essential health benefits is issued, this section does not require any benefits to be provided that exceed the essential health benefits that all health plans will be required by federal regulations to provide under Section 1302(b) of the federal Patient Protection and Affordable Care Act (Public Law 111-148), as amended by the federal Health Care and Education Reconciliation Act of 2010 (Public Law 111-152).

(3) This section shall not affect services for which an individual is eligible pursuant to Division 4.5 (commencing with Section 4500) of the Welfare and Institutions Code or Title 14 (commencing with Section 95000) of the Government Code.

(4) This section shall not affect or reduce any obligation to provide services under an individualized education program, as defined in Section 56032 of the Education Code, or an individual service plan, as described in Section 5600.4 of the Welfare and Institutions Code, or under the federal Individuals with Disabilities Education Act (20 U.S.C. Sec. 1400 et seq.) and its implementing regulations.

(b) Every health care service plan subject to this section shall maintain an adequate network that includes qualified autism service providers who supervise ~~and employ~~ qualified autism service professionals or paraprofessionals who provide and administer behavioral health treatment. Nothing shall prevent a health care service plan from selectively contracting with providers within these requirements.

(c) For the purposes of this section, the following definitions shall apply:

(1) “Behavioral health treatment” means professional services and treatment programs, including applied behavior analysis and *other* evidence-based behavior intervention programs, that ~~develop~~ *develop, maintain,* or restore, to the maximum extent practicable, the functioning of an individual with pervasive developmental disorder or autism and that meet all of the following criteria:

(A) The treatment is prescribed by a physician and surgeon licensed pursuant to Chapter 5 (commencing with Section 2000) of, or is developed by a psychologist licensed pursuant to Chapter 6.6 (commencing with Section 2900) of, Division 2 of the Business and Professions Code.

(B) The treatment is provided under a treatment plan prescribed by a qualified autism service provider and is administered by one of the following:

(i) A qualified autism service provider.

(ii) A qualified autism service professional supervised ~~and employed~~ by the qualified autism service provider.

(iii) A qualified autism service paraprofessional supervised ~~and employed~~ by a qualified autism service provider.

(C) The treatment plan has measurable goals over a specific timeline that is developed and approved by the qualified autism service provider for the specific patient being treated. The treatment plan shall be reviewed no ~~less~~ *more* than once every six months by the qualified autism service ~~provider~~ *provider, unless a shorter*

period is recommended by the qualified autism service provider, and modified whenever appropriate, and shall be consistent with Section 4686.2 of the Welfare and Institutions Code pursuant to which the qualified autism service provider does all of the following:

(i) Describes the patient’s behavioral health impairments or developmental challenges that are to be treated.

(ii) Designs an intervention plan that includes the service type, number of hours, and parent *or caregiver* participation *recommended by the qualified autism service provider*, needed to achieve the plan’s goal and objectives, and the frequency at which the patient’s progress is evaluated and reported. *Lack of parent or caregiver participation shall not be used to deny or reduce medically necessary behavioral health treatment.*

(iii) Provides intervention plans that utilize evidence-based practices, with demonstrated clinical efficacy in treating pervasive developmental disorder or autism.

(iv) Discontinues intensive behavioral intervention services when the treatment goals and objectives are achieved or no longer ~~appropriate.~~ *appropriate, and continued therapy is not necessary to maintain function or prevent deterioration.*

(D) (i) The treatment plan is not used for purposes of providing or for the reimbursement of respite, day care, or educational services and is not used to reimburse a parent for participating in the treatment program. ~~The~~

(ii) Notwithstanding the clause (i), all medically necessary behavioral health treatment shall be covered in all settings regardless of time or location of delivery.

(iii) The treatment plan shall be made available to the health care service plan upon request.

(2) “Pervasive developmental disorder or autism” shall have the same meaning and interpretation as used in Section 1374.72.

(3) “Qualified autism service provider” means either of the following:

(A) A person, entity, or group that is certified by a national entity, such as the Behavior Analyst Certification Board, that is accredited by the National Commission for Certifying Agencies, and who designs, supervises, or provides treatment for pervasive developmental disorder or autism, provided the services are within the experience and competence of the person, entity, or group that is nationally certified.

(B) A person licensed as a physician and surgeon, physical therapist, occupational therapist, psychologist, marriage and family therapist, educational psychologist, clinical social worker, professional clinical counselor, speech-language pathologist, or audiologist pursuant to Division 2 (commencing with Section 500) of the Business and Professions Code, who designs, supervises, or provides treatment for pervasive developmental disorder or autism, provided the services are within the experience and competence of the licensee.

(4) “Qualified autism service professional” means an individual who meets all of the following criteria:

(A) Provides behavioral health ~~treatment~~. *treatment, including clinical management and case supervision.*

(B) Is ~~employed and~~ supervised by a qualified autism service provider.

(C) Provides treatment pursuant to a treatment plan developed and approved by the qualified autism service provider.

(D) Is a behavioral service provider ~~approved as a vendor by a California regional center to provide services as~~ *who meets the education and experience qualifications defined in Section 5432 of Title 17 of the California Code of Regulations for an Associate Behavior Analyst, Behavior Analyst, Behavior Management Assistant, Behavior Management Consultant, or Behavior Management Program as defined in Section 54342 of Title 17 of the California Code of Regulations. Program.*

(E) Has training and experience in providing services for

pervasive developmental disorder or autism pursuant to Division 4.5 (commencing with Section 4500) of the Welfare and Institutions Code or Title 14 (commencing with Section 95000) of the Government Code.

(5) “Qualified autism service paraprofessional” means an unlicensed and uncertified individual who meets all of the following criteria:

(A) Is ~~employed and~~ supervised by a qualified autism service provider.

(B) Provides treatment and implements services pursuant to a treatment plan developed and approved by the qualified autism service ~~provider.~~ *provider or qualified autism service professional.*

(C) Meets the ~~criteria set forth~~ *education and experience qualifications defined* in the regulations adopted pursuant to Section 4686.3 of the Welfare and Institutions Code.

(D) Has adequate education, training, and experience, as certified by a qualified autism service provider.

(d) This section shall not apply to the following:

(1) A specialized health care service plan that does not deliver mental health or behavioral health services to enrollees.

(2) A health care service plan contract in the ~~Medi~~ *MDI-Cal* program (Chapter 7 (commencing with Section 14000) of Part 3 of Division 9 of the Welfare and Institutions Code).

(3) ~~A health care service plan contract in the Healthy Families Program (Part 6.2 (commencing with Section 12693) of Division 2 of the Insurance Code).~~

(4) ~~A health care benefit plan or contract entered into with the Board of Administration of the Public Employees’ Retirement System pursuant to the Public Employees’ Medical and Hospital Care Act (Part 5 (commencing with Section 22750) of Division 5 of Title 2 of the Government Code).~~

(e) ~~Nothing in this section shall be construed to~~ *This section*

does not limit the obligation to provide services ~~under~~ pursuant to Section 1374.72.

(f) As provided in Section 1374.72 and in paragraph (1) of subdivision (a), in the provision of benefits required by this section, a health care service plan may utilize case management, network providers, utilization review techniques, prior authorization, copayments, or other cost sharing.

~~(g) This section shall remain in effect only until January 1, 2017, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2017, deletes or extends that date.~~

SEC. 2. Section 10144.51 of the Insurance Code is amended to read:

10144.51. (a) (1) Every health insurance policy shall also provide coverage for behavioral health treatment for pervasive developmental disorder or autism no later than July 1, 2012. The coverage shall be provided in the same manner and shall be subject to the same requirements as provided in Section 10144.5.

(2) Notwithstanding paragraph (1), as of the date that proposed final rulemaking for essential health benefits is issued, this section does not require any benefits to be provided that exceed the essential health benefits that all health insurers will be required by federal regulations to provide under Section 1302(b) of the federal Patient Protection and Affordable Care Act (Public Law 111-148), as amended by the federal Health Care and Education Reconciliation Act of 2010 (Public Law 111-152).

(3) This section shall not affect services for which an individual is eligible pursuant to Division 4.5 (commencing with Section 4500) of the Welfare and Institutions Code or Title 14 (commencing with Section 95000) of the Government Code.

(4) This section shall not affect or reduce any obligation to provide services under an individualized education program, as defined in Section 56032 of the Education Code, or an individual service plan, as described in Section 5600.4 of the Welfare and Institutions Code, or under the federal Individuals with Disabilities Education Act (20 U.S.C. Sec. 1400 et seq.) and its implementing regulations.

(b) Pursuant to Article 6 (commencing with Section 2240) of Title 10 of the California Code of Regulations, every health insurer subject to this section shall maintain an adequate network that includes qualified autism service providers who supervise ~~and employ~~ qualified autism service professionals or paraprofessionals who provide and administer behavioral health treatment. Nothing shall prevent a health insurer from selectively contracting with providers within these requirements.

(c) For the purposes of this section, the following definitions shall apply:

(1) “Behavioral health treatment” means professional services and treatment programs, including applied behavior analysis and *other* evidence-based behavior intervention programs, that ~~develop~~ *develop, maintain,* or restore, to the maximum extent practicable, the functioning of an individual with pervasive developmental disorder or autism, and that meet all of the following criteria:

(A) The treatment is prescribed by a physician and surgeon licensed pursuant to Chapter 5 (commencing with Section 2000) of, or is developed by a psychologist licensed pursuant to Chapter 6.6 (commencing with Section 2900) of, Division 2 of the Business and Professions Code.

(B) The treatment is provided under a treatment plan prescribed by a qualified autism service provider and is administered by one of the following:

(i) A qualified autism service provider.

(ii) A qualified autism service professional supervised ~~and employed~~ by the qualified autism service provider.

(iii) A qualified autism service paraprofessional supervised ~~and employed~~ by a qualified autism service provider.

(C) The treatment plan has measurable goals over a specific timeline that is developed and approved by the qualified autism service provider for the specific patient being treated. The treatment plan shall be reviewed no ~~less~~ *more* than once every six months by the qualified autism service ~~provider~~ *provider, unless a shorter*

period is recommended by the qualified autism service provider, and modified whenever appropriate, and shall be consistent with Section 4686.2 of the Welfare and Institutions Code pursuant to which the qualified autism service provider does all of the following:

- (i) Describes the patient’s behavioral health impairments or developmental challenges that are to be treated.
 - (ii) Designs an intervention plan that includes the service type, number of hours, and parent *or caregiver* participation *recommended by a qualified autism service provider* needed to achieve the plan’s goal and objectives, and the frequency at which the patient’s progress is evaluated and reported. *Lack of parent or caregiver participation shall not be used to deny or reduce medically necessary behavioral health treatment.*
 - (iii) Provides intervention plans that utilize evidence-based practices, with demonstrated clinical efficacy in treating pervasive developmental disorder or autism.
 - (iv) Discontinues intensive behavioral intervention services when the treatment goals and objectives are achieved or no longer ~~appropriate.~~ *appropriate, and continued therapy is not necessary to maintain function or prevent deterioration.*
- (D) (i) The treatment plan is not used for purposes of providing or for the reimbursement of respite, day care, or educational services and is not used to reimburse a parent for participating in the treatment program. ~~The~~
- (ii) *Notwithstanding the above, all medically necessary behavioral health treatment shall be covered in all settings regardless of time or location of delivery.*
 - (iii) *The treatment plan shall be made available to the insurer upon request.*
- (2) “Pervasive developmental disorder or autism” shall have the same meaning and interpretation as used in Section 10144.5.
- (3) “Qualified autism service provider” means either of the following:

(A) A person, entity, or group that is certified by a national entity, such as the Behavior Analyst Certification Board, that is accredited by the National Commission for Certifying Agencies, and who designs, supervises, or provides treatment for pervasive developmental disorder or autism, provided the services are within the experience and competence of the person, entity, or group that is nationally certified.

(B) A person licensed as a physician and surgeon, physical therapist, occupational therapist, psychologist, marriage and family therapist, educational psychologist, clinical social worker, professional clinical counselor, speech-language pathologist, or audiologist pursuant to Division 2 (commencing with Section 500) of the Business and Professions Code, who designs, supervises, or provides treatment for pervasive developmental disorder or autism, provided the services are within the experience and competence of the licensee.

(4) “Qualified autism service professional” means an individual who meets all of the following criteria:

(A) Provides behavioral health ~~treatment~~ *treatment, including clinical management and case supervision.*

(B) Is employed and supervised by a qualified autism service provider.

(C) Provides treatment pursuant to a treatment plan developed and approved by the qualified autism service provider.

(D) Is a behavioral service provider ~~approved as a vendor by a California regional center to provide services as~~ *who meets the education and experience qualifications defined in Section 5432 of Title 17 of the California Code of Regulations for an Associate Behavior Analyst, Behavior Analyst, Behavior Management Assistant, Behavior Management Consultant, or Behavior Management Program as defined in Section 54342 of Title 17 of the California Code of Regulations. Program.*

(E) Has training and experience in providing services for pervasive developmental disorder or autism pursuant to Division 4.5 (commencing with Section 4500) of the Welfare and

Institutions Code or Title 14 (commencing with Section 95000) of the Government Code.

(5) “Qualified autism service paraprofessional” means an unlicensed and uncertified individual who meets all of the following criteria:

(A) Is ~~employed and~~ supervised by a qualified autism service provider.

(B) Provides treatment and implements services pursuant to a treatment plan developed and approved by the qualified autism service ~~provider.~~ *provider or qualified autism service professional.*

(C) Meets the ~~criteria set forth~~ *education and experience qualifications defined* in the regulations adopted pursuant to Section 4686.3 of the Welfare and Institutions Code.

(D) Has adequate education, training, and experience, as certified by a qualified autism service provider.

(d) This section shall not apply to the following:

(1) A specialized health insurance policy that does not cover mental health or behavioral health services or an accident only, specified disease, hospital indemnity, or Medicare supplement policy.

(2) A health insurance policy in the ~~Medi~~ *MDI*-Cal program (Chapter 7 (commencing with Section 14000) of Part 3 of Division 9 of the Welfare and Institutions Code).

~~(3) A health insurance policy in the Healthy Families Program (Part 6.2 (commencing with Section 12693)).~~

~~(4) A health care benefit plan or policy entered into with the Board of Administration of the Public Employees’ Retirement System pursuant to the Public Employees’ Medical and Hospital Care Act (Part 5 (commencing with Section 22750) of Division 5 of Title 2 of the Government Code).~~

~~(e) Nothing in this section shall be construed to limit the obligation to provide services under Section 10144.5.~~

(f)

(e) As provided in Section 10144.5 and in paragraph (1) of subdivision (a), in the provision of benefits required by this section, a health insurer may utilize case management, network providers, utilization review techniques, prior authorization, copayments, or other cost sharing.

~~(g) This section shall remain in effect only until January 1, 2017, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2017, deletes or extends that date.~~

SEC. 3. Section 10144.52 of the Insurance Code is amended to read:

10144.52. ~~(a)~~ For purposes of this part, the terms “provider,” “professional provider,” “network provider,” “mental health provider,” and “mental health professional” shall include the term “qualified autism service provider,” as defined in subdivision (c) of Section 10144.51.

~~(b) This section shall remain in effect only until January 1, 2017, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2017, deletes or extends that date.~~

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

APPENDIX B LITERATURE REVIEW METHODS

Appendix B describes methods used in the medical effectiveness literature review for SB 1034.

CHBRP's literature review for SB 1034 addresses the following research questions.

- Is behavioral health treatment effective for maintaining improvements in functioning among persons with ASD?
- Is there an optimal frequency with which health plans should review treatment plans for behavioral health treatment for persons with ASD?
- Does the provision of behavioral health treatment by parents and caregivers as well as professionals and paraprofessionals improve functioning among persons with ASD?
- Does behavioral health treatment improve functioning among persons with ASD regardless of the setting in which it is provided?
- Can behavioral health treatment be provided effectively by persons who are supervised by professionals who have experience providing behavioral health treatment?

Studies on these topics were identified through searches of MEDLINE (PubMed), the Cochrane Database of Systematic Reviews, the Cochrane Register of Controlled Clinical Trials, PsycInfo, Web of Science, and EconLit. The following Web sites were also searched: the Agency for Healthcare Research and Quality, International Network of Agencies for Health Technology Assessment, National Health Service Centre for Reviews and Dissemination, National Institute for Health and Clinical Excellence, and the Scottish Intercollegiate Guideline Network. Because a CHBRP medical effectiveness review had previously conducted through literature searches on this topic for reports on several previous bills on behavioral health treatment for ASDs, the search was limited to studies published from 2015 to present. Of the 321 articles found in the literature review, 40 articles were reviewed for potential inclusion in this report, and seven articles were included in the medical effectiveness review for this report.

Evidence Grading System

In making a “call” for each outcome measure, the medical effectiveness lead and the content expert consider the number of studies as well the strength of the evidence. Further information about the criteria CHBRP uses to evaluate evidence of medical effectiveness can be found in CHBRP's *Medical Effectiveness Analysis Research Approach*.³⁴ To grade the evidence for each outcome measured, the team uses a grading system that has the following categories:

- Research design;
- Statistical significance;
- Direction of effect;
- Size of effect; and
- Generalizability of findings.

³⁴ Available at: www.chbrp.org/analysis_methodology/docs/medeffect_methods_detail.pdf.

The grading system also contains an overall conclusion that encompasses findings in these five domains. The conclusion is a statement that captures the strength and consistency of the evidence of an intervention's effect on an outcome. The following terms are used to characterize the body of evidence regarding an outcome:

- Clear and convincing evidence;
- Preponderance of evidence;
- Ambiguous/conflicting evidence; and
- Insufficient evidence.

A grade of *clear and convincing evidence* indicates that there are multiple studies of a treatment and that the large majority of studies are of high quality and consistently find that the treatment is either effective or not effective.

A grade of *preponderance of evidence* indicates that the majority of the studies reviewed are consistent in their findings that treatment is either effective or not effective. This can be further subdivided into preponderance of evidence from high-quality studies and preponderance of evidence from low-quality studies.

A grade of *ambiguous/conflicting evidence* indicates that although some studies included in the medical effectiveness review find that a treatment is effective, a similar number of studies of equal quality suggest the treatment is not effective.

A grade of *insufficient evidence* indicates that there is not enough evidence available to know whether or not a treatment is effective, either because there are too few studies of the treatment or because the available studies are not of high quality. It does not indicate that a treatment is not effective.

Search Terms

The search terms used to locate studies relevant to SB 1034 were as follows:

Major MeSH terms used to search PubMed

- Child Development Disorders, Pervasive [EXP]
- Behavior Therapy [EXP]
- Cost of Illness
- Costs and Cost Analysis [EXP]
- Ethnic Groups [EXP]
- Health Services Accessibility [EXP]
- Insurance Benefits/Economics
- Insurance, Health/Economics
- Mandatory Programs/Economics
- Social Discrimination [EXP]
- Socioeconomic Factors [EXP]
- Treatment Outcome [EXP]
- Vital Statistics [EXP]
- Cost-Benefit Analysis
- Outcome Assessment (Health Care)

Keywords used to search PubMed, Cochrane Library, EconLit, Web of Science, and relevant websites

- Autism or Autism Spectrum Disorder* or Autistic or ASD or Asperger or PDD or Pervasive Developmental Disorder* or Rett
- Cost or Costs
- “Cost of Illness”
- Economics
- Effectiveness
- Employment
- Ethnicity
- Gender
- Health Services Accessibility
- Incidence
- Insurance
- Literacy
- Low Income
- Lost Productivity
- Maintenance
- Marketing
- Morbidity
- Mortality
- Poor
- Poverty
- Prevalence
- Price elasticity
- Pricing
- Race
- Racial disparities
- Socioeconomic
- Substance Abuse
- Underprivileged

* = Truncation

APPENDIX C COST IMPACT ANALYSIS: DATA SOURCES, CAVEATS, AND ASSUMPTIONS

This appendix describes data sources, estimation methodology, as well as general and mandate-specific caveats and assumptions used in conducting the cost impact analysis. For additional information on the cost model and underlying methodology, please refer to the CHBRP website at: www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

The cost analysis in this report was prepared by the members of the cost team, which consists of CHBRP task force members and contributors from the University of California, Los Angeles, and the University of California, Davis, as well as contracted actuarial firms, Milliman, Inc, and Pricewaterhouse Coopers (PwC).³⁵

Data Sources

This subsection discusses the variety of data sources CHBRP uses. Key sources and data items are listed below, in Table C-1.

Table C-1. Data for 2017 Projections

Data Source	Items
California Department of Health Care Services (DHCS) administrative data for the Medi-Cal program, data available as of end of December 2014	Distribution of enrollees by managed care or FFS distribution by age: 0–17; 18–64; 65+ Medi-Cal Managed Care premiums
California Department of Managed Health Care (DMHC) data from the interactive website “Health Plan Financial Summary Report,” August–October, 2015	Distribution of DMHC-regulated plans by market segment*
California Department of Insurance (CDI) Statistical Analysis Division data; data as of December 31, 2015	Distribution of CDI-regulated policies by market segment
California Health Benefits Review Program (CHBRP) Annual Enrollment and Premium Survey of California’s largest (by enrollment) health care service plans and health insurers; data as of September 30, 2015; responders’ data represent approximately 97% of persons not associated with CalPERS or Medi-Cal with health insurance subject to state mandates (full-service (nonspecialty) DMHC-regulated plan enrollees and of full-service (nonspecialty) CDI-regulated policy enrollees)	Enrollment by: <ul style="list-style-type: none"> • Size of firm (2–50 as small group and 51+ as large group) • DMHC vs. CDI regulated • Grandfathered vs. nongrandfathered Premiums for individual policies by: <ul style="list-style-type: none"> • DMHC vs. CDI regulated • Grandfathered vs. nongrandfathered

³⁵ CHBRP’s authorizing statute, available at www.chbrp.org/docs/authorizing_statute.pdf, requires that CHBRP use a certified actuary or “other person with relevant knowledge and expertise” to determine financial impact.

Data Source	Items
California Employer Health Benefits Survey, 2014 (conducted by NORC and funded by CHCF)	Enrollment by HMO/POS, PPO/indemnity self-insured, fully insured, Premiums (not self-insured) by: <ul style="list-style-type: none"> • Size of firm (3–25 as small group and 25+ as large group) • Family vs. single • HMO/POS vs. PPO/indemnity vs. HDHP employer vs. employer premium share
California Health Interview Survey (CHIS)	Uninsured, age: 65+ Medi-Cal (non-Medicare), age: 65+ Other public, age: 65+ Employer-sponsored insurance, age: 65+
California Public Employees' Retirement System (CalPERS) data, enrollment as of October 1, 2015	CalPERS HMO and PPO enrollment <ul style="list-style-type: none"> • Age: 0–17; 18–64; 65+ • HMO premiums
California Simulation of Insurance Markets (CalSIM) (projections for 2017)	Uninsured, age: 0–17; 18–64 Medi-Cal (non-Medicare) (a), age: 0–17; 18–64 Other public (b), age: 0–64 Individual market, age: 0–17; 18–64 Small group, age: 0–17; 18–64 Large group, age: 0–17; 18–64
Centers for Medicare and Medicaid (CMS) administrative data for the Medicare program, annually (if available) as of end of September	HMO vs. FFS distribution for those 65+ (noninstitutionalized)
Milliman estimate	Medical trend influencing annual premium increases

Notes: * CHBRP assumes DMHC-regulated PPO group enrollees and POS enrollees are in the large-group segment.
Key: CDI = California Department of Insurance; CHCF = California HealthCare Foundation; CHIS = California Health Interview Survey; CMS = Centers for Medicare & Medicaid Services; DHCS = Department of Health Care Services; DMHC = Department of Managed Health Care; FFS = fee-for-service; HMO = health maintenance organization; NORC = National Opinion Research Center; POS = point of service; PPO = preferred provider organization.

Further discussion of external and internal data follows.

Internal data

- CHBRP's Annual Enrollment and Premium Survey collects data from the six largest providers of health insurance in California (including Aetna, Anthem Blue Cross of California, Blue Shield of California, CIGNA, Health Net, and Kaiser Foundation Health Plan,) to obtain estimates of enrollment not associated with CalPERS or Medi-Cal by purchaser (i.e., large and small group and individual), state regulator (DMHC or CDI), grandfathered and nongrandfathered status, and average premiums. CalSIM and market trends were applied to project 2017 health insurance enrollment in DMHC-regulated plans and CDI-regulated policies.

- CHBRP's other surveys of the largest plans/insurers collect information on benefit coverage relevant to proposed benefit mandates CHBRP has been asked to analyze. In each report, CHBRP indicates the proportion of enrollees—statewide and by market segment—represented by responses to CHBRP's bill-specific coverage surveys. The proportions are derived from data provided by CDI and DMHC.

External sources

- California Department of Health Care Services (DHCS) data are used to estimate enrollment in Medi-Cal Managed Care (beneficiaries enrolled in Two-Plan Model, Geographic Managed Care, and County Operated Health System plans), which may be subject to state benefit mandates, as well as enrollment in Medi-Cal Fee For Service (FFS), which is not. The data are available at: www.dhcs.ca.gov/dataandstats/statistics/Pages/Monthly_Trend_Report.aspx.
- California Employer Health Benefits Survey data are used to make a number of estimates, including: premiums for employment-based enrollment in DMHC-regulated health care service plans (primarily health maintenance organizations [HMOs] and point of service [POS] plans) and premiums for employment-based enrollment in CDI-regulated health insurance policies regulated by the (primarily preferred provider organizations [PPOs]). Premiums for fee-for-service (FFS) policies are no longer available due to scarcity of these policies in California. This annual survey is currently released by the California Health Care Foundation/National Opinion Research Center (CHCF/NORC) and is similar to the national employer survey released annually by the Kaiser Family Foundation and the Health Research and Educational Trust. More information on the CHCF/NORC data is available at: www.chcf.org/publications/2014/01/employer-health-benefits.
- California Health Interview Survey (CHIS) data are used to estimate the number of Californians aged 65 and older, and the number of Californians dually eligible for both Medi-Cal and Medicare coverage. CHIS data are also used to determine the number of Californians with incomes below 400% of the federal poverty level. CHIS is a continuous survey that provides detailed information on demographics, health insurance coverage, health status, and access to care. More information on CHIS is available at: www.chis.ucla.edu.
- California Public Employees Retirement System (CalPERS) data are used to estimate premiums and enrollment in DMHC-regulated plans, which may be subject to state benefit mandates, as well as enrollment in CalPERS' self-insured plans, which is not. CalPERS does not currently offer enrollment in CDI-regulated policies. Data are provided for DMHC-regulated plans enrolling non-Medicare beneficiaries. In addition, CHBRP obtains information on current scope of benefits from evidence of coverage (EOC) documents publicly available at: www.calpers.ca.gov. California Simulation of Insurance Markets (CalSIM) estimates are used to project health insurance status of Californians aged 64 and under. CalSIM is a microsimulation model that projects the effects of the Affordable Care Act on firms and individuals. More information on CalSIM is available at: <http://healthpolicy.ucla.edu/programs/health-economics/projects/CalSIM/Pages/default.aspx>.
- To estimate the premium impact of certain mandates, PwC's projections may derive from its proprietary comprehensive pricing model, which provides benchmark data and pricing capabilities for commercial health plans. The pricing model factors in health plan features such as deductibles, copays, out-of-pocket maximums, covered services, and degree of health care management. The pricing model uses normative data and benefit details to arrive at estimates of allowed and net benefit costs. The normative benchmarking utilization metrics within the pricing model are developed from a database of commercial (under 65) health plan experience representing approximately 20 million annual lives.

- The MarketScan databases, which reflect the health care claims experience of employees and dependents covered by the health benefit programs of large employers, are used to estimate utilization and unit cost. These claims data are collected from insurance companies, Blue Cross Blue Shield plans, and third party administrators. These data represent the medical experience of insured employees and their dependents for active employees, early retirees, individuals with COBRA continuation coverage, and Medicare-eligible retirees with employer-provided Medicare Supplemental plans. No Medicaid or workers compensation data are included.
- Ingenix MDR Charge Payment System, which includes information about professional fees paid for health care services, based upon claims from commercial insurance companies, HMOs, and self-insured health plans.

Projecting 2017

This subsection discusses adjustments made to CHBRP's Cost and Coverage Model to project 2017, the period when mandates proposed in 2016 would, if enacted, generally take effect. It is important to emphasize that CHBRP's analysis of specific mandate bills typically addresses the incremental effects of a mandate — specifically, how the proposed mandate would impact benefit coverage, utilization, costs, and public health, *holding all other factors constant*. CHBRP's estimates of these incremental effects are presented in the *Benefit Coverage, Utilization, and Cost Impacts* section of this report.

Baseline premium rate development methodology

The key components of the baseline model for utilization and expenditures are estimates of the per member per month (PMPM) values for each of the following:

- Insurance premiums PMPM;
- Gross claims costs PMPM;
- Member cost sharing PMPM; and
- Health care costs paid by the health plan or insurer.

For each market segment, we first obtained an estimate of the insurance premium PMPM by taking the 2015 reported premium from the abovementioned data sources and trending that value to 2017. CHBRP uses trend rates published in the Milliman HCGs to estimate the health care costs for each market segment in 2017.

The large-group market segments for each regulator (CDI and DMHC) are split into grandfathered and nongrandfathered status. For the small-group and individual markets, further splits are made to indicate association with Covered California, the state's health insurance marketplace. Doing so allows CHBRP to separately calculate the impact of ACA and of specific mandates, both of which may apply differently among these subgroups. The premium rate data received from the CHCF/NORC California Employer Health Benefits survey did not split the premiums based on grandfathered or exchange status. However, CHBRP's Annual Enrollment and Premium (AEP) survey asked California's largest health care service plans and health insurers to provide their average premium rates separately for grandfathered and nongrandfathered plans. The ratios from the CHBRP survey data were then applied to the CHCF/NORC aggregate premium rates for large and small group, to estimate premium rates for grandfathered and nongrandfathered plans that were consistent with the NORC results. For the individual market, the premium rates received from CHBRP's AEP survey were used directly.

The remaining three values were then estimated by the following formulas:

- Health care costs paid by the health plan = insurance premiums PMPM × (1 – profit/administration load);
- Gross claims costs PMPM = health care costs paid by the health plan ÷ percentage paid by health plan; and
- Member cost sharing PMPM = gross claims costs × (1 – percentage paid by health plan).

In the above formulas, the quantity “profit/administration load” is the assumed percentage of a typical premium that is allocated to the health plan/insurer’s administration and profit. These values vary by insurance category, and under the ACA, are limited by the minimum medical loss ratio requirement. CHBRP estimated these values based on actuarial expertise at Milliman, and their associated expertise in health care.

In the above formulas, the quantity “percentage paid by health plan” is the assumed percentage of gross health care costs that are paid by the health plan, as opposed to the amount paid by member cost sharing (deductibles, copays, etc.). In ACA terminology, this quantity is known as the plan’s “actuarial value.” These values vary by insurance category. For each insurance category, Milliman estimated the member cost sharing for the average or typical plan in that category. Milliman then priced these plans using the Milliman Health Cost Guidelines to estimate the percentage of gross health care costs that are paid by the carrier.

General Caveats and Assumptions

This subsection discusses the general caveats and assumptions relevant to all CHBRP reports. The projected costs are estimates of costs that would result if a certain set of assumptions were exactly realized. Actual costs will differ from these estimates for a wide variety of reasons, including:

- Prevalence of mandated benefits before and after the mandate may be different from CHBRP assumptions.
- Utilization of mandated benefits (and, therefore, the services covered by the benefit) before and after the mandate may be different from CHBRP assumptions.
- Random fluctuations in the utilization and cost of health care services may occur.

Additional assumptions that underlie the cost estimates presented in this report are:

- Cost impacts are shown only for plans and policies subject to state benefit mandate laws.
- Cost impacts are only for the first year after enactment of the proposed mandate.
- Employers and employees will share proportionately (on a percentage basis) in premium rate increases resulting from the mandate. In other words, the distribution of the premium paid by the subscriber (or employee) and the employer will be unaffected by the mandate.
- For state-sponsored programs for the uninsured, the state share will continue to be equal to the absolute dollar amount of funds dedicated to the program.
- When cost savings are estimated, they reflect savings realized for 1 year. Potential long-term cost savings or impacts are estimated if existing data and literature sources are available and provide adequate detail for estimating long-term impacts. For more information on CHBRP’s criteria for estimating long-term impacts, please see: www.chbrp.org/analysis_methodology/docs/longterm_impacts08.pdf.

There are other variables that may affect costs, but which CHBRP did not consider in the estimates presented in this report. Such variables include, but are not limited to:

- Population shifts by type of health insurance: If a mandate increases health insurance costs, some employer groups and individuals may elect to drop their health insurance. Employers may also switch to self-funding to avoid having to comply with the mandate.
- Changes in benefits: To help offset the premium increase resulting from a mandate, deductibles or copayments may be increased. Such changes would have a direct impact on the distribution of costs between health plans/insurers and enrollees, and may also result in utilization reductions (i.e., high levels of cost sharing result in lower utilization of health care services). CHBRP did not include the effects of such potential benefit changes in its analysis.
- Adverse selection: Theoretically, persons or employer groups who had previously foregone health insurance may elect, postmandate, to enroll in a health plan or policy because they perceive that it is now to their economic benefit to do so.
- Medical management: Health plans/insurers may react to the mandate by tightening medical management of the mandated benefit. This would tend to dampen the CHBRP cost estimates. The dampening would be more pronounced on the plan/policy types that previously had the least effective medical management (i.e., PPO plans).
- Geographic and delivery systems variation: Variation exists in existing utilization and costs, and in the impact of the mandate, by geographic area and by delivery system models. Even within the health insurance plan/policy types CHBRP modeled (HMO, including HMO and POS plans, and non-HMO, including PPO and FFS policies), there are likely variations in utilization and costs. Utilization also differs within California due to differences in the health status of the local population, provider practice patterns, and the level of managed care available in each community. The average cost per service would also vary due to different underlying cost levels experienced by providers throughout California and the market dynamic in negotiations between providers and health plans/insurers. Both the baseline costs prior to the mandate and the estimated cost impact of the mandate could vary within the state due to geographic and delivery system differences. For purposes of this analysis, however, CHBRP has estimated the impact on a statewide level.
- Compliance with the mandate: For estimating the postmandate impacts, CHBRP typically assumes that plans and policies subject to the mandate will be in compliance with the benefit coverage requirements of the bill. Therefore, the typical postmandate coverage rates for persons enrolled in health insurance plans/policies subject to the mandate are assumed to be 100%.

Analysis Specific Caveats and Assumptions

This subsection discusses the caveats and assumptions relevant to specifically to an analysis of (SB) 1034.

Applied behavioral analysis (ABA) services procedure and ICD-9 autism spectrum disorder (ASD) diagnosis codes were identified by a content expert and were additionally vetted with carrier responses. It was discovered that several of the codes used to define behavioral health treatment Services were not found in the 2014 MarketScan Commercial Claims and Encounters Database. Through external research it was found that these specific codes were introduced on July 1, 2014, and not all providers were required to use the new codes until January 1, 2015. Therefore, CHBRP used procedure codes that were available in the 2014 MarketScan Commercial Claims and Encounters Database to designate the behavioral health treatment service determination.

For the applied behavioral analysis (ABA) service procedure codes that were found in the 2014 MarketScan[®] Commercial Claims and Encounters Database, external research was performed to determine the number of minutes of service associated with each procedure code. If a procedure code did not have a minute designation in the description, CHBRP made the assumption that one unit was equal to 60 minutes, or 1 hour. These definitions were used to produce a field that calculated total hours of applied behavioral analysis (ABA) services in 2014. CHBRP used the ASD diagnosis codes to produce a list of ASD diagnosed persons in the 2014 MarketScan[®] Commercial Claims and Encounters Database. With those unique individuals, CHBRP was able to identify all individuals with an ASD diagnosis using behavioral health treatment services throughout the year. From the 2014 MarketScan[®] Commercial Claims and Encounters Database utilization, hours of service and baseline cost information was developed for those individuals with an ASD diagnosis using behavioral health treatment services.

Applying the baseline cost and utilization information, continuance tables were developed that calculated a range of the total dollar amount that the provider will be paid by all sources) within 2014, for each person identified as having an ASD diagnosis. The data were split into several age categories to allow insight into patterns or prevalence by age band: 0–5, 6–10, 11–15, 16–21, and 21 and over. Through this breakout, CHBRP determined that there was a higher prevalence of claims for individuals with an ASD diagnosis for those 0–10 years of age and that the level of service was higher in those age bands (Table C-2).

Table C-2. Prevalence of Persons with an Autism Spectrum Diagnosis by Age Group, California, 2014

Age Groups	Autism Diagnosis Prevalence per 10,000 in California					
	Age 0–5	Age 6–10	Age 11–15	Age 16–21	Age 21+	Total
2014 MarketScan	45.6	88.5	76.2	41.2	4.2	21.7

Source: CHBRP, 2016.

CHBRP also consulted another data source, the 2014 California Health Interview Survey (CHIS), to compare MarketScan prevalence rates. For the private coverage market, prevalence rates for children ages 0-11 were comparable to the 2014 MarketScan data. The 2014 CHIS prevalence rates for children ages 0-11 in the Medi-Cal program were three times the prevalence rate for the private market. Since SB 1034 does not apply to enrollees in the Medi-Cal program, this higher prevalence for that population was not included in the Cost models. Also, see *Background of SB 1034* section for a discussion of the CDC prevalence estimates.

Due to the lack of research literature which includes this distinction, CHBRP determined there to be three significant treatment categories by which to define the severity and intensity of behavioral health treatment for autism services in consultation with the content experts.³⁶ These treatment categories, as defined by total annual cost per person, are:

- Intensive behavioral health treatment: \$30,000+
- Maintenance: \$10,000–\$30,000
- Other: \$0–\$10,000

³⁶ Conversations with Dr. Natacha Akshoomoff, UC San Diego, on February 26, 2016, and Dr. David Mandell, University of Pennsylvania, on March 10, 2016.

The category cutoffs were determined by the distribution of frequency of claims, backing into assumed number of hours of service (see Table C-3).

Table C-3. Distribution of Persons with an Autism Spectrum Diagnosis by Dollar Amount Spent Annually on Behavioral Health Treatment, California, 2014

	Dollar Amount Spent Annually on Behavioral Health Treatment			Total
	< \$10,000	\$10,000–\$30,000	\$30,000+	
2014 MarketScan	92.1	4.8	3.1	100%

Sources: 2014 MarketScan.

Premandate, the hours per 1,000 enrollees and provider payment per hour varied by treatment category. Intensive behavioral health therapy had the most hours per 1,000 enrollees and the highest payment to providers per hour, and other had the lowest of both categories. For all ages, the hours of service per 1,000 enrollees was 44.22, and the average cost per hour of behavioral health therapy services was \$133.67 before application. Baseline cost was trended at a 2.1% annual rate of increase from 2014 to 2017 based on 2015 medical CPI rate. This had no effect on the hours per 1,000 enrollees but increased the per unit cost per hour to \$142.47, an increase of \$8.60.

The cost-sharing percentage was calculated using the copay, coinsurance and deductible fields of the 2014 MarketScan[®] Commercial Claims and Encounters Database. Summing these fields and dividing by the payments to providers creates the percent cost share. CHBRP found that the cost-sharing percentage was significantly different across the treatment buckets and applied a cost sharing percentage of 4.3% for intensive behavioral health treatment, 7.5% for maintenance, and 12.4% for other. The total weighted average for the population is 6.2% cost sharing. Cost sharing decreases with higher levels of service as families reach their out of pocket cost sharing maximum.

CHBRP assumes there will be a 20% increase in the use of services in the \$10,000 to \$30,000 range, representing increased use of maintenance postmandate. The new maintenance services are assumed to apply only to children, as there were no adults within the band of moderate use of behavioral health treatment services (\$10,000–\$30,000).

Determining Public Demand for the Proposed Mandate

This subsection discusses public demand for the benefits (SB) 1034 would mandate. Considering the criteria specified by CHBRP’s authorizing statute, CHBRP reviews public demand for benefits relevant to a proposed mandate in two ways. CHBRP:

- Considers the bargaining history of organized labor; and
- Compares the benefits provided by self-insured health plans or policies (which are not regulated by the DMHC or CDI and therefore not subject to state-level mandates) with the benefits that are provided by plans or policies that would be subject to the mandate.

On the basis of conversations with the largest collective bargaining agents in California, CHBRP concluded that unions currently do not include terms and conditions of behavioral health treatment for

ASD in their health insurance negotiations. In general, unions negotiate for broader contract provisions such as coverage for dependents, premiums, deductibles, and broad coinsurance levels.

Among publicly funded self-insured health insurance policies, the preferred provider organization (PPO) plans offered by CalPERS currently have the largest number of enrollees. The CalPERS PPOs currently provide benefit coverage similar to what is available through group health insurance plans and policies that would be subject to the mandate.

To further investigate public demand, CHBRP used the bill-specific coverage survey to ask carriers who act as third-party administrators for (non-CalPERS) self-insured group health insurance programs whether the relevant benefit coverage differed from what is offered in group market plans or policies that would be subject to the mandate. The responses indicated that there were no substantive differences.

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A group of faculty, researchers, and staff complete the analysis that informs California Health Benefits Review Program (CHBRP) reports. The CHBRP **Faculty Task Force** comprises rotating senior faculty from University of California (UC) campuses. In addition to these representatives, there are other ongoing contributors to CHBRP from UC that conduct much of the analysis. The **CHBRP staff** coordinates the efforts of the Faculty Task Force, works with Task Force members in preparing parts of the analysis, and manages all external communications, including those with the California Legislature. As required by CHBRP's authorizing legislation, UC contracts with a certified actuary, PricewaterhouseCoopers, to assist in assessing the financial impact of each legislative proposal mandating or repealing a health insurance benefit.

The **National Advisory Council** provides expert reviews of draft analyses and offers general guidance on the program to CHBRP staff and the Faculty Task Force. CHBRP is grateful for the valuable assistance of its National Advisory Council. CHBRP assumes full responsibility for the report and the accuracy of its contents.

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A group of faculty and staff undertakes most of the analysis that informs reports by the California Health Benefits Review Program (CHBRP). The CHBRP Faculty Task Force comprises rotating representatives from six University of California (UC) campuses. In addition to these representatives, there are other ongoing contributors to CHBRP from UC. This larger group provides advice to the CHBRP staff on the overall administration of the program and conducts much of the analysis.

CHBRP staff coordinates the efforts of the Faculty Task Force, works with Task Force members in preparing parts of the analysis, and coordinates all external communications, including those with the California Legislature.

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CHBRP assumes full responsibility for the report and the accuracy of its contents. All CHBRP bill analyses and other publications are available at www.chbrp.org.

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