

**Actuarial Assessment of House Bill 569:  
An Act Requiring Insurance Coverage for Diagnosis and  
Treatment of Autism Spectrum Disorders**

**Prepared for**

**State of New Hampshire  
Insurance Department**

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**Actuarial Assessment of house Bill 569:  
An Act Requiring Insurance Coverage for Diagnosis and Treatment  
of Autism Spectrum Disorders**

**Executive Summary**

House Bill 569, before the 2009 Session of the New Hampshire state legislature, mandates insurance coverage for the diagnosis and treatment of autism spectrum disorders (ASDs). The New Hampshire Insurance Department engaged Compass Health Analytics, Inc. to provide an actuarial estimate of the effect that enactment of the bill would have on the cost of health care insurance in New Hampshire. While this financial analysis is the primary scope of our work, we also address the existing literature concerning the efficacy and long-term benefit of the intensive therapies that are the main objective of this bill.

Compass analyzed the language of H.B. 569 to determine the portions of the insurance market in New Hampshire to which it applies. Questions raised about its applicability to Medicaid programs and to insurance policies covering individuals were addressed recently by the Committee on Commerce. This analysis assumes that the mandate applies only to fully-insured commercial group policies, not to plans maintained by large employers where the employer is self-insured, individual policies, or Medicaid.

Compass analyzed the relationship of the bill to existing mandate laws to determine the net effect on coverage requirements. We conclude that the bill can be interpreted to broaden the set of currently mandated therapies to include, at least, intensive behavioral therapies such as Applied Behavioral Analysis (ABA) for children with ASDs. A review of 2008 claims data provided by the Insurance Department provided information on the actual benefits paid by commercial insurers for service to individuals diagnosed with an ASD and confirmed that current benefits do not reflect the magnitude of payments associated with some of the more intensive therapies.

To estimate the cost of the mandated therapies, Compass reviewed the literature regarding the prevalence of ASDs and compared it to treatment prevalence in the Department's claim data, finding them roughly compatible, at least for children. Compass then estimated the cost of providing the mandated therapies, beginning with estimates from past studies, but adjusting the published values to account for assumptions about the prevalence of ASDs that differed among the sources. Compass then added cost-sharing and administrative expense estimates for insurers.

The net cost of H.B. 569 to insurers, and therefore to payers of premiums for fully-insured plans, ranges from approximately \$2 million to \$4 million per year, adding 0.2 to 0.4 percent to premiums. These annual medical care costs should be considered in the context of large societal savings that can occur outside the medical care system, including those realized in education, social security payments, and in workplace productivity.

In performing this analysis we have attempted to make clear the assumptions under which we are operating and why we made them. If the Committee intends the provisions of H.B. 569 to be interpreted in a manner differently than how we interpreted them in this analysis, the Committee may wish to modify the language of the bill to clarify its intent. We have noted specific instances that might affect the estimated impact of the bill.

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Spectrum Disorders**

**Introduction**

House Bill 569, before the 2009 Session of the New Hampshire state legislature, mandates insurance coverage for the diagnosis and treatment of autism spectrum disorders (ASDs). (See Appendix A for the text of the bill.) The New Hampshire Insurance Department engaged Compass Health Analytics, Inc. to provide an actuarial estimate of the effect that enactment of the bill would have on the cost of health care insurance in New Hampshire.

**The Efficacy and Societal Impact of treating Autism Spectrum Disorders**

Both the efficacy and societal impact of services for treating ASDs have been studied in the research literature. The multi-year effort that goes into such studies is beyond the scope of this report, and detailed literature reviews of this research have been conducted elsewhere<sup>1</sup>, but these sources provide evidence that treatment for ASDs can be both efficacious and cost-beneficial when provided using an evidence-based model delivered early in a child's development.

The key component for early treatment of ASDs is Applied Behavioral Analysis (ABA). A recent study found that ABA is more effective over the long term than competing therapies<sup>2</sup>. However, comparisons to alternative therapies understate the effects relative to untreated groups. As will be discussed below, there is little evidence in New Hampshire claim data that meaningful amounts of services are being provided to the

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<sup>1</sup> For example, see Autism Spectrum Disorders Mandated Benefits Review Panel Report: Evidence Submitted Concerning Pennsylvania HB 1150. Durham, NC: Abt Associates, Inc., June 18, 2008.

<sup>2</sup> Eikeseth S, Smith T, Jahr E, Eldevik S, (2002). Intensive behavioral treatment at school for 4- to 7-yearold children with autism. A 1-year comparison controlled study. Behavior Modification 26:49-68.

ASD population currently covered by commercial insurance. Based on the assumption that services provided in practice can be delivered in a manner consistent in the approach and quality realized in such clinical trials, treatment for ASDs has been found to be efficacious.

The societal impact of treatment of ASDs has been estimated in several cost-benefit studies. Given the efficacious nature of high-quality, evidence-based early intervention services, there are a number of difficult-to-quantify but highly significant societal benefits. These include avoidance of productivity and health impacts on family members, reduction in special education costs in school districts due to improved functioning during the school career, reduction in lifetime medical costs for treated individuals, and increased lifetime productivity. A study that did not include estimates of what are often significant impacts on the health and functioning of family members concluded that savings, after all costs, of ASD-related services during the ages of 3-22 were on the order of \$200,000<sup>3</sup>. Much of these costs saved were not in the medical care system but were in education, supplemental security income, etc. These savings estimates assume that the benefits of treatment identified in clinical studies are realized in practice. The cost impacts estimated in this report are restricted to impacts on health insurance costs and health insurance premiums, but they should be interpreted in the context of the larger societal impact that timely, high-quality, evidence-based services can achieve.

## **Interpretation of H.B. 569 and Assumptions**

### *Insurance entities subject to H.B. 569*

H.B. 569 amends the New Hampshire statutes that regulate insurers providing health insurance to New Hampshire residents. The bill has the following four sections, each

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<sup>3</sup> Jacobson, JW, Mulick, JA, Green G, (1998). Cost Benefit Estimates for Early Intensive Behavioral Intervention for Young Children with Autism: General Model and Single State Case. *Behav. Intervent.*, 13, 201±226.

addressing the section of the statutes dealing with a particular type of health insurance policy:

- Section 1: Health and accident insurers writing policies for individuals (RSA415:6-p)
- Section 2: Health and accident insurers writing policies for groups (RSA 415:18-u)
- Section 3: Health service corporations (RSA 420-A:2). This section incorporates the group policy requirements created under section 2. (There are currently no significant HSC's in New Hampshire subject to the statute.)
- Section 4: Health Maintenance Organizations (RSA 420-B:20). This section incorporates the group policy requirements created under section 2.

Health insurance plans operated as self-insured entities (i.e., the employer policy holder retains the risk for medical expenditures and uses the insurer to provide administrative functions) are subject to federal law, and are not subject to state insurance regulation, including state-level mandates. Also, as written, the bill applies to individual policies when written under a general health and accident insurance license. It is unclear whether it applies to individual policies offered by health services corporations or HMO's. The New Hampshire Legislature's Committee on Commerce (the Committee) indicated in a recent meeting that it intends to exempt individual coverage from the mandate under all license types; therefore for purposes of this analysis, we assume the bill places no requirements on individual coverage.<sup>4</sup>

#### *Applicability of the mandate to Medicaid*

The version of H.B. 569 used for this analysis provides "Notwithstanding any provision of law or rule to the contrary, the coverage under this section shall apply to the medical assistance program, pursuant to RSA 161 and RSA 167." After reviewing the possible interpretation of this clause with the Commerce Committee in its meeting on September 9, 2009, Compass was informed by the Committee that it did not intend to address Medicaid programs or funding in this bill.

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<sup>4</sup> New Hampshire Legislature Committee on Commerce, September 9, 2009.

The Committee, in its September 9 meeting, allowed that the bill might affect people served by medical assistance programs for which commercial insurers are at risk, but our understanding is that the Committee will not insert language specifically to that effect. For purposes of this analysis the Healthy Kids population is not included in the impact estimates.

*Mandated services, existing mandates, and medical necessity*

H.B. 569 mandates “coverage for the diagnosis and treatment of autism spectrum disorders. The benefits included in this section shall not be subject to any greater deductible or other limitations than any other benefits provided by the insurer.” The bill specifies the treatment of ASDs to include the following types of services:

- a) Habilitative or rehabilitative care
- b) Pharmacy care
- c) Psychiatric care
- d) Psychological care
- e) Therapeutic care

This list of services includes both services that are traditionally “medical”, such as psychiatric and pharmacy care, and services that might fall outside some interpretations of “medical”, particularly “habilitative” services, i.e., services intended to develop, rather than rebuild, functionality in a person with an ASD.

Insurers offering policies to New Hampshire residents are already required to provide at least some services to treat ASDs. The current New Hampshire mental health parity law (RSA 417-E:1) lists autism among the biologically-based mental illnesses for which insurers must provide coverage no less extensive than that provided for any physical illness. (Furthermore the federal Wellstone-Domenici Mental Health Parity Act of 2008 requires large group health plans to cover treatment for mental illness on the same terms

and conditions as all other illnesses.) Thus, insurers are already required to cover the services listed in H.B. 569 under the same terms as they would a physical illness.

Among the terms and conditions under which insurers typically cover treatment for physical illness is the requirement that the treatment be “medically necessary”; therefore we assume that the existing mandate limits ASD-related coverage to services that meet that requirement. H.B. 569 also contains language addressing medical necessity. It provides that covered care must be “prescribed, provided, or ordered for an individual diagnosed with a pervasive developmental disorder by a licensed physician or a licensed psychologist who determines the care to be medically necessary”.

For the purposes of this analysis, Compass assumes the intent of H.B. 569 is to expand the services covered by insurers for the treatment of ASDs. We base that assumption on the following:

- According to information from advocates for children with ASD, and addressed by them in the Committee’s meeting of September 9, much of the motivation behind H.B. 569 is to secure funding for applied behavioral analysis (ABA) and other therapies intended to improve the functioning of children with ASDs. Such therapies are currently not covered (beyond limited early intervention services mandated for children under three years of age) and could be interpreted as falling into the class of “habilitative” services listed in the bill.
- The Committee, at its September 9 meeting, told Compass that it would insert language incorporating the autism treatment standards of the American Academy of Pediatrics.<sup>5</sup> The Academy standards include ABA as an appropriate treatment in some cases. The standards list ABA and related developmental model work under the category of “educational interventions” and not under the category of “medical management”, but we assume that the Committee intends that a prescribing physician or psychologist may find the therapies medically necessary nonetheless. Insurers may disagree and consider the care “educational” and therefore not medically necessary. We note that the standards also list speech and occupational therapies under the “educational” category, therapies routinely paid for under medical insurance and explicitly included in existing laws mandating commercial insurance coverage for early intervention for developmental disabilities.<sup>6</sup>

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<sup>5</sup> Clinical Report of the American Academy of Pediatrics. “Management of Children with Autism Spectrum Disorders”. *Pediatrics* Volume 120, Number 5, November 2007: 1162-1182.

<sup>6</sup> E.g., RSA 415:6-n, Coverage for Children's Early Intervention Therapy Services

- As noted, H.B. 569 provides that a licensed physician or a licensed psychologist must determine the care to be medically necessary. On its face, the bill's language, even with the Academy's standards as reference, might allow the interpretation that the physician/psychologist is the arbiter of medical necessity. However, the Committee and the Department agreed that the Committee's intent was that H.B. 569 should be interpreted in a manner similar to the way the Department interpreted an existing mandate providing for bariatric surgery to treat morbid obesity<sup>7</sup>, which the Department said did not foreclose a carrier from making its own medical necessity determination. If the Committee wishes the Department to arrive at a similar interpretation of H.B. 569, it might consider modifying the language of H.B. 569 to incorporate the terms of the bariatric mandate upon which the Department relied.<sup>8</sup>

Given the potentially broader set of services (including ABA) listed in the bill, the potentially somewhat greater discretion of the prescriber who can rely on the Academy's standards, and unlikelihood that the authors of the bill intended it to have no effect on coverage, we assume H.B. 569 could be read as expanding coverage beyond the requirements of the existing mandates.

#### *Variations in existing mandates among types of insurers*

The scope of coverage under H.B. 569 interacts with existing mandate laws. While we interpret H.B. 569 as mandating some services (e.g., ABA) previously not mandated for people with an ASD, the bill also mandates general medical, pharmacy, and other care for those people. In most cases such care is already mandated under other laws, most notably the New Hampshire mental health parity law for biologically-based mental

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<sup>7</sup> RSA 415:6-o mandates the coverage of bariatric surgery to treat morbid obesity. The law incorporates standards set forth by the American Society for Metabolic and Bariatric Surgery or the American College of Surgeons, and requires the prescribing physician to issue "a written order stating that treatment is medically necessary". In particular, the law says coverage is "subject to the terms and conditions of the policy".

<sup>8</sup> Insurance Department bulletin (INS No. 08-055-AB) interprets the bariatric surgery mandate as not foreclosing a carrier from making its own medical necessity determination. The Department specifically included in its list of reasons the mandate language that benefits are "subject to the terms and conditions of the policy" and said "the terms and conditions of the policy include the medical necessity standard set forth in the policy". H.B. 569 has no similar language regarding the "terms and conditions of the policy". To allow the Department to make precisely the same argument in interpreting H.B. 569, the Committee may wish to amend the language of H.B. 569. (The Department might be able to make the case allowing carrier determination of medical necessity using other language, but we cannot speculate on what that might be.)

illnesses (RSA 417-E:1). Appendix B shows the effect of other mandates on insured subpopulations defined in the statutes.

The New Hampshire mental health parity law does not apply to individual policies written under the general health and accident insurance license law. As written, H.B. 569 does apply to those policies and would create, for that subpopulation, not only a potential obligation to cover habilitative services but also an obligation to cover basic medical services for people with an ASD. However, as noted the Committee intends to revise the bill to exempt individual coverage from the mandate under all license types, and we will exclude from the analysis all subpopulations with individual coverage. (The net effect of these subpopulations on the final cost of H.B. 569 would be minor anyway; they are small and the cost per patient of general medical services is much less than the potential cost of habilitative services.)

#### *Estimate of costs in systems other than health care insurance*

As noted in the discussion on the broader impact of ASD-related disability, services for people with ASDs come from sources beyond the health care system, and the funding source for these services will be part of the context of any debate about H.B. 569. It is not possible to predict the degree to which any medical services provided under this proposed mandate would displace services currently provided and paid for by the education system, therefore this report will not attempt to quantify the potential impact of H.B. 569 on systems other than health care insurance.

## **Methodology**

### *Analysis design*

This analysis takes the following approach to evaluating the potential costs of H.B. 569:

1. Estimate the population affected by the mandate, i.e., identify the types of policies affected and estimate the number of covered individuals.

2. Estimate the number of people with ASDs within subpopulations affected by the mandate.
3. Estimate the existing level of services related to autism.
4. Estimate the cost of additional services potentially mandated by H.B. 569.
5. Estimate the net increase in medical expenses billed to health insurers.
6. Estimate the effect on health insurance premiums by accounting for insurers' administrative expenses and margin.

Two critical factors in estimating the net cost to the health care system of H.B. 569 are the prevalence of ASDs within the population and the costs of newly mandated services (ABA, etc.), addressed in steps 2 and 4 respectively. Estimates of these factors are subject to substantial variation; in this analysis we establish a reasonable range of costs that the Department and the Committee can use in its evaluation of the bill.

#### *Data sources*

The primary data sources used in the analysis were:

- NHCHIS (New Hampshire Comprehensive Health Care Information System) claim data: The NHCHIS database, summarized for us by the Department, contains claim and membership data for almost all of the plans under the Department's jurisdiction. The Department provided us with a summary of claims with any ASD-related diagnosis (i.e., containing ICD diagnosis codes beginning with 299) for 2008. The Department's ability to capture data from all plans has only recently matured, and some gaps may still exist.
- NHCHIS membership data: The Department provided us with a summary of membership for 2008. The database does not distinguish between group and individual plans, nor between fully-insured and self-insured plans, but does let us estimate the proportion of the population belonging to each age group.
- NHID Supplemental Reports: In combination with NHCHIS member data we can distinguish reasonable accurately self-insured from fully-insured plans, group from individual plans, license types (e.g., indemnity plans vs. HMO's), NH residency, and age groups.
- Government reports and academic literature, cited as appropriate.

The step-by-step description of the estimation process below addresses limitations in some of these sources.

## Analysis

### *Insured population affected by the mandate*

H.B. 569 applies to New Hampshire residents covered under health insurance policies regulated by the state of New Hampshire:

- Under which the policy holder is fully-insured (not self-insured)
- When written under general health and accident statutes, insuring groups but not individuals (as amended)
- When written under insuring groups but not individuals (as amended)

Using the NHCHIS membership and supplemental report data provided by the Insurance Department, we estimate the number of residents affected by the proposed mandate at about 238,200. This number is far smaller than the approximately 906,000 residents of New Hampshire covered under non-government health plans estimated by the Kaiser Family Foundation<sup>9</sup>. The following factors contribute to the difference:

- As noted, the Department has no jurisdiction over self-insured plans and residents covered therein are not included in this analysis. Table 1 includes an estimate of the members covered under self-insured plans.
- We exclude plans covering individuals. Table 1 includes an estimate of the members covered in individual plans.
- H.B. 569 applies to insurance regulated by the state of New Hampshire. Residents who commute to other states and are insured in those states are generally not included in the Department's numbers nor in this analysis.
- Residents who work in New Hampshire and are insured by employers with headquarters in other states should still be included in the population affected by the mandate. As noted, the Department's ability to capture data from all these plans has only recently matured, and some gaps may still exist.
- Small plans (with less than \$250,000 in annual premiums in the state) are not required to report to the Department. The number of fully insured residents in these plans is very small.

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<sup>9</sup> Kaiser Family Foundation, "New Hampshire: Health Insurance Coverage of the Total Population, states (2006-2007)", accessed 10/1/09, <[www.statehealthfacts.org/profileind.jsp?ind=125&cat=3&rqn=31](http://www.statehealthfacts.org/profileind.jsp?ind=125&cat=3&rqn=31)>

Table 1 shows the estimate of the commercial insurance subpopulations, including for reference subpopulations for which an estimate is possible but excluded from the analysis.

**Table 1: Membership**

FI/SI	NH Licen	Group/Indiv	Age	HB 569 applies	Members	
FI	<b>Health &amp; Accident</b>					
	Individual		Adult	No, as modified	19,849	
			Child 3 to 21	No, as modified	7,262	
			Child 0 to 2	No, as modified	771	
	Group		Adult	Yes	56,701	
			Child 3 to 21	Yes	21,453	
			Child 0 to 2	Yes	2,346	
	HMO		Individual	Adult	No	238
				Child 3 to 21	No	100
				Child 0 to 2	No	11
			Group	Adult	Yes	108,032
				Child 3 to 21	Yes	44,627
Child 0 to 2				Yes	5,018	
<b>FI Total</b>					266,408	
SI	N/A	Group		No	182,781	
<b>Total</b>					449,189	

As discussed above, Medicaid-funded insurance is not included in this analysis. Also, this analysis does not include individuals with Medicare coverage and commercial “medigap” policies, as these policies are tied to Medicare benefits and cover patient cost-sharing within the Medicare benefit structure.

*Number of people with an ASD affected by the mandate*

Estimates of the prevalence of ASDs among children in the US have evolved over the years as understanding of the set of related disabilities improves, and even now the range of estimates reflects not only the experimental design and population of each study, but also how expansive a definition of autism and ASDs each author takes. Measures and

estimates cited in studies encountered in this analysis range from 4.0 to 6.7 per thousand (approximately 1 out of 250 to 1 of 150), with the CDC weighing in at the upper end of the range<sup>10</sup>. The upper part of the range includes the widest set of ASD-related disabilities and the full range of impairment to functioning, i.e., the group includes both low-functioning and high-functioning individuals who in turn have relatively high and low treatment costs.

NHCHIS claim data identified individuals among commercial plan members with ASDs by isolating claims (for any service) carrying a diagnosis code (primary diagnosis or otherwise) related to ASD (ICD diagnosis codes beginning with 299). Calculating a prevalence for autism by dividing the number of individuals by the population of children from the membership estimates above yields a value of approximately 7.1 per thousand, suggesting that the number of children with an ASD diagnosis is close to the estimated population prevalence.<sup>11</sup> It should be noted that this is a very “wide net” in that it may capture individuals who have an ASD diagnosis as a second or third diagnosis on a claim for unrelated services.

For very young children (less than three years old) the treatment prevalence observed in the NHCHIS data is perhaps half that observed for children 3 to 21. An autism diagnosis might not be made until the child in question reaches the age appropriate for an important developmental milestone, so we should expect a lower rate. For purposes of this report we will assume that the prevalence of (diagnosed) autism among these very young children is half that of older children.

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<sup>10</sup> Centers for Disease Control and Prevention, “Autism Spectrum Disorders”, <<http://www.cdc.gov/ncbddd/autism/index.html>>. Maryland Autism and Developmental Disabilities Project, <[http://www.cdc.gov/NCBDDD/autism/states/Maryland\\_ADDM.pdf](http://www.cdc.gov/NCBDDD/autism/states/Maryland_ADDM.pdf)>. Ganz, Michael L., “The Lifetime Distribution of the Incremental Societal Costs of Autism”. Archives of Pediatric & Adolescent Medicine 2007; 161(4): 343-349. Autism Spectrum Disorders Mandated Benefits Review Panel Report: Evidence Submitted Concerning Pennsylvania HB 1150. Durham, NC: Abt Associates, Inc., June 18, 2008, P5.

<sup>11</sup> This value is somewhat inflated. The calculation includes members with even one claim for the year, but the membership value (denominator) is a sum of member months; i.e., if a member was a member for only six months he or she contributes only 0.5 to the total. Therefore the denominator is smaller than it would be if measured on a basis consistent with the numerator and each member counted as one. A larger denominator would reduce the prevalence. We do not have the data to estimate the amount of the reduction, but the value would still be within an order of magnitude that echoes the published values.

In theory, the prevalence of ASD-related disabilities among the adult population should be somewhat close to that among children (theories of relatively recent increases in major environmental causes aside). However, we have found no significant estimates of the prevalence among adults. The NHCHIS data reflect an adult treatment prevalence far less than that for children – less than one per thousand.

We have no evidence that passage of H.B. 569, even though it does not limit treatment to children, will cause the number of diagnosed adults to increase or that those diagnosed, now or in the future, will be receive treatments beyond those they already receive. The standards of the AAP do not apply to adults, and the efficacy and medical necessity of intensive behavioral therapy are likely to be more at issue. Furthermore, we expect that, even more so than might be case for children, the supply of providers capable of providing intensive therapies to adults may effectively limit the treatment available.

Perhaps some adults might benefit from a wider range of covered therapies, but we expect any increase in treatment costs to be strongly tempered for the reasons noted, and for this analysis we assume that H.B. 569 will have a negligible effect on the adult population with ASDs.

Table 2 summarizes the approximate prevalence data from various sources and our estimates used for this analysis.

**Table 2: Estimates of Prevalence of ASDs (per 1,000)**

	Literature prevalence	NHCHIS <sup>9</sup>	Low estimate	High estimate
Adult	Not found	0.2	N/A	N/A
Child 3-21	4.0 - 6.7	7.1	4.0	6.7
Child 0-2	Not found	3.2	2.0	3.3

*Level of current services*

Using the NHCHIS data, for NH residents, we measured the amount paid for 2008 claims carrying an ASD-related diagnosis. The 2008 data was assumed to be complete. Table 3 provides a brief summary of the data, showing the per user amounts paid by insurers for paid claims for therapies (physical, speech, and occupational), behavioral health services, other services, and pharmacy.<sup>12</sup> For reference it also includes a user count for each line, where the user count is the number of users with at least one medical claim carrying an ASD diagnosis in the NHCHIS medical claim database who also have pharmacy data.<sup>13</sup>

**Table 3: Per User Amount Paid for 2008**

License	Age	User Count	Therapies	Behavioral Health	Other Medical	Behavioral Pharmacy	Other Pharmacy	Total
Health & Accident	Adult	16	\$ -	\$ 336	\$ 70	\$ 1,289	\$ 136	\$ 1,831
	Child 3-21	210	\$ 266	\$ 551	\$ 949	\$ 1,529	\$ 564	\$ 3,859
	Child 0-2	13	\$ 275	\$ 53	\$ 2,216	\$ 225	\$ 330	\$ 3,099
	All ages	239	\$ 249	\$ 509	\$ 959	\$ 1,442	\$ 522	\$ 3,682
HMO	Adult	23	\$ -	\$ 383	\$ 314	\$ 2,925	\$ 567	\$ 4,189
	Child 3-21	292	\$ 99	\$ 533	\$ 821	\$ 1,556	\$ 193	\$ 3,202
	Child 0-2	18	\$ 363	\$ 33	\$ 1,750	\$ 224	\$ 133	\$ 2,503
	All ages	333	\$ 107	\$ 495	\$ 836	\$ 1,578	\$ 215	\$ 3,232
Total		572	\$ 166	\$ 501	\$ 888	\$ 1,521	\$ 344	\$ 3,420

The main conclusion from Table 3 is that the per-user expenditures by commercial insurers, even for people with a diagnosis of autism, are relatively low, particularly when compared to the cost of ABA and other intensive therapies potentially mandated by H.B. 569.

*Cost of therapy services potentially mandated by H.B. 569*

As discussed above, we interpret H.B. 569 as potentially mandating coverage for intensive therapies not currently mandated. Commonly cited estimates for the cost of

<sup>12</sup> The NHCHIS claim data itself does not carry data categorizing claims by fully-/self-insured policies, nor by individual/group policies, therefore the data in this table include claims for NH residents in the database regardless of those categories. In later calculations we will assume the average values for each category in this table apply to subcategories within it.

<sup>13</sup> Not all members in NHCHIS medical claim database have corresponding records in the pharmacy claim database. The values in the table are based on members who have pharmacy records. We recognize this may overstate average pharmacy costs somewhat since it may exclude members who have no actual pharmacy costs. However, the variability in this estimate has little effect on the overall cost of H.B. 569.

year-round intensive therapy run well over \$40,000.<sup>14</sup> Some individuals with autism have a level of disability that requires treatment of lower intensity, resulting in substantially lower costs. Unfortunately, few sources provide useful information on the statistical distribution of the costs of treating individuals across the full range of disabilities, and we must instead rely on some reasonable assumptions. We base our range of estimates on the studies cited below.

Citing studies by Jacobson and Hildebrand, the Ganz analysis<sup>15</sup> estimates an average cost of over \$42,000 per year for the intensive therapies targeted primarily at children from diagnosis at about age three until they enter school at age six or seven. For older children Ganz estimates therapy costs of approximately \$5000 per year. Ganz’s analysis, which examines the costs of autism across all support systems, shows costs shifting to special education, presumably displacing some of the intensive therapy that might be funded by the health care system. Weighting the cost of the intensive therapy for each age group with the age breakdowns for New Hampshire insured membership provided by the Department yields Table 4. Note that costs have been inflated by four percent per year for two years and displayed rounded to the thousands.

**Table 4: Weighted Average Cost of Intensive Therapies for Children**

	Age group distribution	Estimated cost
Child 18-21	24%	\$5,000
Child 10-17	46%	\$5,000
Child 6-9	18%	\$15,000
Child 3-5	12%	\$45,000
Weighted cost		\$12,000

In contrast, the Abt Associates evaluation of the costs of services for children with autism in Pennsylvania cites an average cost to the Medicaid program (for FY 2009) of \$14,300

<sup>14</sup> Ganz, *op cit.* Jacobson JW, Mulick JA, Green G. Cost-benefit estimates for early intensive behavioral intervention for young children with autism—general model and single state case. *Behav Intervent.* 1998;13:201-226. Hildebrand DG. Cost-Benefit Analysis of Lovaas Treatment for Autism and Autism Spectrum Disorder (ASD). Vancouver, British Columbia: Columbia Pacific Consulting; 1999. Cited costs inflated to current dollars as necessary for comparison.

<sup>15</sup> Ganz, *op cit.*

per year per child with ASD, including costs of ABA.<sup>16</sup> This value is not a perfect predictor of costs in New Hampshire; it is derived from a Medicaid program in another state and may include services in addition to ABA. Nonetheless, we can take these different but quantitatively similar views of the costs of services and use them to arrive at a general estimate for the average cost of services. Inflating the higher value (to be conservative) for one more year at four percent yields approximately \$15,000.

As noted, we assume that not every child with ASDs will need the maximum level of services and the cost per child for intensive therapy will drop as we include in the denominator a greater proportion of children who have been identified as having an ASD-related disability. The prevalence assumption used by Ganz in that particular analysis is only 2.8 per thousand<sup>17</sup>, and the measured prevalence reflected in the Pennsylvania analysis was approximately 4.3 per thousand.

Tables 5A and 5B display the interaction between prevalence and average cost per child. Table 5A applies to the population of 66,080 children ages 3 and up, and 5B, with prevalence ratios half those of 5A, applies to the population of 7,364 children under three. The shaded area on each table defines the range of our estimate. For example, with a treatment prevalence (defined as including an evaluation and prescription for active treatment) of 3.5 per 1000 (for older children), our estimated cost of \$15,000 per child yields a total cost of about \$3.5 million. As we expand the assumed population of children with an ASD receiving active treatment, up to the maximum of 6.7 per thousand, we would expect lower per user costs as less acute cases are added. Note that while the New Hampshire claims data found approximately 7 per 1000 with a claim containing an ASD diagnosis, many of these are not in a meaningful treatment sequence of the type being modeled here. Table 5A provides a set of cells which hold possible scenarios, with those judged to be most realistic shaded. The most expensive highlighted scenarios are where the high-end average cost of \$15,000 per child applies to a treated prevalence

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<sup>16</sup> Autism Spectrum Disorders Mandated Benefits Review Panel Report: Evidence Submitted Concerning Pennsylvania HB 1150. Durham, NC: Abt Associates, Inc., June 18, 2008. p 36.

<sup>17</sup> Ganz, *op cit.*, from spreadsheet supplement at [http://www.costsofautism.com/index\\_files/page0004.html](http://www.costsofautism.com/index_files/page0004.html), citing Fombonne J Autism Devel Dis 2003

(where treatment consists of an evaluation and prescribed treatment regimen) of 3.5 per 1000 (nearly as expensive as the Pennsylvania Medicaid experience) and where the average cost per child is lower at \$10,000 per child but the treatment prevalence is 5.5 per 1000. The least expensive scenario is where the estimate of cost per child is much lower, but we must assume that lower cost is associated with a wider portion of the population. One important factor in limiting the degree to which treatment prevalence (where treatment follows AAP guidelines with respect to evaluation and treatment approach) can approach the actual prevalence in the population is the limited degree of qualified professional providers currently practicing in New Hampshire<sup>18</sup>.

**Table 5A: Estimates of Average Cost of Therapies – Children 3-21**

Members	66,080				
<b>Prevalence (per 1000)</b>	<b>2.5</b>	<b>3.5</b>	<b>4.5</b>	<b>5.5</b>	<b>6.7</b>
<b>Total users</b>	165	231	297	363	441
<b>Cost per user</b>					
\$ 5,000	\$ 826,000	\$ 1,156,400	\$ 1,486,800	\$ 1,817,199	\$ 2,202,666
10,000	1,651,999	2,312,799	2,973,599	3,634,399	4,405,332
15,000	2,477,999	3,469,199	4,460,399	5,451,598	6,607,998
20,000	3,303,999	4,625,599	5,947,198	7,268,798	8,810,664
Low per member	\$ 33.33				
High per member	\$ 55.00				

**Table 5B: Estimates of Average Cost of Therapies – Children 0-2**

Members	7,364				
<b>Prevalence (per 1000)</b>	<b>1.3</b>	<b>1.8</b>	<b>2.3</b>	<b>2.8</b>	<b>3.3</b>
<b>Total users</b>	9	13	17	20	25
<b>Cost per user</b>					
\$ 5,000	\$ 46,027	\$ 64,438	\$ 82,848	\$ 101,259	\$ 122,738
10,000	92,054	128,875	165,697	202,518	245,476
15,000	138,080	193,313	248,545	303,777	368,214
20,000	184,107	257,750	331,393	405,036	490,953
Low per member	\$ 16.67				
High per member	\$ 27.50				

<sup>18</sup> Comments at the September 9, 2009 Commerce Committee meeting indicated that there are approximately 10 qualified evaluators in New Hampshire currently.

Summing the minimums and maximums from the shaded portions of Tables 5A and 5B, yields an approximate cost range of between \$2.3 million and \$3.8 million annually.

*Increase in covered costs to be paid by health insurers*

Applying the estimated per-user costs to the insured membership yields the maximum and minimum costs shown in Table 6. The amplitude of the range reflects the uncertainties, discussed above, about the degree that the cost of treating less severely disabled individuals drops off from the relatively high cost of treating the most disabled.

**Table 6: Estimated Cost of Mandated Services by Insured Group**

FI/SI	NH Licens	Group/Indiv	Age	HB 569 applies	Members	Low estimate	High Estimate
<b>FI</b>	<b>Health &amp; Accident</b>						
	Individual	Adult	No, as modified		19,849	N/A	N/A
		Child 3 to 21	No, as modified		7,262	N/A	N/A
		Child 0 to 2	No, as modified		771	N/A	N/A
	Group	Adult	Yes		56,701	-	-
		Child 3 to 21	Yes		21,453	\$ 715,099	\$ 1,179,914
		Child 0 to 2	Yes		2,346	39,106	64,524
	<b>HMO</b>						
	Individual	Adult	No		238	N/A	N/A
		Child 3 to 21	No		100	N/A	N/A
		Child 0 to 2	No		11	N/A	N/A
	Group	Adult	Yes		108,032	-	-
		Child 3 to 21	Yes		44,627	1,487,567	2,454,485
		Child 0 to 2	Yes		5,018	83,633	137,994
	FI Individual				28,231	\$ -	\$ -
	FI Group				238,178	\$ 2,325,404	\$ 3,836,917
	<b>FI Total</b>				<b>266,408</b>	<b>\$ 2,325,404</b>	<b>\$ 3,836,917</b>
<b>SI</b>	<b>N/A</b>	Group	No		182,781		
<b>Total</b>					<b>449,189</b>		
<b>Cost per member (FI, group policies)</b>						<b>\$ 10</b>	<b>\$ 16</b>

*Effect on health insurance premiums*

To convert medical cost estimates to premiums, costs were reduced to reflect member cost-sharing (copays, deductibles, etc.) and increased to reflect insurer retention (administrative costs and profit). Using historical cost-sharing and retention data supplied by the Department, we derived reasonable values for these ratios: HMO members pay roughly 10% of medical expenses and indemnity policy holders (under the health and accident license) pay 20%, and retention ratios for both types of policy are approximately 15%. Table 7 displays the resulting net effects on premiums, showing the net increase measured on a per-member per-month (PMPM) basis and an estimated increase as a percentage of estimated 2010 premiums<sup>19</sup>.

**Table 7: Estimated Impact of H.B. 569 on 2010 Group Insurance Premiums**

	HMO		Health and Accident	
	<u>Low Estimate</u>	<u>High Estimate</u>	<u>Low Estimate</u>	<u>High Estimate</u>
Estimated Annual Cost of Care Per Member	\$ 9.76	\$ 16.11	\$ 9.76	\$ 16.11
Estimated Cost of Care PMPM	\$ 0.81	\$ 1.34	\$ 0.81	\$ 1.34
Member Cost Sharing Factor	0.90	0.90	0.80	0.80
Retention (Admin + Risk/Profit)	0.15	0.15	0.15	0.15
Total Additional Premium PMPM	\$ 0.86	\$ 1.42	\$ 0.77	\$ 1.26
Fully Insured Group Members	157,677	157,677	80,500	80,500
Total Additional Premium \$ Monthly	\$ 136,000	\$ 224,000	\$ 62,000	\$ 102,000
Total Additional Premium \$ Annually	\$ 1,632,000	\$ 2,688,000	\$ 744,000	\$ 1,224,000
Estimated Premium PMPM without HB 0569	\$ 395	\$ 395	\$ 377	\$ 377
Additional Premium %	0.2%	0.4%	0.2%	0.3%

We estimate that H.B.569 would increase premiums by 0.2 to 0.4 percent of the 238,200 population affected by the mandate.

Across the whole fully-insured population, the estimated PMPM cost of H.B. 569 is \$0.83 to \$1.37, which reflects the specific circumstances in New Hampshire with respect to the existing and proposed statutes, the local provider capacity, and other local factors.

<sup>19</sup> Premiums for 2010 were estimated by assuming a 5% increase per year applied to 2007 premiums per member per month derived from the 2007 Supplemental Report. The HMO product was used for HMO and the PPO product was used for Health and Accident.

## **Conclusion**

We estimate the cost of H.B. 569 to policy holders of fully-insured group policies will be in the range between \$2 million and \$4 million, raising premiums by 0.2 to 0.4 percent. The difference between the low and high estimates is large, considering the ratio of the higher and lower values. We believe there is enough uncertainty in the treatment protocols, availability of provider capacity, and final determination of medical necessity that would evolve in New Hampshire if H.B. 569 is enacted that the Legislature should deliberate with the understanding that costs could be in the higher end of this range of estimates.

## **Appendices**

Appendix A: H.B. 569 Text

Appendix B: H.B. 569 in the Context of Existing New Hampshire Law

*Appendix A: Text of H.B. 569*

**HB 569-FN – AS INTRODUCED**

2009 SESSION

09-0706

01/05

HOUSE BILL ***569-FN***

AN ACT requiring insurance coverage for diagnosis and treatment of autism spectrum disorders.

SPONSORS: Rep. Butcher, Ches 3; Rep. Hammond, Hills 3; Sen. Hassan, Dist 23; Sen. Fuller Clark, Dist 24; Sen. Kelly, Dist 10; Sen. Sgambati, Dist 4; Sen. Lasky, Dist 13

COMMITTEE: Commerce and Consumer Affairs

ANALYSIS

This bill requires insurance coverage for diagnosis and treatment of autism spectrum disorders.

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Explanation: Matter added to current law appears in ***bold italics***.

Matter removed from current law appears [~~in brackets and struck through.~~]

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

09-0706

01/05

STATE OF NEW HAMPSHIRE

*In the Year of Our Lord Two Thousand Nine*

AN ACT requiring insurance coverage for diagnosis and treatment of autism spectrum disorders.

*Be it Enacted by the Senate and House of Representatives in General Court convened:*

1 New Section; Coverage for Diagnosis and Treatment of Autism Spectrum Disorders. Amend RSA 415 by inserting after section 6-o the following new section:

415:6-p Coverage for Diagnosis and Treatment of Autism Spectrum Disorders. Each insurer that issues or renews any individual policy, plan, or contract of accident or health insurance providing benefits for medical or hospital expenses, shall provide to certificate holders of such insurance, who are residents of this state, coverage for the diagnosis and treatment of autism spectrum disorders. The benefits included in this section shall not be subject to any greater deductible or other limitations than any other benefits provided by the insurer. Notwithstanding any provision of law or rule to the contrary, the coverage under this section shall apply to the medical assistance program, pursuant to RSA 161 and RSA 167. In this section:

- I. "Autism spectrum disorders" means the neurological condition of autism, Asperger syndrome, and pervasive developmental disorder not otherwise specified, as defined in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association.
- II. "Treatment of autism spectrum disorders" means the following care prescribed, provided, or ordered for an individual diagnosed with a pervasive developmental disorder by a licensed physician or a licensed psychologist who determines the care to be medically necessary:
  - (a) Habilitative or rehabilitative care.
  - (b) Pharmacy care.
  - (c) Psychiatric care.
  - (d) Psychological care.
  - (e) Therapeutic care.

2 New Section; Coverage for Diagnosis and Treatment of Autism Spectrum Disorders. Amend RSA 415 by inserting after section 18-t the following new section:

415:18-u Coverage for Diagnosis and Treatment of Autism Spectrum Disorders. Each insurer that issues or renews any policy of group or blanket accident or health insurance providing benefits for medical or hospital expenses, shall provide to each group, or to the portion of each group comprised of certificate holders of such insurance who are residents of this state, coverage for the diagnosis and treatment of autism spectrum disorders. The benefits included in this section shall not be subject to any greater deductible or other limitations than any other benefits provided by the insurer. Notwithstanding any provision of law or rule to the contrary, the coverage under this section shall apply to the medical assistance program, pursuant to RSA 161 and RSA 167. In this section:

I. "Autism spectrum disorders" means the neurological condition of autism, Asperger syndrome, and pervasive developmental disorder not otherwise specified, as defined in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association.

II. "Treatment of autism spectrum disorders" means the following care prescribed, provided, or ordered for an individual diagnosed with a pervasive developmental disorder by a licensed physician or a licensed psychologist who determines the care to be medically necessary:

(a) Habilitative or rehabilitative care.

(b) Pharmacy care.

(c) Psychiatric care.

(d) Psychological care.

(e) Therapeutic care.

3 Coverage for Diagnosis and Treatment of Autism Spectrum Disorders. Amend RSA 420-A:2 to read as follows:

420-A:2 Applicable Statutes. Every health service corporation shall be governed by this chapter and the relevant provisions of RSA 161-H, and shall be exempt from this title except for the provisions of RSA 400-A:39, RSA 401-B, RSA 402-C, RSA 404-F, RSA 415-A, RSA 415-F, RSA 415:6, II(4), RSA 415:6-g, RSA 415:6-k, RSA 415:18, V, RSA 415:18, VII(g), RSA 415:18, VII-a, RSA 415:18-a, RSA 415:18-j, RSA 415:18-o, ***RSA 415:18-u***, RSA 415:22, RSA 417, RSA 417-E, RSA 420-J, and all applicable provisions of title XXXVII wherein such corporations are specifically included. Every health service

corporation and its agents shall be subject to the fees prescribed for health service corporations under RSA 400-A:29, VII.

4 Coverage for Diagnosis and Treatment of Autism Spectrum Disorders.  
Amend RSA 420-B:20, III to read as follows:

III. The requirements of RSA 400-A:39, RSA 401-B, RSA 402-C, RSA 404-F, RSA 415:6-g, RSA 415:18, VII(g), RSA 415:18, VII-a, RSA 415:18-j, ***RSA 415:18-u***, RSA 415-A, RSA 415-F, RSA 420-G, and RSA 420-J shall apply to health maintenance organizations.

5 Effective Date. This act shall take effect 60 days after its passage.

LBAO

09-0706

01/21/09

### **HB 569-FN - FISCAL NOTE**

AN ACT requiring insurance coverage for diagnosis and treatment of autism spectrum disorders.

#### **FISCAL IMPACT:**

The New Hampshire Association of Counties and New Hampshire Municipal Association state this bill may increase county and local expenditures by an indeterminable amount in FY 2010 and each year thereafter. There will be no fiscal impact on state expenditures or state, county, and local revenues.

#### **METHODOLOGY:**

The New Hampshire Insurance Department states this bill requires insurance coverage for diagnosis and treatment of autism spectrum disorders. The Department states current RSA 417-E:1, III (h) already requires coverage for biologically based mental illness categorized by the American Psychiatric Association within the category of pervasive developmental disorders or autism. Therefore, the proposed legislation creates no new coverage requirements, and the Department anticipates no fiscal impact.

The Department of Administrative Services states this coverage is already provided under the state's self-funded health coverage.

Therefore, Department anticipates no fiscal impact on state expenditures.

The New Hampshire Association of Counties states to the extent any health insurance provided to county employees does not currently provide this coverage, insurance premiums may increase, resulting in increased county expenditures. However, because the Association does not have information on the number of counties impacted, the fiscal impact cannot be determined at this time.

The New Hampshire Municipal Association states this bill will have no impact on municipalities participating in pooled insurance programs. To the extent municipalities' employee health insurance is not provided by pooled insurance programs and does not currently provide this coverage, municipal insurance premiums may increase. However, because the Association does not have information on the number of municipalities impacted, the fiscal impact cannot be determined at this time.

**Appendix B: H.B. 569 in the Context of Existing New Hampshire Law**

FI/SI	NH License	Group/Indiv	Age	Pre H.B. 569				Post H.B. 569		Notes	
				NH Parity	Fed Parity	Early Intervention	Summary status	HB 569 applies	Effect of 569		
FI	Health & Accident	Individual	Adult	NA	NA		NA	No, when modified	The Committee indicated it would remove language affecting individual plans		
			Child	NA	NA		NA	No, when modified			
			Child 0-3	NA	NA	Hab svcs, \$ limit	Hab svcs, \$ limit	No, when modified			
		Group 50-	Adult	Parity for MN svcs	NA		Parity for MN svcs	Yes	Hab svcs		
			Child	Parity for MN svcs	NA		Parity for MN svcs	Yes	Hab svcs		
			Child 0-3	Parity for MN svcs	NA	Hab svcs, \$ limit	MN svcs + Hab limit	Yes	Some hab svcs		
		Group 51+	Adult	Parity for MN svcs	Parity for MN svcs		Parity for MN svcs	Yes	Hab svcs		
			Child	Parity for MN svcs	Parity for MN svcs		Parity for MN svcs	Yes	Hab svcs		
			Child 0-3	Parity for MN svcs	Parity for MN svcs	Hab svcs, \$ limit	MN svcs + Hab limit	Yes	Some hab svcs		
		HSC		Individual	Adult	Parity for MN svcs	NA		Parity for MN svcs	No	HB 569 does not apply
					Child	Parity for MN svcs	NA		Parity for MN svcs	No	
					Child 0-3	Parity for MN svcs	NA	NA	Parity for MN svcs	No	
Group 50-	Adult			Parity for MN svcs	NA		Parity for MN svcs	Yes	Hab svcs		
	Child			Parity for MN svcs	NA		Parity for MN svcs	Yes	Hab svcs		
	Child 0-3			Parity for MN svcs	NA	Hab svcs, \$ limit	MN svcs + Hab limit	Yes	Some hab svcs		
Group 51+	Adult			Parity for MN svcs	Parity for MN svcs		Parity for MN svcs	Yes	Hab svcs		
	Child			Parity for MN svcs	Parity for MN svcs		Parity for MN svcs	Yes	Hab svcs		
	Child 0-3			Parity for MN svcs	Parity for MN svcs	Hab svcs, \$ limit	MN svcs + Hab limit	Yes	Some hab svcs		
HMO				Individual	Adult	Parity for MN svcs	NA		Parity for MN svcs	No	HB 569 does not apply
					Child	Parity for MN svcs	NA		Parity for MN svcs	No	
					Child 0-3	Parity for MN svcs	NA	Hab svcs, \$ limit	MN svcs + Hab limit	No	
		Group 50-	Adult	Parity for MN svcs	NA		Parity for MN svcs	Yes	Hab svcs		
			Child	Parity for MN svcs	NA		Parity for MN svcs	Yes	Hab svcs		
			Child 0-3	Parity for MN svcs	NA	Hab svcs, \$ limit	MN svcs + Hab limit	Yes	Some hab svcs		
		Group 51+	Adult	Parity for MN svcs	Parity for MN svcs		Parity for MN svcs	Yes	Hab svcs		
			Child	Parity for MN svcs	Parity for MN svcs		Parity for MN svcs	Yes	Hab svcs		
			Child 0-3	Parity for MN svcs	Parity for MN svcs	Hab svcs, \$ limit	MN svcs + Hab limit	Yes	Some hab svcs		
		SI		Individual	NA	NA	NA	NA	No	No	
				Group 50-	NA	NA	NA	NA	No	No	
				Group 51+	NA	Parity for MN svcs	NA	Parity for MN svcs	No	No	

NA=Not Applicable  
 MN=Medically Necessary  
 hab=habilitative

updated 9/30/09

