

Board Certified Behavior Analysts (BCBA): Necessities for Treatment of Autism

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Superheroes social skills training, Rethink Autism internet interventions, parent training, EBP
classroom training, functional behavior assessment: An autism spectrum disorder, evidence
based practice (EBP) training track for school psychologists

US Office of Education Personnel Preparation Grant H325K12306

The Center for Disease Control and Prevention (CDC) released its community report on autism in March, 2014. The findings are disquieting considering 1 in every 68 children is on the autism spectrum across the United States. The prevalence rate is even more concerning when the focus is narrowed to boys, with a rate of 1 in every 42 boys on the autism spectrum, whereas only 1 in every 189 girls identifies on the spectrum. This increased prevalence of autism spectrum disorder points to the need for specialized training, including both clinical and school settings, to meet this increasing need. The National Center for Education Statistics (U.S. Department of Education, 2011) reveals an increase in those eligible for special education services under a primary diagnosis of autism from 0.2 percent of total school population in 2000 to 0.8 of the total school population in 2011. This signifies a surge in demand for services for autism within school settings.

Considering this increased need for services in the schools for children with autism, it is concerning that research indicates a current shortage of special education teachers. The U.S. Department of Education, Office of Postsecondary Education (2015) identified that 45 of the 50 states (90 percent) reported a shortage of special education teachers for the 2015 to 2016 academic year. To balance these shortages, exceptions to necessary qualifications are sometimes considered. Scheuermann, Webber, Boutot, and Goodwin (2003) identified that, nationwide, 9% of special education teachers are not fully certified teachers, as required by their state. Moreover, special education teachers that are certified, vary in the quality and depth of their knowledge regarding treating children with autism. Special education licensure varies state by state with some states requiring a specialized certification in areas such as exceptional difficulties, while other states solely offer a certification in a broad special education licensure. Considering that the Council for Exceptional Children has standards for special education

teachers for all major disabilities except autism, the wide variability in qualifications to work with children with autism will not be ameliorated (Scheuermann et al., 2003).

Only a few states have created an autism endorsement to remediate some of the difficulties in employing credentialed people. It has been identified that 8 states (i.e., Delaware, Florida, Massachusetts, Michigan, Nevada, Oregon, Pennsylvania, and West Virginia) offer an autism endorsement through their State Office of Education and 2 states (i.e., Missouri and Oklahoma) offer an alternative personnel training program to work with children with autism (National Association of State Directors of Special Education, 2005; National Association of State Directors of Special Education, 2009; Oregon Department of Education, 2012; Pennsylvania Department of Education, 2010). These states require that any special education teacher that works with children with autism, or a specified percentage of the caseload, obtain the autism endorsement. The autism endorsements can specify the required number of hours in autism coursework, the required subject area of the coursework (e.g., assessment or evidenced-based interventions), the required amount of practicum experience with children with autism, or the university from which the coursework can be completed (National Association of State Directors of Special Education, 2005; National Association of State Directors of Special Education, 2009; Oregon Department of Education, 2012; Pennsylvania Department of Education, 2010). In summary, the endorsement allows for standardized training in autism for personnel within that state to provide intervention services within the schools. Refer to research compiled by the National Association of State Directors of Special Education (2009) to understand alternative methods to obtain autism specific training for personnel in Missouri and Oklahoma.

Considering that about 80% of the State Offices of Education do not endorse a specific autism certification or training, there is wide variability in the quality of autism training programs available. Klein, Houlihan, Jensen, and Vincent (2013) conducted an analysis of the different characteristics within an autism certification program. Around 87% of the autism certification programs were graduate level training with considerable variability in regards to the required number of courses. Furthermore, Klein and colleagues (2013) found that around 62% of the programs do not require a practicum component where students would work in settings with children with autism, under the supervision of a licensed professional. Moreover, only one program requires the practicum to include more than 100 hours with children with autism; thus, these programs are failing to produce qualified professionals to deliver autism services.

One of the most concerning aspects of Klein and colleague's data is that around 10 % of the autism certification programs (i.e., 7 programs) included applied behavior analysis (ABA) within a course, while 22 % of the programs (i.e., 16 programs) required a full course on ABA. However, only 5 % of the autism certification programs (i.e., 4 programs) required more than one course on ABA (Klein et al., 2013). This is concerning considering that about two-thirds of all autism certification programs do not include a course on the evidenced-based treatment (i.e., ABA) for children with autism. Barnhill, Sumutka, Polloway, and Lee (2014) found that the longer a program has been in existence, the less likely ABA techniques are to be included within the program. Furthermore, they concluded that of the autism training programs that teach ABA strategies, only teach them to a level between knowledge and comprehension (median), rather than full ability to implement the techniques (Barnhill et al., 2014). Considering the Surgeon General's endorsement of applied behavior analysis (ABA) as an effective intervention for autism, or the subsequent endorsements from the American Association of Intellectual and

Developmental Disabilities, the Association for Science in Autism Treatment, and Autism Speaks, it is necessary that the mastery of ABA skills be an expectation for those working with children with autism.

The Behavior Analyst Certification Board (BACB), a non-profit organization, was created in 1998 to address problems related to discrepancies in the quality of the training for behavior analysts and to promote the training worldwide. The BACB's Mission is to provide behavior analytic services to more individuals globally in order to solve an array of socially significant problems while still protecting those consumers through systematically established professional standards. Since 1998, the Behavior Analyst Certification Board (2015) has developed the following to ensure the quality of training for behavior analysts:

1. Eligibility Standards to take the BACB Certification Examinations
2. Renewal and Recertification Standards to maintain certification
3. Guidelines for Responsible Conduct for Behavior Analysts
4. Professional Disciplinary Standards with appeal procedures
5. A Certificant Registry
6. A process to approve university course sequences and practica
7. Procedures to approve continuing education providers
8. Professionally developed and maintained certification examinations (Retrieved 04/15/15).

The BACB has created three different levels of credentialing: Board Certified Behavior Analyst (BCBA), Board Certified Assistant Behavior Analyst (BCaBA), and Registered Behavior Technician (RBT). The highest level of credentialing available in the field of behavior analysis is the BCBA, possessing a Master's degree or higher. The BCBA may receive a doctoral level designation (BCBA-D) if their doctoral program has been approved by the Association for Behavior Analysis International or if the individual conducts a behavior-analytic dissertation. The next level of training for the BCaBA exists at the Bachelor's level and requires

supervision from a BCBA to provide behavior analytic services. Finally, the RBTs are paraprofessionals that may provide services under the supervision of a BCBA or a BCaBA.

In just three years, the number of applicants interested in becoming a BCBA more than doubled; however, numbers credentialed has been moderated by the rigor of the exam (59.4% pass rate over the past 3 years). These percentages validate efforts to ensure only qualified individuals become BCBAs. This is further illustrated by the average pass rate of 26.2% for those who repeated the exam over the past three years (Behavior Analyst Certification Board, 2015).

At present there is a lack of research comparing the training effectiveness of BCBA and autism certification programs. Our objective is to provide a comprehensive review of all BCBA training programs and essential characteristics associated with those programs. We will also review the state of autism certification programs, their continuity, and state-related insurance laws as they impact who receives services.

Methods

Review of BCBA Training Programs

The Behavior Analyst Certification Board (BACB) holds a record of all programs nationally and internationally that have been approved to provide training to become a behavior analyst. Each training program listed through the BACB was independently reviewed by the authors via the Internet to provide information regarding certain aspects of the program. If the information about a program was unavailable via the Internet, an attempt to contact each program was initiated. When possible, all of the following information was recorded regarding each training program: (a) Level of Training (i.e., BCBA certification, Master's, or Ph.D); (b) Type of Program (i.e., University or Private Organization); (c) Type of Delivery (i.e., On-

campus, Online, or Hybrid model); (d) Requirement of Practicum; (e) Supervision Accessibility; (f) Number of Faculty that Teach BACB Required Courses; (g) Number of Credit Hour Required; (h) Topic of 6 Core BACB Required Courses.

Review of Current Total Number of Certified Behavior Analysts

The registry for certified BCBAAs, provided by the Behavior Analyst Certification Board (2015), was analyzed to determine the number of registered BCBAAs per state and country. Considering the registry consisted of both BCBAAs and BCaBAAs, the researchers had to extract the BCaBAAs from the registry to determine the number of BCBAAs (or BCBA-D). The registry data was reviewed in April of 2015. The number of certified behavior analysts reported per state was utilized along with the population for each state to determine the number of BCBAAs per 100,000 residents in each state (United States Census Bureau, 2014).

Review of State Licensure Requirements Pertaining to Autism Services

Policies regarding insurance coverage of autism services were reviewed on a state-by-state basis. Autism Speaks (2015) maintains a database of each state that has passed an Autism Reform Law that includes the date that the law was enacted. The researchers then examined each of those state laws to determine whether a BCBA was qualified to provide those services under the law (Autism Speaks, 2015).

Results

Review of BCBA Training Programs

It was identified through the BACB approved university training database that 185 programs exist within the United States that provide training at the BCBA or BCBA-D level of certification (Board Analysis Certification Board, 2015). Information was only available for 143

programs. Refer to Table 1 to review the number of programs available within each state. California has the largest number of programs (i.e., 16 approved training programs) while Massachusetts follows closely behind with 14 approved training programs. It was identified that 8 states (i.e., Alaska, Delaware, Idaho, Kansas, Mississippi, New Hampshire, South Dakota, and Wyoming) currently do not have a single training program for BCBAAs.

The BACB approved university training database identified 43 international programs to train BCBAAs. However, of those 43 programs, information was only identified for 32 international training programs. Due to the language barrier in some programs, it is possible that the information is available via the Internet; however, the information was not available in English. Refer to Table 2 to review which countries possess BCBA training programs.

Many of the programs, nationally and internationally, have more than one level of training (i.e. certification, master's, or doctoral program) for the BCBAAs. Table 3 identifies the quantity of programs, nationally and internationally, for each level of training. More than half of the training programs nationally are at the BCBA certification level, while more than half of the international programs are at the master's program training level.

One of the characteristics analyzed about each program was whether the training was provided on campus (i.e., University), online, hybrid method (i.e. On Campus and Online) or Face to Face (i.e., Private Organization). Table 4 exhibits the number of programs, partitioned nationally and internationally, per method of delivery for the training. Results suggest that, nationally, 64% of the researched training programs are provided in person on a university campus. Only 26% of the national programs are offered solely through an online delivery method. Internationally, 82% of the training programs are offered completely in person (i.e. University or Private Organization) and only 3% of the programs are offered solely through an

online delivery format. The average pass rates per university, provided by the BACB for the exam results within the year 2013, were utilized to determine the average pass rate per method of delivery. These results are provided within Table 4. On average, those who received coursework through an on-campus format had a higher pass-rate on the exam than those who received the training through a hybrid method or solely online.

The department in which the BCBA training program is housed, was gathered from the information pertaining to each program and is provided within Table 5. A majority of the programs, both nationally and internationally, are housed within the Psychology Department or the Special Education Department at the institution. Besides the referenced departments in Table 5, some other uncommon departments include Disability and Psychoeducational Studies, Integrated Science and Humanity, Autism Spectrum Disorders, or Extended Learning Institute for Human Development.

The required course content for each training program was analyzed. Table 6 illustrates the most common courses within the training programs, nationally and internationally. The six most common courses within the national training programs are: (a) Introduction to Applied Behavior Analysis; (b) Ethics and Professional Issues in Applied Behavior Analysis; (c) Behavior Change Systems/Behavioral Interventions; (d) Advanced Applied Behavior Analysis; (e) Behavioral Assessment; (f) Basic Behavior Principles. Internationally, the 6 most common courses include (a) Introduction to Applied Behavior Analysis; (b) Ethics and Professional Issues in Applied Behavior Analysis; (c) Behavior Change Systems/Behavioral Interventions; (d) Behavioral Assessment; (e) Advanced Applied Behavior Analysis; (f) Research Methods for Applied Behavior Analysis. All of the programs were analyzed to determine whether they require a practicum component and if they provide the necessary supervision for those obtaining

BCBA practicum hours. Nationally, only 47% of the programs required a practicum, but 58% of the programs provided supervision. Internationally, only 50% of the programs required a practicum, and 63% of the programs provided supervision.

Review of Current Total Number of Certified Behavior Analysts

The results for the total number of certified behavior analysts within each state are provided within Table 7. California has the largest amount of BCBA's, followed by Florida and Massachusetts. Wyoming, Idaho, and North Dakota have the smallest number of BCBA's within their states .

Figure 1 illustrates the proportion of BCBA's based on each state's specific population in 2014. Data was analyzed based on the number of BCBA's per 100,000 state residents. The lightest shade of color within the figure represents less than one BCBA per 100,000 residents, while the darkest shade of color represents more than five BCBA's per 100,000 state residents. The data analysis revealed (a) 1 state with less than one BCBA per 100,000 residents; (b) 11 states with one to two BCBA's per 100,000 residents; (c) 10 States with two to three BCBA's per 100,000 residents; (d) 8 states with three to four BCBA's per 100,000 residents; (e) 6 states and District of Columbia have four to five BCBA's per 100,000 residents; (f) 13 states with more than five BCBA's per 100,000 residents. Refer to Table 8 for a complete analysis of exact number of BCBA's per residents within those states with more than five BCBA's per 100,000 residents.

The number of certified behavior analysts within each country is provided in Table 9. Canada has the largest number of BCBA's within their boundaries, totaling to 600. The United Kingdom has the second largest amount (i.e. 170 BCBA's), followed by Ireland (i.e. 87 BCBA's).

Around 57% of the countries that have a BCBA as a resident, have less than 3 within the entire country.

Review of State Licensure Requirements Pertaining to Autism Services

Results revealed that within the United States, 42 states have passed a law requiring insurance coverage for autism services. The District of Columbia and the U.S. Virgin Islands have also passed laws to require services for children with autism. The most recent state to have enacted the law concerning coverage for autism services was Hawaii on July 16th, 2015.

Currently there are three states (i.e. North Carolina, Ohio, and Tennessee) in progress towards enacting an autism reform law, and five states (i.e. Alabama, Idaho, North Dakota, Oklahoma, and Wyoming) that have no progress towards such insurance reform. Of the 42 states that have enacted the law pertaining to coverage for autism services, six states, along with the District of Columbia, do not include a provision mentioning coverage for services provided by Board Certified Behavior Analysts. Of the 35 states that include provisions mentioning approved providers for services, eight states (i.e. Arkansas, Georgia, Maine, New Hampshire, New York, Vermont, Virginia, and West Virginia) require that a certified behavior analyst either provides the applied behavior analysis or supervises the delivery of services. Refer to Table 10 for a complete analysis of the states that have enacted a law, the year it was enacted, and whether the law specifically cites a certified behavior analyst as capable of providing those services.

An analysis of each enacted autism reform law was conducted to determine the limits on age of coverage under the law, along with the maximum amount of cost covered for services each year. The analysis revealed 9 states (i.e. California, Indiana, Maryland, Massachusetts, New York, Oregon, Texas, Washington, and Wisconsin) that did not create an age limit on how long the child may receive autism services covered by insurance. Although Oregon and Texas do

not impose age limits, they do specify that a child must be diagnosed before the age of 9 and 10, respectively, to receive coverage. A majority of the rest of the states provided services up until the age of 18 or 21; however, a few states (i.e. Georgia, Mississippi, and Virginia) capped the age limit well before the child turns 10. As for the maximum coverage allowed, nine states (Alaska, California, Indiana, Maryland, Massachusetts, Minnesota, Texas, Vermont, and Washington) did not impose a limit on the amount of money spent on autism services annually. Of those states that did impose maximum coverages, many states provided different maximums based on the child's age, with older children receiving less costs of services covered. Some states created maximum coverage as high as \$50,000 annually (i.e. Arizona, Arkansas, Connecticut, Kentucky, Michigan, Montana, South Carolina, and Wisconsin) while other states will cover as low as \$12,000 of services annually (i.e. Colorado and Kentucky). Interestingly, a variety of states chose to classify the maximum amount of services allowed through the number of hours of ABA therapy weekly (i.e. Mississippi, Nebraska, and Oregon) or annually (Kansas). Finally, Florida, Louisiana, and New Mexico provide a lifetime maximum of coverage for autism services (i.e. \$144,000 to \$200,000).

Discussion

Implications for State Offices of Education

It should be concerning to those State Offices of Education that do not endorse standardized training to provide interventions to children with autism through an Autism Certification. However, based on the research from Klein and colleagues (2013), endorsing an autism certification may not be enough standardization for training requirements. State Offices of Education can exploit this increase in qualified behavior analysts and require that within the schools, a BCBA provides the behavior analytic services to children with autism or supervise

those that provide those services. To the knowledge of the researchers, Connecticut is the only state requiring that a BCBA or Licensed Psychologist provide ABA services in the schools or supervise those that are providing the services. South Carolina and Missouri's State Offices of Education have also recognized the importance of competence in behavior analytic services by covering the costs of education to become a BCBA (National Association of State Directors of Special Education, 2009; South Carolina: Department of Education, 2013). By adopting one of the above recommendations, State Offices of Education can ensure quality services provided to children with autism.

Implications for Individual States

Considering that the majority of the United States has embraced providing evidenced-based interventions to children with autism through the insurance reform laws, the few states that have not initiated advancement within their state should follow the rest of the United States' example. However, in order for many states to provide those behavior analytic services, which are now covered by insurance, ways in which to enhance the proportion of BCBAs within the state should be considered. Many states will not have enough qualified professionals to provide the behavior analytic services to children with autism; specifically, states that have enacted an autism reform law but have less than two BCBAs per 100,000 residents (i.e. Arkansas, Iowa, Mississippi, Oregon, South Dakota, and Wisconsin). Finally, these research results should enlighten specific states that competent providers for behavior analytic services are necessary; thus, an amendment to the state laws should be made to include certified behavior analysts as specific qualified providers of those ABA services.

Implications for International Behavior Analytic Services

The results from the current research demonstrate a need for an increase in the training of behavior analysts in most countries. Currently, there are 26 countries with more than 3 BCBA's within their country; however, there are only 11 countries with more than 15 BCBA's within their country. The concern for the scarcity of certified behavior analysts is supported through the research that concluded that throughout Europe, on average, only 32.3% of children with ASD received behavioral-based treatment. Moreover, the range between the different countries is precarious considering that some countries only have 8.6% of children receiving behavioral services (i.e. Czech Republic) while other countries are as high as 80.6% (i.e. Romania) (Salomone et al., 2015). Keenan and colleagues (2014) identified some of the barriers to disseminating knowledge of applied behavior analysis as an intervention. Europe has been affected by difficulties in transferring research results from one culture to another, differences in governmental policies seeking guidance from behavior analysts when discussing recommendations for autism interventions and misrepresentation of applied behavior analysis by the media (i.e. stating that the children are helplessly controlled, such as puppets) (Keenan et al., 2014). International leaders within the field of behavior analysis, must combat these barriers in order to provide children with autism the evidenced based services from qualified professionals. One method to advance the international field of behavior analyst is for an increase in scientifically rigorous research on behavior analytic interventions.

Implications for BCBA Programs and Applicants

Considering the large quantity of approved BCBA national training programs (i.e. 185), there are many avenues through which someone can gain the necessary skills to provide quality behavior analytic interventions to children with autism. The Behavior Analyst Certification Board (BACB) has provided a structure to enable standardization of programs across the nation.

However, the BACB solely controls the minimum requirements necessary; thus, programs can exceed the standards. Our research has identified some components that may make a program stronger. Those who receive training through an in-person format, on average, did better on the certification exam than those who received their training through a hybrid format (i.e. Online/On-Campus) or through solely an online delivery. This could suggest that in-person courses better prepare a student to become a behavior analyst than courses online.

Another important component of a program is to provide the necessary supervision. Only 58% of the programs provided supervision. By providing required supervision to students, the training program can ensure quality control of the behavior analysts that supervise; otherwise, students may identify their own supervisor who may not provide appropriate knowledge or guidance. Considering that the largest component to become certified is the experience hours, accompanied by the supervision, a program would ethically want to ensure the quality of that experience.

Recent research identified the need for a method of ranking the quality of approved BCBA training programs. The Association for Behavior Analysis International (ABAI) provides accreditation to programs by examining a larger array of necessary components, compared to the requirements of the BACB. Currently, the ABAI has accredited 31 Doctoral and Master's programs. However, Dixon and colleagues (2015) have argued a necessary component to produce certified behavior analysts is the level of research training within the program, measured by the faculty's research productivity in prominent behavioral journals. The basis behind this is that with a strong foundation in research, the graduates will continue to learn from the research after training, will facilitate unique application of new advanced in the field, and will allow for a dedication to listen to the data when implementing behavioral interventions in a clinical setting.

Critchfield (2015) identified the need for external agencies, such as the BACB or the ABAI, to raise the caliber of programs by requiring research productivity to receive the agency's endorsement.

Limitations

Considering that the research was conducted based on available information through the internet along with attempts to contact individuals when information was not available via the internet, our data is limited to a convenience sample. Furthermore, up-to-date information was not available on the current pass-rates per university; thus, our pass-rate conclusions based on criteria about the institutions is limited to the data from 2013.

Table 1

Number of Programs by State

State	Number of Programs	State	Number of Programs	State	Number of Programs
Alabama	2	Kentucky	2	North Dakota	1
Alaska	0	Louisiana	1	Ohio	3
Arizona	3	Maine	1	Oklahoma	2
Arkansas	1	Maryland	3	Oregon	1
California	16	Massachusetts	14	Pennsylvania	9
Colorado	1	Michigan	7	Rhode Island	1
Connecticut	2	Minnesota	2	South Carolina	1
Delaware	0	Mississippi	0	South Dakota	0
District of Columbia	0	Missouri	4	Tennessee	2
Florida	8	Montana	1	Texas	8
Georgia	2	Nebraska	1	Utah	2
Hawaii	1	Nevada	1	Vermont	1
Idaho	0	New Hampshire	0	Virginia	7
Illinois	6	New Jersey	6	Washington	2
Indiana	1	New Mexico	1	West Virginia	1
Iowa	1	New York	10	Wisconsin	3
Kansas	0	North Carolina	1	Wyoming	0

Table 2

Number of Programs by Country

Country	Number of Programs
Canada	4
China	1
England	1
France	1
Greece	2
Iceland	1
India	1
Ireland	8
Israel	1
Italy	3
Lebanon	1
New Zealand	2
Norway	1
Russian Federation	1
South Korea	1
Spain	1
Sweden	1
Taiwan	1

Table 3

Level of Training Program Nationally and Internationally

	National	International
BCBA Certification Program	109	15
Master's Program	81	19
Doctoral Program	10	1

Table 4

Method of Delivery for Training

	National	International	Pass Rate National	Pass Rate International
On Campus	112	25	60.36%	83.5%
On Campus /Online (Hybrid)	16	5	48.78%	71%
Online	46	1	54.94%	-----
Face to Face	0	3	-----	-----

Table 5

Departments Associated with Training Programs

Department	Number of National Programs	Number of International Programs
Psychology	49	15
Special Education	40	3
Counseling Psychology	6	0
School of Education/ College of Education	9	1
Applied Behavior Analysis	8	0
School Psychology	3	0
Educational Psychology	4	0
Education	27	2
Other	23	6

Table 6

Required Course Content

Course Type	Percentage of Programs (National)	Percentage of Programs (International)
Introduction to Applied Behavior Analysis	91	100
Advanced Applied Behavior Analysis	53	48
Basic Behavior Principles	38	30
Verbal Behavior	8	0
Behavioral Assessment	48	70
Functional Behavior Assessment/Functional Analysis	13	4
Research Methods for Applied Behavior Analysis	37	48
Experimental Design	16	17
Single Subject Research Design	31	17
Behavior Change Systems/Behavioral Interventions	66	87
Ethics and Professional Issues in Applied Behavior Analysis	85	91
Elective Course	66	61

Table 7

Number of Certified Behavior Analysts per State

State	Number of Certified	State	Number of Certified	State	Number of Certified
Alabama	146	Louisiana	120	Oklahoma	49
Alaska	32	Maine	112	Oregon	47
Arizona	161	Maryland	242	Pennsylvania	920
Arkansas	32	Massachusetts	1361	Puerto Rico	2
California	2943	Michigan	281	Rhode Island	92
Colorado	263	Minnesota	94	South Carolina	129
Connecticut	419	Mississippi	30	South Dakota	14
Delaware	22	Missouri	246	Tennessee	336
District of Columbia	31	Montana	25	Texas	977
Florida	1469	Nebraska	77	Utah	83
Georgia	239	Nevada	96	Vermont	68
Hawaii	91	New Hampshire	130	Virginia	509
Idaho	12	New Jersey	890	Washington	332
Illinois	479	New Mexico	29	West Virginia	58
Indiana	244	New York	1090	Wisconsin	108
Iowa	61	North Carolina	203	Wyoming	6
Kansas	90	North Dakota	12		
Kentucky	146	Ohio	250		

Table 8

Proportion of BCBA's per 100,000 Residents

State	Per 100,000	State	Number of Certified	State	Per 100,000
Alabama	3-4	Louisiana	2-3	Oklahoma	1-2
Alaska	4-5	Maine	8-9	Oregon	1-2
Arizona	2-3	Maryland	4-5	Pennsylvania	7-8
Arkansas	1-2	Massachusetts	20-21	Puerto Rico	<1
California	7-8	Michigan	2-3	Rhode Island	8-9
Colorado	4-5	Minnesota	1-2	South Carolina	2-3
Connecticut	11-12	Mississippi	1-2	South Dakota	1-2
Delaware	2-3	Missouri	4-5	Tennessee	5-6
District of Columbia	4-5	Montana	2-3	Texas	3-4
Florida	7-8	Nebraska	4-5	Utah	2-3
Georgia	2-3	Nevada	3-4	Vermont	10-11
Hawaii	6-7	New Hampshire	9-10	Virginia	6-7
Idaho	<1	New Jersey	9-10	Washington	4-5
Illinois	3-4	New Mexico	1-2	West Virginia	3-4
Indiana	3-4	New York	5-6	Wisconsin	1-2
Iowa	1-2	North Carolina	2-3	Wyoming	1-2
Kansas	3-4	North Dakota	1-2		
Kentucky	3-4	Ohio	2-3		

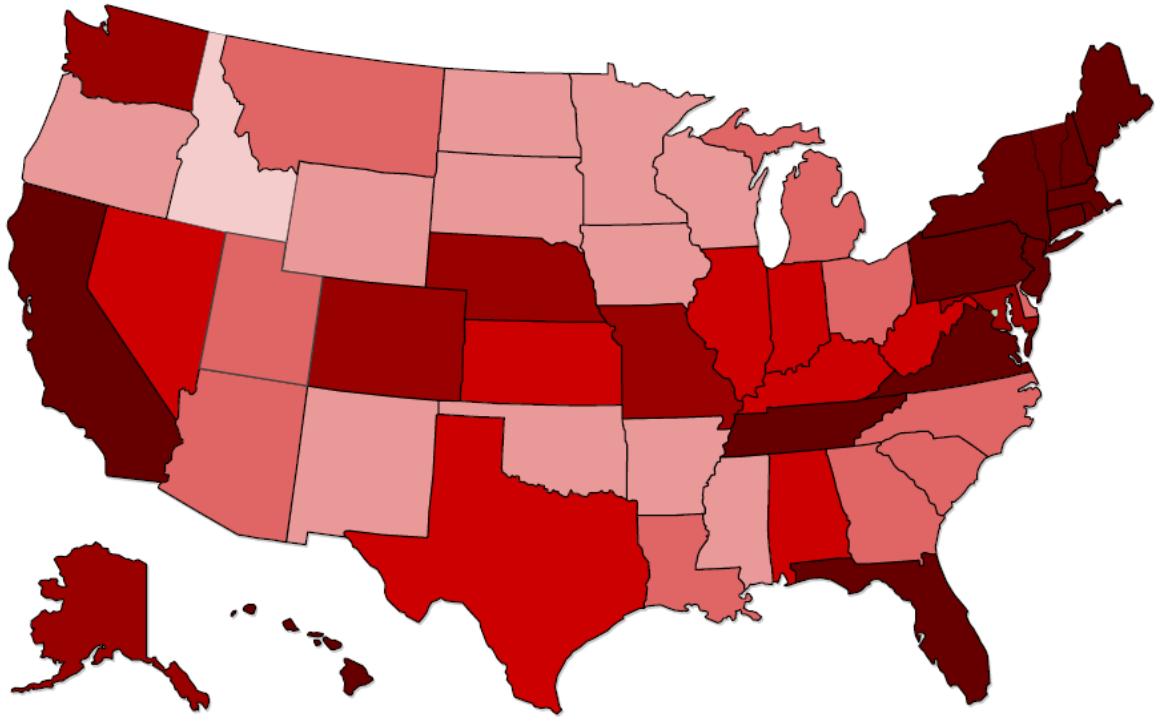


Figure 1. Proportion of BCBA per 100,000 residents.







-  - More than 5
-  - 4 – 5
-  - 3 – 4
-  - 2 – 3
-  - 1 – 2
-  - Less than 1

Table 9

Number of Certified Behavior Analysts per Country

Country	Number of Certified	Country	Number of Certified
Australia	28	Kuwait	1
Bahamas	2	Lebanon	2
Bahrain	3	Luxembourg	1
Belgium	2	Malaysia	2
Bermuda	3	Mexico	1
Botswana	1	Netherlands	7
Brazil	2	New Zealand	27
Canada	600	Nicaragua	1
Cayman Islands	2	Nigeria	1
Chile	1	Norway	2
China	33	Pakistan	1
Colombia	2	Peru	1
Costa Rica	2	Philippines	3
Cyprus	2	Poland	7
Dominican Republic	1	Portugal	4
France	23	Qatar	4
Georgia	1	Romania	5
Germany	14	Russian Federation	5
Greece	3	Saudi Arabia	7
Hungary	2	Singapore	3
Iceland	5	Slovak Republic	1
India	11	Spain	8
Indonesia	2	Sri Lanka	1
Ireland	87	Sweden	7
Israel	39	Switzerland	6
Italy	49	Taiwan	11
Jamaica	2	Thailand	1
Japan	13	Turkey	1
Kenya	2	United Arab Emirates	21
Korea	16	United Kingdom	170

Table 10

State Licensure Requirements Pertaining to Autism Services

State	Insurance Requires BCBA	Insurance Reform	Year of Reform	State	Insurance Requires BCBA	Insurance Reform	Year of Reform
Alabama	N/A	No		Montana	Yes	Yes	2009
Alaska	Yes	Yes	2012	Nebraska	Yes	Yes	2014
Arizona	Yes	Yes	2008	Nevada	Yes	Yes	2009
Arkansas	Yes	Yes	2011	New Hampshire	Yes	Yes	2010
California	Yes	Yes	2011	New Jersey	No	Yes	2009
Colorado	Yes	Yes	2009	New Mexico	No	Yes	2009
Connecticut	Yes	Yes	2009	New York	Yes	Yes	2011
Delaware	Yes	Yes	2012	North Carolina	N/A	In Progress	2015
District of Columbia	No	Yes	2013	North Dakota	N/A	No	
Florida	Yes	Yes	2013	Ohio	N/A	In Progress	2015
Georgia	Yes	Yes	2015	Oklahoma	N/A	No	
Hawaii	Yes	Yes	2015	Oregon	Yes	Yes	2013
Idaho	N/A	No		Pennsylvania	Yes	Yes	2008
Illinois	Yes	Yes	2008	Rhode Island	Yes	Yes	2011
Indiana	No	Yes	2001	South Carolina	No	Yes	2007
Iowa	Yes	Yes	2010	South Dakota	Yes	Yes	2015
Kansas	Yes	Yes	2010	Tennessee	N/A	In Progress	2015
Kentucky	Yes	Yes	2010	Texas	No	Yes	2007
Louisiana	Yes	Yes	2008	US Virgin Islands	Yes	Yes	2014
Maine	Yes	Yes	2010	Utah	Yes	Yes	2014
Maryland	Yes	Yes	2014	Vermont	Yes	Yes	2010
Massachusetts	Yes	Yes	2010	Virginia	Yes	Yes	2011
Michigan	Yes	Yes	2012	Washington	Yes	Yes	2014
Minnesota	No	Yes	2013	West Virginia	Yes	Yes	2011
Mississippi	Yes	Yes	2015	Wisconsin	Yes	Yes	2009
Missouri	Yes	Yes	2010	Wyoming	N/A	No	

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